



BANK OF ENGLAND

Monetary Policy Committee



Inflation Report

August 2019





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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/2019/august-2019

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Monetary Policy Summary

The Bank of England's Monetary Policy Committee (MPC) sets monetary policy to meet the 2% inflation target, and in a way that helps to sustain growth and employment. At its meeting ending on 31 July 2019, the MPC voted unanimously to maintain Bank Rate at 0.75%. The Committee voted unanimously to maintain the stock of sterling non-financial investment-grade corporate bond purchases, financed by the issuance of central bank reserves, at £10 billion. The Committee also voted unanimously to maintain the stock of UK government bond purchases, financed by the issuance of central bank reserves, at £435 billion.

Since May, global trade tensions have intensified and global activity has remained soft. This has led to a substantial decline in advanced economies' forward interest rates and a material loosening in financial conditions, including in the United Kingdom. An increase in the perceived likelihood of a no-deal Brexit has further lowered UK interest rates and led to a marked depreciation of the sterling exchange rate.

Brexit-related developments, such as stockbuilding ahead of previous deadlines, are making UK data volatile. After growing by 0.5% in 2019 Q1, GDP is expected to have been flat in Q2, slightly weaker than anticipated in May. Looking through recent volatility, underlying growth appears to have slowed since 2018 to a rate below potential, reflecting both the impact of intensifying Brexit-related uncertainties on business investment and weaker global growth on net trade. Evidence from companies, up to the middle of July, suggests that uncertainty over the United Kingdom's future trading relationship with the European Union has become more entrenched. The labour market remains tight. Annual pay growth has been relatively strong. Consumer spending has remained resilient. CPI inflation was 2.0% in June and core CPI inflation was 1.8%.

The Committee's updated projections are set out in the accompanying August *Inflation Report*. They continue to assume a smooth adjustment to the average of a range of possible outcomes for the United Kingdom's eventual trading relationship with the European Union. In the central projection, conditioned on prevailing asset prices, underlying output growth is subdued in the near term, reflecting more entrenched Brexit uncertainties. This means that a margin of excess supply persists over the first year of the projection. Thereafter, GDP is projected to accelerate to robust growth rates, reflecting a gradual recovery in global growth and firming UK domestic demand growth, driven in large part by a recovery in investment growth as uncertainties dissipate in line with the Brexit conditioning assumption. The acceleration in GDP results in a significant build-up of excess demand, to around 1¾% of potential GDP by the end of the forecast period. After falling in the near term, CPI inflation is projected to rise above the 2% target, as building excess demand leads to firmer domestic inflationary pressures. Conditioned on prevailing asset prices, CPI inflation reaches 2.4% by the end of the three-year forecast period.

These projections are affected by an inconsistency between the smooth Brexit conditioning assumption underpinning the forecast and the prevailing market asset prices on which the forecasts are also conditioned. These asset prices reflect market participants' perceptions of the likelihood and consequences of a no-deal Brexit. If, as assumed, Brexit proceeds smoothly to some form of deal, market interest rates would likely rise and the sterling exchange rate would likely appreciate. A more consistent forecast would therefore have somewhat lower paths for GDP growth and CPI inflation.

Increased uncertainty about the nature of EU withdrawal means that the economy could follow a wide range of paths over coming years. The appropriate path of monetary policy will depend on the balance of the effects of Brexit on

demand, supply and the exchange rate. The monetary policy response to Brexit, whatever form it takes, will not be automatic and could be in either direction. In all circumstances, the Committee will set monetary policy appropriately to achieve the 2% inflation target.

The MPC judges at this meeting that the existing stance of monetary policy is appropriate.

Assuming a smooth Brexit and some recovery in global growth, a significant margin of excess demand is likely to build in the medium term. Were that to occur, the Committee judges that increases in interest rates, at a gradual pace and to a limited extent, would be appropriate to return inflation sustainably to the 2% target.

1 Global developments and domestic financial conditions

- The outlook for global growth has deteriorated a little, in part reflecting escalating trade tensions.
- The market path for interest rates has fallen further in the UK since May, as in other advanced economies.
- The probability market participants attach to a no-deal Brexit has increased. This has contributed to the lower path for UK interest rates and the 4% depreciation of sterling.

Table 1.A Global GDP growth appears to have slowed slightly in 2019 Q2

GDP in selected countries and regions^(a)

Percentage changes on a quarter earlier

	Quarterly averages									
	1998–2010–		2018				2019		Q1	Q2
	2007	17	Q1	Q2	Q3	Q4	Q1	Q2		
United Kingdom	0.7	0.5	0.1	0.4	0.7	0.2	0.5	n.a.		
Euro area (39%)	0.6	0.3	0.4	0.4	0.2	0.2	0.4	0.2		
United States (18%)	0.7	0.6	0.6	0.9	0.7	0.3	0.8	0.5		
China (4%) ^(b)	2.5	1.9	1.5	1.7	1.6	1.5	1.4	1.6		
Japan (2%)	0.3	0.3	-0.1	0.6	-0.6	0.5	0.6	n.a.		
India (1%)	1.8	1.8	2.0	1.3	1.4	1.7	1.2	n.a.		
Russia (1%) ^(c)	1.9	0.4	1.7	0.7	0.3	0.1	-0.4	n.a.		
Brazil (1%)	0.8	0.2	0.5	0.0	0.5	0.1	-0.2	n.a.		
UK-weighted world GDP ^(d)	0.7	0.6	0.6	0.4	0.4	0.6	0.4			

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

(a) Real GDP measures. Figures in parentheses are shares in UK exports in 2017.

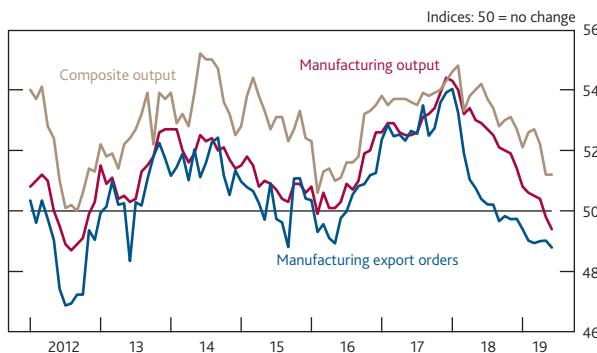
(b) Estimates from 2010 Q4 onwards are from the National Bureau of Statistics of China. Earlier estimates are based on OECD data.

(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 2019 Q2 is a Bank staff projection. The latest US and euro-area GDP data for 2019 Q2 have not been incorporated into this projection.

Chart 1.1 Survey indicators of global output growth have fallen, particularly in the manufacturing sector

Global purchasing managers' indices^(a)



Sources: Eikon from Refinitiv, IHS Markit and JPMorgan.

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

1.1 Global economic developments

Since May, the outlook for global growth has deteriorated a little. In 2019 Q2, UK-weighted world GDP growth appears to have slowed slightly to 0.4% (**Table 1.A**), slightly lower than expected in May. US and euro-area GDP growth both slowed, following surprising strength in Q1, to 0.5% and 0.2% respectively. Growth in emerging markets has been weaker than projected in the May *Report*, having slowed in the past year reflecting a previous tightening in financial conditions.

Higher-frequency indicators further suggest that global output growth may have weakened in recent months. Global PMIs have continued to fall since May, particularly in the manufacturing sector, where the output index has dipped below 50 (**Chart 1.1**). Forward-looking surveys suggest that growth is likely to stabilise in the near term. For example, the manufacturing export orders index has remained at a similar level over the past three months (**Chart 1.1**).

Softer global growth — particularly in the manufacturing sector — is likely at least in part to reflect the impact of trade tensions, which have increased over the past year and intensified further since May. The US and China both implemented higher tariffs over 2018, with the US applying tariffs to US\$250 billion of imports from China, and China reciprocating with tariffs on US\$110 billion of imports from the US. Tariffs were due to increase in 2019, but at the time of the May *Report*, those were not assumed to be implemented, given that trade talks between the two countries appeared to be progressing positively. Trade talks subsequently broke down, however, and tariffs were increased.

As well as the tariffs implemented so far, other developments have added to concerns about trade protectionism. For example, the US announced plans to impose further tariffs on all remaining imports from China, although in June both parties agreed to continue talks. The US administration is also

Chart 1.2 World trade in goods growth has remained weak and sentiment in the manufacturing sector has deteriorated further

World trade in goods and OECD business confidence in the manufacturing sector



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

(a) OECD indicator based on the arithmetic average of seasonally adjusted net balances for expected production, levels of order books and stocks of finished goods in the manufacturing sector.
 (b) Three-month moving average. Volume measure.

Chart 1.3 Measures of global economic policy uncertainty remain elevated

Global economic and trade policy uncertainty



Sources: policyuncertainty.com and Bank calculations.

(a) Monthly measure of media citations of terms related to economic policy uncertainty, based on data from 20 countries. The index is weighted by PPP-adjusted GDP and together these countries account for an estimated 70% of global GDP. For details, see Baker, S R, Bloom, N and Davis, S J (2016), 'Measuring economic policy uncertainty', *The Quarterly Journal of Economics*.
 (b) Quarterly measure based on the number of references to terms related to trade and uncertainty in Economist Intelligence Unit country reports. The index is equally weighted, based on data from 143 countries.

