

Inflation Report

November 2018



BANK OF ENGLAND





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

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

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

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

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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/2018/november-2018

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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 31 October 2018, 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 updated projections for inflation and activity are set out in the November *Inflation Report*. In the Committee's central projection, conditioned on the gently rising path of Bank Rate implied by market yields and 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, GDP is expected to grow by around 1¾% per year on average over the forecast period. Momentum in household consumption appears greater than previously expected, supported by the strong labour market and resilient household confidence. Over the forecast period, household consumption is expected to grow modestly relative to historical rates, broadly in line with real incomes. In contrast, business investment has been more subdued than previously anticipated, as the effect of Brexit uncertainty has intensified. Under the smooth transition assumption on which the forecast is conditioned, greater clarity is expected to emerge over the coming months, boosting investment growth. The MPC's projections were finalised before the *Budget* measures had been announced and the Committee will assess the implications at its next meeting.

The global economy continues to grow at above potential rates, supporting UK net trade. Growth has softened, however, and become more uneven across countries, and downside risks have risen. Global financial conditions have tightened, particularly in emerging market economies, and activity has slowed in the euro area. Trade restrictions have increased and there is a risk of further escalation.

The MPC judges that aggregate supply and demand are now broadly in balance. The labour market remains tight, with the employment rate and vacancies around record highs, and the unemployment rate at its lowest since the mid-1970s. Regular pay growth has been stronger than expected, rising to over 3%. Although modest by historical standards, the projected pace of UK GDP growth is slightly faster than the diminished rate of supply growth, which averages around 1½% per year. A margin of excess demand is therefore expected to build, feeding through into higher growth in domestic costs. The contribution of external cost pressures, which has accounted for above-target inflation since the beginning of 2017, is projected to ease over the forecast period. Taking these influences together, CPI inflation is projected to remain above the target for most of the forecast period, before reaching 2% by the end of the third year.

The economic outlook will depend significantly on the nature of EU withdrawal, in particular the form of new trading arrangements, the smoothness of the transition to them and the responses of households, businesses and financial markets. The implications for the appropriate path of monetary policy will depend on the balance of the effects on demand, supply and the exchange rate. The MPC judges that the monetary policy response to Brexit, whatever form it takes, will not be automatic and could be in either direction.

At this meeting the MPC judged that the current stance of monetary policy remained appropriate. The Committee also judges that, were the economy to continue to develop broadly in line with the November *Inflation Report* projections, an ongoing tightening of monetary policy over the forecast period would be appropriate to return inflation sustainably to the 2% target at a conventional horizon. Any future increases in Bank Rate are likely to be at a gradual pace and to a limited extent.

1 Global economic and financial market developments

In aggregate, global GDP growth has fallen back somewhat from high rates in 2017. Robust growth in the US has been more than offset by some slowdown elsewhere, in part as higher US interest rates and a stronger dollar have led to tighter financial conditions in emerging market economies. Although growth is expected to remain relatively robust in much of the world, and above estimates of potential growth, the outlook has moderated. UK financial conditions have tightened slightly further since August, but remain accommodative overall.

Table 1.A Global GDP growth slowed slightly in Q3

GDP in selected countries and regions^(a)

Percentage changes on a quarter earlier

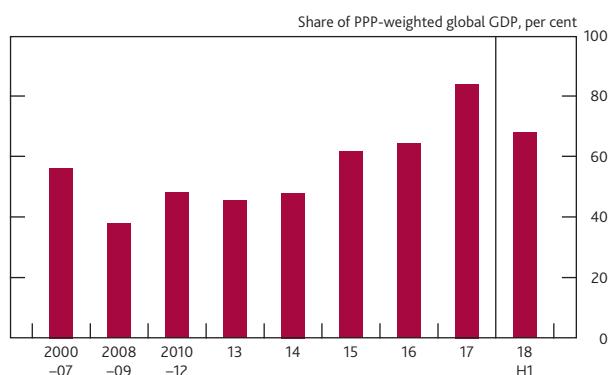
| | Quarterly averages | | | | | | | 2018 | | |
|--------------------------------------|--------------------|-------------|-------------|------|------------|------------|------|------|------|--|
| | 1998– 2007 | 2012– 13 | 2014– 15 | 2016 | 2017 H1 | 2017 H2 | Q1 | Q2 | Q3 | |
| | 0.7 | 0.5 | 0.7 | 0.4 | 0.3 | 0.4 | 0.1 | 0.4 | n.a. | |
| United Kingdom | 0.7 | 0.5 | 0.7 | 0.4 | 0.3 | 0.4 | 0.1 | 0.4 | n.a. | |
| Euro area (39%) | 0.6 | 0.0 | 0.4 | 0.5 | 0.7 | 0.7 | 0.4 | 0.4 | 0.2 | |
| United States (18%) | 0.7 | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 0.5 | 1.0 | 0.9 | |
| China (4%) ^(b) | 2.5 | 1.9 | 1.7 | 1.7 | 1.7 | 1.7 | 1.5 | 1.7 | 1.6 | |
| Japan (2%) | 0.3 | 0.4 | 0.1 | 0.4 | 0.6 | 0.4 | -0.2 | 0.7 | n.a. | |
| India (1%) | 1.8 | 1.6 | 1.8 | 1.7 | 1.4 | 1.9 | 2.0 | 1.9 | n.a. | |
| Russia (1%) ^(c) | 1.9 | 0.6 | -0.4 | 0.2 | 0.6 | 0.2 | 0.4 | 0.9 | n.a. | |
| Brazil (1%) | 0.8 | 0.6 | -0.7 | -0.5 | 0.7 | 0.3 | 0.1 | 0.2 | n.a. | |
| UK-weighted world GDP ^(d) | 0.7 | 0.4 | 0.6 | 0.6 | 0.7 | 0.8 | 0.6 | 0.7 | 0.5 | |

Sources: Datastream 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 goods and services 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 Q3 is a Bank staff projection.

Chart 1.1 Quarterly GDP growth remained above potential in most parts of the world in 2018 H1

Share of global activity growing at rates exceeding estimates of potential growth^(a)



Sources: Datastream from Refinitiv, IMF WEO, OECD and Bank calculations.

- (a) Averages of annualised quarterly growth in real purchasing power parity (PPP)-weighted GDP. Estimates for potential growth are Bank staff estimates for the UK, US and euro area, and IMF estimates published in the October 2018 WEO otherwise.

1.1 Global economic developments

Weighted by countries' shares in UK exports, global activity growth is expected to have slowed in Q3 to 0.5% (**Table 1.A**). That is a little weaker than expected at the time of the *August Report* and somewhat slower than the strong rates seen in 2017. Global growth remains relatively robust, however, with most of the world still growing at rates above estimates of potential growth in 2018 H1 (**Chart 1.1**).

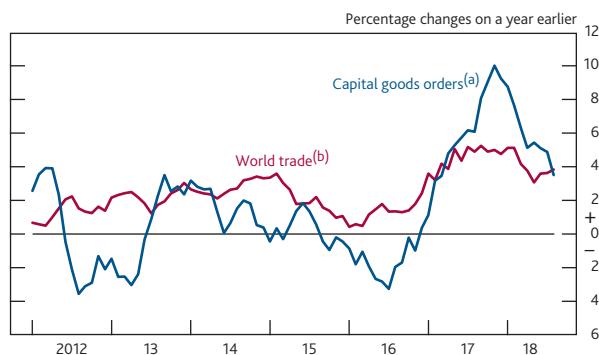
Growth has been particularly strong in the US, boosted in part by an easing in fiscal policy. In contrast, euro-area growth has slowed in 2018, and by more than expected. That divergence in regions has also been apparent in capital markets and exchange rates. For example, equity prices have fallen markedly in the euro area in 2018 so far, unlike in the US. Strong US growth and a related monetary policy tightening have led to a rise in interest rates and a strengthening in the US dollar. Those developments have pushed up forward interest rates in other advanced economies, including the UK (**Section 1.2**), and have been associated with a tightening in financial conditions in many emerging market economies, which is weighing on the growth outlook there.

Signs of slowing global growth are apparent in indicators of global trade and investment growth, albeit from recent strong rates. World goods trade growth has moderated in 2018 (**Chart 1.2**). Consistent with that, survey indicators of activity in manufacturing and export-focused sectors have weakened (**Chart 1.3**). In addition, growth of capital goods orders — an indicator of investment — in the euro area and US has slowed.

One factor that is likely to be weighing on the outlook for global activity is the prospect of trade protectionism. Tariffs applied by the US on Chinese imports, and broader aluminium and steel tariffs announced earlier in the year, have been met with reciprocal measures. Since August, the US has also proposed further increases in tariffs on Chinese imports. However, trade tensions between the US and some of its other

Chart 1.2 Growth in world trade and capital goods orders declined in 2018

World trade in goods and euro-area and US capital goods orders



Sources: CPB Netherlands Bureau for Economic Policy Analysis, Datastream from Refinitiv, European Central Bank, US Bureau of Labor Statistics, US Census Bureau, World Bank and Bank calculations.

(a) Three-month moving average. Growth in US new orders for non-defence capital goods excluding aircraft, deflated by the private capital equipment producer price index, and euro-area volume of new orders for capital goods, weighted together using 2010 US and euro-area manufacturing value-added data.

(b) Three-month moving average. Volume measure.

Chart 1.3 Survey indicators of activity have slowed

Global purchasing managers' indices^(a)

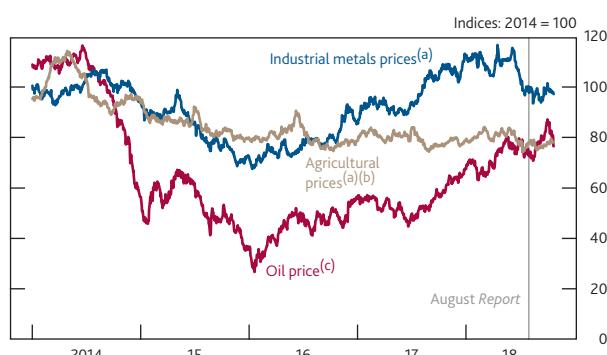


Sources: Datastream from Refinitiv, IHS Markit, JPMorgan and Bank calculations.

(a) Measures of current monthly composite output, manufacturing output and export orders growth based on the results of surveys in 44 countries. Together these countries account for an estimated 89% of global GDP.

Chart 1.4 Non-oil commodity prices have fallen over 2018, while oil prices have risen

US dollar oil and other commodity prices



Sources: Bloomberg Finance L.P., Datastream 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.

trading partners have eased somewhat, with Canada, Mexico and South Korea agreeing trade deals with the US. As discussed in Box 1, both potential and realised barriers to trade are likely to affect activity and inflation in the countries involved and, indirectly, elsewhere.

Consistent with some moderation in global activity growth and a pickup in trade tensions, prices of many commodities have fallen through the course of this year. Metals prices, in particular, are down 12% since January, though they have been more stable in recent months (Chart 1.4). In contrast, oil prices have risen over the past three months. That recent pickup mostly reflected the prospect of limited oil supply growth in coming quarters.

Global growth is expected to remain broadly stable in coming quarters, at a little above potential. The effects of tighter financial conditions, given monetary policy normalisation in advanced economies and a recent deterioration in global risk sentiment, are likely to continue affecting the pace of growth. And some direct effects from higher tariffs and the fading of the boost from US fiscal policy are also expected to weigh on growth (Section 5).

The United States

Activity growth in the US has been strong in 2018 so far, and slowed only slightly in Q3 to 0.9%, from 1.0% in Q2 (Table 1.A). That was a more modest slowdown than had been expected at the time of the August Report. Activity growth in 2018 has been underpinned by solid consumption growth, with consumer confidence remaining high (Chart 1.5). In coming quarters, US growth is expected to slow somewhat, but to remain above potential (Table 1.B).

Strong domestic demand has been supported in part by fiscal policy. Personal and corporate tax cuts were announced in December 2017, and the Bipartisan Budget Act of 2018 lifted discretionary spending caps by around US\$300 billion over 2018 and 2019, equivalent to around 1.5% of GDP. The fiscal measures announced can be expected to support demand growth only for so long. That support is expected to peak in 2019 before fading thereafter. Spending caps are legislated to return to 2017 levels in 2020, implying falls in spending that would drag on growth. However there is uncertainty around the profile for fiscal policy.

Net trade weighed on growth in Q3 and is expected to continue doing so in coming quarters. Weak export growth may partly reflect the appreciation of the US dollar over 2018 (Chart 1.6). In addition, as discussed in Box 1, the prospect of trade protectionism is likely to weigh on the outlook. Although only recently implemented, there are already signs that the higher tariffs on US trading partners and associated reciprocal measures may have affected export activity. For example, the PMI measure of new export orders has fallen (Chart B in

Box 1

The impact of trade barriers on the global economy

Over 2018, barriers to trade have risen, in particular between the US and China, as has the risk of more widespread trade protectionism. Major trade measures announced during 2018 have so far taken the form of changes to tariffs — taxes on goods imported from abroad. Barriers to trade can also be increased through non-tariff measures on goods and services imports, such as the imposition of import quotas or changes to the regulatory environment. The specific impact of trade measures will depend on their scale and type, though all have the broad effect of increasing the cost of trade and, all else equal, reducing trade flows between countries.

A broad-based increase in the barriers to trade between countries could have a material impact on global activity and, in turn, on the UK economy. In particular, the overall impact could extend well beyond the direct effects on those countries immediately involved. This box explains the channels through which trade barriers, particularly higher tariff barriers, affect activity and inflation, and sets out estimates of the possible impact of higher tariffs.

How could trade barriers affect activity and inflation?

Higher trade barriers will affect an economy through a number of channels. Some of those will be direct, such as disrupted supply chains and higher import costs, which reduce trade flows. Trade measures may also affect an economy through indirect channels, by affecting business or consumer confidence and financial conditions and, over the medium term, by reducing openness and therefore productivity. Given the integration of global supply chains and financial markets, those effects may spread beyond those countries that are directly involved.

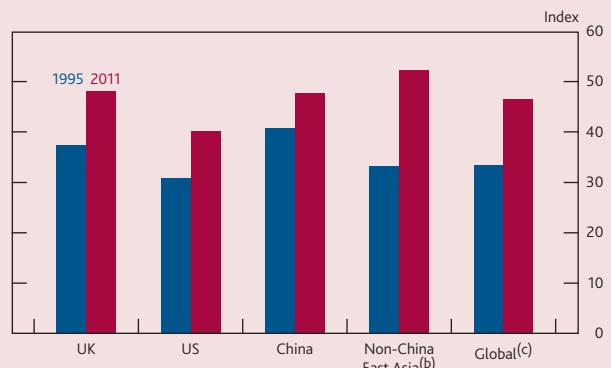
Higher trade barriers will disrupt trade flows and can lower demand for the output of the countries involved. Increases in tariffs by country A on imports from country B will, all else equal, lower external demand for goods and services from country B. In addition, to the extent that companies in country A rely on imports from country B for their own production, trade barriers may affect domestic activity in country A as well, at least temporarily while supply chains are shifted. Those effects may be offset to some degree by other related factors. In country A, trade barriers to imports may stimulate domestic production of substitutes over time. And to the extent that its currency depreciates in anticipation of the higher cost of exporting, that should support activity in country B.⁽¹⁾

Higher trade barriers will also push up prices in country A, as companies pass the higher cost of imports to their customers. The extent and pace of such pass-through to consumer prices will vary according to the type of trade barrier. For example, the pass-through of tariffs on capital or intermediate goods imports to consumer prices will typically be slower than equivalent tariffs on consumer goods. Further out, although the degree to which inflation increases will depend on the monetary policy response in country A, in all cases, higher import costs will reduce real incomes. That, in turn, will weigh on domestic demand, which could mitigate some of the direct inflationary impact of higher tariffs.

The effect of bilateral trade measures may also spill over to activity in other countries that are integrated into the supply chains of countries A and B. Other countries could face lower external demand if they supply exporters in country B who have been affected by country A's tariffs. Most countries have become increasingly integrated into global supply chains over time, particularly in Asia (Chart A). At the same time, other countries could benefit from diverted trade flows, as households and companies in country A seek alternatives to imports from country B, though it will often take time to shift supply chains.

Chart A Integration into global supply chains has been increasing

Global supply chain participation index^(a)



Sources: IMF WEO, OECD and Bank calculations.

(a) The index adds together the share of foreign value added embedded in a country's exports and the share of domestic value added embedded in a country's exports which is subsequently used by an importing country to produce their exports.

(b) Includes Cambodia, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand and Vietnam. Weighted using the IMF's purchasing power parity (PPP) weights.

(c) Includes 63 countries, accounting for 87% of global output in 2011 on a PPP-weighted basis. Weighted using the IMF's PPP weights.

The direct effects from higher trade barriers are only one part of the overall impact and are likely to be amplified by their indirect effects. Uncertainty around demand growth and the prospect of lower profitability could undermine business confidence and, in turn, investment. Any pickup in risk aversion

(1) For more details see Broadbent, B (2017), 'Brexit and the pound'.

in financial markets as a result of trade uncertainty could also lead to a tightening in financial conditions.

Over the medium term, persistently higher trade barriers, and the implicit reduction in countries' openness to trade, will affect productivity and potential supply growth. For example, a reduction in the size of the potential market available could hamper the ability of domestic firms of a given country to specialise, making it more difficult for them to exploit areas of comparative advantage and to achieve economies of scale. Further, a reduced openness to trade could lower the degree of competition, as well as firms' capacity to learn ideas and practices from foreign companies. And there is also some evidence to suggest that lower openness may increase income volatility within a country by reducing diversification in its sources of demand and supply.⁽²⁾

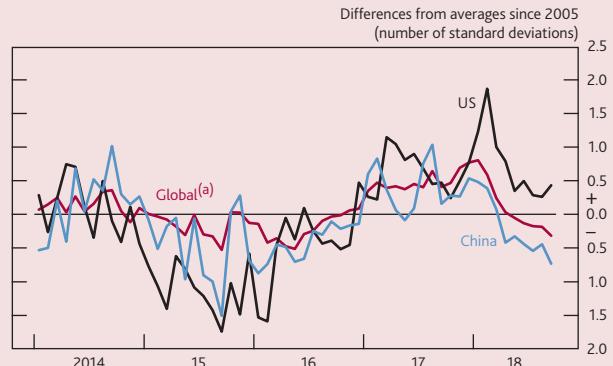
The impact of recent trade tensions

So far, the increase in trade barriers over 2018 has been largely limited to trade flows between the US and China. Following tariff increases on steel and aluminium earlier in the year, the US has increased tariffs on US\$250 billion of Chinese imports, with China reciprocating with higher tariffs on US\$110 billion of US imports. Anticipation of higher trade barriers has contributed to a slowing in survey measures of export orders in those countries (**Chart B**). And market contacts attribute some of the recent falls in asset prices in China and — given their role in Chinese supply chains — other emerging market economies to uncertainty about trade policy (Section 1.1). The MPC judges that those recent bilateral tariff increases will reduce GDP in China and the US by around 1% and ½% respectively over the next three years. The effects are likely to be largely confined to the countries directly involved, with small spillovers to some emerging market economies.

Although trade tensions between the US and some of its trading partners have eased somewhat — with trade deals

Chart B Survey indicators of export orders have deteriorated in 2018

Survey measures of manufacturing export orders



Sources: Datastream from Refinitiv, IHS Markit, JPMorgan, US Institute for Supply Management and Bank calculations.

(a) Measure of export orders growth based on the results of surveys in 44 countries. Together these countries account for an estimated 89% of global GDP.

agreed with Canada, Mexico and South Korea in recent months — the prospect of more widespread trade protectionism remains a risk. That would have much greater implications for the global outlook. For example, Bank staff estimates suggest that a scenario in which the US raised tariffs by 10 percentage points on all its trading partners could, if reciprocated, reduce global output by over 1% through direct channels, with US activity particularly affected.⁽³⁾

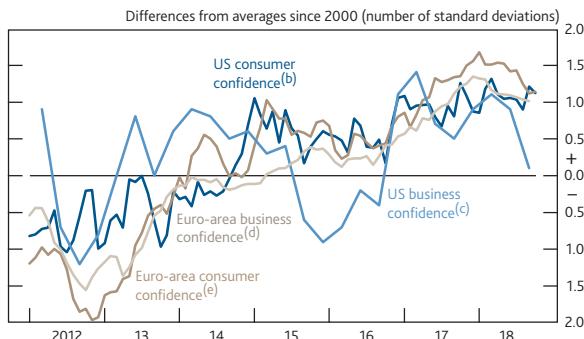
The trade measures implemented by the US and China so far are likely to have only a limited effect on the UK economy, largely through trade links with those countries. Slower growth in the US and China — which together accounted for 21% of UK exports in 2017 — could weigh somewhat on external demand in the UK. Nevertheless, a more substantial and widespread increase in trade barriers may have more material implications for UK activity both through their direct impact on external demand, and indirectly, by raising uncertainty and tightening financial conditions.

(2) See, for example, Caselli, F, Koren, M, Lisicky, M and Tenreyro, S (2015), '[Diversification through trade](#)', NBER Working Paper No. 21498.

(3) For more details see Carney, M (2018), '[From protectionism to prosperity](#)'.

Chart 1.5 Measures of euro-area and US consumer confidence remain robust

Euro-area and US consumer and business confidence^(a)



Sources: Datastream from Refinitiv, European Commission (EC), The Conference Board, University of Michigan and Bank calculations.

(a) Monthly data unless otherwise stated.

(b) University of Michigan consumer sentiment index. Data are not seasonally adjusted.

(c) The Conference Board measure of CEO Confidence™, ©2018 The Conference Board. Content reproduced with permission. All rights reserved. Data are quarterly and not seasonally adjusted.

(d) Headline EC sentiment index, reweighted to exclude consumer confidence. Average of overall confidence in the industrial (50%), services (38%), retail trade (6%) and construction (6%) sectors. Data are to September 2018.

(e) EC consumer confidence indicator. Data are to September 2018.

Box 1), with many respondents citing concerns over tariffs.

Rising trade tensions, alongside the moderation in the global outlook, also appear to have affected sentiment, with business confidence falling in Q3 (Chart 1.5).

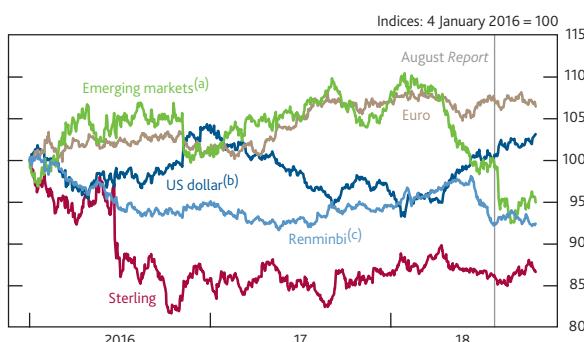
Strong growth in activity in 2018 has reduced the degree of spare capacity in the US economy, and it is judged to be in excess demand. The headline unemployment rate fell to 3.7% in September, and other measures of slack, such as the rate of unemployment plus marginally attached and part-time workers, were also close to historical lows. The fall in unemployment in recent years has been associated with steady employment growth. At the same time, the labour force participation rate has been stable, with the long-term drag from an ageing population having been offset by a pickup in the participation rate of those aged 25–54. That is expected to continue in coming years. Consistent with tightness in the labour market, wage growth has risen over the past year (Table 1.C). That has probably contributed to a pickup in core inflation, which is a little above past averages.