Table 1.B Trade tensions are expected to have a modest direct effect on GDP, but the indirect effects could be larger

Estimated impacts on the levels of GDP^(a)

Per cent	Direct effect of tariffs implemented to date ^(b)	Effect of severe shock to business confidence in US and China
US	-0.5	-1.8
China ^(c)	-0.4	-1.8
Euro area	-0.2	-0.7
UK	-0.1	-0.7
World (PPP-weighted)	-0.2	-0.9

(a) Peak impacts over a three-year period.

(b) Measures already implemented are the US tariffs on steel and aluminium, the tariffs on US\$250 billion of US imports from China and those on US\$110 billion of Chinese imports from the US.

(c) The direct tariff impact on Chinese GDP is smaller than the estimate in Box 1 of the *November 2018 Report*, because this estimate assumes that the Chinese authorities loosen policy to offset some of the impact of higher tariffs.

considering whether to impose tariffs on automotive products, including those imported from the EU, with a decision expected later this year.

Trade tensions are likely to have affected the global economy through both direct and indirect channels. Tariffs introduced by the US and China have had a direct effect on their bilateral goods trade, with both Chinese imports from the US and US imports from China having fallen in the year to 2019 Q1. There are also likely to have been wider indirect effects via reduced global business confidence. Sentiment in the manufacturing sector has fallen over the past year, consistent with weaker world trade growth (Chart 1.2). Indicators of uncertainty about economic policy, including trade policy, have also picked up (Chart 1.3). That is likely to have weighed on investment, which has been a key driver of the recent slowdown in advanced-economy growth. Consumption growth has remained resilient, however.

Over the forecast as a whole, trade tensions are expected to drag on GDP growth by more than was assumed in May. Tariffs are projected to reduce GDP in the US by 0.5%, and in China by 0.4% once some offset from looser policy is incorporated. The overall impact is to lower PPP-weighted world GDP by 0.2% via direct channels, which weighs on UK GDP growth by 0.1%. It is also likely that there have been spillovers via business confidence, although the MPC's central forecast assumes that they are only modest. A severe shock could lead to a much larger impact (Table 1.B).⁽¹⁾

Price pressures in major advanced economies have been subdued. Inflation has remained weak in the euro area recently (Table 1.C). It was 1.3% in June, below the European Central Bank's (ECB's) target, despite a pickup in unit labour cost growth over the past year to above its pre-crisis average. Inflation in the US was close to 2% during most of 2018, but it was below the Federal Reserve's target in June 2019 at 1.4%. The Federal Open Market Committee (FOMC) has noted, however, that transitory factors such as financial services fees and a methodological change to clothing price collections may be weighing on measured inflation.

Measures of inflation expectations derived from financial market prices have also fallen in the euro area and the US. In the euro area, the five-year inflation swap rate, five years forward, has fallen by around 40 basis points since late 2018 (Chart 1.4) to an all-time low in June. The equivalent measure in the US has also fallen over that period, but its level is higher at around 2%. By contrast, UK inflation swap rates have changed little since May (Section 4).

Weaker-than-expected activity data, trade tensions and low inflation may all have contributed to the marked fall in the

(1) For details, see Carney, M (2019), 'Sea change'.

Table 1.C Inflation has been subdued in the euro area and the US
Inflation in selected economies

Per cent	2019									
	Monthly averages			Jan.	Feb.	Mar.	Apr.	May	June	
	1998– 2007	2010– 17	2018							
Annual headline consumer price inflation										
United Kingdom	1.6	2.3	2.5	1.8	1.9	1.9	2.1	2.0	2.0	2.0
Euro area	2.0	1.3	1.8	1.4	1.5	1.4	1.7	1.2	1.3	
United States ^(a)	2.1	1.5	2.1	1.4	1.3	1.4	1.5	1.4	1.4	1.4
Annual core consumer price inflation (excluding food and energy)^(b)										
United Kingdom	1.2	2.1	2.1	1.9	1.8	1.8	1.8	1.7	1.8	
Euro area	1.6	1.1	1.0	1.1	1.0	0.8	1.3	0.8	1.1	
United States ^(a)	1.8	1.6	1.9	1.8	1.6	1.5	1.5	1.5	1.6	

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

(a) Personal consumption expenditure price index inflation.

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

Chart 1.4 Implied inflation expectations in the US and euro area have fallen since the May Report

Changes in five-year, five-year forward inflation compensation since the start of 2018^(a)

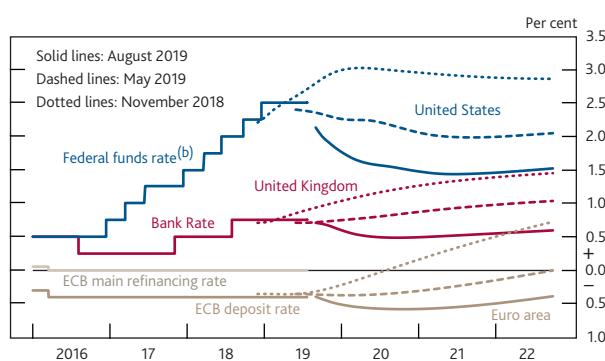


Sources: Bloomberg Finance L.P. and Bank calculations.

(a) Derived from swaps. The instruments used are linked to the UK RPI, US CPI and euro-area HICP measures of inflation respectively.

Chart 1.5 Market-implied paths for interest rates have fallen further since the May Report

International forward interest rates^(a)



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

(a) All data as of 24 July 2019. The August and May 2019 and November 2018 curves are estimated using instantaneous forward overnight index swap rates in the 15 working days to 24 July 2019, 24 April 2019 and 24 October 2018 respectively.

(b) Upper bound of the target range.

market-implied paths for policy rates in the US and euro area (**Chart 1.5**). Nonetheless, the fall in US forward interest rates appears large relative to the news in the data and the estimated impact of the tariffs implemented to date. It is therefore possible that the falls in US forward interest rates also reflect perceptions of increased risks around the global outlook — for example that tariffs increase further — as well as a weaker central projection for global growth.

Lower interest rate expectations may also reflect central bank communications. In the euro area, interest rate expectations fell sharply after the President of the ECB stated that additional stimulus would be required if inflation fails to return to the target. In the US, the median projection of FOMC participants for the federal funds rate at the end of 2020 fell from 2.6% in March to 2.1% in June, indicating a lower expected path for interest rates. The FOMC then reduced its target range for the federal funds rate at its July meeting. There has been little change to monetary policy in China since May, although fiscal policy has been loosened significantly since the start of the year.

The fall in market-implied paths for interest rates has supported equity prices. Equity prices were slightly higher in the US in the run-up to this *Report* than in May. They were broadly unchanged in the euro area, but a little lower across emerging markets (**Chart 1.6**). Over the period as a whole, corporate bond spreads are little changed. Overall, global financial conditions are estimated to be looser than at the time of the May *Report*, reflecting the fall in forward interest rates in advanced economies, which are likely to contribute to looser financial conditions in emerging markets.

In the MPC's projection, the easing of global financial conditions supports a gradual pickup in world GDP growth to its potential rate. The forecast is nonetheless a little weaker than in May. That reflects the downward impact of higher tariffs and the related effect of weaker sentiment (Section 5).

1.2 Domestic financial conditions

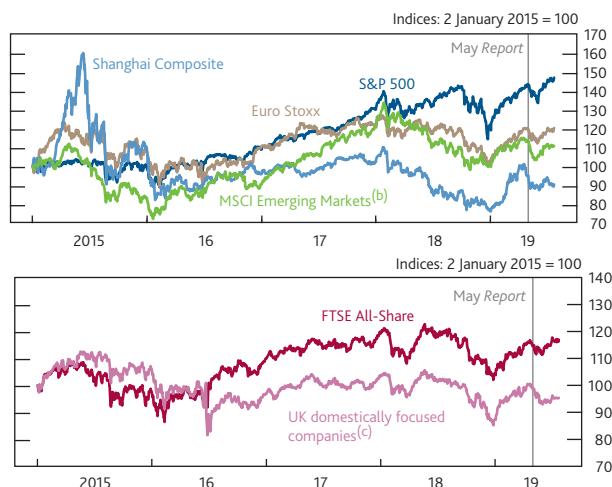
Market interest rates, sterling and equity prices

The market-implied path for Bank Rate has fallen over the past three months, continuing its decline since late 2018. It now implies a 25 basis point cut in Bank Rate over the coming year (**Chart 1.5**). Over the forecast period, the market-implied path is on average around 70 basis points lower than in November and around 30 basis points lower than in May. Long-term UK interest rates have also fallen by around 40 basis points since May.

Bank staff analysis suggests that the decline in UK forward interest rates since May can partly be attributed to global factors. For example, trade tensions and perceived downside risks to the global economy may have driven investors towards

Chart 1.6 The FTSE All-Share index is broadly unchanged, but equity prices have fallen for domestically focused UK firms

International equity prices^(a)



- (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 1.7 Sterling has fallen since May

Sterling ERI



Table 1.D Monitoring the MPC's key judgements

Developments anticipated in May during 2019 Q2–2019 Q4	Developments now anticipated during 2019 Q3–2020 Q1
Advanced economies	Broadly unchanged
<ul style="list-style-type: none"> Quarterly euro-area GDP growth to average a little above ¼%. Quarterly US GDP growth to average ½%. 	<ul style="list-style-type: none"> Quarterly euro-area GDP growth to average a little above ¼%. Quarterly US GDP growth to average around ½%.
Rest of the world	Revised down slightly
<ul style="list-style-type: none"> Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4¼%; within that, GDP growth in China to average around 6%. 	<ul style="list-style-type: none"> Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4%; within that, GDP growth in China to average around 6%.
The exchange rate and commodity prices	Revised down
<ul style="list-style-type: none"> Commodity prices and the sterling ERI to evolve in line with the conditioning assumptions set out in this Report. 	<ul style="list-style-type: none"> US dollar oil prices are 10% lower and the sterling ERI is down 4%. Commodity prices and the sterling ERI to evolve in line with the conditioning assumptions set out in this Report.
Cost of credit	Revised down slightly
<ul style="list-style-type: none"> Mortgage spreads to widen a little. 	<ul style="list-style-type: none"> Mortgage spreads to remain broadly flat.

risk-free assets such as government bonds, reducing the yields on those assets.

Lower interest rates also reflect changing views among market participants about the probabilities of different Brexit outcomes. The latest betting odds suggest that the perceived probability of no deal has risen. The Reuters survey, which asks respondents about the probability of a disorderly Brexit, suggests that probability has also risen materially since May. As the weight attached to the possibility of a no-deal Brexit has increased, financial market participants have marked down their expectations for the path of interest rates.

Financial market participants' expectations that the economy would be weaker in the event of a no-deal Brexit also mean that the sterling exchange rate tends to depreciate as the probability of a no-deal Brexit rises. The sterling ERI has fallen by 4% since the May Report (Chart 1.7). Sterling implied volatility has increased since May and the cost of insuring against a large depreciation — known as the risk reversal — has also risen. Since the forecast was finalised, sterling has depreciated further by around 2%, while sterling implied volatility and the risk reversal have increased a little more.

The growing perceived probability of a no-deal Brexit has put downward pressure on the equity prices of UK-focused companies (Chart 1.6). In contrast, the equity prices of UK-listed companies with significant overseas operations have risen, such that the FTSE All-Share index has been broadly unchanged. Because much of those companies' profits is earned in foreign currency, their sterling value is mechanically boosted by the exchange rate depreciation.

Credit conditions facing companies and households

Corporate credit conditions were little changed in 2019 Q2. Corporate bond spreads across the main markets in which UK companies borrow are broadly similar to those at the time of the May Report. The cost and availability of bank lending to companies was also little changed in Q2, according to the *Credit Conditions Survey*. Contacts of the Bank's Agents reported some tightening in credit conditions for firms in a few sectors, for example construction and high-street retail.

For households, most mortgage rates were unchanged over 2019 Q2, and have now been stable for over a year. That is despite spreads on unsecured bank funding having fluctuated substantially. As discussed in Box 1 of the *February 2019 Report*, wholesale unsecured funding spreads are likely to be less important for retail banks' loan pricing than in the past. That is because the large retail banks have increased their share of deposit funding — particularly sight deposits — relative to wholesale funding.

Although rates on consumer credit have been little changed since the run-up to the May Report (Table 1.E), there has been

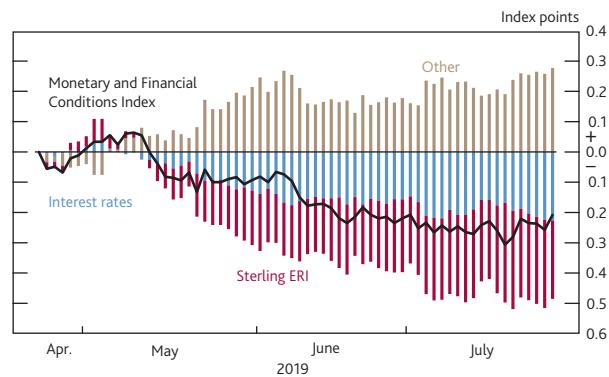
Table 1.E Retail interest rates remain lowSelected household quoted rates^(a)

	July 2019 (per cent)	Change since (basis points)			
		Apr. 2019	July 2018	Aug. 2017	Jan. 2017
Mortgages					
Two-year variable rate, 75% LTV	1.99	0	45	60	50
Two-year fixed rate, 60% LTV	1.52	-7	-21	28	19
Two-year fixed rate, 75% LTV	1.64	-2	-11	21	19
Five-year fixed rate, 75% LTV	1.95	-5	-9	-1	-27
Two-year fixed rate, 90% LTV	2.14	-1	-16	-19	-36
Two-year fixed rate, 95% LTV	2.95	3	-83	-107	-67
Consumer credit					
£10,000 personal loan	3.65	1	-11	-14	-4
Credit card	19.99	7	164	203	203
Deposits					
Instant access	0.43	-2	22	29	28
Cash ISA	0.87	1	19	52	47
One-year fixed-rate bond	0.90	-9	3	4	30
One-year fixed-rate ISA	1.22	-13	-12	11	33
Two-year fixed-rate bond	1.06	-23	-26	-10	21
Two-year fixed-rate ISA	1.10	-21	-13	0	28

(a) The Bank's quoted rate series are weighted monthly average rates advertised by all UK banks and building societies with products meeting the specific criteria. Not seasonally adjusted. Data for July are flash estimates and subject to change until they are published on 7 August. In February 2019 the methodology used to calculate these data was changed. More information is available [here](#).

Chart 1.8 UK financial conditions have loosened since the May Report

Contributions to changes in the UK Monetary and Financial Conditions Index since the May 2019 Report^(a)



Sources: Bloomberg Finance L.P., Eikon from Refinitiv, ICE/BoAML Global Research and Bank calculations.

(a) The UK Monetary and Financial Conditions Index (MFCI) summarises information from the following series: short-term and long-term interest rates, the sterling ERI, corporate bond spreads, equity prices, and household and corporate bank lending spreads. The series weights are based on the marginal impact of each variable on the UK GDP forecast. The chart shows changes in the MFCI from the average level over the 15 working days to 24 April 2019. An increase in the MFCI signals tighter financial conditions and a decrease signals looser conditions. For more information, see the Bank Overground post '[How can we measure UK financial conditions?](#)'.

some tightening in credit conditions in the unsecured lending market. Credit card rates have increased over the past year, and respondents to the *Credit Conditions Survey* have been reporting falls in the availability of unsecured credit, as well as tighter credit scoring criteria, for some time. Respondents also reported that default rates on unsecured lending had risen for the third consecutive quarter in 2019 Q2. Supervisory intelligence indicates that default rates nevertheless remain at low levels, and other indicators of household distress have not worsened.

Overall domestic financial conditions

A summary measure of UK financial conditions suggests that conditions have loosened since May (Chart 1.8). That reflects the fall in market interest rates and the sterling ERI, partly offset by higher credit spreads as banks have not yet passed through the fall in risk-free rates to lending rates.

That easing in financial conditions provides some support to UK growth in the MPC's forecast compared with the May Report. Market movements have been partly driven by an increase in the perceived likelihood of a no-deal Brexit, however, which is not consistent with the MPC's forecast conditioning assumption of a smooth Brexit. That tension is discussed further in Box 6 in Section 5.

Box 1

Monetary policy since the May Report

At its meeting ending on 19 June 2019, the MPC noted that the near-term data had been broadly in line with the May *Inflation Report*, but that downside risks to growth had increased. Globally, trade tensions had intensified. Domestically, the perceived likelihood of a no-deal Brexit had risen. Trade concerns had contributed to volatility in global equity prices and corporate bond spreads, as well as falls in industrial metals prices. Forward interest rates in major economies had fallen materially further. Increased Brexit uncertainties had put additional downward pressure on UK forward interest rates and had led to a decline in the sterling exchange rate.

As expected, recent UK data had been volatile, in large part due to Brexit-related effects on financial markets and businesses. After having grown by 0.5% in 2019 Q1, GDP was now expected to be flat in Q2. That in part had reflected an unwind of the positive contribution to GDP in the first quarter from companies in the UK and the EU building stocks significantly ahead of Brexit deadlines. Looking through recent volatility, underlying growth in the UK appeared to have weakened slightly in the first half of the year relative to 2018 to a rate a little below its potential. The underlying pattern of relatively strong household consumption growth but weak business investment had persisted.

CPI inflation had been 2.0% in May. It was likely to fall below the 2% target later this year, reflecting falls in energy prices. Core CPI inflation had been 1.7% in May, and core services CPI inflation had remained slightly below levels consistent with meeting the inflation target in the medium term. The labour market had remained tight, with data on employment, unemployment and regular pay in line with expectations at the time of the May *Report*. Growth in unit wage costs had remained at target-consistent levels.

At the time of its June meeting, the MPC judged that the existing stance of monetary policy remained appropriate. The Committee continued to judge that, were the economy to develop broadly in line with its May *Inflation Report* projections that included an assumption of a smooth Brexit, an ongoing tightening of monetary policy over the forecast period, at a gradual pace and to a limited extent, would be appropriate to return inflation sustainably to the 2% target at a conventional horizon.