Table 1.B Monitoring the MPC's key judgements

| Developments anticipated in August during 2018 Q3–2019 Q1 | Developments now anticipated during 2018 Q4–2019 Q2 |
|--|---|
| Advanced economies | Revised down slightly |
| <ul style="list-style-type: none"> Quarterly euro-area GDP growth to average around ½%. Quarterly US GDP growth to average around ¾%. | <ul style="list-style-type: none"> Quarterly euro-area GDP growth to average a little below ½%. Quarterly US GDP growth to average a little above ½%. |
| Rest of the world | Revised down |
| <ul style="list-style-type: none"> Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4¾%; within that, GDP growth in China to average around 6½%. | <ul style="list-style-type: none"> 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%. |
| The exchange rate and commodity prices | Revised up |
| <ul style="list-style-type: none"> Commodity prices and sterling ERI to evolve in line with the conditioning assumptions. | <ul style="list-style-type: none"> US dollar oil prices are 9% higher and the sterling ERI is 1% higher. Commodity prices and sterling ERI to evolve in line with the conditioning assumptions set out in this Report. |
| Cost of credit | Broadly unchanged |
| <ul style="list-style-type: none"> Mortgage spreads to widen a little. | <ul style="list-style-type: none"> Mortgage spreads to widen a little. |

Chart 1.6 The US dollar has appreciated since the start of 2018

Effective exchange rates



Sources: Bank of England, China Foreign Exchange Trade System (CFETS), ECB, Federal Reserve, JPMorgan and Bank calculations.

(a) JPMorgan Emerging Markets Currency Index.

(b) Federal Reserve US dollar nominal broad index.

(c) Trade-weighted index. Calculated as a weighted average of end-day spot bilateral exchange rates, using weights published by the CFETS.

Given robust demand growth and the prospect of sustained inflationary pressures, the Federal Open Market Committee (FOMC) has continued to tighten monetary policy. The Committee raised the target range for the federal funds rate to 2%–2¼% in September. The path of policy implied by market prices has risen since August (Chart 1.7), as have long-term interest rates (Chart 1.8). Market contacts attributed those increases in part to the strengthening growth outlook and greater evidence of inflationary pressures. In addition, communication by some FOMC members suggesting a tighter path for monetary policy than had previously been expected appears to have pushed up expectations of future policy rates. The Federal Reserve also continued to reduce the size of its balance sheet, which was US\$300 billion lower than its September 2017 peak in the run-up to the November Report.

China

Quarterly GDP growth in China slowed slightly to 1.6% in Q3 (Table 1.A), as expected in August. Some activity indicators such as export order PMIs point to a further modest slowing in Q4. Credit growth has also slowed gradually, particularly from the non-bank sector, although it remains relatively robust.

Rising trade tensions with the US are likely to weigh on the outlook in coming quarters. Market contacts attributed falls in asset prices over 2018 to the anticipation of the impact of higher trade barriers, as well as associated uncertainty. The Shanghai Composite equity index is around 5% lower than at the time of the August Report, and around 20% lower over 2018 so far (Chart 1.9). Although the renminbi has been more stable in recent months, as authorities have taken some steps to support the exchange rate, it remains weaker than at the start of the year (Chart 1.6).

Table 1.C Core inflation has picked up in the US, but remains subdued in the euro area

Inflation and wage growth in selected economies

Per cent

| | Monthly averages | | | | 2018 | | | |
|--|------------------|------|------|------------|------|------|------|------|
| | 1998– 2007 | 2016 | 2017 | 2018 H1 | July | Aug. | Sep. | Oct. |
| Annual headline consumer price inflation | | | | | | | | |
| United Kingdom | 1.6 | 0.7 | 2.7 | 2.6 | 2.5 | 2.7 | 2.4 | n.a. |
| Euro area ^(a) | 2.0 | 0.2 | 1.5 | 1.5 | 2.1 | 2.0 | 2.1 | 2.2 |
| United States ^(b) | 2.1 | 1.1 | 1.8 | 2.0 | 2.3 | 2.2 | 2.0 | n.a. |
| UK-weighted world inflation ^(c) | 2.0 | 0.8 | 1.6 | 1.7 | n.a. | n.a. | 1.9 | n.a. |
| Annual core consumer price inflation^(d) | | | | | | | | |
| United Kingdom | 1.2 | 1.3 | 2.4 | 2.3 | 1.9 | 2.1 | 1.9 | n.a. |
| Euro area ^(a) | 1.6 | 0.9 | 1.0 | 1.0 | 1.1 | 0.9 | 0.9 | 1.1 |
| United States ^(b) | 1.8 | 1.7 | 1.6 | 1.8 | 2.0 | 2.0 | 2.0 | n.a. |
| Annual UK-weighted world export price inflation excluding oil^(c) | | | | | | | | |
| | 1.1 | -1.8 | 2.5 | 1.3 | n.a. | n.a. | 2.3 | n.a. |
| Annual wage growth | | | | | | | | |
| United Kingdom ^(e) | 4.3 | 2.4 | 2.3 | 2.6 | 2.6 | 2.7 | n.a. | n.a. |
| Euro area ^(f) | 2.3 | 1.2 | 1.6 | 2.1 | n.a. | n.a. | n.a. | n.a. |
| United States ^(g) | 3.2 | 2.3 | 2.5 | 2.7 | n.a. | n.a. | 2.9 | n.a. |

Sources: Datastream from Refinitiv, Eurostat, IMF WEO, ONS, US Bureau of Economic Analysis and Bank calculations.

(a) Data points for October 2018 are flash estimates.

(b) Personal consumption expenditure price index inflation. Data points for September 2018 are preliminary estimates.

(c) UK-weighted world consumer price inflation is constructed using data for consumption deflators for 51 countries, weighted according to their shares in UK imports. UK-weighted world export price inflation excluding oil is constructed using data for non-oil export deflators for 51 countries, weighted according to their shares in UK imports. Data are quarterly. Figures for September are Bank staff projections for 2018 Q3.

(d) For the euro area and the UK, excludes energy, food, alcoholic beverages and tobacco. For the US, excludes food and energy.

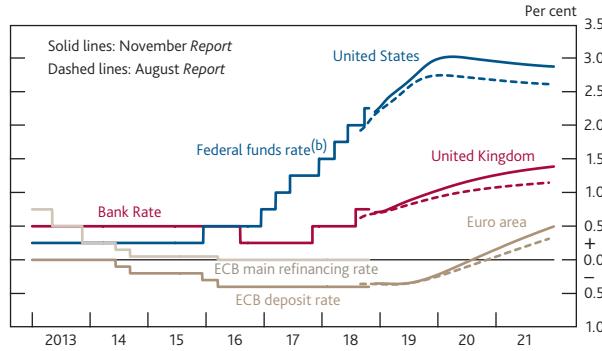
(e) Whole-economy total pay. Data are three-month moving averages and start in 2001.

(f) Compensation per employee. Data are quarterly.

(g) Employment Cost Index for wages and salaries of civilian workers. Data are quarterly.

Chart 1.7 Market-implied paths for interest rates have risen since August

International forward interest rates^(a)



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

(a) The November 2018 and August 2018 curves are estimated using instantaneous forward overnight index swap rates in the 15 working days to 24 October and 25 July respectively.

(b) Upper bound of the target range.

Growth is expected to moderate slightly to 1.5% in coming quarters. Fiscal spending and relatively robust credit growth are expected to support activity. For example, net issuance of local government bonds used to finance infrastructure projects has increased substantially. And the People's Bank of China (PBoC) has created additional room for banks to expand credit by progressively cutting the reserve requirement ratio — the reserves that Chinese banks are required to keep with the PBoC. As discussed in the Financial Policy Committee's *June Financial Stability Report*, there remain challenges for the Chinese authorities in maintaining robust rates of GDP growth while continuing to reduce risks to financial stability.

Non-China emerging market economies

Excluding China, emerging market economy (EME) growth slowed in 2018 Q2 to 0.9% on a PPP-weighted basis, broadly as expected in the August Report. It is expected to have slowed further in Q3. Consistent with that, manufacturing PMIs and growth in measures of industrial production have softened throughout 2018 across the largest non-China EMEs, albeit from robust levels (Chart 1.10).

Tighter financial conditions in non-China EMEs (Chart 1.11), largely reflecting the impact of the normalisation of US monetary policy, have contributed to weaker activity growth in those economies. This follows a period of relatively loose financial conditions during which some EMEs substantially increased their issuance of government or corporate debt denominated in foreign currencies, particularly US dollars. Unless borrowers have revenues in US dollars, or have hedged themselves against exchange rate moves, those debts become costlier to service if the dollar appreciates, as it has done in 2018 (Chart 1.6). In addition, absent a change in policy rates in EMEs, higher US policy rates will reduce the relative return on EME assets and, in turn, external demand for those assets.

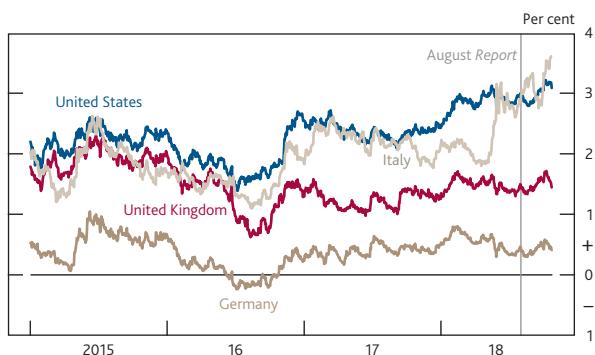
Those effects are likely to have been exacerbated by the increase in trade tensions between the US and its trade partners over 2018. As discussed in Box 1, the integration of many EMEs into global supply chains will expose them to potential trade disruption.

Associated with that tightening in financial conditions has been a net flow of portfolio capital out of non-China EMEs since 2018 Q1 (Chart 1.12). Since the financial crisis, non-bank lending has accounted for all of the increase in foreign lending to EMEs,⁽¹⁾ which — as discussed in the *June Financial Stability Report* — may have made capital flows more sensitive to changes in financial conditions. Although net outflows moderated in Q3, lower investor appetite for EME assets has continued to weigh on asset prices, with spreads on

(1) For more details see Carney, M (2018), 'True Finance — Ten years after the financial crisis'.

Chart 1.8 Longer-term interest rates have increased since August

Ten-year nominal interest rates^(a)

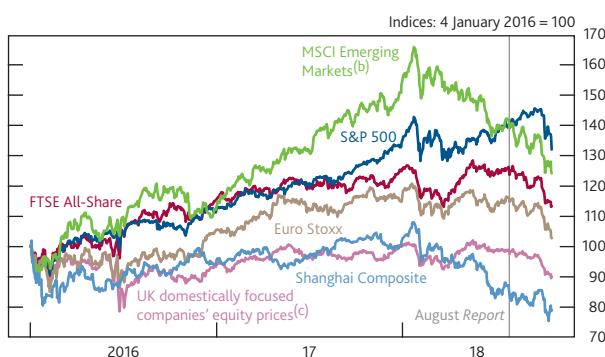


Sources: Bloomberg Finance L.P. and Bank calculations.

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

Chart 1.9 Most equity indices have fallen in 2018

International equity prices^(a)

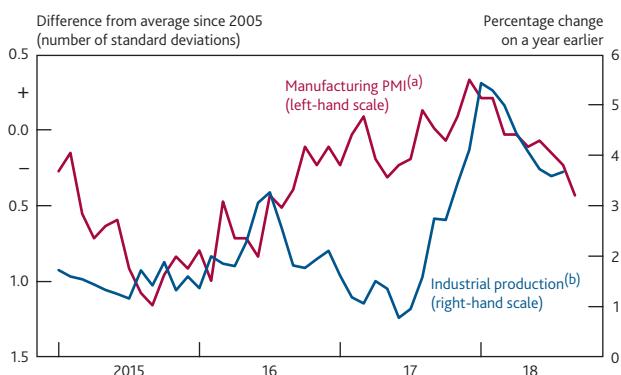


Sources: Datastream from Refinitiv, MSCI and Bank calculations.

(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](#).
(c) UK domestically focused companies are defined as those generating at least 70% of their revenues in the UK, based on annual financial accounts data on companies' geographic revenue breakdown.

Chart 1.10 Manufacturing activity growth in non-China EMEs has begun to slow, albeit from strong rates

Indicators of EME manufacturing activity



Sources: Datastream from Refinitiv, IHS Markit, JPMorgan and Bank calculations.

(a) Measure of current manufacturing output based on the results of surveys in 20 countries. Data are to September 2018.
(b) Weighted average of industrial production across Brazil, India, Indonesia, Mexico, Russia, South Africa and Turkey. Weighted according to their shares in total GDP using the IMF's market exchange rate weights. Data are to August 2018.

government and corporate bonds wider (**Chart 1.12**) and equity prices lower (**Chart 1.9**) over 2018. In addition, to support exchange rates and capital inflows, a number of central banks, for example in Russia, India and Indonesia, have raised their policy rates, further tightening financing conditions in those countries.

The impact of tightening global financial conditions has been particularly pronounced in Argentina and Turkey. Both countries are particularly reliant on external capital — with US dollar-denominated debt amounting to over 40% of GDP, much of it short term — and so are sensitive to the tightening in financial conditions. Those vulnerabilities have been amplified by domestic factors. For example, market contacts attributed sharp moves in asset prices during 2018 in part to domestic monetary policy developments in both countries, while weak growth in Argentina has also reflected the effects of severe drought. Despite those specific domestic circumstances there remains a risk of contagion to other emerging markets, for example if investors seek to rapidly reduce their exposures to EMEs more generally as a result.

As the recent tightening in financial conditions continues to weigh on activity, non-China EME growth is projected to remain around current rates in coming quarters, weaker than expected in August (**Table 1.B**). That deterioration in the outlook reflects the projected sharp slowing in growth in Argentina and Turkey, as well as the impact of the tightening in financial conditions elsewhere. That said, financial conditions remain close to past averages (**Chart 1.11**), and growth is expected to remain a little above estimates of potential growth in aggregate.

Euro area

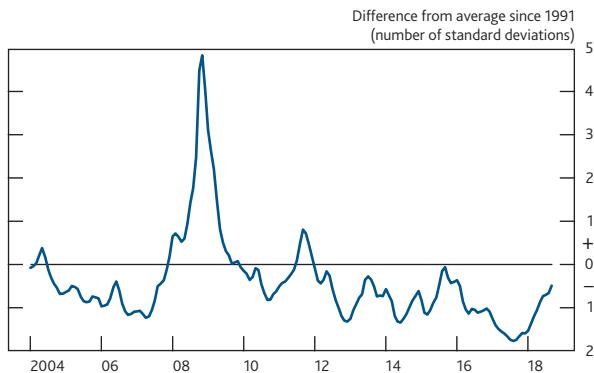
Quarterly euro-area GDP growth slowed to 0.2% in 2018 Q3, from 0.4%. That was lower than expected in August, and substantially lower than average growth rates of 0.7% over 2017. Although activity growth is expected to pick up, the projected path for growth in coming quarters has been revised down (**Table 1.B**), and is only a little above estimates of potential growth.

The slowdown in growth in 2018 has been broad-based across the large euro-area economies. The contribution from net trade, which had driven much of the strength in 2017, has fallen in most countries in the first half of 2018. And net trade is expected to continue to be weak in coming quarters as the global outlook moderates. Consumption and investment growth had continued to support growth in 2018 H1, with survey measures of consumer and business confidence well above average, but these measures have softened in 2018 Q3 (**Chart 1.5**).

The euro-area unemployment rate has continued to fall, to 8.1% in September, its lowest since 2008 Q4. Consistent with

Chart 1.11 Financial conditions in non-China EMEs have tightened

Non-China EME financial conditions index^(a)

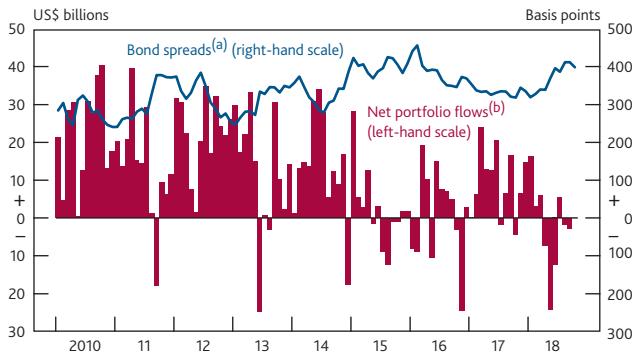


Sources: Bloomberg Finance L.P., Datastream from Refinitiv and Bank calculations.

(a) Financial conditions indices (FCIs) based on Koop, G and Korobilis, D (2014), 'A new index of financial conditions', *European Economic Review*. The FCIs summarise information from the following financial series: term spreads; interbank spreads; corporate spreads; sovereign spreads; long-term interest rates; policy rates; equity price returns; equity return volatility; house price returns; and credit growth. Calculated as the average of the following country FCIs: Argentina, Brazil, Bulgaria, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, Thailand, Turkey and Vietnam.

Chart 1.12 The net flow of portfolio capital into non-China EMEs has been negative in 2018

EME net portfolio capital inflows and bond spreads



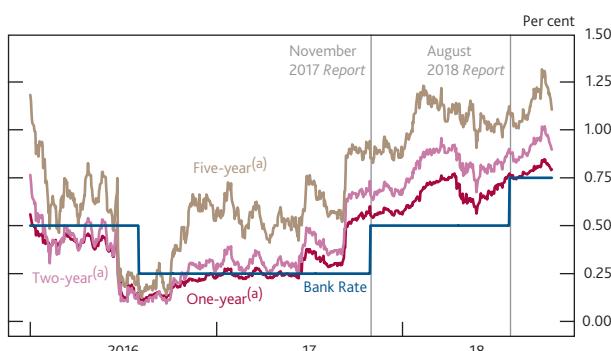
Sources: Datastream from Refinitiv, Institute of International Finance, JPMorgan and Bank calculations.

(a) JPMorgan composite emerging market corporate and government bond index. Monthly average. The October 2018 data point is the average of daily data up to 24 October. The JPMorgan disclaimer of liability, which applies to the data provided, is available [here](#).

(b) Net non-resident portfolio inflows to the following EMEs: Brazil, Bulgaria, Chile, Hungary, India, Indonesia, Malaysia, Mexico, Philippines, Poland, South Africa, Thailand, Turkey, Ukraine and Vietnam.

Chart 1.13 Short-term interest rates increased in 2018

Bank Rate and selected market interest rates



(a) Spot overnight index swap rates.

a steady reduction in slack, wage growth has picked up in 2018 H1 (Table 1.C). Some spare capacity is judged to remain, however, with unemployment still above its estimated equilibrium rate. And core inflation remains subdued.

The European Central Bank (ECB) made no changes to policy rates in September or October and reiterated its past guidance that rates were expected to remain at present levels at least through the summer of 2019. However, the market-implied path for policy rates has steepened somewhat since August (Chart 1.7), which market contacts attributed in part to an upward shift in short-term interest rates globally. Most long-term interest rates in the euro area also increased over that period (Chart 1.8). Long-term interest rates on Italian government debt have increased particularly sharply due to political developments. There was little evidence that had spilled over to other euro-area countries, however.

1.2 UK financial conditions

Having already tightened steadily over 2018, UK financial conditions have tightened slightly further since August, though they remain accommodative overall. Bank Rate and market interest rates have risen from low levels, and that is feeding through to the rates facing households and companies. Moves in equity prices and corporate bond spreads have also raised the cost of funding for companies, reflecting a decline in risk sentiment as the global outlook has moderated. UK asset prices remain sensitive to developments related to the UK's withdrawal from the EU.

Market interest rates

In August, the MPC raised Bank Rate to 0.75%. That had been anticipated well ahead of the announcement with most short-term interest rates rising earlier in 2018 (Chart 1.13). The MPC voted to make no changes to monetary policy at its September meeting (Box 2). In the run-up to the November Report, stronger-than-expected activity and inflation outturns, as well as increases in short-term interest rates internationally, have pushed up the market-implied path for Bank Rate. It is now expected to reach around 1.4% in three years' time, up from 1.1% in August (Chart 1.7).

Long-term UK interest rates have also risen since August, despite falling back in the run-up to the November Report (Chart 1.8). Those rates have been affected in part by the increase in long-term interest rates in other countries.

Retail interest rates

The rise in Bank Rate in August, and the associated rise in short-term risk-free rates earlier in the year, have pushed up most bank lending rates. The average interest rates on new variable rate lending — which account for most corporate lending and around 10% of new mortgage lending — have risen since the time of the August Report (Table 1.D). Interest

Box 2

Monetary policy since the August Report

The MPC's central projection in the *August Report* was for GDP to grow by around 1¾% per year on average over the forecast period. Although modest by historical standards, that growth rate was slightly faster than the diminished rate of supply growth, which was projected to average around 1½% per year. As a result, a small margin of excess demand was projected to emerge by late 2019 and build thereafter, feeding through into higher growth in domestic costs than had been seen over recent years. The contribution of external cost pressures, which has accounted for above-target inflation since the beginning of 2017, was projected to ease over the forecast period. Taking these influences together, and conditioned on a gently rising path for Bank Rate, CPI inflation was projected to remain slightly above 2% through most of the forecast period, reaching the target in the third year.

At its meeting ending on 12 September 2018, the MPC noted that recent news in UK macroeconomic data had been limited and the MPC's August projections appeared to be broadly on track. UK GDP grew by 0.4% in 2018 Q2 and by 0.6% in the three months to July. The UK labour market had continued to tighten, with the unemployment rate falling to 4.0% and the number of vacancies rising further. Regular pay growth had risen further to around 3% on a year earlier. CPI inflation was 2.5% in July.

The global economy still appeared to be growing at above-trend rates, although recent developments were likely

to have increased downside risks around global growth to some degree. In emerging market economies, indicators of growth had continued to soften and financial conditions had tightened further, in some cases markedly. Recent announcements of further protectionist measures by the United States and China, if implemented, could have a somewhat more negative impact on global growth than was anticipated at the time of the *August Report*.

The MPC continued to recognise that the economic outlook could be influenced significantly by the response of households, businesses and financial markets to developments related to the process of EU withdrawal. Since the Committee's previous meeting, there had been indications, most prominently in financial markets, of greater uncertainty about future developments in the withdrawal process.