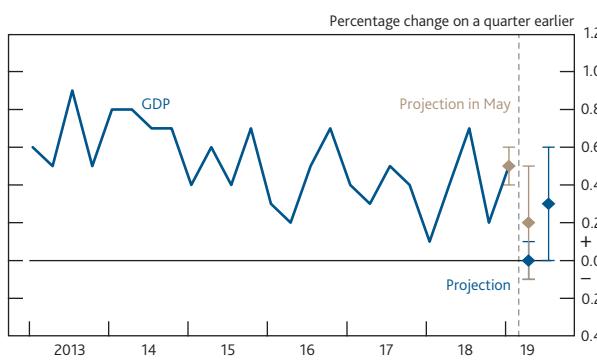
The MPC noted that the economic outlook would continue to depend significantly on the nature and timing of EU withdrawal, in particular: the new trading arrangements between the EU and the UK; whether the transition to them is abrupt or smooth; and how households, businesses and financial markets respond. The appropriate path of monetary policy would depend on the balance of these effects on demand, supply and the exchange rate. The monetary policy response to Brexit, whatever form it takes, would not be automatic and could be in either direction.

2 Demand and output

- Output growth was volatile in 2019 H1, largely driven by Brexit-related stockbuilding.
- Looking through the volatility, underlying output growth appears to have slowed relative to 2018, reflecting the impact of Brexit-related uncertainties and weaker global growth.
- UK GDP growth has been driven largely by consumption growth.

Chart 2.1 GDP is expected to be flat in 2019 Q2

GDP growth and Bank staff's near-term projection^(a)

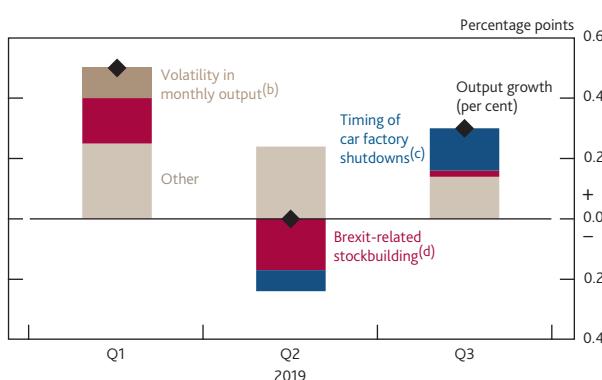


Sources: ONS and Bank calculations.

(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 2019 Q2 and 2019 Q3. 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 2019 Q2 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 2019 Q2 rises to 0.2 percentage points. For 2019 Q3, the RMSE of 0.3 percentage points is based on the full evaluation window.

Chart 2.2 The volatility in output has been largely driven by Brexit-related effects

Contributions of idiosyncratic factors to quarterly output growth^(a)



Sources: ONS and Bank calculations.

(a) The contributions of idiosyncratic factors are estimated by Bank staff.

(b) GDP fell by 0.3% in December 2018, before rising by 0.5% in January 2019.

(c) Estimates of the impact of car factory shutdowns are based on ONS car production data.

(d) The estimated impact of Brexit-related stockbuilding on Q1 GDP is based on the path of UK manufacturing output in 2019 Q1 relative to other major European economies.

2.1 Output and the near-term outlook

UK GDP data have been volatile in 2019, largely because of Brexit-related effects. After growing by 0.5% in 2019 Q1, GDP increased by 0.3% in the three months to May and is expected to have been flat in Q2 as a whole (Chart 2.1). The MPC had expected volatility in the data, although growth in Q2 is now expected to have been a little weaker than in the May *Inflation Report*.

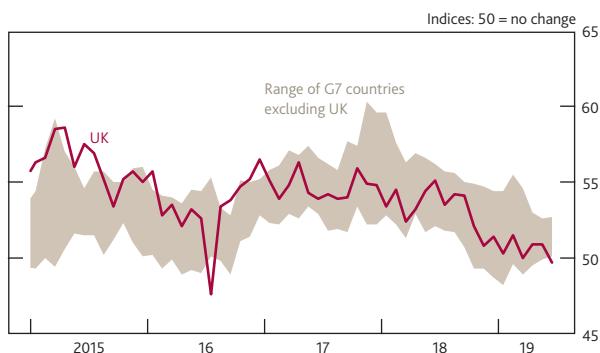
Stockbuilding appears to have driven much of this recent volatility (Chart 2.2). As discussed in Box 3 of the *May Report*, surveys indicated that firms increased their holdings of stocks ahead of the original 29 March Brexit deadline, in order to mitigate the effects of a possible disruptive exit. This is estimated to have boosted domestic output by between 0.1 to 0.2 percentage points in 2019 Q1, largely within the manufacturing sector, as companies in the UK and elsewhere in the EU built inventories of UK products. Erratic monthly moves in output around the turn of the year also boosted growth in Q1.

Stockbuilding is expected to subtract from GDP growth in Q2. At the time of the *May Report*, firms were expected to hold stock levels broadly flat in Q2, which would have weighed on GDP growth by an amount equivalent to the boost in Q1. Evidence from the Agents and Decision Maker Panel (DMP) Survey suggests that a minority of UK firms that built stocks in Q1 are now running them down. Assuming that EU firms behave in a similar way, stockbuilding is expected to subtract a little more from Q2 GDP growth than it added in Q1.

The expected slowdown in growth in Q2 also reflects a decline in car production. Some firms brought forward their usual summer shutdowns for maintenance to April, in order to mitigate the effect of any Brexit disruption. These shutdowns account for just under 0.1 percentage points of the expected slowdown in GDP growth in Q2 (Chart 2.2).

Chart 2.3 Output surveys have weakened across advanced economies

Survey indicators of output growth^(a)

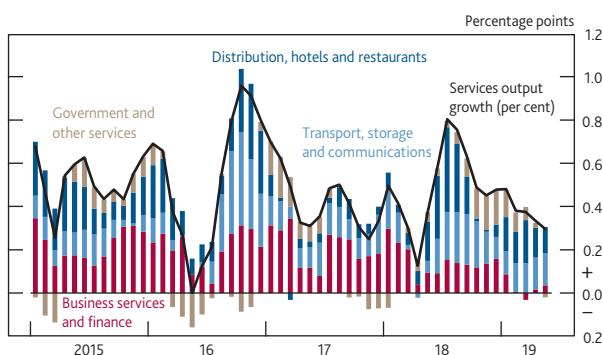


Sources: Eikon from Refinitiv, IHS Markit/CIPS and Bank calculations.

(a) Measures of current monthly composite (services and manufacturing) output for France, Germany, Italy, Japan and the United States. IHS Markit/CIPS composite PMI is unavailable for Canada.

Chart 2.4 Output growth in the business services and finance sector has slowed

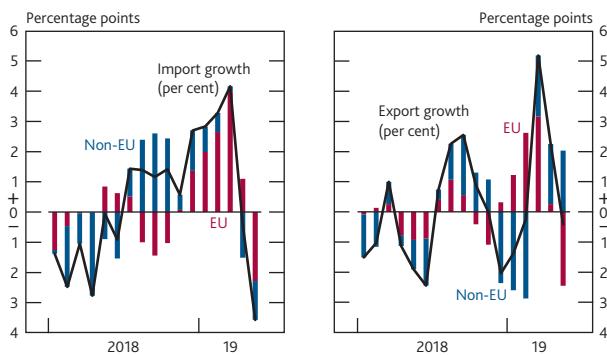
Contributions to three-month on three-month output growth in services^(a)



(a) Chained-volume measures. Contributions may not sum to the total due to rounding.

Chart 2.5 Trade with the EU rose in Q1 and fell back in Q2 largely due to stockbuilding

Contributions to three-month on three-month growth in goods imports and exports by area^(a)



(a) Chained-volume measures. Goods exports and imports are measured excluding trade in unspecified goods.

The volatility in output is expected to extend into the second half of this year. Assuming that companies do not have further shutdowns over the summer, car production is likely to boost GDP growth relative to normal in Q3. This effect should subsequently unwind. Firms' stockbuilding behaviour around the new Brexit deadline on 31 October will also have an effect on growth. In the MPC's central projection, stock levels are projected to remain unchanged in Q3, which provides a small boost to growth after the inventory reduction that appears to have occurred in Q2 (Chart 2.2).

Looking through recent volatility, underlying growth appears to have weakened in the first half of the year relative to 2018 to a rate below potential. It is projected to remain subdued in 2019 H2, with business surveys pointing to broadly flat output in 2019 Q3. Given the volatility in official data at present, survey measures can provide a useful guide to underlying trends, as they often abstract from idiosyncratic factors. However, as discussed in Box 3 of the *February Report*, the relationship between survey responses and GDP growth may be weaker at times of high uncertainty.

The weakness in underlying growth partly reflects a slowing in the world economy: PMIs have fallen across a number of advanced economies over the past year. But the UK's composite output PMI is now at the bottom of a range of advanced economies (Chart 2.3), so the weakness is likely to also reflect an increase in Brexit-related uncertainties. One area of the economy where this effect may be apparent is in business services and finance, where output growth has slowed sharply (Chart 2.4). Evidence from the Bank's Agents suggests that a damped appetite for investment in the UK has led to weaker demand for related professional services. The UK's financial account does show unusual weakness in foreign inflows of direct and portfolio investment in Q1.

2.2 Expenditure components of demand

The composition of demand growth in the first quarter of 2019 was broadly in line with the expectation in the May Report: consumption was resilient and stockbuilding contributed positively, but net trade dragged on growth. The moves in all three components over the quarter were larger than anticipated, however.

Stockbuilding and net trade

Stockbuilding made a large contribution to the expenditure measure of GDP growth in 2019 Q1 (Table 2.A), as firms built stocks ahead of the 29 March Brexit deadline. While firms increased their expenditure on stocks, not all of this boosted domestic production. Many of the stocks were sourced from elsewhere in the EU, and so EU goods imports rose sharply in Q1 (Chart 2.5). Goods exports to the EU also rose as EU firms built up stocks of UK goods, but net trade still reduced GDP growth substantially and the trade and current account

Table 2.A Consumption growth was resilient in 2019 Q1Expenditure components of demand^(a)

Percentage changes on a quarter earlier

	Quarterly averages								
	1998– 2007	2008– 09	2010– 12	2013– 16 H1	2016 H2– 2017	2018 H1	2018 H2	2019 Q1	
Household consumption ^(b)	0.8	-0.5	0.1	0.6	0.5	0.5	0.3	0.6	
Private sector investment	0.7	-4.5	2.0	0.9	1.0	-0.1	-0.5	0.1	
of which, business investment ^(c)	0.7	-3.4	2.2	0.4	0.5	-0.5	-0.8	0.4	
of which, private sector housing investment	0.6	-7.0	1.4	2.4	2.2	0.9	0.0	-0.5	
Private sector final domestic demand	0.8	-1.1	0.5	0.8	0.6	0.4	0.2	0.5	
Government consumption and investment ^(c)	0.9	0.8	-0.2	0.4	0.0	-0.6	1.0	1.6	
Final domestic demand	0.8	-0.6	0.3	0.7	0.5	0.2	0.3	0.7	
Change in stocks ^{(d)(e)}	0.0	0.0	0.1	0.0	-0.1	0.3	0.1	0.9	
Alignment adjustment ^(e)	0.0	-0.1	0.0	0.0	0.0	0.0	0.3	-0.6	
Domestic demand ^(f)	0.8	-0.7	0.4	0.7	0.4	0.5	0.5	3.3	
'Economic' exports ^(g)	1.1	-1.3	1.0	0.8	1.1	-1.1	1.2	1.5	
'Economic' imports ^(g)	1.4	-1.1	0.8	1.1	0.8	-0.1	1.4	10.8	
Net trade ^{(e)(g)}	-0.1	0.0	0.1	-0.1	0.1	-0.3	-0.1	-2.9	
Real GDP at market prices	0.7	-0.7	0.4	0.6	0.5	0.2	0.5	0.5	
Memo: nominal GDP at market prices	1.2	-0.2	0.9	0.9	1.0	0.7	0.9	0.9	

(a) Chained-volume measures unless otherwise stated.

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

(c) Investment data take account of the transfer of nuclear reactors from the public corporation sector to central government in 2005 Q2.

(d) Excludes the alignment adjustment.

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

(f) Includes acquisitions less disposals of valuables. The pickup in 2019 Q1 can largely be accounted for by an increase in the imports of valuables, including non-monetary gold. Movements in non-monetary gold do not affect headline GDP as they are recorded as equal and offsetting impacts on gross capital formation and net trade.

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

deficits widened. Survey and monthly trade data to May suggest that both these effects will unwind in Q2, with stockbuilding falling but net trade volumes recovering.

Looking back over a longer period, export growth has slowed markedly since its recent peak in 2017 Q3, and survey indicators have also steadily weakened (**Chart 2.6**). That is likely to reflect the impact of the slowdown in the world economy (Section 1) as well as the waning effect of sterling's past depreciation. It is also possible that Brexit-related uncertainty has weighed on demand for UK exports.

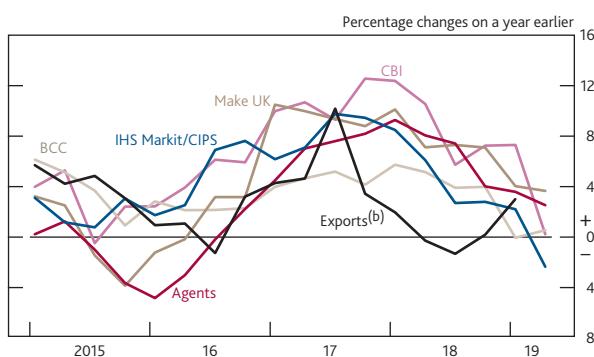
Consumption

Household consumption grew by 0.6% in 2019 Q1 (**Table 2.A**), stronger than expected at the time of the *May Report*. That continues the pattern seen over much of the past year, consistent with stronger-than-expected real income and employment growth (see Box 6 of the *May Inflation Report*).

Growth in ONS retail sales held up in 2019 Q2, but some indicators of spending have softened. The BRC and CBI surveys are pointing to a slowdown in consumption growth (**Chart 2.7**), but these surveys have smaller samples than the official retail sales data and have not been strongly correlated with consumption growth over the past few years. Consumer confidence — which has had a closer relationship with consumption growth — has held up, with households' expectations for their personal financial situation close to their historical average (**Chart A**, Box 3). Taking these indicators together, consumption is expected to grow by 0.3% in 2019 Q2. Consumption growth is projected to be steady in the near term and remain resilient relative to growth in business investment (Section 5).

Consumer credit growth has continued to slow (**Chart 2.8**), although that is unlikely to have had a material impact on household spending. Around two thirds of the decline since 2016 is accounted for by a slowing in the growth of car dealership finance. As discussed in the *May 2018 Report*, this largely reflects a past structural change in the way in which car purchases are financed and tells us little about consumption growth. There has also been a slowing in other forms of consumer credit, in particular credit card borrowing. The Bank's *Credit Conditions Survey* suggests that this has been driven by a tightening in credit supply, but some lenders also attribute it to a decline in demand for credit. That could suggest weaker spending, but models based on consumer credit growth point to only marginally weaker consumption growth in 2019 Q2 than the MPC's central projection.

The housing market remains weak, but there have been some signs that it has stabilised. House prices, as measured by the official UK house price index, were broadly unchanged in the three months to May, and more timely measures of prices —

Chart 2.6 Survey indicators of export growth have weakened steadilyUK exports and survey indicators of export growth^(a)

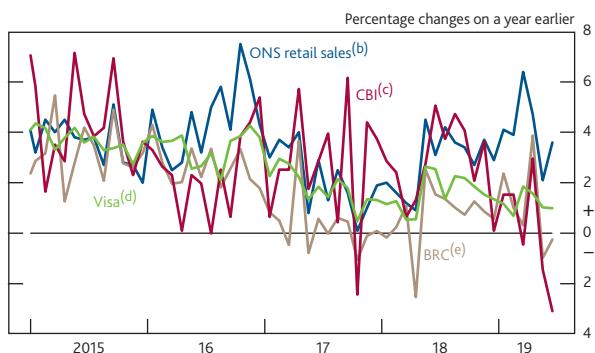
Sources: Bank of England, BCC, CBI, IHS Markit/CIPS, Make UK, ONS and Bank calculations.

(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. The Make UK measure is the average of the net percentage balances of manufacturing companies reporting that export orders increased over the past three months and were expected to increase over the next three months; data available since 2000 Q3. The IHS Markit/CIPS measure is the net percentage balance of manufacturing companies reporting that export orders increased this month compared with the previous month; quarterly average of monthly data.

(b) Chained-volume measure, excluding the impact of MTIC fraud.

Chart 2.7 Official retail sales data have been stronger than a range of other indicators

Retail sales volumes and survey measures of retail sales^(a)



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

(a) All survey indicators have been scaled to match the mean and variance of ONS retail sales volume growth since 2000 except the Visa series, which is since 2006.

(b) Chained-volume measure.

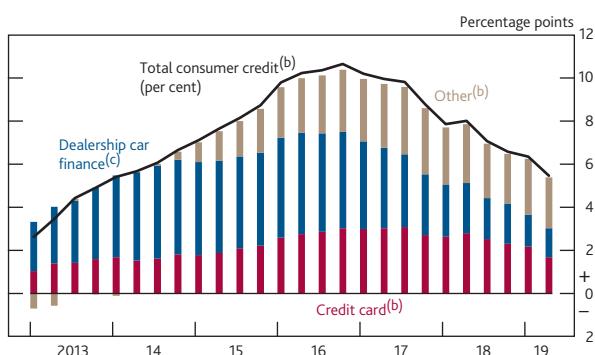
(c) Balance of respondents to the CBI distributive trades survey question 'How do your sales and orders this month compare with a year earlier?'.¹

(d) Percentage change in Visa total consumer spending on a year ago, deflated by CPI inflation.

(e) Percentage change in total sales. Not seasonally adjusted.

Chart 2.8 Consumer credit growth has continued to slow

Contributions to annual consumer credit growth^(a)



Sources: Bank of England, ONS and Bank calculations.

(a) For a description of how growth rates are calculated using credit data see [here](#).