The Committee judged that, were the economy to continue to develop broadly in line with the *August Report* projections, an ongoing tightening of monetary policy over the forecast period would be appropriate to return inflation sustainably to the 2% target at a conventional horizon. As before, those projections were conditioned on the expectation 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.

The Committee judged that the current stance of monetary policy remained appropriate. Any future increases in Bank Rate were likely to be at a gradual pace and to a limited extent.

rates on new fixed-rate mortgage lending rose earlier in the year as the relevant risk-free rates upon which those are benchmarked rose in anticipation of the change in Bank Rate (*Chart 1.13*).

The pickup in the cost of bank funding in wholesale markets over 2018 (*Chart 1.14*) should also place upward pressure on retail lending rates. The rise in bank funding costs appears to have been largely driven by the same factors that have pushed up spreads in corporate bond markets more generally, such as a fall in global risk sentiment. In addition, as discussed in the *June Financial Stability Report*, stronger bank debt issuance has added to the upward pressure on funding spreads. That increased issuance reflects, in part, the need for banks to meet incoming regulatory requirements, as well as the end of the drawdown window for the Term Funding Scheme in 2018 Q1.

Despite some increase in most mortgage lending rates over 2018, the average rate on new lending remains lower than mid-2016 (*Chart 1.15*). That largely reflects the effects of increased competition in the retail banking market as lenders

Table 1.D Mortgage interest rates have increased in 2018Retail interest rates on lending and deposits^(a)

| | Level (per cent) | Change since (basis points) | | | | |
|---|---------------------|-----------------------------|-----------------|----------------|-------------|--|
| | | July 2018 | January 2018 | August 2017 | May 2016 | |
| Households^(b) | | | | | | |
| Mortgages | | | | | | |
| Two-year variable rate, 75% LTV | 1.68 | 16 | 0 | 29 | 7 | |
| Two-year fixed rate, 60% LTV | 1.65 | -14 | 22 | 41 | -5 | |
| Two-year fixed rate, 75% LTV | 1.71 | -2 | 18 | 28 | -20 | |
| Five-year fixed rate, 75% LTV | 2.04 | -1 | 6 | 8 | -60 | |
| Two-year fixed rate, 90% LTV | 2.16 | -12 | 1 | -17 | -59 | |
| Consumer credit | | | | | | |
| £10,000 unsecured loan | 3.81 | 5 | -4 | 2 | -52 | |
| Deposits | | | | | | |
| Instant access savings | 0.27 | 6 | 7 | 13 | -13 | |
| Cash ISA | 0.85 | 17 | -9 | 50 | -2 | |
| One-year fixed-rate bond | 0.87 | 0 | 12 | 1 | -4 | |
| One-year fixed-rate ISA | 1.42 | 8 | 16 | 31 | 35 | |
| Two-year fixed-rate bond | 1.33 | 1 | 26 | 17 | 13 | |
| Two-year fixed-rate ISA | 1.32 | 9 | -6 | 22 | 16 | |
| Private non-financial corporations^(c) | | | | | | |
| Outstanding floating loans | 3.07 | 12 | 20 | 49 | 32 | |
| New floating loans | 2.51 | 10 | -8 | 22 | 0 | |

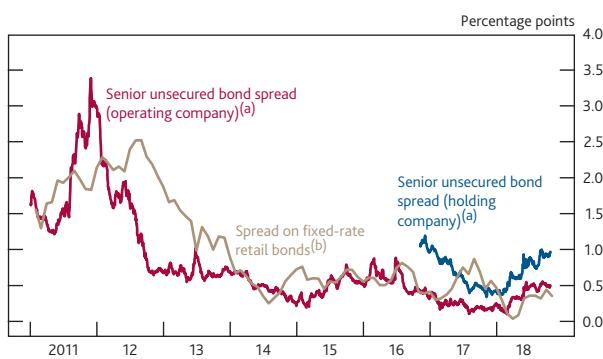
(a) The Bank's quoted and effective rate series are weighted averages of rates from a sample of banks and building societies with products meeting the specific criteria. Data are not seasonally adjusted.

(b) Sterling-only end-month quoted rates. The latest data points are flash estimates of provisional data for October 2018, due to be published on 7 November. Some of the differences in the rates between products will reflect sampling differences.

(c) Sterling-only average monthly effective rates. The latest data points are for September 2018.

Chart 1.14 UK bank funding spreads have widened over 2018

UK banks' indicative funding spreads



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

(a) 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](#).

(b) 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. October 2018 bond rates are flash estimates of provisional data, due to be published on 7 November.

have reduced margins on some products to maintain market share. As a result, the average rate paid on the stock of outstanding lending remains much lower than in the first half of 2016 (**Chart 1.15**), despite the more recent pass-through of higher risk-free rates.

Deposit rates have generally risen by less than the pickup in risk-free rates over 2018, and are expected to adjust only gradually in coming quarters. That partly reflects developments since the financial crisis. Prior to 2008, sight deposits were several percentage points below Bank Rate and lending rates (**Chart 1.15**). But as there are limits to banks' capacity to lower deposit rates below 0%, deposit rates did not fall as much as Bank Rate during the crisis. As Bank Rate rises, the corresponding rise in deposit rates is therefore likely to be somewhat less as the spread between deposit rates and Bank Rate normalises.

Developments in other components of banks' balance sheets may also influence the path for deposit rates. On the asset side, to the extent that competition continues to weigh on lending rates, banks may moderate the pickup in interest paid on the stock of deposits to mitigate any erosion of their margins. Acting in the opposite direction, however, the recent pickup in wholesale market bank funding costs may increase banks' demand for retail deposits and push up deposit rates over time.

Corporate capital markets

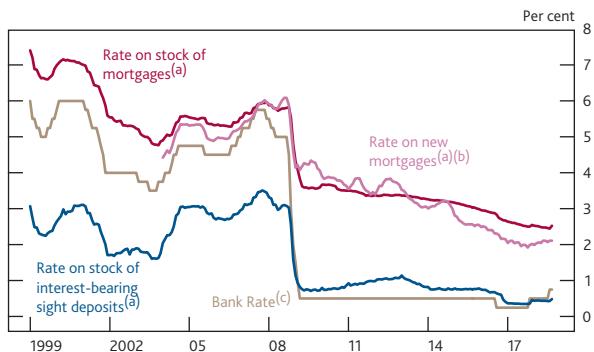
Many large UK companies use both domestic and international markets to raise funding. Spreads on corporate bonds across the main markets in which UK companies borrow have been broadly stable since the August *Report* but remain wider than they were at the start of 2018 (**Chart 1.16**). Market contacts have cited a number of drivers of the widening in spreads, including the fall in global risk sentiment, the prospective end of the ECB's corporate bond purchase programme and US corporate tax reform in early 2018, which encouraged share buybacks among US companies and may have reduced demand for European debt.

Despite this widening over 2018, corporate bond spreads remain at low levels comparable with those seen before the financial crisis. Moreover, as discussed in the [June Financial Stability Report](#), in some corporate bond markets, particularly in the US, those low spreads have been accompanied by an easing in non-price terms, such as weaker covenants. The recent pickup in leveraged lending, including in the UK (Section 2), has also been accompanied by an increased share of deals with weaker covenants.

Equity prices fell in the run-up to the November *Report* (**Chart 1.9**). Investor risk sentiment has deteriorated in part due to geopolitical developments. In addition, the prospect of a higher path for US interest rates has also weighed on equity

Chart 1.15 The spread between Bank Rate and deposit rates remains below pre-crisis levels

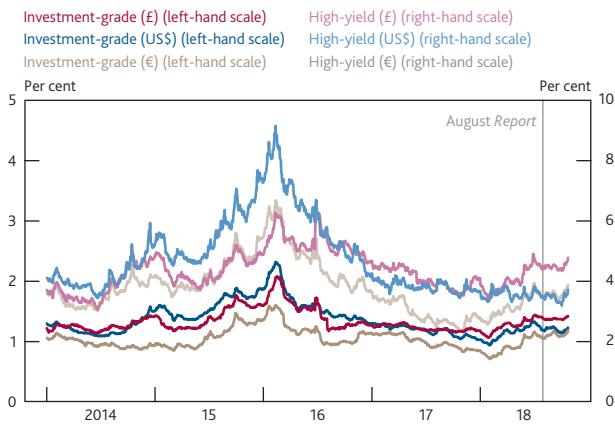
Bank Rate and selected household effective interest rates



- (a) Effective rates on sterling household loans and deposits. The Bank's effective rate series are weighted averages of rates from a sample of banks and building societies with products meeting the specific criteria. Data are not seasonally adjusted.
- (b) Data are only available from 2004.
- (c) End-month rate.

Chart 1.16 Corporate bond spreads have widened during 2018

International non-financial corporate bond spreads^(a)



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

- (a) Option-adjusted spreads to 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 1.17 The decline in the risk reversal suggests that the weight on sterling depreciating further has risen during 2018

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



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

- (a) 25-delta risk reversal. 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.

prices. Among UK-listed companies, the equity prices of those with a substantial focus on the euro area — defined as companies with more than 40% of revenue derived from the euro area — have underperformed other companies substantially since June, perhaps reflecting increased uncertainty around the potential impact of the UK's withdrawal from the EU.

Sterling

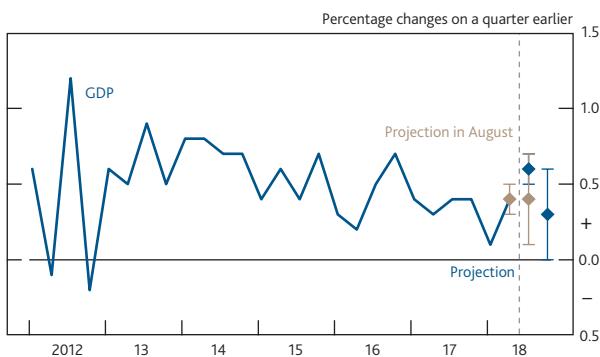
In the run-up to the November Report, the sterling ERI was 1% higher relative to three months ago (Chart 1.6). It remained 16% below its November 2015 peak, however.

As has been the case since the referendum, sterling will be particularly responsive to developments related to the UK's withdrawal from the EU. Implied volatilities from sterling options — measures of perceived risk around the exchange rate — have risen recently (Chart 1.17). And movements in the cost of insuring against a large depreciation relative to a large appreciation — known as the risk reversal — suggest that the weight market participants are placing on a future depreciation has risen (Chart 1.17).

2 Demand and output

GDP growth picked up following a temporary slowing at the beginning of the year. Growth is projected to be modest, with the outlook remaining sensitive to the effects of Brexit. Brexit uncertainty continues to weigh on business investment. Real income growth is recovering following the dampening effects of sterling's depreciation, which should support modest consumption growth. Net trade should also continue to support GDP growth, in part reflecting relatively robust global growth.

Chart 2.1 GDP growth is expected to have been 0.6% in Q3
GDP growth and Bank staff's near-term projection^(a)



Sources: ONS and Bank calculations.

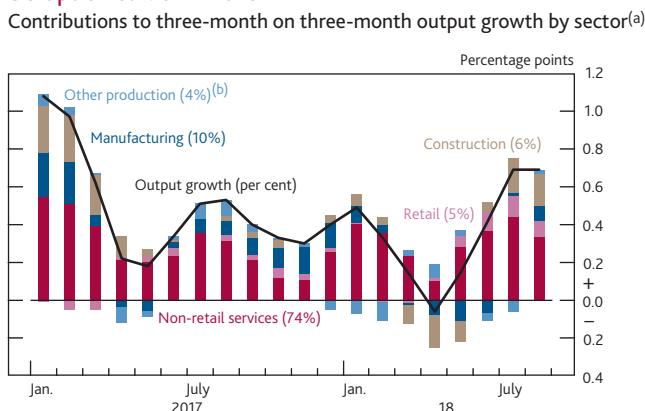
(a) Chained-volume measure. GDP is at market prices. The blue diamonds show Bank staff's projection for the first estimate of GDP growth in 2018 Q3 and Q4. The bands on either side of the diamonds show uncertainty around those projections based on the out-of-sample performance of Bank staff's best-performing model since 2004, representing ± 1 root mean squared error (RMSE). The RMSE of 0.1 percentage points around the 2018 Q3 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 Q3 rises to 0.2 percentage points. For 2018 Q4, the RMSE of 0.3 percentage points is based on the full evaluation window.

Quarterly GDP growth is expected to have picked up to 0.6% in 2018 Q3 (Chart 2.1). Although that is higher than expected in August, activity appears to have been boosted by factors that are likely to be temporary. Construction output picked up sharply (Chart 2.2), with the Agents' contacts reporting some catch-up in activity following weather-induced falls earlier in the year. Strong growth in the retail sector may also have been partly weather-related. In addition, manufacturing output has rebounded after previous erratic weakness.

As those temporary factors unwind, GDP growth is projected to fall back to 0.3% in Q4 (Chart 2.1) and to settle at 0.4% in subsequent quarters. Most survey indicators of output remain consistent with modest growth in the near term.

The key risk to near-term growth is the extent to which uncertainty about Brexit affects spending as negotiations with the EU continue. The MPC's projections assume a smooth adjustment to new trading arrangements with the EU.

Chart 2.2 Growth picked up following weather-related disruption earlier in 2018



(a) Chained-volume measures at basic prices. Figures in parentheses are weights in nominal GVA in 2016. Contributions and weights may not sum to the total due to rounding.

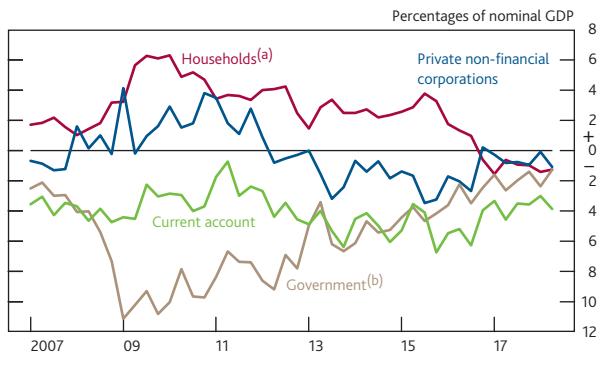
(b) Other production includes utilities, extraction and agriculture.

Reports from the Bank's Agents suggest that some companies are becoming more uncertain about the outlook. Only a few of those companies appear to have started to implement contingency plans, however (Box 3). Such plans could entail building up stocks in the near term, which would temporarily boost spending, to ensure future demand is met. To the extent that those stocks were of imported goods, they would have little direct impact on UK output. A broader reassessment of transport and logistics arrangements could also require additional spending, but that may displace other spending such as investment. Investment appears to have been damped by Brexit uncertainty more generally.

There is less evidence that concerns about Brexit have affected households' confidence, though their expectations for the general economy are relatively subdued (Section 2.1). Other indicators of consumer spending have been mixed. Although retail sales growth has probably been supported by favourable

Chart 2.3 The household financial balance has deteriorated since 2016, in contrast to the corporate financial balance

Financial balances by sector

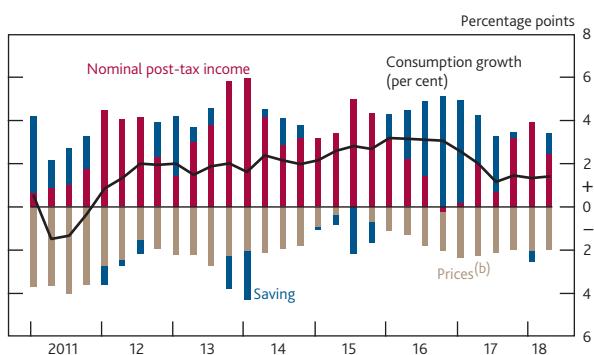


(a) Includes non-profit institutions serving households (NPISH).

(b) Excludes public corporations.

Chart 2.4 Consumption growth has been supported by lower saving and, more recently, higher income growth

Contributions to four-quarter consumption growth^(a)



(a) Chained-volume measure, including NPISH.

(b) Measured using the consumption deflator (including NPISH).

Chart 2.5 Households' confidence in their own finances has improved over the past year

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.

weather, the recent underlying trend still appears to be a little firmer than that seen on average since the EU referendum. In contrast, private car registrations fell sharply in September, although that, at least in part, appears to have reflected supply disruption following the introduction of new emissions standards.

The outlook for growth further ahead will depend on how households and companies, both here and abroad, respond to any new trading arrangements and the transition towards them. Households' and companies' responses will in turn be influenced by their financial positions. The estimated household financial balance has deteriorated since 2016 (Chart 2.3) as households have saved less to support spending growth in the face of a squeeze in their real incomes. Although it is currently estimated to have moved into deficit, the household balance has typically been revised up significantly in recent years. The corporate financial balance has risen, with Brexit-related uncertainty lowering investment spending relative to incomes. The public sector deficit has continued to narrow. The counterpart to those developments has been a narrowing in the current account deficit, although at 3.9% of GDP in 2018 Q2 it remains elevated.

2.1 Domestic demand

Household spending

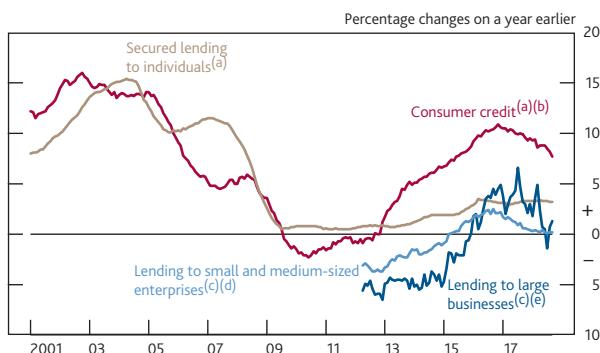
Consumer spending is financed largely by households' current incomes, and changes in the pattern of saving will also affect its path. Household real income growth has been weak since 2016 due to both rises in import prices following the referendum-related depreciation of sterling and subdued nominal pay growth. But consumption growth has slowed to a lesser degree, supported by a decline in households' rate of saving (Chart 2.4).

The extent to which households continue to spend a greater proportion of their current income, relative to the recent past, or choose to increase their savings, will depend partly on their confidence around future incomes and economic prospects. Real incomes picked up somewhat during 2018 H1 and are expected to rise further as the effect of the depreciation of sterling on inflation continues to fade and nominal pay growth rises as unemployment remains low (Section 4). Consistent with that, consumer confidence surveys, such as the GfK survey (Chart 2.5), suggest that households' expectations of their personal financial situation have improved somewhat since 2017.

Household spending and saving will also be influenced by interest rates. First, interest rates affect payments on existing debt and deposits. As borrowers' spending tends to be more sensitive to such changes, a rise in interest rates will weigh on consumption growth through this 'cash-flow' channel. Second,

Chart 2.6 Growth in consumer credit and lending to businesses has slowed

Lending to households and businesses



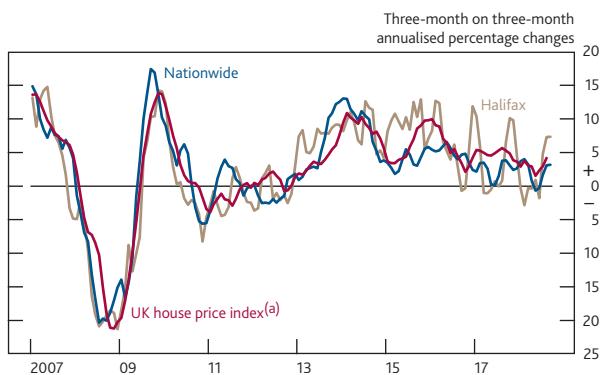
- (a) Sterling lending by UK monetary financial institutions (MFIs) and other lenders.
- (b) Excludes student loans.
- (c) Lending by UK MFIs, excluding overdrafts, and reverse repos in all currencies, expressed in sterling. Not seasonally adjusted. Data by firm size available from April 2012.
- (d) Small and medium-sized enterprises are businesses with annual debit account turnover on the main business account less than or equal to £25 million.
- (e) Large businesses are those with annual debit account turnover on the main business account over £25 million.

Table 2.A Monitoring the MPC's key judgements

| Developments anticipated in August during 2018 Q3–2019 Q1 | Developments now anticipated during 2018 Q4–2019 Q2 |
|---|---|
| Consumer spending | Broadly unchanged |
| <ul style="list-style-type: none"> • Quarterly real post-tax household income growth to average $\frac{1}{4}\%$. • Quarterly consumption growth to average $\frac{1}{4}\%$. | <ul style="list-style-type: none"> • Quarterly real post-tax household income growth to average $\frac{1}{4}\%$. • Quarterly consumption growth to average $\frac{1}{4}\%$. |
| Housing market | Broadly unchanged |
| <ul style="list-style-type: none"> • Mortgage approvals for house purchase to average around 65,000 per month. • The average of the Halifax/Markit and Nationwide house price indices to increase by around $\frac{3}{4}\%$ per quarter, on average. • Housing investment growth to average $\frac{1}{2}\%$. | <ul style="list-style-type: none"> • Mortgage approvals for house purchase to average around 65,000 per month. • The UK house price index to increase by around $\frac{3}{4}\%$ per quarter, on average. • Housing investment growth to average $\frac{1}{2}\%$. |
| Business investment | Revised down slightly |
| <ul style="list-style-type: none"> • Quarterly growth in business investment to average $\frac{3}{4}\%$. | <ul style="list-style-type: none"> • Quarterly growth in business investment to average $\frac{1}{4}\%$ to $\frac{1}{2}\%$. |
| Trade | Broadly unchanged |
| <ul style="list-style-type: none"> • Net trade to provide a positive contribution to quarterly GDP growth. | <ul style="list-style-type: none"> • Net trade to provide a positive contribution to quarterly GDP growth in 2019 H1. |

Chart 2.7 House price inflation has slowed since early 2016

House prices



Sources: Halifax house price index by IHS Markit, HM Land Registry, Land and Property Services Northern Ireland, Nationwide, ONS, Registers of Scotland and Bank calculations.

(a) Data only available to August 2018.

they affect the incentive to save rather than borrow for all households.

As explained in Section 1, credit conditions remain accommodative, although the recent rise in Bank Rate is feeding through to retail interest rates facing many households. There is also some evidence of a modest tightening in consumer credit conditions. Respondents to the Q3 *Credit Conditions Survey*, for example, reported a further reduction in consumer credit availability. The average quoted rate on credit cards has risen in recent months, and non-price terms, such as the average interest-free period on credit card balance transfers, continue to tighten. Annual consumer credit growth has slowed (Chart 2.6), largely accounted for by slower growth in car financing, although growth in credit card and other non-credit card lending also slowed in Q3. The slowdown in car finance appears to partly reflect the completion of a structural change in the way car purchases are financed,⁽¹⁾ as well as the fall in car registrations in September.

Consumption is expected to grow modestly in coming quarters (Table 2.A). Such growth is expected to be underpinned by, and be in line with, real income growth. The rate of saving is projected to be broadly flat, although there is uncertainty around that judgement.