(b) Sterling net lending by UK monetary financial institutions (MFIs) and other lenders to UK individuals (excludes student loans).

(c) Identified dealership car finance lending by UK MFIs and other lenders.

Table 2.B Monitoring the MPC's key judgements

Developments anticipated in May during 2019 Q2–2019 Q4	Developments now anticipated during 2019 Q3–2020 Q1
Consumer spending	Broadly unchanged
<ul style="list-style-type: none"> Quarterly real post-tax household income growth to average just over ¼%. Quarterly consumption growth to be between ¼% to ½%. 	<ul style="list-style-type: none"> Quarterly real post-tax labour income growth to average around ¼%. Quarterly consumption growth to average ¼%.
Housing market	Revised up
<ul style="list-style-type: none"> Mortgage approvals for house purchase to average just over 60,000 per month. The UK house price index to fall by just over 1¼% in the year to 2019 Q4. Housing investment to fall by ½% per quarter, on average. 	<ul style="list-style-type: none"> Mortgage approvals for house purchase to average about 65,000 per month. The UK house price index to rise by just over 2% in the year to 2020 Q1. Housing investment to fall by ¼% per quarter, on average.
Business investment	Revised down
<ul style="list-style-type: none"> Business investment to fall by ¼% per quarter, on average. 	<ul style="list-style-type: none"> Business investment to fall by 1% per quarter, on average.

such as the Nationwide and Rightmove indices — are suggesting a pickup. House price inflation is expected to be a bit stronger than anticipated in May (**Table 2.B**). However, as discussed in Box 4 of the *May Report*, the relationship between house prices and consumption has been weaker than usual in recent years, so this is not expected to have a material impact on consumption growth.

Stronger house price inflation and a lower market path for interest rates are expected to boost housing investment, although it remains subdued in the near term. Growth in housing investment weakened over 2018 (**Table 2.A**), and private housing starts suggest that weakness will continue. This may reflect increased uncertainty about the outlook for the housing market.

Business investment

Business investment is estimated to have increased by 0.4% in Q1 (**Table 2.A**), driven by higher investment in buildings and structures. This was stronger than expected in the *May Report*. Estimates of business investment are more uncertain than usual, however. The introduction of a new accounting standard — IFRS 16 — has affected how some businesses have reported their fixed assets in ONS surveys. The ONS has made an adjustment to the data to correct for this, but the size of the appropriate adjustment is hard to judge. This will continue to affect estimates in coming quarters.

Despite the pickup in the official data, investment intentions have continued to be weak. In particular, the Agents' score for investment intentions remained at a nine-year low in June. Businesses remain pessimistic about the economic outlook. According to the Lloyds Bank Business Barometer, firms' expectations for the general economy are well below their historical and post-EU referendum averages.

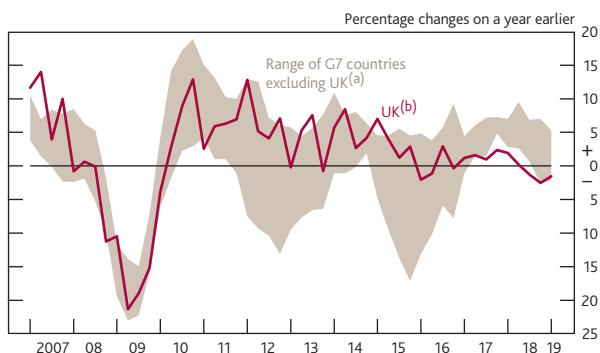
Weaker global growth (Section 1) has led to a slowdown in business investment growth across the G7. This is unlikely to fully explain the marked weakness in UK investment, however (**Chart 2.9**). Prior to the EU referendum, UK business investment growth was growing in line with average growth across the rest of the G7. Since then, it has risen by just 1% in the UK, compared to an average of 12% elsewhere.

Brexit-related uncertainties have weighed heavily on UK business investment. The recovery of investment from the 2008 recession was broadly in line with previous episodes until the EU Referendum Act was passed in 2015. Since then, the recovery in business investment has stalled (**Chart 2.10**). DMP Survey data suggest that the level of nominal investment may be between 6%–14% lower than it would have been in the absence of Brexit uncertainties.⁽¹⁾

(1) Further insights from the DMP Survey are discussed in more detail in Bloom, N., Bunn, P., Chen, S., Mizen, P., Smietanka, P., Thwaites, G. and Young, G. (2019), '[Brexit and uncertainty: insights from the Decision Maker Panel](#)', *Bank of England Staff Working Paper No. 780*.

Chart 2.9 UK business investment has been weaker than in other advanced economies

G7 business investment



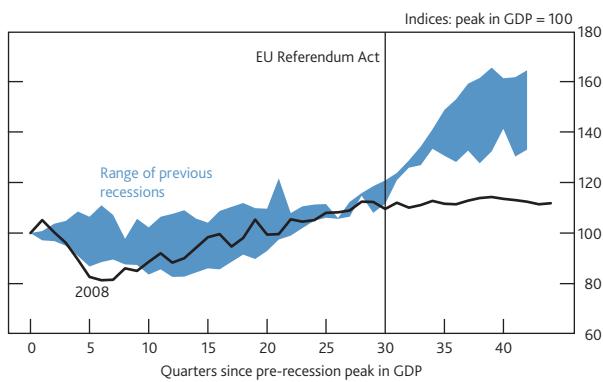
Sources: Eikon from Refinitiv, Japanese Cabinet Office, OECD, ONS, Oxford Economics, Statistics Canada, US Bureau of Economic Analysis and Bank calculations.

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

(b) Chained-volume measure.

Chart 2.10 Business investment has stalled since the referendum

Business investment after previous recessions^(a)



Sources: ONS and Bank calculations.

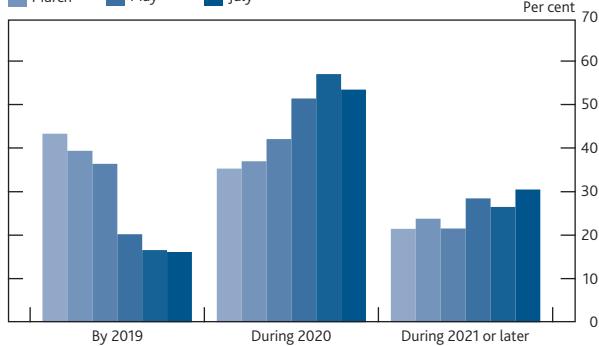
(a) Chained-volume measure. Recessions are defined as at least two consecutive quarters of negative GDP growth. Previous recessions include those beginning in 1973, 1975, 1980 and 1990. A recovery ends if a second recession occurs in the period shown.

Chart 2.11 More firms now expect Brexit uncertainty to persist at least into next year

Expected date by which Brexit-related uncertainty is expected to be resolved^(a)

Survey month:

February	April	June
March	May	July ^(b)



Source: DMP Survey.

(a) Question: 'When do you think it is most likely that Brexit-related uncertainty facing your business will be resolved?'. Data are for the percentages of businesses that state that they are affected by Brexit-related uncertainty. The DMP consists of around 8,000 businesses with around 3,000 responses received to the survey each month.

(b) Survey taken between 5–19 July.

How firms' investment spending develops over the near term will therefore be closely tied to how Brexit-related uncertainties evolve. The latest DMP Survey, taken between 5–19 July, showed that fewer firms now expect uncertainty to be resolved by the end of this year, with more expecting it to persist into next year and beyond (Chart 2.11). That could lead to some recovery in investment if companies judge it too costly to wait any longer for a resolution to become apparent. Nonetheless, the MPC judges that Brexit-related uncertainties will continue to weigh on investment. Even if a deal is agreed, it may not lead to a material recovery if businesses do not gain much clarity about the eventual trading relationship with the EU immediately. That effect could be larger if they view the outcome as likely to hamper demand for their products. The latest Agents' survey on EU withdrawal suggested that investment would be unlikely to pick up substantially in the near term even in a scenario where a Brexit deal is agreed (Box 2).

Overall, business investment is projected to fall over the rest of 2019. This is despite limited spare capacity and accommodative credit conditions which would be expected to support spending.

Box 2

Agents' update on business conditions

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

Recent developments

Activity had slowed in the past three months compared with a year ago, particularly in manufacturing and construction.⁽²⁾ Most of that was due to temporary factors, but it also partly reflected weaker underlying growth.

The Agents' scores for manufacturing output and exports were their lowest in almost three years. This partly reflected one-off effects from an unwinding of stockbuilding and shutdowns in car production that had been brought forward from the summer. Nonetheless, there were also signs of weaker underlying demand for exports as global growth had slowed.

Construction sector activity contracted, as major infrastructure projects had been put on hold and house-building activity had eased.

Business services growth was modestly weaker, reflecting depressed demand for financial, corporate advisory and hospitality services. Part of that could be due to Brexit-related uncertainty. However, demand for logistics and IT services remained buoyant.