The housing market

Developments in the housing market can provide a signal about household spending because decisions about whether to buy a house and whether to spend share common drivers, such as income expectations and confidence. Overall, housing market indicators continue to be somewhat subdued.

Mortgage approvals have been broadly unchanged since mid-2016, and related indicators such as property transactions and growth in secured lending (Chart 2.6) have also been steady at levels well below pre-crisis averages. Relatively subdued housing market activity is likely, in part, to have reflected the squeeze in real incomes over that period.

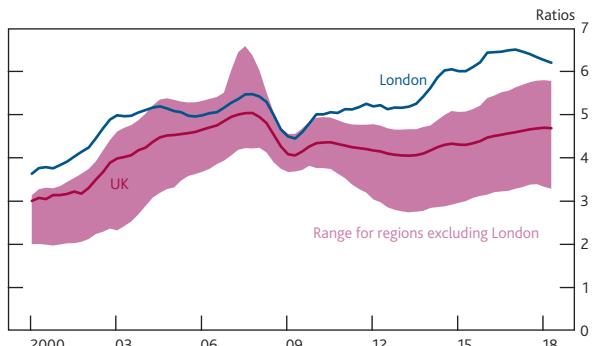
Annualised house price inflation was 4.2% in the three months to August according to the UK house price index (HPI) (Chart 2.7). The UK HPI, which was designated a National Statistic in September, covers all housing transactions and is therefore more comprehensive than other measures such as those released by some mortgage lenders. Those other measures are published on a timelier basis but have often been more volatile, particularly over the recent past. Nonetheless, the broad picture of slowing house price inflation since early 2016 has been consistent across a range of indicators.

As discussed in previous Reports, much of the slowdown in UK house price inflation has been concentrated within London

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

Chart 2.8 London house prices have fallen relative to incomes, but the ratio remains higher than elsewhere

Regional house price to income ratios^(a)

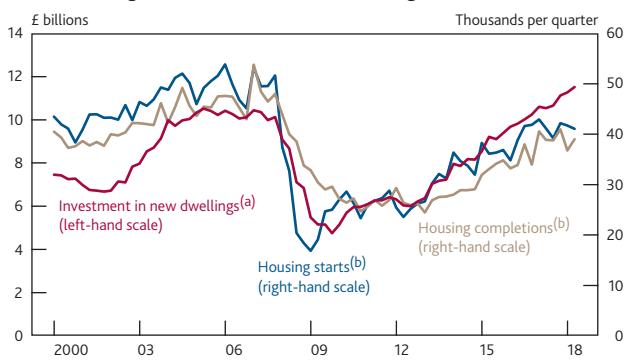


Sources: HM Land Registry, Land and Property Services Northern Ireland, ONS, Registers of Scotland and Bank calculations.

(a) House prices divided by four-quarter post-tax income per household within that region. House price data for Northern Ireland, Scotland and the UK are seasonally adjusted by Bank staff. Estimates of regional post-tax income per household are interpolations of annual data.

Chart 2.9 Spending on new dwellings has risen further but housing starts have been broadly flat

House building and investment in new dwellings

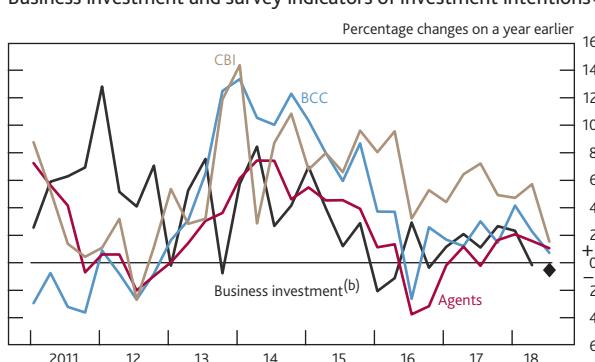


Sources: Department for Communities and Local Government, ONS and Bank calculations.

(a) Chained-volume measure. Excludes major repairs and improvements to existing dwellings.
(b) Number of permanent dwellings started/completed by private enterprises up to 2018 Q2 for England and Northern Ireland. Data from 2011 Q2 for housing starts in Wales and 2018 Q1 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 2.10 Business investment has been weak, and is expected to have fallen by 0.5% in the year to 2018 Q3

Business investment and survey indicators of investment intentions^(a)



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

(a) Survey measures are scaled to match the mean and variance of four-quarter business investment growth since 2000. Business investment data are adjusted for the transfer of nuclear reactors from the public corporation sector to central government in 2005 Q2. Measures for the Bank's Agents (split by manufacturing and services), BCC (non-services and services) and CBI (manufacturing, distribution, financial services and business/consumer/professional services) are weighted together using shares in real business investment. Agents' measure shows companies' intended changes in investment over the next 12 months; last available observation for each quarter. BCC measure is the net percentage balance of respondents reporting that they have increased planned investment in plant and machinery; data are not seasonally adjusted. CBI measure is the net percentage balance of respondents reporting that they have increased planned investment in plant and machinery for the next 12 months.

(b) Chained-volume measure. The diamond shows Bank staff's projection for 2018 Q3.

and the South East. London house price inflation was particularly strong between 2014 and early 2016, and materially above income growth, reducing affordability (Chart 2.8). Since then, the London market has probably been disproportionately affected by regulatory and tax changes, and also by lower net migration from the EU (Section 3). The recent slowing has brought London house prices relative to income somewhat closer to other areas. House price inflation has also slowed a little across other regions, although it has generally remained a little above income growth. The latest RICS survey continued to report a divergence between price expectations in London and the South East — where surveyors expected prices to fall — and most other regions, where prices were expected to rise. Overall, UK house price inflation is projected to be modest in the near term (Table 2.A).

Developments in the housing market will also contribute to GDP directly through housing investment. Around one fifth of housing investment is accounted for by spending associated with property transactions, such as estate agent and legal fees, which has been dampened by subdued activity in the housing market. The remainder consists of new house building and improvements to existing buildings. Spending on new dwellings has risen further in recent quarters (Chart 2.9). Housing starts have been broadly flat since mid-2016, however, and some contacts of the Bank's Agents report skills shortages in the construction sector. As a result, growth in housing investment is expected to be modest in the near term.

Corporate spending

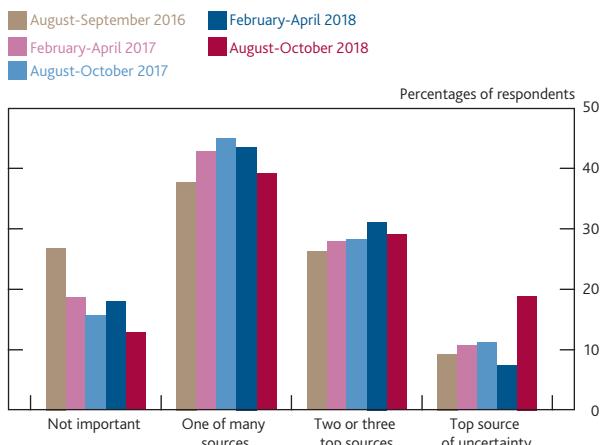
In contrast to household spending, spending by businesses has grown at a slower rate than their incomes since mid-2016, resulting in an increase in their financial balance (Chart 2.3).

Business investment is expected to have fallen by 0.5% in the year to 2018 Q3 (Chart 2.10). Investment growth has continued to be lower than would have been expected given accommodative financial conditions, relatively robust global growth and declining slack. Although most surveys of investment intentions are consistent with positive growth, they have fallen somewhat in recent months. In particular, the CBI measure for investment in plant and machinery in the manufacturing sector fell in Q3 to its lowest level since 2009. Planned expenditure on product innovation and training has also fallen in recent quarters.

Weak investment is, at least in part, likely to have reflected Brexit and associated uncertainty. That uncertainty appears to have risen recently, and may have weighed on investment by more than had been expected in August. Results from the Bank's Decision Maker Panel Survey suggest that Brexit's importance as a source of uncertainty has risen further in recent months (Chart 2.11), and the Agents' latest survey of investment intentions reported Brexit uncertainty as the largest headwind to investment spending at the moment.

Chart 2.11 Brexit-related uncertainty among companies has risen

Decision Maker Panel: Brexit as a source of uncertainty^(a)



(a) Responses to the question 'How much has the result of the EU referendum affected the level of uncertainty affecting your business?'.

(Box 3). Respondents to the 2018 Q3 *Deloitte CFO Survey* also viewed Brexit as the biggest risk facing their business, on average, with sentiment towards its long-term impact turning increasingly negative. Of those respondents, 79% expected the UK business environment to be somewhat worse as a result of Brexit, and only 6% anticipated a better long-term outcome.

Weak demand for investment appears to have been reflected in slowing growth of bank lending to both large companies and small and medium-sized enterprises since late 2016 (Chart 2.6). Results from the Q3 *Credit Conditions Survey* suggest that lenders anticipate a further reduction in large companies' demand for credit in Q4. While a broader measure of companies' external financing suggests larger companies have continued to raise finance at a reasonably steady pace since 2015, some of that financing has been raised through leveraged loans for mergers and acquisitions or balance sheet restructuring, and so is unlikely to have provided direct support to business investment growth.⁽²⁾

In the MPC's central projection, conditioned on the expectation of a smooth adjustment to the UK's eventual trading relationship with the EU, business investment growth is expected to be subdued in the near term. Further out, Brexit-related uncertainty should wane, boosting investment. Given that the current drag from uncertainty appears to be larger than expected, investment growth is projected to pick up by more after March 2019 than anticipated in August as greater clarity emerges (Section 5).

Table 2.B Expenditure components of demand^(a)

Percentage changes on a quarter earlier

| | Quarterly averages | | | | | | | 2018 Q1 Q2 |
|--|--------------------|-------------|-------------|-------------|------|------|------|------------------|
| | 1998– 2007 | 2008– 09 | 2010– 12 | 2013– 15 | 2016 | 2017 | | |
| Household consumption ^(b) | 0.8 | -0.5 | 0.1 | 0.6 | 0.8 | 0.4 | 0.5 | 0.3 |
| Private sector investment | 0.7 | -4.5 | 2.0 | 1.1 | 0.5 | 1.1 | 0.0 | -0.1 |
| of which, business investment ^(c) | 0.7 | -3.4 | 2.2 | 0.6 | -0.1 | 0.7 | -0.5 | -0.7 |
| of which, private sector housing investment | 0.6 | -7.0 | 1.4 | 2.6 | 1.8 | 2.2 | 1.0 | 1.1 |
| Private sector final domestic demand | 0.8 | -1.1 | 0.5 | 0.8 | 0.4 | 0.6 | 0.4 | 0.2 |
| Government consumption and investment ^(c) | 0.9 | 0.8 | -0.2 | 0.3 | 0.2 | 0.0 | -0.6 | -0.6 |
| Final domestic demand | 0.8 | -0.6 | 0.3 | 0.7 | 0.3 | 0.5 | 0.2 | 0.1 |
| Change in inventories ^{(d)(e)} | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | -0.4 | 0.5 | 0.0 |
| Alignment adjustment ^(e) | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -0.4 | 0.7 |
| Domestic demand ^(f) | 0.8 | -0.7 | 0.4 | 0.8 | 0.5 | 0.2 | 0.2 | 1.0 |
| 'Economic' exports ^(g) | 1.1 | -1.3 | 1.0 | 0.9 | 0.9 | 1.2 | -0.7 | -2.2 |
| 'Economic' imports ^(g) | 1.4 | -1.1 | 0.8 | 1.2 | 0.9 | 0.5 | -0.2 | -0.2 |
| Net trade ^{(e)(g)} | -0.1 | 0.0 | 0.1 | -0.1 | 0.0 | 0.2 | -0.1 | -0.6 |
| Real GDP at market prices | 0.7 | -0.7 | 0.4 | 0.6 | 0.4 | 0.4 | 0.1 | 0.4 |
| Memo: nominal GDP at market prices | 1.2 | -0.2 | 0.9 | 0.9 | 1.2 | 0.8 | 0.5 | 0.8 |

(a) Chained-volume measures unless otherwise stated.

(b) Includes 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.

Government

The MPC's projections are conditioned on the Government's tax and spending plans. As the Autumn Budget was announced following the finalisation of the MPC's latest projections, they are conditioned on plans detailed in the March Spring Statement. The estimated impact of the Autumn Budget stimulus will be incorporated into the MPC's February 2019 forecast.

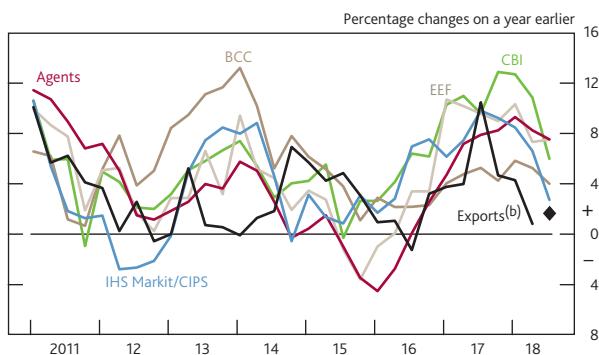
2.2 Net trade

An increase in net trade has contributed to an improvement in the current account since mid-2016 (Chart 2.3). Net trade is expected to have contributed 0.9 percentage points to GDP growth in 2018 Q3, although that follows a 0.6 percentage point drag in Q2 (Table 2.B). Those contributions in part reflect continued volatility in net exports of non-monetary gold, which do not affect aggregate GDP as they are offset by changes in the contribution of private sector investment in valuables. More generally, the trade data are volatile and subject to revision.

(2) For further discussion of trends in leveraged loans, see the 'Record of the Financial Policy Committee meeting on 3 October 2018'.

Chart 2.12 Survey indicators are consistent with positive export growth but have fallen

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. The diamond shows Bank staff's projection for 2018 Q3.

The past depreciation of sterling and relatively robust global growth have been supporting the demand for exports.

Survey indicators of export growth continue to be relatively strong but have fallen in recent months (Chart 2.12).

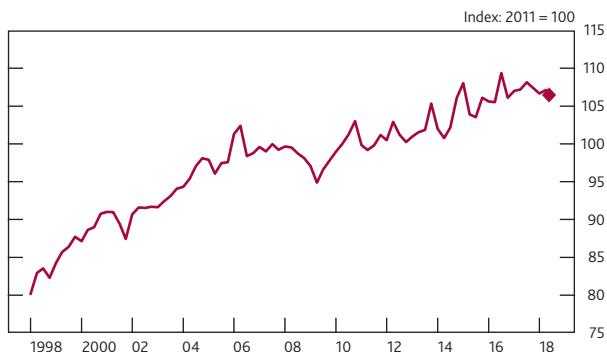
Import growth has slowed since mid-2016 (Table 2.B). That may in part reflect the decline in the exchange rate, which has raised the cost of imports. Consistent with that, import penetration — the proportion of exports and domestic demand satisfied using imported goods and services — has been broadly flat in recent quarters (Chart 2.13) compared with a steady upward trend in previous years and in other advanced economies.

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. Goods trade is concentrated within a subset of companies, with 70% of goods traded in 2016 by value accounted for by the top 1% of trading firms. Services trade is also concentrated, with companies that both export and import services representing 2% of all firms but accounting for over 80% of all services trade.⁽³⁾ As a result, the outlook for trade in aggregate will be sensitive to developments in these particular firms.

Overall, net trade is projected to make a positive contribution to GDP growth in the near term, given the prospects for demand in the UK relative to abroad, and some further boost from the past depreciation of sterling.

Chart 2.13 Import penetration has flattened since 2016

Imports relative to import-weighted demand^(a)



Sources: ONS and Bank calculations.

(a) UK imports as a proportion of import-weighted total final expenditure, chained-volume measures. Import-weighted total final expenditure is calculated by weighting together household consumption (including NPISH), whole-economy investment (excluding valuables), government spending, changes in inventories (excluding the alignment adjustment) and exports by their respective import intensities, estimated using the *United Kingdom Input-Output Analytical Tables 2014*. Import and export data have been adjusted to exclude the estimated impact of MTIC fraud. The diamond shows Bank staff's projection for 2018 Q3.

(3) Estimates for goods and services trade shares are based on statistical data from Her Majesty's Revenue and Customs (HMRC) and ONS respectively, which are Crown Copyright. They do not imply the endorsement of HMRC nor ONS in relation to the interpretation or analysis of the information. The research data sets used may not exactly reproduce HMRC or ONS aggregates.

Box 3

Agents' update on business conditions

The Bank of England's Agents have a long-standing role in providing economic intelligence to the Bank's policymaking committees from their regular meetings with businesses. Some of the key information from Agents' contacts considered by the MPC at its November meeting is highlighted in this box.⁽¹⁾

Over the past three months,⁽²⁾ annual consumer spending growth remained modest. New car sales remained weak, dampened further by the impact of some supply disruption following the introduction of new emissions standards.

Growth in business services activity was also modest as companies in sectors reliant on discretionary business spending, such as marketing and hospitality, reported weaker demand. However, IT firms reported strong demand, and professional services firms expected to benefit from a further pickup in Brexit-related activity.

Growth in domestic manufacturing output in the past three months was slightly weaker, reflecting softer sales growth among companies supplying the retail, construction and automotive sectors. Growth in manufacturing export volumes also eased, with strong demand for capital goods from the US and Asia partially offset by slower growth in automotive exports, and a small impact on a few producers in the metals sector from US tariffs.

Annual construction output growth steadied at a sluggish pace, following weak growth earlier in the year. Growth in house building and student accommodation remained stronger than other parts of the construction sector. Planning delays and skills shortages continued to be cited by some contacts as a constraint on activity.

Capacity constraints were above normal in most sectors, due to the tight labour market. This was particularly the case in logistics, where contacts reported a shortage of haulage drivers, as well as limited spare capacity in warehousing. However, constraints in manufacturing eased slightly due to weaker activity.

Employment intentions softened in manufacturing, and continued to contract among consumer services firms. Overall, employment was expected to continue to rise, however, and recruitment difficulties to worsen. Difficulties were particularly marked in IT and construction. Pay settlements remained in the range of 2½% to 3½% — slightly higher than last year.

There was uncertainty about Brexit outcomes, but only a few companies had started to implement contingency plans. This

was partly due to caution among contacts about tying up cash flow to build inventory.

Consistent with that, there has been only a small amount of stockbuilding activity reported to date, although some companies were considering increasing stocks towards the end of 2018 Q4 and in 2019 Q1. However, the potential timing varied across sectors, as did the scale of planned stockbuilding.

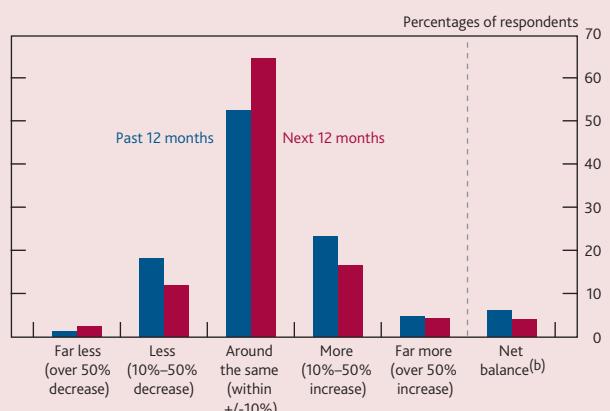
Of those few contacts that had already begun to implement plans, actions taken included: building cash reserves; reviewing supply chains; acquiring more warehousing capacity; applying for Authorised Economic Operator status; and opening EU subsidiaries.

Agents' survey on investment intentions

The Agents surveyed business contacts about their investment intentions for the next 12 months.⁽³⁾ Contacts were also asked how a variety of factors, including Brexit, was affecting investment levels.

Around a fifth of respondents — weighted by employment — said that they expected their investment spending in the UK to be higher over the next 12 months than in the previous 12 months, while a slightly smaller proportion said that they expected it to be lower (**Chart A**). Some two thirds of respondents expected investment to remain about the same. While the resulting net balance for investment intentions was positive, it was below that from the equivalent 2017 survey

Chart A The net balance of investment intentions is slightly positive
Change in capital expenditure^(a)



(a) Companies were asked 'How has your UK capital expenditure changed over the past 12 months, and what are your future expectations for capital expenditure?'.^(b)

(b) Net percentage balance of companies reporting increases in investment. Half weight was given to those that responded 'less' or 'more', and full weight was given to those that responded 'far less' or 'far more'.

(1) A comprehensive quarterly report from the Agents on business conditions is published alongside the MPC decision in non-*Inflation Report* months.

(2) This section covers intelligence gathered between late August and mid-October 2018. References to activity and prices generally relate to the past three months compared with a year earlier.

(3) The survey was conducted between 15 August and 5 October 2018. Responses were received from 352 companies, employing over 500,000 people, and accounting for around £11 billion in capital expenditure. Responses were weighted by employment.

and was weak relative to most previous years, except 2016 (**Chart B**). In the 2016 survey, companies had expected investment to decline over the next 12 months, though the 2017 survey suggested that actual capital expenditure had increased.

Chart B Investment intentions are weak compared with previous surveys

Investment intentions^(a)



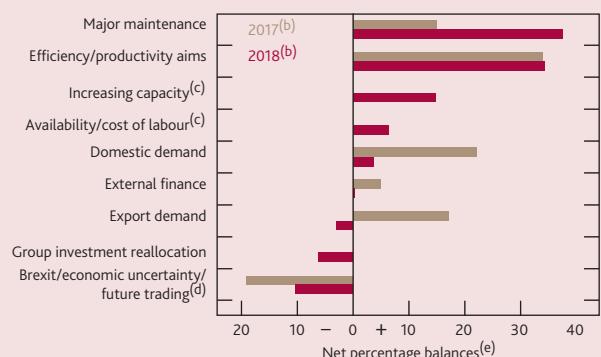
(a) Net percentage balance of companies reporting increases in investment.

This year's survey showed that companies were most likely to invest to maintain or replace equipment, and to achieve future efficiency or productivity gains (**Chart C**). This may reflect strategies that prioritise investment in essential, or 'no regrets', projects given the uncertain environment.

Companies cited Brexit uncertainty as the biggest headwind to investment intentions, with a net balance for this factor of around -10% (**Chart C**). Domestic and export demand were considered less likely to drive investment over the coming year than in the 2017 survey.

Chart C Brexit uncertainty was the largest reported headwind to investment

Factors affecting the level of UK capital expenditure^(a)



(a) Companies were asked 'How are the following factors affecting your levels of UK capital expenditure plans over the next 12 months compared with the past 12 months?'.
 (b) The 2018 data relate to factors affecting investment intentions for the next 12 months. The 2017 data relate to intentions over the next 12 months from the 2017 survey.
 (c) Companies were not asked about these factors in the 2017 survey.