Agents' survey on preparations for EU withdrawal

The Agents surveyed over 300 business contacts on their preparations for EU withdrawal — the sixth vintage of the survey to date.⁽³⁾

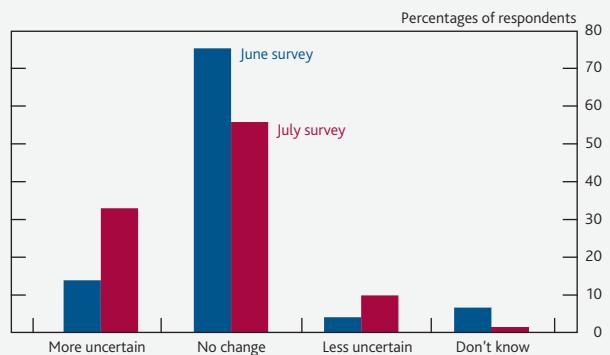
In the latest survey, about a third of respondents reported being more uncertain about the economic outlook now than they had been prior to the extension of the EU withdrawal deadline — around double the proportion that answered that way in the June survey (Chart A). Just over half of respondents reported no change in uncertainty, down from three quarters of respondents in the June survey.

When asked about their contingency plans for Brexit, almost 90% of respondents said that they had implemented contingency plans ahead of the March withdrawal deadline (Chart B).

Half of respondents said they would maintain the plans they had in March and a quarter of companies said they would increase planning. A small proportion of companies said that they would scale back previous plans, but discussions with contacts suggested that most of those expected to

Chart A Companies are more uncertain about the outlook

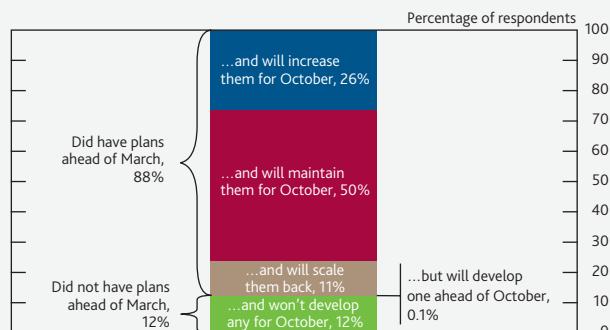
Change in uncertainty since the Brexit deadline extension^(a)



(a) Companies were asked 'Are you more or less uncertain about the economic outlook now than you were prior to the extension of the EU withdrawal deadline to the end of October 2019?'. Bars may not sum to 100 due to rounding.

Chart B Most companies have contingency plans for Brexit

Brexit contingency plans^(a)



(a) Companies were asked 'How has the Brexit extension affected your contingency plans?'. Bars may not sum to 100 due to rounding.

reintroduce plans ahead of the EU withdrawal deadline on 31 October.

Asked about their readiness for a no-deal Brexit, three quarters of respondents said that they considered themselves 'as ready as they can be', and just under a fifth described themselves as 'fully ready'. This was similar to the June survey.

Authorities have taken steps to improve the preparedness of the real economy for a disorderly Brexit. The UK has announced Transitional Simplified Procedures for customs checks at the border and a temporary waiver on security checks. The Port of Calais and Eurotunnel announced that they have completed their preparations on French border infrastructure. Agreements have been signed to roll over existing EU trade deals with the rest of the world representing about 5½% of the UK's total goods trade.

(1) A comprehensive quarterly report from the Agents on business conditions is published alongside the MPC decision in non-Inflation Report months. The next report will be published on 19 September 2019.

(2) This is a summary of economic reports compiled by the Agents during June and early July 2019. References to activity and prices relate to the past three months compared with a year earlier. The Agents' scores are available [here](#).

(3) The survey was conducted between 17 June and 5 July. There were 318 responses from companies employing over 500,000 employees. Responses were weighted by employment and then reweighted by sector employment.

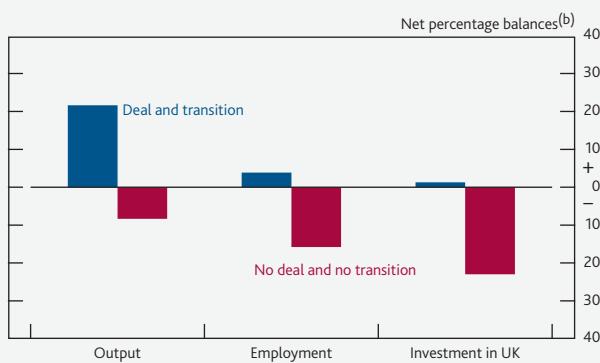
As set out in the *July 2019 Financial Stability Report*, the core of the financial system is resilient to and prepared for the wide range of risks it could face, including a worst-case disorderly Brexit. Most risks to financial stability that could arise from disruption to cross-border financial services in a no-deal Brexit have been mitigated. UK legislation ensures that UK households and businesses will be able to continue to receive services from EU banks, insurers, asset managers and central counterparties.

However, material risks of economic disruption remain. For example, most of the 240,000 UK businesses that currently trade solely with the EU do not yet have Economic Operator Registration and Identification (EORI) numbers. EORI registration is the first of a series of actions that need to be carried out in order to be ready for EU border inspections. Businesses will also need to ensure they have the correct certification in place to be able to continue selling their products in the EU.

The Agents' survey showed that even those companies that considered themselves 'ready' for a no-deal Brexit thought that output, employment and investment would be substantially lower over the next year in that scenario, relative to one in which there was a deal (**Chart C**).

Chart C Companies expect output, employment and investment to be much lower in a no-deal Brexit

Expectations for the effect of Brexit^(a)



(a) Companies were asked 'Relative to the last 12 months, what is your expectation for the following aspects of your business over the next year in each scenario: (a) a deal and transition period and (b) no deal and no transition period?'. For each relevant business factor, respondents were asked to choose between 'Fall greater than 10%', '-10 to -2%', 'Little change', '+2 to +10%', and 'Rise greater than 10%'.^(b)

(b) Net percentage balances of companies reporting increases or declines in each factor, weighted by employment. Half weight was given to the ±2%–10% response and full weight was given to those that responded 'Rise/fall greater than 10%.'

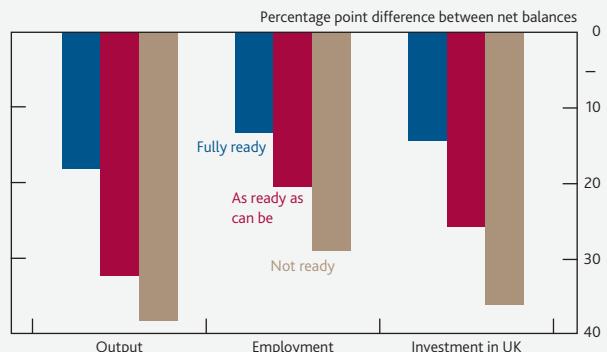
Companies that said they were better prepared for a no-deal Brexit generally expected a smaller negative impact on output, employment and investment than those that said they were 'not ready' for a no-deal Brexit (**Chart D**).

Agents' survey on the labour market

The Agents also surveyed around 350 business contacts on their outlook for employment and pay growth.⁽⁴⁾

Chart D Firms that are less ready for a no-deal Brexit expect a larger negative economic impact

Net balances under a no-deal scenario minus that under a deal and transition^(a)

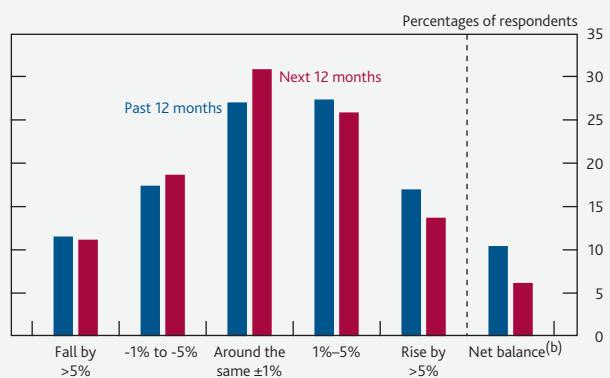


(a) The net percentage balance under a no-deal Brexit scenario minus that under a deal scenario. The more negative the figure, the larger the perceived detrimental impact of a no-deal Brexit relative to a deal scenario. The method for calculating the net balance is set out in footnote (b) of Chart C.

Asked how they expected staff numbers to change over the next 12 months, around a third of respondents said that they expected staffing levels to be broadly unchanged (**Chart E**). Around a quarter expected to increase staffing by between 1% and 5%. On balance, firms expected a modest increase in staffing levels over the next 12 months, though to a slightly lesser extent than over the past 12 months. This is broadly consistent with the Agents' score on employment intentions, which has drifted down in recent years.

Chart E Companies expect to increase staffing over the next year

Changes in staff numbers^(a)



(a) Companies were asked 'How have staff numbers changed over the past 12 months; and how do you expect them to change going forwards (over the next 12 months)?'. Respondents were asked to choose between the five options shown in the chart.

(b) Net percentage balance of companies reporting increases or declines in staffing, weighted by employment. Half weight was given to the rise/fall 1%–5% response and full weight was given to those that responded rise/fall >5%.

Companies were also asked about the effect of a variety of factors on employment levels (**Chart F**). On balance, companies reported that increases in labour productivity had reduced the number of staff needed over the past 12 months

(4) The survey was conducted between 7 June and 9 July. There were 349 responses from companies employing nearly 600,000 employees. Responses were weighted by employment and then reweighted by sector employment.