(d) In 2017, companies were asked about uncertainty about the economic environment and expected future UK trading arrangements. In 2018, companies were asked about Brexit uncertainty (economic or political), and expected future trading arrangements emerging from Brexit.
 (e) Net percentage balance of companies reporting increases in investment as a result of these factors.

3 The labour market and supply

The MPC judges that supply and demand in the economy are currently broadly in balance. Potential supply growth has been subdued in recent years and is projected to remain below its historical average rate. As a result, the pace at which output can grow without generating inflationary pressures is likely to remain modest.

Table 3.A Most indicators suggest a tight labour market

Selected measures of labour demand and labour market tightness

| | Quarterly averages | | | | | | | | | |
|--|--------------------|---------|---------|---------|------|------|------|---------|---------|---------|
| | 2000–07 | 2008–09 | 2010–12 | 2013–14 | 2015 | 2016 | 2017 | 2018 Q1 | 2018 Q2 | 2018 Q3 |
| Change in employment (thousands)^(a) | 70 | -59 | 67 | 130 | 147 | 75 | 80 | 197 | 42 | 25 |
| of which, employees | 55 | -67 | 32 | 106 | 110 | 40 | 86 | 270 | 24 | n.a. |
| of which, self-employed and other ^(b) | 16 | 7 | 35 | 24 | 36 | 35 | -6 | -73 | 18 | n.a. |
| Surveys of employment intentions^(c) | | | | | | | | | | |
| Agents ^(d) | 0.8 | -1.7 | 0.3 | 0.9 | 1.0 | 0.1 | 0.3 | 0.4 | 0.2 | 0.3 |
| BCC ^(e) | 19 | -3 | 8 | 26 | 25 | 21 | 22 | 23 | 24 | 22 |
| CBI ^(e) | 3 | -20 | -3 | 17 | 18 | 17 | 15 | 18 | 11 | 7 |
| REC ^(f) | 58 | 44 | 56 | 63 | 64 | 59 | 63 | 62 | 62 | 61 |
| Job-to-job flows^(g) | 2.77 | 2.00 | 1.84 | 2.15 | 2.32 | 2.45 | 2.50 | 2.29 | 2.45 | n.a. |
| Redundancies to employees ratio^(h) | 0.63 | 0.79 | 0.60 | 0.46 | 0.41 | 0.43 | 0.38 | 0.35 | 0.36 | 0.32 |
| Marginal attachment ratio⁽ⁱ⁾ | 5.77 | 5.64 | 5.85 | 5.68 | 5.60 | 5.36 | 4.99 | 4.86 | 4.71 | 4.64 |
| Surveys of recruitment difficulties^(c) | | | | | | | | | | |
| Agents ^(j) | 1.5 | -2.5 | -1.1 | 0.4 | 2.0 | 1.3 | 2.0 | 2.6 | 2.5 | 2.7 |
| BCC ^(k) | 61 | 55 | 51 | 57 | 66 | 62 | 67 | 62 | 64 | 73 |
| CBI, skilled ^(l) | 27 | 15 | 16 | 23 | 34 | 32 | 32 | 30 | 29 | 30 |
| CBI, other ^(l) | 8 | 2 | 2 | 3 | 8 | 8 | 10 | 10 | 9 | 8 |

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 Q3 is Bank staff's projection, based on data to August.
- (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 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) Proportion of people who reported being in a job three months ago who report being in a job for less than three months.
- (h) Redundancies as a percentage of total LFS employees, calculated using rolling three-month measures. Figure for 2018 Q3 is for the three months to August.
- (i) Number of those aged 16–64 who say they are not actively looking for work but would like a job, as a percentage of the 16–64 population. Figure for 2018 Q3 is for the three months to August.
- (j) 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.
- (k) Percentage of respondents reporting recruitment difficulties over the past three months.
- (l) 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 twelve months (in the financial services and business/consumer/professional services sectors).

Most indicators suggest that the labour market is tight and that supply and demand in the economy overall are currently broadly in balance (Section 3.1). Therefore the rate at which demand can grow sustainably over the next few years will depend on potential supply growth. This, in turn, will depend on growth in labour supply and productivity, both of which are projected to be more subdued than in the decade prior to the crisis (Section 3.2).

3.1 Developments in the labour market and spare capacity

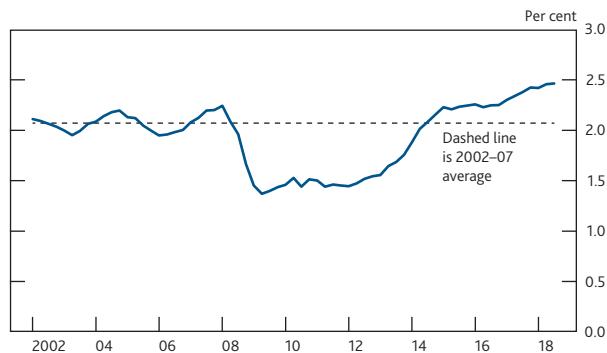
The MPC judges that supply and demand in the economy are currently broadly in balance. That judgement is consistent with top-down estimates of the output gap from statistical filters that estimate potential supply using past observations of GDP, inflation and unemployment. It is also corroborated by other indicators of spare capacity. For example, the rate at which those already in employment are switching to new jobs — which will, in part, reflect the degree to which employers are competing to hire employees — is only a little below its pre-crisis rate (Table 3.A). Indicators of underemployment — such as the proportion of part-time workers unable to find a full-time job — have continued to fall back towards their pre-crisis levels. The number of vacancies per person in the labour force is at a record high (Chart 3.1). And survey measures of firms' recruitment difficulties are around or above their pre-crisis levels. Contacts of the Bank's Agents report that, for most businesses, the main constraint on increasing output is the availability of labour. Survey measures of capacity utilisation within companies suggest little scope to increase output with existing resources (Chart 3.2).

The unemployment rate was 4.0% in the three months to August (Chart 3.3), in line with the August Report projection and a little below the MPC's judgement of the equilibrium rate of 4½%.⁽¹⁾ While employment is expected to have risen only a little in Q3 (Table 3.A), it is higher than a year ago. Having fallen in previous quarters, average hours worked appear to

(1) For further discussion see Box 4 of the February 2018 *Inflation Report*.

Chart 3.1 The vacancy rate is at a record high

Vacancies to labour force ratio^(a)

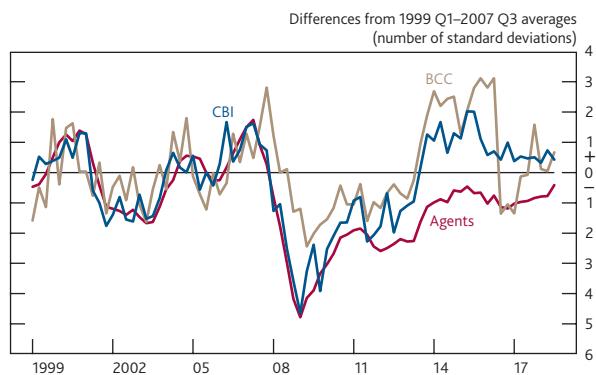


Sources: ONS and Bank calculations.

(a) Vacancies as a percentage of the workforce, calculated using rolling three-month measures. Excludes vacancies in agriculture, forestry and fishing. Figure for 2018 Q3 shows vacancies in the three months to September relative to the size of the labour force in the three months to August.

Chart 3.2 Survey measures suggest there is little spare capacity within companies

Survey indicators of capacity pressures^(a)

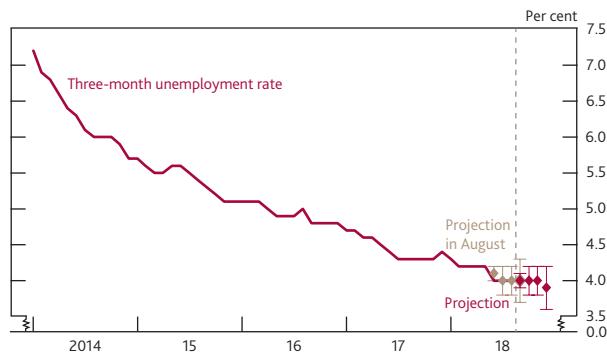


Sources: Bank of England, BCC, CBI, CBI/PwC, ONS and Bank calculations.

(a) Measure above zero indicates greater capacity pressures relative to past average. 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 latest available observations for each quarter. The BCC data are not seasonally adjusted.

Chart 3.3 The unemployment rate is projected to fall to 3.9% in Q4

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 June, July, August and September 2018 at the time of the August Report. The red diamonds show the current staff projections for the headline unemployment rate for the three months to September, October, November and December 2018. The bands on either side of the diamonds show uncertainty around those projections based on one root mean squared error of past Bank staff projections for the three-month headline unemployment rate.

have picked up in Q3 to around their level a year ago. Taking employment and average hours together, total hours worked are projected to have risen by 1.1% in the year to 2018 Q3, accounted for entirely by employment growth (Chart 3.4).

The unemployment rate is projected to fall slightly further to 3.9% by the end of the year (Chart 3.3). Most survey measures of employment intentions are around their pre-crisis average levels (Table 3.A), which, together with an elevated vacancy rate (Chart 3.1), suggests that demand for labour remains solid. Beyond the end of the year, the unemployment rate is projected to remain broadly stable, while a margin of excess demand builds (Section 5).

3.2 The outlook for potential supply

Labour supply

The growth in employment over the past few years has absorbed slack in the labour market. Given that, the scope for further sustainable increases in employment is likely to be determined in large part by labour supply growth. Labour supply growth is projected to be subdued relative to recent years, with all of it expected to come from population growth.

The MPC's forecasts assume that the population evolves in line with the ONS's latest principal population projection, published in October 2017. The ONS projects net migration to fall somewhat in coming years (Chart 3.5), reducing population growth. In the year to March 2018, net migration to the UK was 270,000, slightly above the ONS projection. Within this, net migration from the EU was around 90,000, having slowed after the UK's referendum on EU membership in 2016. LFS data suggest that the number of EU nationals in employment in the UK has fallen slightly over the year to 2018 Q2.

There is a risk that net migration could fall more sharply than the gradual decline implied by the ONS projections. There tends to be a positive relationship between migration flows to the United Kingdom and UK economic conditions relative to those in migrants' home countries.⁽²⁾ Over the coming years, the subdued outlook for UK per capita GDP relative to that of other countries could reduce net migration by more than implied by the ONS projections. In addition, net migration will be affected by any changes to institutional arrangements for the movement of labour, or uncertainty around those arrangements.

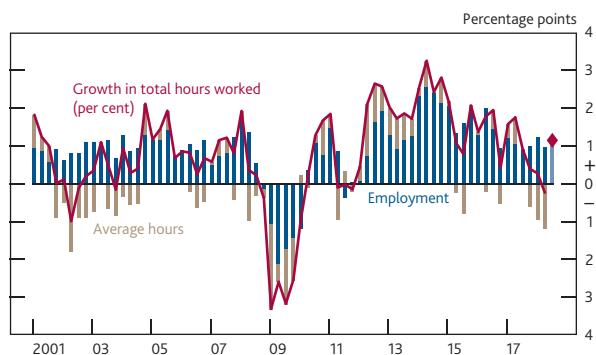
Productivity

With a subdued outlook for labour supply growth, a key driver of potential supply will be developments in labour productivity — the amount of output that can be produced per person, or per hour worked.

(2) For more details, see Lewis, J and Swannell, M (2018), 'The macroeconomic determinants of migration', *Bank of England Staff Working Paper No. 729*.

Chart 3.4 Growth in total hours worked is expected to have recovered in Q3

Contributions to four-quarter growth in total hours worked^(a)

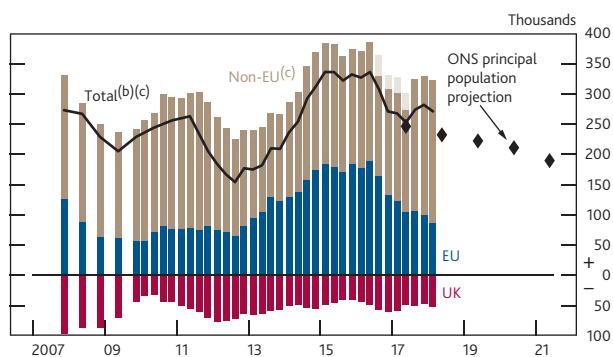


Sources: ONS and Bank calculations.

(a) Diamond and faded bars are Bank staff's projections for 2018 Q3, based on data to August.

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, represented by the faded beige bars.

Productivity growth in the UK since the crisis has been subdued: for example, the current level of output per hour is only slightly above its pre-crisis peak (Chart 3.6). Compared to other economies, UK productivity growth has been relatively lacklustre, suggesting some role for UK-specific factors. Part of the weakness, however, may have been driven by global factors such as slower growth in world trade — which tends to be associated with productivity growth — and developments in the financial sector, which is increasingly international. Consistent with this, productivity growth in the UK and most other G7 countries tends to be positively correlated and growth has slowed across many of them.

Over half of the productivity growth slowdown in the UK can be accounted for by the manufacturing and finance sectors (Chart 3.7).⁽³⁾ In the manufacturing sector, trends in world trade flows may have been one influence on productivity growth. For example, it is possible that the process of offshoring could have boosted measured productivity growth during the early 2000s. More generally, growth in world trade tends to be associated with productivity gains through greater economies of scale, increased competition and exposure to international flows of new ideas. As manufacturing firms tend to be highly integrated within global supply chains, their productivity growth is likely to have been affected by the weakness in trade growth since the crisis, as well as the weakness in productivity growth in other countries.

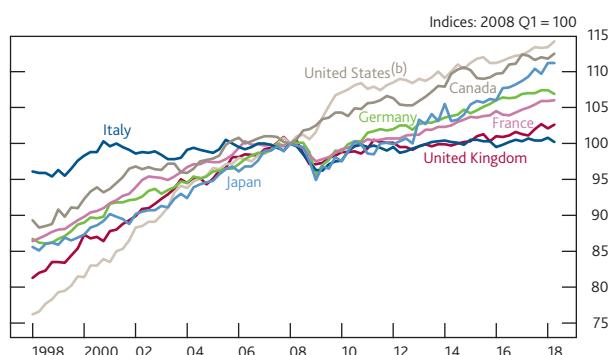
In the financial services sector, rapid growth in leverage in the pre-crisis period is likely to have boosted productivity growth. The subsequent slowdown is likely, in part, to reflect that effect unwinding. Mismeasurement of financial services output may have played a role in overemphasising the effects of rising leverage prior to the crisis on productivity growth and equally the effects of the deleveraging since.

A role for global factors is consistent with the behaviour of productivity growth at the level of individual companies. These data suggest that aggregate productivity growth tends to be driven by growth in larger, more productive companies, many of which tend to be exporters. At least in part, the weakness of productivity growth over the past decade appears to reflect the fact that the most productive firms are not becoming more productive at the same rate as they used to. This may reflect the effect on large UK exporters of the slowdown in trade and productivity growth across countries since the crisis.

Growth in labour productivity can be accounted for in terms of the amount of capital utilised as well as the efficiency with which available resources — capital and labour — are used to produce output. Such an approach suggests that the weakness in UK productivity growth since the crisis is in part due to slower growth in capital per hour worked (Chart 3.8), which in

Chart 3.6 UK productivity growth has underperformed relative to most of the G7

Hourly labour productivity in the G7^(a)



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

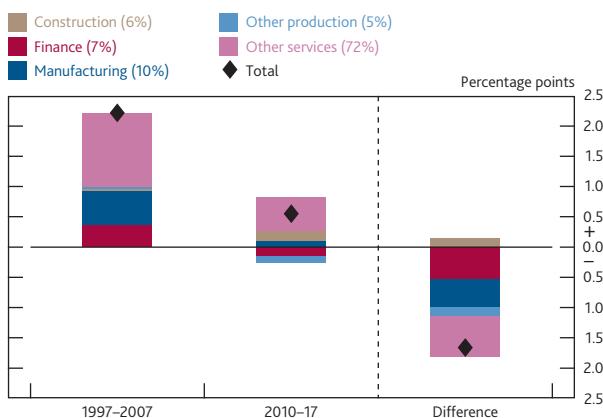
(a) Whole economy unless otherwise stated.

(b) US non-farm output per hour.

(3) For further details see pages 24–27 of the February 2018 *Inflation Report* and Tenreyro, S (2018), 'The fall in productivity growth: causes and implications'.

Chart 3.7 Finance and manufacturing account for over half of the post-crisis weakness in productivity growth

Contributions to hourly labour productivity growth^(a)

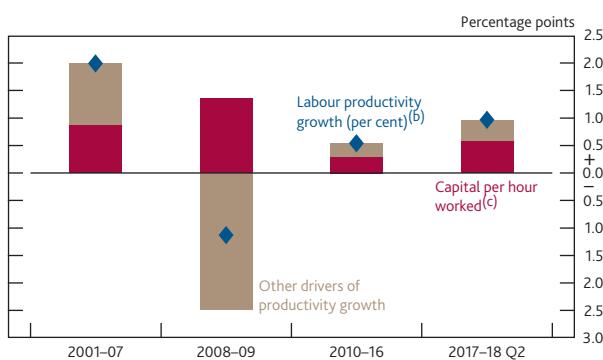


Sources: ONS and Bank calculations.

(a) Annual averages. Sectoral output per hour is calculated as gross value added (GVA) divided by hours worked. Figures in parentheses are shares in nominal GVA in 2017.

Chart 3.8 Part of the weakness in productivity growth can be attributed to lower investment

Contributions to four-quarter growth in whole-economy hourly labour productivity^(a)



Sources: ONS and Bank calculations.

(a) The decomposition is based on a growth-accounting framework using a constant returns to scale Cobb-Douglas production function, with capital to total output elasticity of $\frac{1}{3}$. The contribution of other factors is calculated as a residual.

(b) Output per hour is based on the backcast for the final estimate of GDP.

(c) Fixed capital stock, including structures, machinery, vehicles, computers, purchased software, own-account software, mineral exploration, artistic originals and R&D. Calculations are based on Oulton, N and Wallis, G (2016), 'Capital stocks and capital services: integrated and consistent estimates for the United Kingdom, 1950–2013', *Economic Modelling*.

Table 3.B Monitoring the MPC's key judgements

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

turn partly reflects weak investment. But the weakness in productivity growth appears to also reflect slower growth in the efficiency with which inputs are used. Previous Bank analysis has suggested that this, in turn, may in part reflect the misallocation of capital across both companies and sectors.⁽⁴⁾

Overall, the MPC assumes that productivity growth rises somewhat over the forecast period, to around 1% (Section 5). There are, however, risks around that projection in both directions. For example, it is possible that recent advances in technology will increase productivity growth to above the current projection.⁽⁵⁾ But the benefits of past advances in technology were experienced over many years, and required a period of adjustment when measured productivity growth was lower, so an imminent marked boost to productivity growth from this source is unlikely.

Average annual productivity growth of 1% is subdued relative to its historical average of around 2%. In part, this is because some of the factors weighing on growth since the crisis are projected to persist. In addition, the outlook for productivity growth is likely to be affected by changes in trading arrangements as a result of Brexit, even under the assumption of a smooth adjustment to those new trading arrangements (Box 4). A reduction or reorientation of trade and supply chains, for example, is likely to weigh on productivity growth for a period.⁽⁶⁾

(4) See, for example, Barnett, A, Batten, S, Chiu, A, Franklin, J and Sebastiá-Barriel, M (2014), 'The UK productivity puzzle', *Bank of England Quarterly Bulletin*, 2014 Q2.

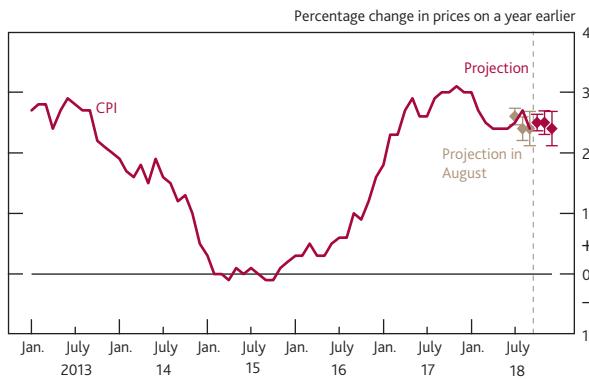
(5) For more detail, see Carney, M (2018), 'The future of work'.

(6) For more detail, see Carney, M (2017), '[De]Globalisation and inflation'.

4 Costs and prices

CPI inflation fell back to 2.4% in September, having risen in August. Higher import and energy prices have continued to hold inflation above the 2% target, but these pressures are projected to diminish over coming quarters. Meanwhile domestic inflationary pressures are strengthening, supported by rising wage growth.

Chart 4.1 CPI inflation fell back to 2.4% in September
CPI inflation and Bank staff's near-term projection^(a)

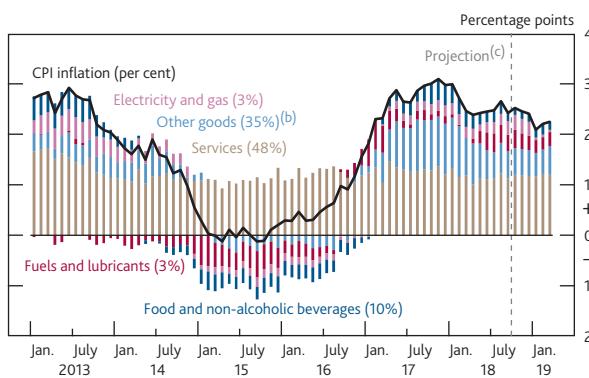


Sources: ONS and Bank calculations.

(a) The beige diamonds show Bank staff's central projection for CPI inflation in July, August and September 2018 at the time of the August *Inflation Report*. The red diamonds show the current staff projection for October, November and December 2018. 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 CPI inflation is expected to fall further towards the target in coming months

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) Difference between CPI inflation and the other contributions identified in the chart.

(c) Bank staff's projection. Fuels and lubricants estimates use Department for Business, Energy and Industrial Strategy petrol price data for October 2018 and are then based on the November 2018 *Inflation Report* sterling oil futures curve, shown in Chart 4.3.

4.1 Consumer price developments and the near-term outlook

CPI inflation was 2.5% in Q3, as expected in the August *Report*. Inflation was volatile within that quarter, however, rising from 2.5% in July to 2.7% in August, before falling back to 2.4% in September (Chart 4.1). That volatility occurred across a number of CPI components, including clothing and footwear.

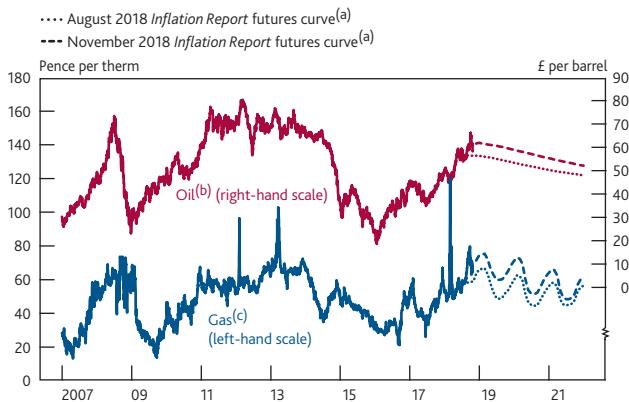
Movements in retail gas and electricity prices are likely to cause some further volatility in CPI inflation in coming quarters (Section 4.2). Two of the major utility companies raised their retail energy prices in October, which — together with a scheduled rise in the Government's prepayment safeguard tariff — will have increased CPI inflation from that month. Acting in the opposite direction, Ofgem's proposed price cap on standard variable tariffs for retail energy is expected to reduce CPI inflation by around 0.2 percentage points from January 2019, pushing CPI inflation towards the 2% target (Chart 4.2).

The outlook for CPI inflation will also be affected by measures announced in the Autumn *Budget*. These include a freeze in the rate of fuel duty and some alcohol duties until 2020/21. The estimated impact of these measures will be incorporated into the MPC's February 2019 forecast.

In addition to movements in retail energy prices, the path for inflation over the forecast period will reflect the balance between diminishing external cost pressures (Section 4.2) and rising domestic inflationary pressures (Section 4.3). Current above-target inflation is due to the lingering effects of sterling's earlier depreciation and more recent rises in global energy prices. These pressures are likely to subside in coming years. Meanwhile, domestic inflationary pressures have been building as the labour market has tightened. Whole-economy regular pay growth was stronger than expected three months ago at 3.1% in the three months to August, the highest rate since January 2009. Inflation expectations, which can influence wage and price-setting decisions, remain consistent with

Chart 4.3 Sterling wholesale energy prices have risen further since August

Sterling oil and wholesale gas prices



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

(a) Fifteen working day averages to 25 July and 24 October 2018 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.

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 directly 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.

The sterling spot price of oil had risen by 10% since the *August Report*, mainly due to a rise in dollar oil prices (Section 1), and was over 40% higher than a year earlier (**Chart 4.3**). Changes in oil prices tend to be passed on to fuel prices relatively quickly, and these are projected to add 0.3 percentage points to CPI inflation in Q4 (**Chart 4.2**). The oil futures curve — on which the MPC's forecasts are conditioned — remains downward sloping. That means that the projected contribution from fuel prices to CPI inflation falls from mid-2019.

The gas futures curve has also risen, by 15% since the *August Report* and by around 40% over the past year (**Chart 4.3**). Energy suppliers have been increasing their retail gas and electricity prices in response to this pickup in wholesale costs, with two of the largest suppliers raising prices further with effect from October. Retail gas and electricity prices are projected to add around 0.3 percentage points to CPI inflation in Q4 (**Chart 4.2**).

Acting in the opposite direction, however, Ofgem's proposed cap on most standard variable tariffs (SVTs) is likely to weigh on retail gas and electricity prices. The cap, which is due to take effect by the end of the year, is expected to reduce CPI inflation by around 0.2 percentage points from January 2019. Since SVTs are the only gas and electricity tariffs currently captured in the CPI basket, only changes in these tariffs will be directly reflected in CPI inflation.

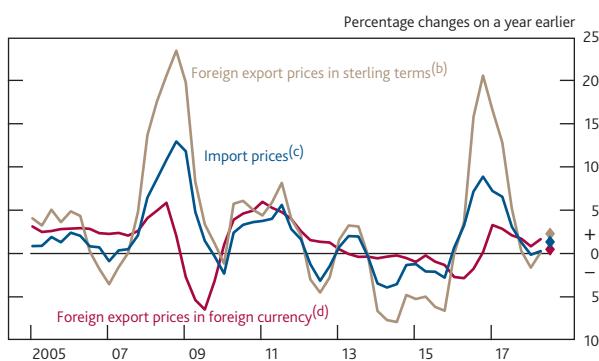
Under current plans, the cap will be updated twice a year, in April and October. The MPC's forecasts reflect an assumption that the level of the cap will vary with underlying costs, including wholesale energy prices. Given recent rises in wholesale costs, the cap is projected to increase during 2019.

Non-energy import costs

The prices of UK goods and services are affected by the cost of non-energy imports. Sterling's referendum-related depreciation, as well as rises in world export prices, have raised the cost of non-energy imports facing UK companies and households since 2016.

Chart 4.4 Import price inflation has fallen back from elevated rates

Import prices and foreign export prices^(a)



Sources: Bank of England, CEIC, Datastream from Refinitiv, Eurostat, ONS and Bank calculations.

(a) The diamonds show Bank staff's projections for 2018 Q3.

(b) Domestic currency non-oil export prices as defined in footnote (d), divided by the sterling effective exchange rate index.

(c) UK goods and services import deflator excluding fuels and the impact of MTIC fraud.

(d) Domestic currency non-oil export prices of goods and services of 51 countries weighted according to their shares in UK imports. The sample excludes major oil exporters.

Table 4.A Monitoring the MPC's key judgements

| Developments anticipated in August during 2018 Q3–2019 Q1 | Developments now anticipated during 2018 Q4–2019 Q2 |
|---|--|
| Household energy prices | Revised down slightly |
| • Electricity and gas prices to be unchanged except for announced price rises. | • Electricity and gas prices to rise in line with announced price rises in 2018 Q4, before declining in line with the Government's domestic energy price cap at the start of 2019. |
| Import prices | Broadly unchanged |
| • Non-fuel import price growth to rise to 2% in the year to 2019 Q1. | • Non-fuel import prices to rise by around 1% in the year to 2019 Q2. |
| Wages and unit labour costs | Pay revised up; unit labour costs revised down |
| • Four-quarter growth in whole-economy AWE regular pay to average around 2¾%. | • 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 2¾%. | • Four-quarter growth in whole-economy unit labour costs to average around 1¾%. |
| • Four-quarter growth in whole-economy unit wage costs to average around 2½%. | • 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%. |
| Inflation expectations | Broadly 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 firm

Indicators of pay growth

| | Quarterly averages | | | | | | | |
|--|--------------------|---------|---------|------|------|------|---------|------|
| | 2002–07 | 2010–12 | 2013–14 | 2015 | 2016 | 2017 | 2018 H1 | Q3 |
| Average weekly earnings growth (per cent)^(a) | | | | | | | | |
| Whole-economy total pay | 4.2 | 1.9 | 1.1 | 2.6 | 2.4 | 2.4 | 2.5 | 3.0 |
| Private sector total pay | 4.2 | 1.9 | 1.1 | 2.6 | 2.4 | 2.4 | 2.5 | 3.0 |
| Whole-economy regular pay ^(b) | 3.9 | 1.8 | 1.0 | 2.5 | 2.4 | 2.2 | 2.8 | 3.1 |
| Private sector regular pay ^(b) | 3.8 | 1.7 | 1.3 | 2.9 | 2.6 | 2.3 | 2.9 | 3.2 |
| Survey indicators of pay growth | | | | | | | | |
| CBI ^(c) | n.a. | 1.6 | 1.8 | 2.3 | 2.2 | 2.5 | 2.5 | 2.5 |
| Agents ^(d) | 2.4 | 1.3 | 1.6 | 2.0 | 1.9 | 1.9 | 2.2 | 2.5 |
| CIPD ^(e) | n.a. | 1.2 | 1.8 | 1.8 | 1.4 | 1.5 | 2.0 | n.a. |
| Survey indicators of pay growth for new recruits | | | | | | | | |
| REC ^(f) | 56.7 | 52.4 | 59.0 | 61.9 | 57.1 | 59.8 | 61.4 | 62.2 |

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 Q3 are Bank staff's projections, based on data to August.
- (b) Total pay excluding bonuses and arrears of pay.
- (c) Measures 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. Data for financial services only available since 2009 Q1, and other sectors since 2008 Q2.
- (d) Quarterly scores for manufacturing and services weighted together using employee job shares. The scores refer to companies' labour costs over the past three months compared with the same period a year earlier. Scores of -5 to +5 represent rapidly falling and rapidly rising 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 employee job shares. A reading above 50 indicates growth on the previous month and below 50 indicates a decrease.

Changes in the sterling value of foreign export prices tend to be reflected in UK import prices within a year. As such, import price inflation has fallen back in recent quarters as the effect of the depreciation has waned, although it is expected to pick up a little in Q3 (Chart 4.4).

The rise in import prices following sterling's referendum-related depreciation is in turn being passed through to consumer prices. That effect has been especially apparent in the prices of import-intensive CPI components such as food and other goods. While the pass-through of import prices to retail prices tends to take time, the impact of the depreciation on CPI inflation is likely to have peaked. Consistent with that, non-energy goods price inflation has slowed in recent months. The effect of import prices on CPI inflation is set to diminish further over the forecast horizon (Section 5), despite further rises in import prices in the near term (Table 4.A).

4.3 Domestic cost pressures

In addition to external cost pressures, the path for CPI inflation will depend on domestically generated inflation (DGI). Having been subdued, domestic inflationary pressures have been rebuilding as slack in the economy has been absorbed.

Developments in labour costs

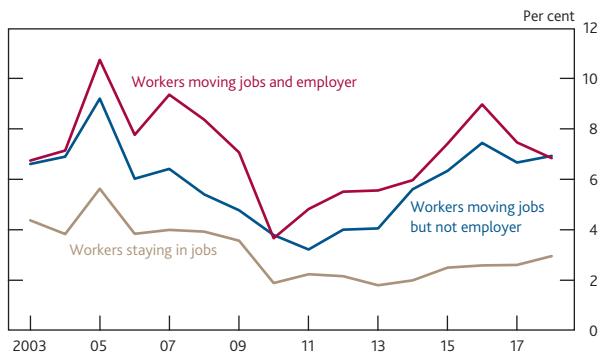
Labour is the largest domestic cost facing most businesses in the UK, and so is an important indicator of domestic inflationary pressures. The extent to which changes in the cost of labour affect companies' production costs, and hence CPI inflation, depends on growth in unit labour costs (ULCs) — how wages and other labour costs facing companies are growing relative to productivity.

Wage growth has continued to firm as the labour market remains tight and unemployment has fallen (Section 3). Whole-economy regular average weekly earnings (AWE) growth — which excludes the volatile bonus component — is expected to have been 3.1% in Q3 (Table 4.B), 0.4 percentage points higher than anticipated in August. That was also stronger than in 2016, when growth averaged around 2½%, and stronger still than in 2010–15 when it averaged around 1¾% per year. Data from the latest Annual Survey of Hours and Earnings — which relate to April 2018 — suggest that pay rises have broadened out a little from workers switching jobs to those remaining in their jobs (Chart 4.5).

The pickup in whole-economy wage growth reflects a strengthening in both public and private sector pay. Public and private sector regular pay growth picked up to 2.7% and 3.1% respectively in the three months to August, around 1 percentage point higher than a year earlier. Most survey indicators of private sector pay growth have also strengthened in recent quarters (Table 4.B).

Chart 4.5 Pay growth has picked up a little for those staying in their jobs

Median annual growth rates of pay^(a)

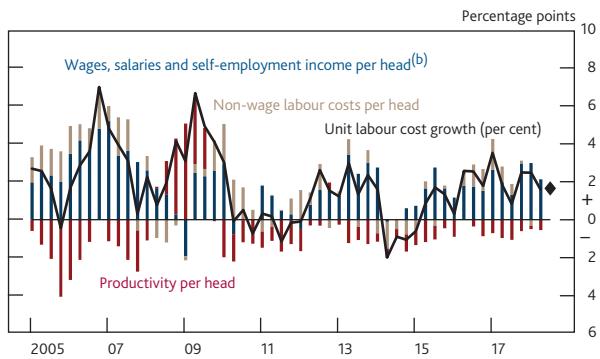


Sources: Annual Survey of Hours and Earnings and Bank calculations.

(a) Pay growth is median annual growth rate in April. Based on hourly gross earnings obtained by dividing gross pay in the reference week by total hours worked. Workers moving jobs are defined as workers in employment in consecutive years in a different job. Workers moving employers are defined as workers in employment in consecutive years with a different employer.

Chart 4.6 Unit labour cost growth has strengthened in recent years

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



Sources: ONS and Bank calculations.

(a) 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 Q3.

(b) Self-employment income is calculated from mixed income, assuming that the share of employment income in that is the same as the share of employee compensation in nominal GDP less mixed income.

While wage growth has strengthened, it remains below the rates seen on average prior to the crisis, when regular pay grew by around 4% per year. That is largely the result of continued weak growth in productivity (Section 3) — the amount produced per worker — which has reduced the wage rises that companies can afford to offer their employees. That weakness in productivity growth has in turn boosted growth in whole-economy ULCs relative to the pre-crisis period (Chart 4.6). Whole-economy ULC growth has picked up in recent years and was 2% on average over 2018 H1. That was weaker than expected in August, however, due to revisions to the ONS measure of wages and salaries.

In addition to whole-economy ULCs, there are a number of other measures of labour costs which may at times provide a better indication of DGI (Table 4.C). Measures based on AWE pay growth, for example, are less prone to revision than those based on total labour costs. And those based on AWE regular pay growth also exclude non-wage labour costs and bonuses, both of which can be volatile. These components weighed on whole-economy ULC growth over the first half of 2018. As a result, whole-economy regular pay based unit wage cost growth was a little stronger than ULC growth, at 2.4% on average in the first half of 2018 (Chart 4.7).

Measures based solely on private sector pay have a number of additional advantages. Private sector pay forms a larger share of costs for producers of consumer goods and services, and so is likely to have a stronger relationship with CPI inflation. In addition, public sector output, and hence productivity, can be difficult to measure accurately. As explained in the box on page 21 of the [May 2012 Report](#), many public services are provided free at the point of delivery, so there is no direct measure of the prices of public services that can be used to deflate nominal government expenditure. Private sector AWE regular pay based unit wage cost growth strengthened from 1.8% in 2016 to 2.1% over the first half of 2018 (Chart 4.7).

Growth in whole-economy and private sector measures of labour costs are projected to rise over the forecast period, supported by robust growth in regular pay. That leads to a gradual building of domestic inflationary pressures (Section 5).

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 DGI. As explained in previous Reports, there are advantages and disadvantages of each measure and none perfectly captures the concept of DGI.

Most of these measures have strengthened since early 2016 (Chart 4.8), consistent with a gradual building in domestic inflationary pressures over that period. One exception to that trend, however, has been CPI services inflation. Core services CPI inflation, which excludes components that are more likely

Table 4.C There are a number of different measures of unit labour and wage costs

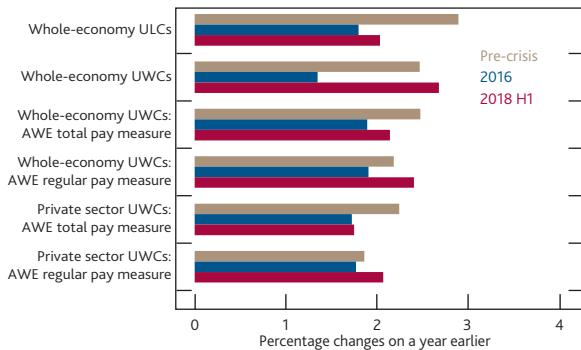
Comparison of unit labour and wage costs

| | Excludes non-wage costs ^(a) | Excludes self-employment income ^(b) | Excludes bonuses | Excludes the public sector | Main advantage of measure |
|---|--|--|------------------|----------------------------|---|
| Whole-economy unit labour costs ^(c) | | | | | Most comprehensive measure |
| Whole-economy unit wage costs ^(c) | ✓ | | | | Excludes changes in non-wage costs, which can be erratic and so may not affect prices in the short term |
| Whole-economy AWE total pay divided by productivity per head | ✓ | ✓ | | | AWE data are more timely than National Accounts data on wages and salaries |
| Whole-economy AWE regular pay divided by productivity per head | ✓ | ✓ | ✓ | | Excludes bonuses, which can be volatile and tend to reflect labour market conditions with a lag |
| Private sector AWE total pay divided by productivity per head | ✓ | ✓ | | ✓ | Excludes the public sector, which forms only a small share of costs for companies providing consumer goods and services |
| Private sector AWE regular pay divided by productivity per head | ✓ | ✓ | ✓ | ✓ | Excludes bonuses and the public sector |

(a) Employers' social contributions.

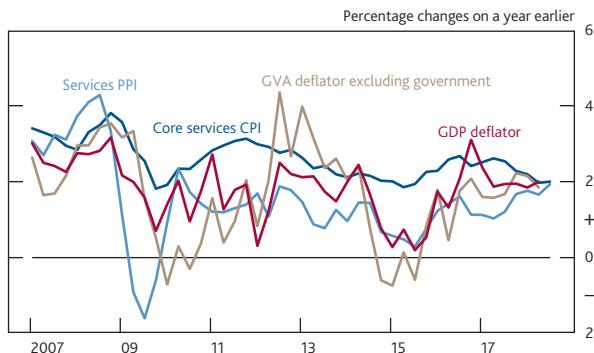
(b) Calculated from mixed income, assuming that the share of employment income in that is the same as the share of employee compensation in nominal GDP less mixed income.

(c) Calculated as whole-economy labour or wage costs divided by GDP.

Chart 4.7 All measures of unit labour cost growth have strengthened in recent yearsMeasures of unit labour costs (ULCs) and unit wage costs (UWCs)^(a)

Sources: ONS and Bank calculations.

(a) Based on the backcast of the final estimate of real GDP, or private sector output in the case of the private sector measures. Measures are defined in Table 4.C. The pre-crisis periods are defined as 2001–07 for the AWE-based measures and 1998–2007 otherwise.

Chart 4.8 Core services CPI inflation has fallen in recent quartersMeasures of domestically generated inflation^(a)

Sources: ONS and Bank calculations.

(a) Core services CPI 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. 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 Q3; data for the GVA and GDP deflators are to 2018 Q2.

to be related to tradable prices or government policy such as airfares and education, fell from an average of around 2½% during 2016 to 2% in 2018 Q3. Part of that fall is likely to reflect factors that do not truly represent domestic inflationary pressures, however. To the extent that service providers use imported goods and services as inputs, for example, some of the recent fall may reflect the diminishing effect of sterling's past depreciation.

Part of the weakness in core services CPI inflation also reflects unusually low rent inflation, which was 0.5% in Q3, compared with around 3% in early 2016. Rent inflation tends to be less directly affected by slack in the economy or external cost pressures, and is more likely to reflect developments specific to the housing market. Around half of the slowing since early 2016 can be accounted for by lower rents paid for social housing, which in turn is likely to have reflected the Government's policy to reduce rents for most social housing tenants. Rent inflation is projected to remain subdued in coming months, and — since rents account for around 20% of the core services CPI basket — core services CPI inflation is also expected to remain relatively subdued, despite building labour cost pressures.

4.4 Inflation expectations

Inflation expectations can influence CPI inflation through wage and price-setting behaviour. If employees and companies became less confident that CPI inflation would fall back to the MPC's 2% target, for example, that might alter wage and price-setting decisions and make inflation persist above the target for longer.

The MPC monitors a range of indicators — derived from financial market prices and surveys of households and companies — to assess whether inflation expectations remain

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

Per cent

| | 2000 (or start of series) to 2007 averages ^(b) | Avg. since 2008 | 2015 | 2016 | 2017 | | 2018 | | | |
|--|---|-----------------------|------|------|------|-----|------|-------------------|------|------|
| | | | H1 | H2 | Q1 | Q2 | Q3 | Q4 ^(c) | | |
| One year ahead inflation expectations | | | | | | | | | | |
| Households^(d) | | | | | | | | | | |
| Bank/GfK/TNS ^(e) | 2.4 | 3.0 | 2.0 | 2.2 | 2.9 | 2.9 | 2.9 | 3.0 | n.a. | |
| Barclays Basix | 2.8 | 2.7 | 1.5 | 1.9 | 2.3 | 2.5 | 2.5 | 2.4 | 2.5 | n.a. |
| YouGov/Citigroup (Nov. 2005) | 2.5 | 2.4 | 1.3 | 1.8 | 2.6 | 2.6 | 2.4 | 2.5 | 2.7 | 2.6 |
| Companies (2008 Q2) ^(f) | n.a. | 1.8 | 0.4 | 1.6 | 2.6 | 2.3 | 3.7 | 2.3 | 2.4 | n.a. |
| Financial markets (Oct. 2004) ^(g) | 2.6 | 2.8 | 2.5 | 2.8 | 3.5 | 3.3 | 3.0 | 3.1 | 3.2 | 3.3 |
| Two to three year ahead expectations | | | | | | | | | | |
| Households^(d) | | | | | | | | | | |
| Bank/GfK/TNS (2009 Q1) ^(e) | n.a. | 2.7 | 2.3 | 2.3 | 2.8 | 2.8 | 2.9 | 2.9 | 2.9 | n.a. |
| Barclays Basix | 3.2 | 3.0 | 1.9 | 2.3 | 2.9 | 2.9 | 3.0 | 2.9 | 3.0 | n.a. |
| Professional forecasters (2006 Q2) ^(h) | 2.0 | 2.0 | 2.1 | 2.1 | 2.2 | 2.0 | 2.0 | 1.9 | 2.0 | 1.8 |
| Financial markets (Oct. 2004) ^(g) | 2.8 | 3.0 | 3.0 | 3.0 | 3.4 | 3.3 | 3.3 | 3.3 | 3.4 | 3.5 |
| Five to ten year ahead expectations | | | | | | | | | | |
| Households^(d) | | | | | | | | | | |
| Bank/GfK/TNS (2009 Q1) ^(e) | n.a. | 3.2 | 2.8 | 3.1 | 3.3 | 3.5 | 3.4 | 3.6 | 3.6 | n.a. |
| Barclays Basix (2008 Q3) | n.a. | 3.7 | 3.1 | 3.4 | 3.9 | 4.1 | 4.1 | 4.0 | 3.9 | n.a. |
| YouGov/Citigroup (Nov. 2005) | 3.5 | 3.2 | 2.7 | 2.7 | 3.0 | 3.2 | 3.1 | 3.2 | 3.3 | 3.2 |
| Financial markets (Oct. 2004) ^(g) | 3.0 | 3.4 | 3.3 | 3.2 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.5 |
| Memo: CPI inflation | 1.6 | 2.4 | 0.0 | 0.7 | 2.4 | 2.9 | 2.7 | 2.4 | 2.5 | 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) Dates in parentheses indicate start date of the data series.

(c) Financial markets data are averages to 24 October 2018. YouGov/Citigroup data are for October.

(d) 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.

(e) In 2016 Q1, the survey provider changed from GfK to TNS.

(f) CBI data for the distributive trade sector. Companies are asked about the expected percentage price change over the coming 12 months in the markets in which they compete. The 2018 Q1 data point was pushed up significantly by one response.

(g) Instantaneous RPI inflation one and three years ahead, and five-year RPI inflation five years ahead, implied by swaps.

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

consistent with the target. Measures derived from financial market prices have risen gradually in recent quarters (**Table 4.D**). According to market contacts, those rises may have been partly due to growing demand for protection against elevated inflation outturns in the face of Brexit-related uncertainty.

By contrast, measures of households' and companies' inflation expectations have been broadly stable, and most remain close to their past averages (**Table 4.D**). Professional forecasters' expectations have fallen slightly. Overall, the MPC judges that inflation expectations remain well anchored, and that indicators of medium-term inflation expectations continue to be consistent with a return of inflation to the 2% target.

5 Prospects for inflation

CPI inflation was 2.4% in September, in line with the MPC's expectation at the time of the *August Report*. Inflation has been boosted by the effects of higher energy and import prices. The contributions from these factors are projected to fade over the forecast period. UK GDP growth in 2018 Q3 is expected to be somewhat stronger than projected in August, but the outlook for growth over the forecast period is little changed. The MPC judges that supply and demand in the economy are currently broadly in balance. Conditioned on a path for Bank Rate that rises gradually over the next three years, and the assumption of a smooth adjustment to new trading arrangements with the EU, the MPC judges that a margin of excess demand is likely to build. That raises domestic inflationary pressures, which partially offset diminishing contributions from energy and import prices. CPI inflation is projected to be above the target for most of the forecast period, before reaching 2% by the end. The economic outlook will depend significantly on the nature of EU withdrawal. The MPC judges that the monetary policy response to Brexit, whatever form it takes, will not be automatic, and could be in either direction (Box 4).

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

| | Per cent | | | | | | | | | | | | | |
|----------|-------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|----|
| | 2018 | | | 2019 | | | 2020 | | | 2021 | | | | |
| | Q4 ^(b) | Q1 | Q2 | Q3 | Q4 | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| November | 0.7 | 0.8 | 0.9 | 0.9 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | |
| August | 0.7 | 0.7 | 0.8 | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | |

(a) The data are 15 working day averages of one-day forward rates to 24 October 2018 and 25 July 2018 respectively. The curve is based on overnight index swap rates.

(b) November figure for 2018 Q4 is an average of realised overnight rates to 24 October 2018, and forward rates thereafter.

The MPC voted in August to raise Bank Rate to 0.75%. The MPC's projections are conditioned on a market-implied path for Bank Rate that implies a gradual further rise to around 1.4% at the end of 2021 (**Table 5.A**).⁽¹⁾ In the run-up to this *Report*, the sterling ERI was around 1% higher than it was in the *August Report*, though 16% below its pre-referendum peak. As the Autumn Budget was announced following the finalisation of the projections, they are conditioned on the plans detailed in the March Spring Statement. 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.

Table 5.B Forecast summary^{(a)(b)}

| | Projections | | | |
|--|-------------|-----------|-----------|---------|
| | 2018 Q4 | 2019 Q4 | 2020 Q4 | 2021 Q4 |
| GDP ^(c) | 1.5 (1.5) | 1.7 (1.8) | 1.7 (1.7) | 1.7 |
| CPI inflation ^(d) | 2.5 (2.3) | 2.1 (2.2) | 2.1 (2.0) | 2.0 |
| LFS unemployment rate | 3.9 (3.9) | 3.9 (3.9) | 3.9 (3.9) | 3.9 |
| Excess supply/Excess demand ^(e) | 0 (0) | +½ (0) | +½ (+½) | +½ |
| Bank Rate ^(f) | 0.7 (0.7) | 1.0 (0.9) | 1.2 (1.1) | 1.4 |

(a) Modal projections for GDP, CPI inflation, LFS unemployment and excess supply/excess demand. Figures in parentheses show the corresponding projections in the August 2018 *Inflation Report*. Projections were only available to 2021 Q3 in August.

(b) The November projections have been conditioned on the assumptions that the stock of purchased gilts remains at £435 billion and the stock of purchased corporate bonds remains at £10 billion throughout the forecast period, and on the Term Funding Scheme (TFS); all three of which are financed by the issuance of central bank reserves. The August projections were conditioned on the same asset purchase and TFS assumptions.

(c) Four-quarter growth in real GDP. The growth rates reported in the table exclude the backcast for GDP. Including the backcast 2018 Q4 growth is 1.7%, 2019 Q4 growth is 1.7%, 2020 Q4 growth is 1.7% and 2021 Q4 growth is 1.7%. This compares to 1.6% in 2018 Q4, 1.8% in 2019 Q4 and 1.7% in 2020 Q4 in the August 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.

The MPC's projections under those assumptions are summarised in **Table 5.B**. Four-quarter GDP growth is projected to average around 1¾% over the forecast period (**Chart 5.1**), similar to the August *Report* (**Chart 5.2**). Boosted by temporary factors, quarterly growth in Q3 appears to have been a little stronger than had been expected in August, at 0.6%. Growth is projected to fall back to 0.3% in Q4, before

(1) Unless otherwise stated, the projections shown in this section are conditioned on: Bank Rate following a path implied by market yields; the stock of purchased gilts remaining at £435 billion and the stock of purchased corporate bonds remaining at £10 billion throughout the forecast period and the Term Funding Scheme (TFS), all three of which are financed by the issuance of central bank reserves; 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 Spring Statement 2018; commodity prices following market paths; and the sterling exchange rate remaining broadly flat. The main assumptions are set out in a table at www.bankofengland.co.uk/inflation-report/2018/november-2018.

Box 4

The monetary policy response to Brexit

The outlook for growth, employment and inflation depends significantly on the nature of EU withdrawal, in particular: the form of new trading arrangements between the EU and UK; whether the transition to them is abrupt or smooth; and how households, businesses and financial markets respond.

As the MPC has communicated, the implications of these developments for the appropriate path of monetary policy will depend on the balance of their effects on demand, supply and the exchange rate. The MPC judges that the monetary policy response to Brexit, whatever form it takes, will not be automatic and could be in either direction.

Demand

Withdrawal from the EU will affect demand for goods and services produced in the UK. Any reduction in the ease with which UK companies can trade will lower UK exports. Business investment will respond to changes in uncertainty and financial conditions. UK households and companies are likely to adjust their spending in light of changes to their expected future earnings and income as well as the uncertainty around those expectations. Those effects on demand over the MPC's policy horizon are likely to be more negative the greater the disruption to the economic relationship between the EU and UK.

Supply

The extent to which changes in demand affect inflationary pressures will depend on how the supply capacity of the economy evolves. 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. The supply capacity of the economy could be affected as mismatches in the labour market increase and as companies shift production away from the goods and services the UK has been exporting to the EU — for which demand from abroad will fall — and towards those that the country has tended to import or could export to new markets that have become more attractive in relative terms. Those shifts in production will neither be seamless nor costless, as resources in different sectors are often highly specialised. This will drag on supply as the adjustment process unfolds.

Usually, changes in supply are gradual, so have less bearing on monetary policy in the short term than changes in demand. If the future economic relationship between the EU and UK changes only gradually, supply losses too would emerge relatively slowly.

In some Brexit scenarios, however, it is possible that the UK's supply capacity could fall sharply. For example, an abrupt and

disorderly withdrawal could result in delays at borders, disruptions to supply chains, and more rapid and costly shifts in patterns of production, severely impairing the productive capacity of UK businesses.

Exchange rate and tariffs

The prospects for inflation will also depend on how the exchange rate reacts and on any tariffs that result from the new trading arrangements. Sterling fell sharply around the time of the referendum. This reflected the judgement by financial markets that leaving the EU would lower UK real incomes, for example through raising costs or reducing productivity in the tradable sector. In the case of a smooth transition to a relationship that is judged to have a relatively small long-term economic impact, financial market participants might expect a smaller hit to UK real incomes than currently, causing the exchange rate to appreciate. In contrast, a disruptive withdrawal from the EU could result in a more pessimistic view and some further depreciation. Tariffs, if imposed by the UK on imports of EU goods and services, would add to inflationary pressures in the short term.

Implications for monetary policy

The appropriate response of monetary policy to any particular Brexit scenario will depend on the balance of the effects on demand, supply and the exchange rate.

In the case of a smooth transition to a relatively close economic relationship, the extent to which domestic inflationary pressures increase would depend on the balance between an expected rebound in demand as uncertainty fades, any further impacts on supply over the MPC's policy horizon, and the likely appreciation of sterling.

In contrast, a disruptive withdrawal from the EU would probably result in a further decline in the exchange rate and a large, immediate reduction in supply. Tariffs might also be extended. Each of these developments would tend to increase inflation. Set against that, it is likely that demand too would weaken, reflecting lost trade access, heightened uncertainty and tighter financial conditions. The overall extent of inflationary pressures would depend on the balance of these forces, as well as the evolution of inflation expectations.

Three other considerations will be important to the conduct of monetary policy.

First, current circumstances differ materially from those immediately following the referendum. At that time, the economy was operating with a material degree of excess capacity and inflation was below the target. As Article 50 had not yet been triggered, Brexit was at least two years away and its nature was highly uncertain. Therefore many of the supply-side effects were distant. At present, inflation is above

the target and the MPC judges that demand and supply in the economy are broadly in balance. In some scenarios, the UK's trading relationships with the EU could change abruptly with a material negative impact on the supply capacity of the economy over the monetary policy horizon.

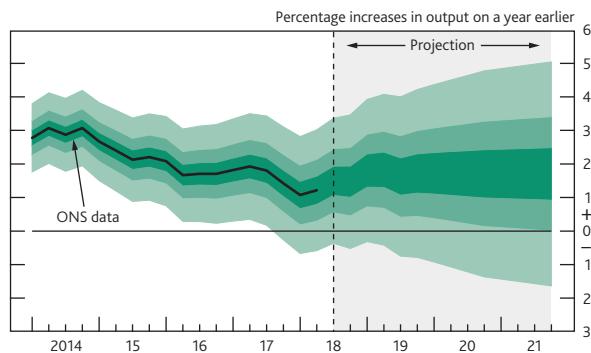
Second, there is little that monetary policy can do to offset supply shocks. Large negative supply shocks occur relatively rarely in advanced economies. In such circumstances, the appropriate monetary response will depend on whether the hit to demand is more than that to supply, and the extent of any exchange rate effects on inflation.

Third, in exceptional circumstances, the MPC's remit allows the Committee to extend the horizon over which it returns

inflation to the target in support of its objectives for growth and employment. Given the starting position, this flexibility would only become relevant if the shock to demand were greater than that to supply. In that event, as it did following the referendum, the Committee would explain clearly its approach to managing any trade-off between inflation and output variability, including the horizon over which it is seeking to return inflation to the target.

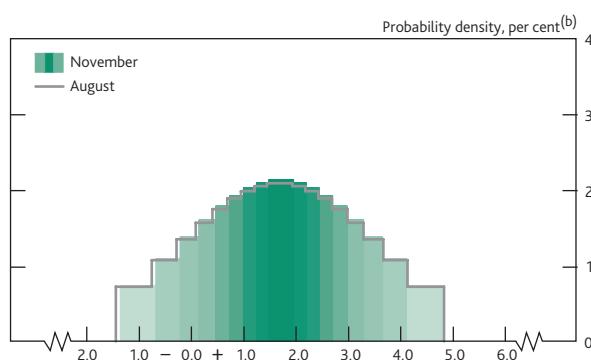
Although the nature of EU withdrawal is not known at present, and its impact on the balance of demand, supply and the exchange rate cannot be determined in advance, under all circumstances, the MPC will respond to any material change in the outlook to bring inflation sustainably back to the 2% target while supporting jobs and activity.

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/2018/november-2018. 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 outcomes are also expected to lie within each pair of the lighter green areas on 30 occasions. In any particular quarter of the forecast period, GDP growth is therefore expected to lie somewhere within the fan on 90 out of 100 occasions. And on the remaining 10 out of 100 occasions GDP growth can fall anywhere outside the green area of the fan chart. Over the forecast period, this has been depicted by the light grey background. See the box on page 39 of the November 2007 *Inflation Report* for a fuller description of the fan chart and what it represents.

Chart 5.2 Projected probabilities of GDP growth in 2020 Q4 (central 90% of the distribution)^(a)



(a) Chart 5.2 represents the cross-section of the GDP growth fan chart in 2020 Q4 for the market interest rate projection. The grey outline represents the corresponding cross-section of the August 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 5.2 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.

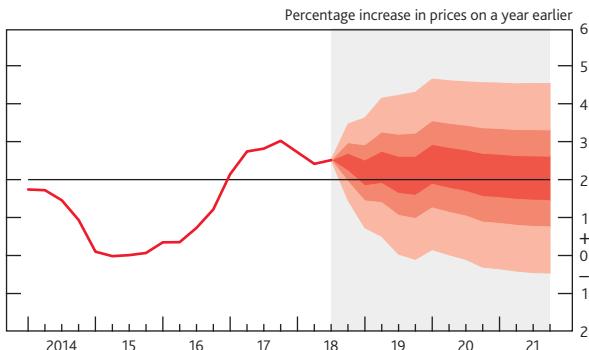
settling at 0.4% in subsequent quarters, similar to the August forecast.

Over the recent past, consumption growth has been a little stronger than expected, while business investment has been weaker than expected. Over the forecast period, consumption is projected to grow modestly relative to historical rates, broadly in line with real incomes. Growth in business investment is expected to be subdued in the near term and then to pick up as Brexit-related uncertainty — which is dampening investment growth — wanes (Key Judgement 2). Net trade is also expected to contribute positively to growth, supported by relatively robust global demand and weaker sterling. Global GDP growth has slowed slightly and is likely to decline somewhat further. In particular, activity in emerging economies is projected to be weaker than in August, driven by tighter financial conditions. Nevertheless, global growth is likely to be above potential on average over the forecast period (Key Judgement 1).

In the UK, potential supply growth is projected to remain subdued relative to pre-crisis norms, reflecting lower productivity growth and slower population growth. So while the pace of UK demand growth is modest, it still exceeds potential supply growth. The MPC judges that demand and supply are currently broadly in balance, and that excess demand will build over the forecast period (Key Judgement 3). That leads to a continuing firming of wage growth and domestic inflationary pressures.

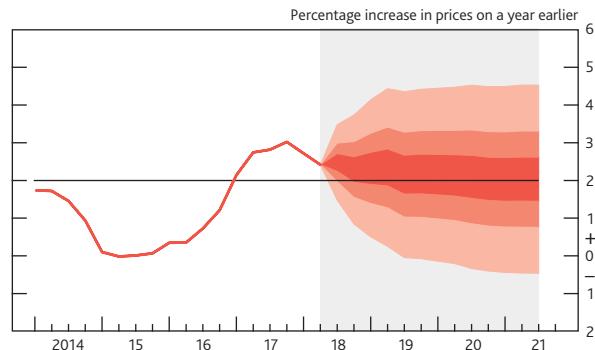
CPI inflation was 2.4% in September 2018, and 2.5% in 2018 Q3, in line with the MPC's August forecast. Above-target inflation has been due to higher energy prices and the rise in import prices associated with sterling's past depreciation. While domestic inflationary pressures build over the forecast period, the impact of energy and import prices is projected to fade (Key Judgement 4). The balance of these effects means that inflation is projected to be above the target for most of

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



Charts 5.3 and 5.4 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.

Chart 5.4 CPI inflation projection in August based on market interest rate expectations, other policy measures as announced



the forecast period, reaching 2% by the end (**Chart 5.3**), a broadly similar profile to August (**Chart 5.4**).

At its meeting ending on 31 October 2018, 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 slows to around its potential rate, as financial conditions tighten

In aggregate, global demand has continued to grow at above-potential rates. World GDP growth has slowed slightly, however, and is expected to slow somewhat further over the forecast period, consistent with weakening indicators of global activity and trade. That moderation in growth partly reflects tightening financial conditions, particularly in some emerging economies. The continued rise in tariffs on trade between the US and China is also likely to weigh on activity. Nonetheless, global growth is projected to remain above potential on average over the forecast period.

In the US, activity has remained strong during 2018. Quarterly growth was 0.9% in Q3, higher than expected at the time of the August *Report*. GDP growth is expected to continue to be relatively robust in coming quarters, supported in part by a substantial fiscal easing (Section 1). As the boost from fiscal

(2) The Minutes are available at www.bankofengland.co.uk/monetary-policy-summary-and-minutes/2018/november-2018.

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 2018 Q4 to 2019 Q2 if judgements evolve as expected |
|---|---|
| 1: global GDP growth slows to around its potential rate, as financial conditions tighten | <ul style="list-style-type: none"> Quarterly euro-area GDP growth to average a little below ½%. Quarterly US GDP growth to average a little above 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%. |
| 2: net trade and a rebound in business investment support UK activity, while consumption growth is modest | <ul style="list-style-type: none"> Quarterly growth in business investment to average ¼% to ½%. Net trade to provide a positive contribution to quarterly GDP growth in 2019 H1. 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 ¾% per quarter, on average. Housing investment growth to average ½%. |
| 3: a margin of excess demand builds as demand growth exceeds subdued potential supply growth | <ul style="list-style-type: none"> Unemployment rate to average around 4%. Participation rate to average around 63½%. Average weekly hours worked to remain a little over 32. Quarterly hourly labour productivity growth to average around ¼%. |
| 4: domestic inflationary pressures continue to build, while the contributions from energy and import prices dissipate | <ul style="list-style-type: none"> Non-fuel import prices to rise by around 1% in the year to 2019 Q2. Electricity and gas prices expected to rise in line with announced price rises in 2018 Q4, before declining in line with the Government's domestic energy price cap at the start of 2019. 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 1¾%. 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%. Indicators of medium-term inflation expectations to continue to be broadly consistent with the 2% target. |

policy wanes in 2019, growth is expected to ease. The tariffs on trade that have been implemented and proposed between the US and some of its trading partners are also likely to weigh on growth (Box 1). The strengthening in the US dollar — reflecting strong growth in domestic demand and a related tightening in monetary policy — could also dampen activity. The recent strength of activity has resulted in excess demand in the US. That is judged likely to persist throughout the forecast period, with inflation projected to be above 2%.

Growth in China and other emerging economies is expected to have slowed somewhat in Q3, and some forward-looking indicators of activity have softened over 2018. Higher interest rates in the US, and a stronger dollar, have led to tighter financial conditions in many emerging economies as US dollar-denominated debts become costlier to service and the relative return on EME assets falls (Section 1). Those

Table 5.D MPC key judgements^{(a)(b)}

Key Judgement 1: global GDP growth slows to around its potential rate, as financial conditions tighten

| | Average 1998– 2007 | Projections | | | |
|---|--------------------------|-------------|---------|---------|------|
| | | 2018 | 2019 | 2020 | 2021 |
| World GDP (UK-weighted) ^(c) | 3 | 2¾ (2¾) | 2¼ (2½) | 2 (2¼) | 2 |
| World GDP (PPP-weighted) ^(d) | 4 | 3¾ (3¾) | 3½ (3½) | 3¼ (3½) | 3½ |
| Euro-area GDP ^(e) | 2½ | 2 (2¼) | 1½ (1¾) | 1½ (1¾) | 1½ |
| US GDP ^(f) | 3 | 3 (3) | 2¾ (2½) | 1¾ (1¾) | 1¾ |

Key Judgement 2: net trade and a rebound in business investment support UK activity, while consumption growth is modest

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

Key Judgement 3: a margin of excess demand builds as demand growth exceeds subdued potential supply growth

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

Key Judgement 4: domestic inflationary pressures continue to build, while the contributions from energy and import prices dissipate

| | Average 1998– 2007 | Projections | | | |
|---|--------------------------|-------------|---------|---------|------|
| | | 2018 | 2019 | 2020 | 2021 |
| UK import prices ^(q) | ¼ | 3¾ (1¾) | 1 (1¼) | 0 (0) | 0 |
| Dollar oil prices ^(r) | 39 | 81 (75) | 78 (72) | 74 (68) | 71 |
| Unit labour costs ^(s) | 2¾ | 1¾ (2¾) | 2¼ (2¼) | 2¼ (2¼) | 2½ |
| Unit wage costs ^(t) | 2½ | 1½ (2½) | 2¼ (2) | 2¼ (2¼) | 2½ |
| Private sector regular pay based unit wage costs ^(u) | 1¾ | 2½ (2¾) | 2½ (2¼) | 2¾ (2¾) | 2¾ |

Sources: Bank of England, BDRC Continental SME Finance Monitor, Bloomberg Finance LP., 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 at the time of the August 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. Forecast was finalised before the release of the preliminary flash estimate of euro-area GDP for Q3, so that has not been incorporated.
- (f) Chained-volume measure. Forecast was finalised before the release of the advance estimate of US GDP for Q3, so that has not been incorporated.
- (g) Chained-volume measure.
- (h) Chained-volume measure. Exports less imports.
- (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.
- (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.
- (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.

tighter financial conditions are weighing on growth relative to the recent past, as are trade tensions, and both factors are expected to do so to a greater extent than was expected at the time of the August *Report*. As a result, four-quarter emerging economy GDP growth is expected to weaken in the near term, and to be lower than expected in August throughout the forecast period. Growth prospects have deteriorated particularly markedly in Turkey and Argentina, where the tightening in external financing conditions has been significantly amplified by domestic factors.

Euro-area growth has also slowed in 2018. Q3 quarterly GDP growth, at 0.2%, was weaker than expected in August. Growth is expected to pick up somewhat in coming quarters (**Table 5.C**). But the projected path for activity is a little lower than previously expected on average over the forecast period (**Table 5.D**), in part reflecting the impact of lower demand from emerging economies.

Overall, global growth — based on PPP weights — is projected to be 3¾% in 2018, before slowing to 3½% in 2021 (**Table 5.D**). Weighted by UK export shares, growth is expected to slow from 2¾% to 2% over the same period (**Chart 5.5**). Those projections are a little lower than three months ago, and the risks are now judged to be tilted to the downside. Risks to emerging economies are judged to lie to the downside, reflecting the potential for a further tightening in financial conditions as US monetary policy continues to normalise. In addition, there is a risk that trade tensions intensify further.

Key Judgement 2: net trade and a rebound in business investment support UK activity, while consumption growth is modest

The outlook for UK demand is similar to that in the August *Report*, with four-quarter GDP growth expected to average around 1¾%. As in August, growth is supported by net trade, partly reflecting above-trend global GDP growth. Business investment has fallen recently and growth is expected to remain sluggish in the near term (**Table 5.C**). In line with the conditioning assumption of a smooth Brexit, it then picks up materially as the drag from uncertainty fades, although the level of investment is lower than expected in August throughout the forecast. Over the same period, consumption growth remains relatively subdued, in line with growth in real incomes.

Net trade has contributed to growth over the past two years to a greater extent than it has historically. It has been supported by lower sterling, and export demand has benefited from robust growth in the global economy. Net trade is projected to make a positive contribution to GDP growth over much of the forecast period. The outlook will depend in part on how supply chains, both here and abroad, evolve in response to Brexit and any associated movements in sterling.

Chart 5.5 World GDP (UK-weighted)^(a)

◆ Projection at the time of the August Report

◆ Projection consistent with MPC key judgements in November



Sources: IMF WEO and Bank calculations.

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

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 (1¼) | 1¼ (1) | 1¼ (1¼) | 1½ |
| Business investment ^(c) | 2½ | 0 (1¼) | 2 (3¾) | 5 (4) | 4½ |
| Housing investment ^(d) | 3¼ | 1¼ (2½) | 1¼ (1½) | ¼ (½) | ½ |
| Exports ^(e) | 4½ | 1¾ (¾) | 2½ (2¼) | 1¼ (1¾) | 1¼ |
| Imports ^(e) | 6 | ¾ (½) | 1¼ (1) | ¾ (1) | 1¼ |
| Real post-tax household income ^(f) | 3¼ | 1 (1½) | 1 (1) | ¾ (1) | 1¾ |
| Four-quarter growth rate in Q4 | | | | | |
| Employment | 1 | 1 (1¼) | ½ (½) | ½ (½) | ½ |
| Average weekly earnings ^(g) | 4¼ | 2¾ (2½) | 3¼ (3¼) | 3½ (3½) | 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 August 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.

Business investment has been weak over the recent past, and is expected to have fallen by 0.5% in the year to 2018 Q3. That is materially weaker than had been expected in the *August Report*, largely reflecting increased uncertainty around Brexit, as indicated by companies' responses to the Bank's Decision Maker Panel Survey, and Agents' reports. In the MPC's central projection, which is conditioned on the expectation of a smooth adjustment to the UK's eventual trading relationship with the EU, greater clarity emerges, boosting investment. Investment growth over the forecast is also supported by above-trend external demand growth, the low cost of finance and the relatively high rate of return on capital. In the latest projection, the level of investment is below that from August throughout the forecast period, with greater near-term weakness in growth and a somewhat faster rebound further ahead (**Table 5.E**).

Over the past couple of years, consumption has grown at rates below its pre-crisis average, largely reflecting weak growth in households' real incomes. Consumption growth has been stronger than real income growth, however, and the household saving rate has declined (Section 2). Over the forecast period, the saving ratio is projected to remain broadly unchanged, as consumption grows in line with real incomes. Real income growth is expected to pick up, as nominal wage growth rises and the drag from energy and import price inflation fades (Key Judgement 4).

There is uncertainty about the extent to which households will adjust their spending and saving over the forecast period. According to current estimates, the saving rate has fallen to a historically low level over the past couple of years, and households might choose to build savings at a somewhat faster rate as real income growth rises, depressing spending. Households could, however, choose to lower their saving rate further, boosting consumption growth, particularly if Brexit uncertainty falls. Unemployment remains low and households' expectations of their personal financial situations appear to have improved since 2017.

Key Judgement 3: a margin of excess demand builds as demand growth exceeds subdued potential supply growth

The speed at which demand can grow before it puts upward pressure on inflation depends on the degree of slack in the economy and on the growth rate of potential supply. The MPC judges that demand and supply are currently broadly in balance. Most indicators suggest that the labour market is currently tight and survey measures of capacity utilisation within companies suggest little scope to increase output with existing resources (Section 3). It is therefore likely that demand can only grow sustainably at rates in line with the expansion of potential supply.

Potential supply growth has been relatively low since the crisis. Over the forecast period, the MPC judges that growth in potential supply will remain subdued by historical standards at around 1½% per year on average, as set out in its assessment of supply-side conditions in February.

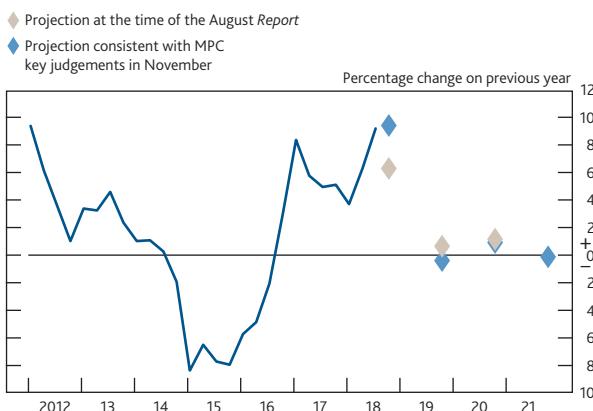
Labour supply growth is likely to be modest over the forecast period, with all of the increase expected to come from population growth. The population is projected to grow a little more slowly than recent rates, partly reflecting an expected decline in net inward migration in line with the ONS projections on which the MPC's forecasts are conditioned (Section 3).

Offsetting that, productivity growth is projected to improve a little — picking up to about 1% — although remaining around 1 percentage point lower than pre-crisis norms. The improvement in productivity growth over the forecast partly reflects a gentle rise in the stock of capital, resulting from higher investment.

There are significant risks to the outlook for productivity. On the downside, productivity growth has been lower than expected since the financial crisis, and it could fail to pick up again. It might continue to be restrained by the factors dampening growth since the crisis (Section 3). On the upside, productivity growth could increase to closer to historical rates if UK companies invest more in ideas and processes that move them closer to how the most efficient businesses both domestically and internationally operate.

Conditional on market interest rate expectations of a gradual rise in Bank Rate over the forecast period, and on a smooth adjustment to new trading arrangements with the EU, demand is projected to grow a little faster than potential supply, such that a margin of excess demand builds over the forecast period.

Chart 5.6 Retail energy price inflation^(a)



(a) Comprises fuels and lubricants and gas and electricity prices, weighted to reflect their relative shares in the CPI basket. Fuels and lubricants estimates use Department for Business, Energy and Industrial Strategy petrol price data for October 2018 and are then based on the November 2018 Inflation Report sterling oil futures curve, shown in Chart 4.3. Gas and electricity estimates reflect an assumption that the level of the Government's proposed price cap on retail energy tariffs will vary with underlying costs including wholesale gas and electricity prices. Those in turn are based on wholesale futures curves and the Committee on Climate Change estimates for non-wholesale costs.

Key Judgement 4: domestic inflationary pressures continue to build, while the contributions from energy and import prices dissipate

In 2018 Q3, CPI inflation was 2.5%, in line with the MPC's expectation at the time of the August Report. Within that, the contribution from fuel prices was higher than expected, offset by lower-than-expected clothing and footwear prices. Rising fuel prices reflect increases in the sterling price of oil, which is around 10% higher than in the run-up to the August Report. Higher fuel prices will continue to boost inflation in the near term. Further ahead, however, the contribution from fuel prices to inflation turns negative, as the oil futures curve on which the MPC's forecast is conditioned is downward sloping.

Retail gas and electricity prices are also currently contributing positively to CPI inflation. They are likely to have risen further in October as some utility companies increased their prices

Table 5.F Q4 CPI inflation

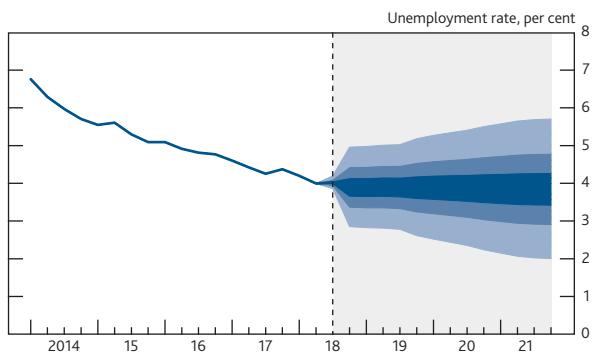
| | Mode | Median | Mean |
|---------|-----------|-----------|-----------|
| 2018 Q4 | 2.5 (2.3) | 2.5 (2.3) | 2.5 (2.3) |
| 2019 Q4 | 2.1 (2.2) | 2.1 (2.2) | 2.1 (2.2) |
| 2020 Q4 | 2.1 (2.0) | 2.1 (2.0) | 2.1 (2.0) |
| 2021 Q4 | 2.0 | 2.0 | 2.0 |

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

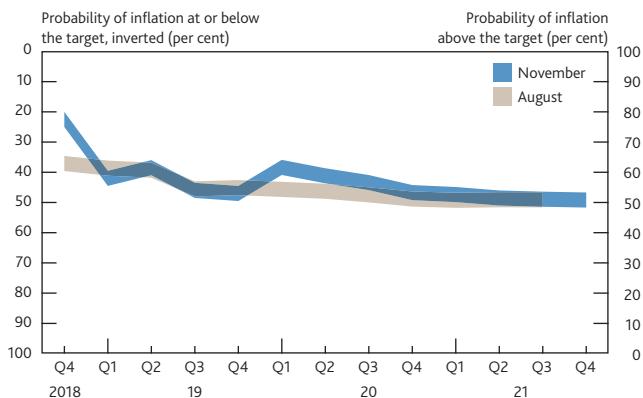
Table 5.G Annual average GDP growth rates of modal, median and mean paths^(a)

| | Mode | Median | Mean |
|------|-----------|-----------|-----------|
| 2018 | 1.3 (1.4) | 1.3 (1.4) | 1.3 (1.4) |
| 2019 | 1.7 (1.8) | 1.7 (1.8) | 1.7 (1.8) |
| 2020 | 1.7 (1.7) | 1.7 (1.7) | 1.7 (1.7) |
| 2021 | 1.7 | 1.7 | 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 August 2018 *Inflation Report* excluding the backcast. The projections have been conditioned on the assumptions in Table 5.B footnote (b).

Chart 5.7 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 Q3, a quarter earlier than the fan for CPI inflation. That is because Q3 is a staff projection for the unemployment rate, based in part on data for July and August. The unemployment rate was 4.0% in the three months to August, and is projected to be 4.0% in Q3 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 5.8 Inflation probabilities relative to the target

The November and August swatches in this chart are derived from the same distributions as Charts 5.3 and 5.4 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 swatches reflects the fact that there is uncertainty about the precise probability in any given quarter, but they should not be interpreted as confidence intervals.

(Section 4). Thereafter, utility prices will be affected by the Government's proposed price cap on retail energy tariffs. That is expected to reduce their contribution to CPI inflation by around 0.2 percentage points in January. Under current plans, the cap will then be updated twice a year, in April and October. The MPC's forecast reflects an assumption that the level of the cap will vary with underlying costs, including wholesale energy prices. While the wholesale gas futures curve has risen by around 15% since the August *Report*, it is downward sloping. Taken together with the projected fall in fuel price inflation, energy price inflation is expected to decline over the forecast period, although it is somewhat volatile (Chart 5.6).

In addition, the estimated contribution from import prices to CPI inflation remains elevated, reflecting the impact of sterling's depreciation around the time of the EU referendum. That contribution has declined over 2018, however, and is expected to fade further over the forecast period.

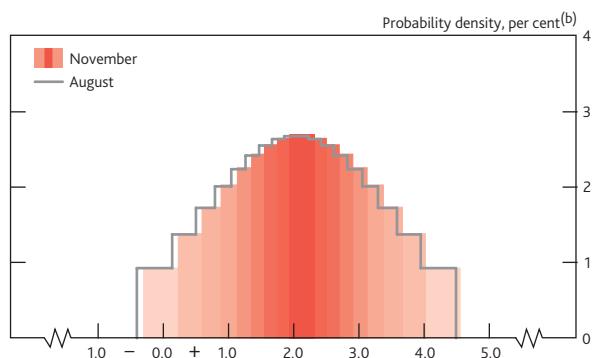
The waning influence of these external factors on CPI inflation is projected to be partially offset by firming domestic inflationary pressures. Domestic cost pressures have been subdued over the past few years, but have risen as slack has been eroded, and are expected to strengthen further as excess demand builds. Since the August *Report*, underlying wage growth has risen as the labour market has remained tight and unemployment has fallen further. Survey indicators of companies' hiring difficulties and pay are consistent with wage growth increasing further, which pushes up growth in unit labour costs. Over the forecast period, private sector and whole-economy unit labour cost growth are projected to rise (Table 5.D), leading to a gradual building in domestic inflationary pressures. With productivity growth remaining below rates typically seen before the crisis, pay growth needs to be commensurately lower than its pre-crisis average for unit labour cost growth to be consistent with meeting the inflation target.

Conditional on market interest rates, CPI inflation is projected to decline towards the target. In the central projection, inflation is judged likely to be above 2% over much of the forecast period, before returning to the target towards the end of the third year. The MPC's forecast for CPI inflation is broadly similar to that in August (Table 5.F).

5.2 The projections for demand, unemployment and inflation

Based on the judgements above and the risks around them, under the market path for Bank Rate and the assumption of an unchanged stock of purchased assets, the MPC projects four-quarter GDP growth to remain around 1¾%. That projection is similar to the August forecast (Table 5.G). Within

Chart 5.9 Projected probabilities of CPI inflation in 2020 Q4 (central 90% of the distribution)^(a)



(a) Chart 5.9 represents the cross-section of the CPI inflation fan chart in 2020 Q4 for the market interest rate projection. The grey outline represents the corresponding cross-section of the August 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 5.9 have a similar interpretation to those on the fan charts. Like the fan charts, they portray the central 90% of the probability distribution.

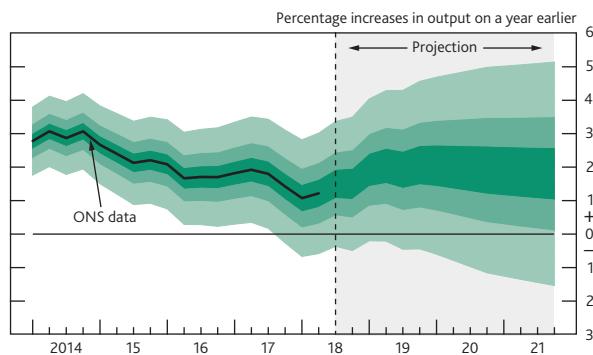
(b) Average probability within each band; the figures on the y-axis indicate the probability of inflation being within ± 0.05 percentage points of any given inflation rate, specified to one decimal place.

demand, consumption growth is projected to be modest relative to historical rates, but net trade and business investment support growth, conditioned on the assumption of a smooth withdrawal from the EU and an accompanying decline in uncertainty. The risks around the projection are balanced, as in August.

The economy's supply capacity is judged likely to grow at a subdued pace — of around 1½% per year on average — over the forecast period, so excess demand builds. The unemployment rate is broadly stable (Chart 5.7).

CPI inflation has fallen back since the beginning of 2018, but remains above the MPC's 2% target. The inflation overshoot reflects the impact of cost pressures from energy and import prices. Inflation is projected to fall further towards the target as those effects continue to wane, more than offsetting building domestic inflationary pressures. Under the market path for Bank Rate, inflation is judged likely to be above the target for most of the forecast period before reaching 2% by the end (Chart 5.8). The inflation projection is broadly similar to August, and the risks remain balanced (Chart 5.9).

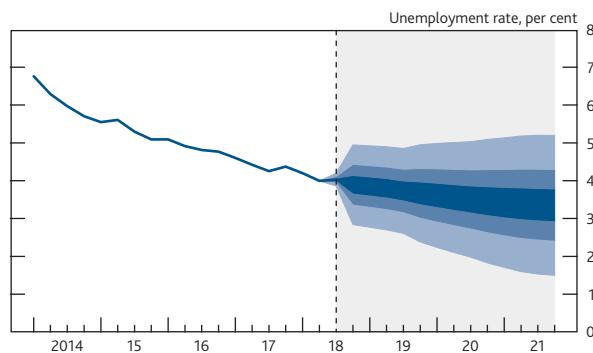
Chart 5.10 GDP projection based on constant nominal interest rates at 0.75%, other policy measures as announced



See footnote to Chart 5.1.

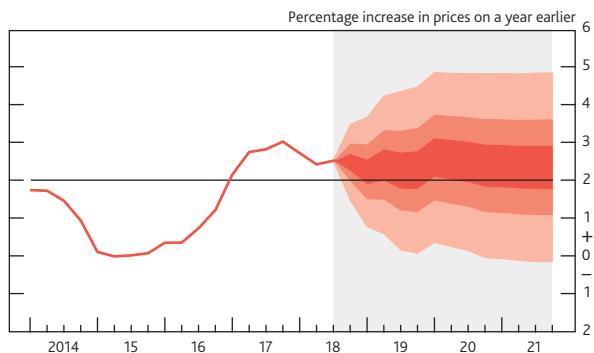
Charts 5.10, 5.11 and 5.12 show the MPC's projections under the alternative constant rate assumption and an unchanged stock of purchased assets. That assumption is that Bank Rate remains at 0.75% throughout the three years of the forecast period, before rising towards the market path over the subsequent three years. Under that path, GDP growth is stronger, and a greater degree of excess demand emerges. Unemployment falls below 3½%. Inflation ends the forecast period above the target at 2.3%.

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



See footnote to Chart 5.7.

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



See footnote to Chart 5.3.

Box 5

Other forecasters' expectations

This box reports the results of the Bank's most recent survey of external forecasters, carried out in October.⁽¹⁾ On average, respondents expected four-quarter GDP growth to remain broadly stable over the next three years at around 1.5% (**Table 1**). That is slightly lower than the November *Inflation Report* forecast. While the average of external forecasters' central projections for growth has been broadly stable over the past two years, the range of projections has narrowed (**Chart A**).

External forecasters' expectations for sterling were slightly higher, on average, than three months ago. Respondents, on average, expected CPI inflation to fall slightly below the target from the second year (**Table 1**).

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

| | 2019 Q4 | 2020 Q4 | 2021 Q4 |
|--|---------|---------|---------|
| CPI inflation ^(b) | 2.0 | 1.9 | 1.8 |
| GDP growth ^(c) | 1.4 | 1.6 | 1.5 |
| LFS unemployment rate | 4.2 | 4.3 | 4.4 |
| Bank Rate (per cent) | 1.0 | 1.4 | 1.5 |
| Stock of purchased gilts (£ billions) ^(d) | 434 | 428 | 411 |
| Stock of purchased corporate bonds (£ billions) ^(d) | 10 | 10 | 10 |
| Sterling ERI | 80.5 | 80.1 | 80.4 |

Source: Projections of outside forecasters as of 19 October 2018.

(a) For 2019 Q4, there were 17 forecasts for CPI inflation, 16 for GDP growth and Bank Rate, 15 for the unemployment rate, 11 for the stock of gilt purchases, 12 for the stock of corporate bond purchases and 9 for the sterling ERI. For 2020 Q4, there were 13 forecasts for CPI inflation, GDP growth, the unemployment rate and Bank Rate, 9 for the stock of gilt purchases and 8 for the stock of corporate bond purchases and the sterling ERI. For 2021 Q4, there were 11 forecasts for CPI inflation and Bank Rate, 10 for GDP growth and the unemployment rate, 8 for the stock of gilt purchases, 7 for the stock of corporate bond purchases and the sterling ERI.

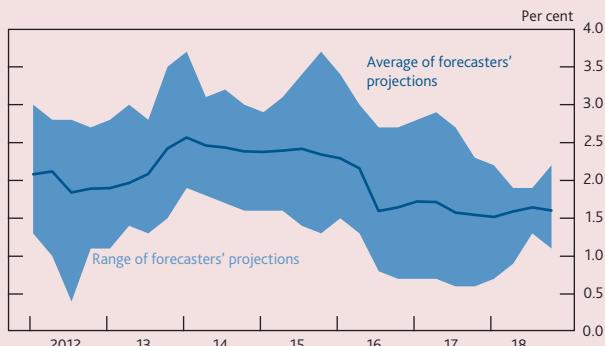
(b) Twelve-month rate.

(c) Four-quarter percentage change.

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

Chart A The average of forecasters' projections for GDP growth has changed little in the past two years, but the range of expectations is narrower

Forecasters' central projections for four-quarter GDP growth in two years' time

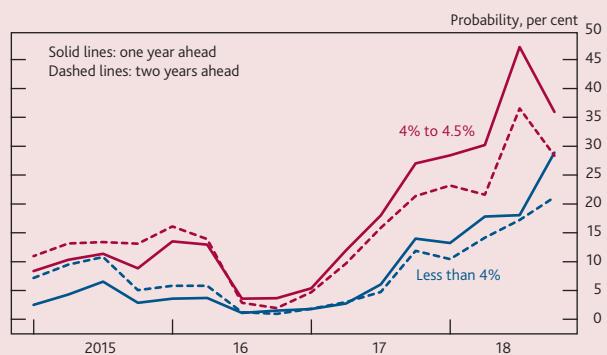


Sources: Projections of outside forecasters provided for *Inflation Reports* between February 2012 and November 2018.

On average, external forecasters' central projections for the unemployment rate were broadly similar to three months ago and remained higher than the equivalent *Inflation Report* forecast. But the average probability placed on the unemployment rate being less than 4% in both one and two years' time rose (**Chart B**).

Chart B The average probability attached to the unemployment rate being below 4% in coming years has been rising

Averages of forecasters' probabilities attached to unemployment rate outturns in one and two years' time



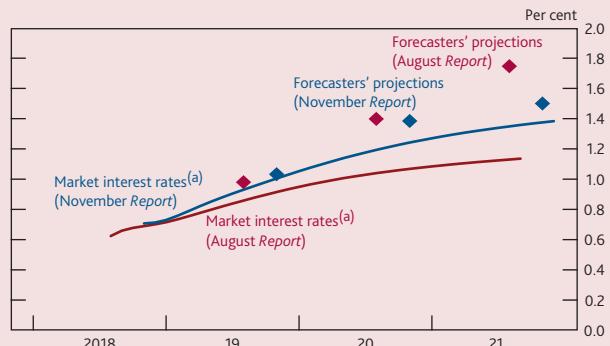
Sources: Projections of outside forecasters provided for *Inflation Reports* between February 2015 and November 2018.

External forecasters' central expectations for Bank Rate in one and two years' time were similar, on average, to three months ago, while they fell at the three-year horizon (**Chart C**).

Coupled with a rise in the market-implied path for Bank Rate since the August *Report* (Section 1) that has meant that the average central projection of external forecasters is now more in line with financial market expectations. 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.

Chart C Expectations of Bank Rate are more in line with financial market prices than three months ago

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 August 2018 and November 2018 and Bank calculations.

(a) Estimated using instantaneous forward overnight index swap rates in the 15 working days to 25 July 2018 and 24 October 2018 respectively.

(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.
ERI – exchange rate index.
GDP – gross domestic product.
HPI – house price index.
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.
CBI – Confederation of British Industry.
CEIC – CEIC Data Company Ltd.
CFO – chief financial officer.
CIPD – Chartered Institute of Personnel and Development.
CIPS – Chartered Institute of Purchasing and Supply.
EC – European Commission.
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.
HMRC – Her Majesty's Revenue and Customs.
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.

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.

SVT – standard variable tariff.

TFS – Term Funding Scheme.

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.