Chart F Increased labour productivity and uncertainty are reported to reduce employment levels

Reasons for changing staff numbers^(a)



(a) Companies were asked 'How have changes in the following factors affected employment levels over the past 12 months and how do you expect them to affect employment over the next 12 months?'. Contacts were asked to choose between: 'Reduce'; 'No impact'; or 'Increase'.

(b) Net percentage balance of companies reporting that each factor was increasing or reducing employment levels.

and that this was likely to continue in the next 12 months. Companies reported that demand for their outputs would increase employment in both years.

There was an increase in the balance of companies citing economic/political uncertainty as a factor leading to reduced employment levels for the next 12 months compared with the previous 12 months.

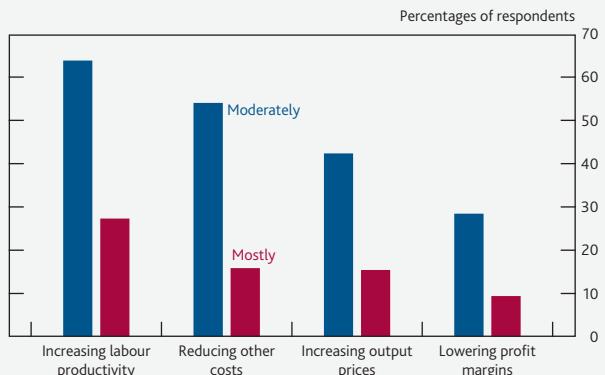
There were widespread reports that recruitment had become more difficult compared with a year ago, including for non-UK EU workers. This was most pronounced in the construction and business services sectors. Companies reported taking a variety of measures to address recruitment and retention difficulties. These included increasing pay, providing training, offering flexible working and other benefits, and making improvements to working conditions.

Despite recruitment difficulties, pay growth appeared to have stabilised, and the survey suggested that wage growth in 2019 would be similar to last year. Of the measures that firms said they would take to cover the cost of wage growth, the most commonly cited one was to increase productivity. Fewer companies expected to accept lower profit margins, except among firms in the consumer services sector, where that response was more prevalent (Chart G).

Although the Agents' scores for investment intentions have been very weak, the survey suggested that the balance between capital and labour may be shifting towards capital (Chart H). Growth in the UK capital to labour ratio has remained much lower than its pre-crisis pace although the ratio has risen in recent years (Box 4). The majority of respondents in the survey reported no change in the capital to labour balance over the past 12 months. However, around a quarter of respondents said that they had moved toward using

Chart G Firms expect increased productivity to help cover the cost of wage growth

Measures to cover the cost of rises in wages per head^(a)



(a) Companies were asked 'If wages per head are growing, how do you expect to cover that cost?'. For each factor, respondents were asked to choose between 'Not at all'; 'Moderately'; and 'Mostly'.

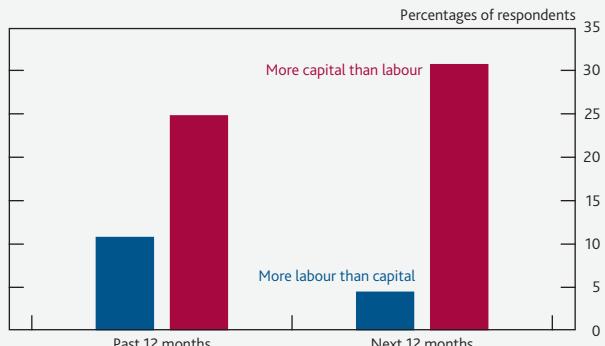
more capital, and around a third of respondents expected this to be the case over the next 12 months.

In general, those contacts moving towards capital were more likely to have experienced difficulty recruiting over the past year. This was not the case in retail, however, where some contacts said they were looking at automation — for example in self-service technology and automated warehouses — in order to reduce costs and headcount. Manufacturers were more likely to be looking at investment in factory automation. And business services reported spending on IT and software upgrades to increase productivity.

Among contacts who reported shifting the balance towards labour, some said that they were doing so because investment was constrained. Others said that more staff were required to service parts of their business that were growing. In a few instances, contacts reported maintaining current headcount in the face of lower demand. This was because they feared that it would be difficult to replace lost skills when demand recovers.

Chart H More firms expect to shift towards using more capital than towards more labour

Changes in the capital to labour mix^(a)



(a) Companies were asked 'Have you changed the balance of labour and capital inputs over the past 12 months; and do you expect it to change over the next 12 months?'. For each period, respondents were asked to choose between 'More labour than capital'; 'Little change in balance'; and 'More capital than labour'.

Box 3

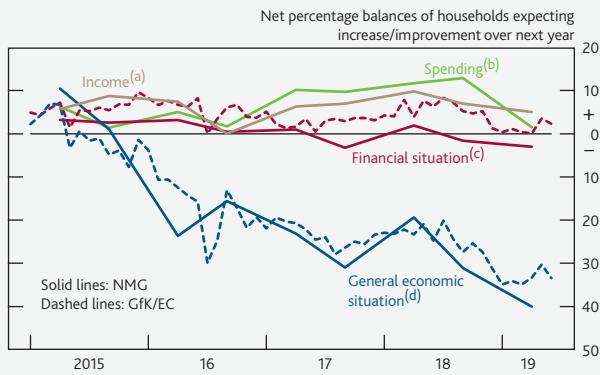
Households' expectations: evidence from the latest NMG survey

The NMG survey is a biannual household survey commissioned by the Bank. The latest survey, conducted between 10 April and 1 May, covered over 6,000 households. This box covers households' expectations for their finances, the housing market and interest rates. The information from the survey on households' debt positions is covered in the [July 2019 Financial Stability Report](#).

In the latest survey, households' expectations for the general economic situation deteriorated slightly, while expectations for their own financial situation held up. These trends have been apparent for some time, and mirror those in the GfK/EC consumer confidence survey ([Chart A](#)).

Chart A Households' expectations for their own financial situation remained stable

Households' expectations in the NMG and GfK/EC surveys



Sources: GfK/EC, NMG Consulting and Bank calculations.

- (a) Question: 'Over the next 12 months, how do you expect your total household income (before anything is deducted for tax, National Insurance, pension schemes etc) to change?'.¹
- (b) Question: 'How do you expect your household to change its spending over the next 12 months? Please exclude money put into savings and repayment of bank loans'.²
- (c) Question: 'How do you expect the financial position of your household to change over the next 12 months?'.
- (d) Question: 'How do you expect the general economic situation of this country to develop over the next 12 months?'.

The resilience in households' expectations for their own financial situation probably reflects their confidence about jobs and pay prospects. While more households expect the general economic situation to deteriorate, the proportion of households expecting to lose their job or experience an absolute decline in their income over the next year ticked down in the latest survey.

Despite households' resilient confidence about their own financial situation, the net balance expecting to increase their spending over the next year fell. This fall does not appear to be driven by lower expectations for income growth ([Chart A](#)). Many respondents attributed the fall to the impact of Brexit.

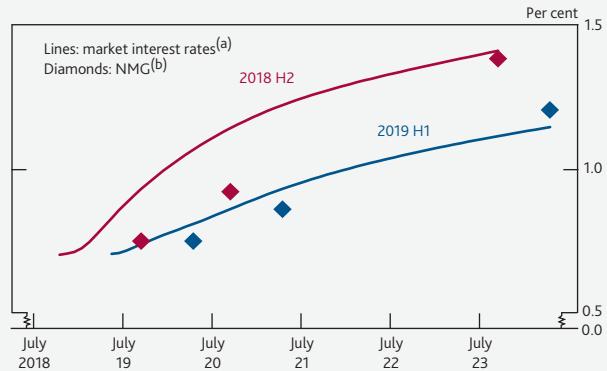
In the NMG survey, households' expectations for the housing market continued to be weak, with house prices expected to decline a little over the next 12 months. The [May Report](#) discussed the role of Brexit-related uncertainty in suppressing housing demand and the survey provides some evidence to support that. Around 20% of households who expect to move house in the next two years reported having delayed moving due to Brexit-related uncertainty.

The survey also asked about households' inflation expectations, which were little changed compared to the previous survey. One and two-year expectations were stable like most other household measures (Section 4) at around 2.1%. Expectations at the five-year horizon have remained around 2.4% since the question was added to the survey in 2015.

On average, households continued to expect a limited and gradual increase in interest rates in the latest survey. Expectations are a little lower than in the previous survey ([Chart B](#)); the market-implied path for interest rates has also fallen over that period.

Chart B Households continue to expect a limited and gradual increase in interest rates over the next two years

Expectations for interest rates



Sources: Bloomberg Finance L.P., NMG Consulting and Bank calculations.

- (a) Estimated using instantaneous forward overnight index swap rates over the period of the respective NMG survey.
- (b) Question: 'The level of interest rates set by the Bank of England (Bank Rate) is currently 0.75%. At what level do you expect that interest rate to be in each of the following time periods (1 year, 2 years, 5 years)?'

3 Supply and the labour market

- While employment growth has softened, the labour market remains tight.
- Pay growth has risen to its highest rate since 2008.
- Productivity growth has remained weak.

Table 3.A The labour market remains tight

Selected measures of labour demand and labour market tightness

	Quarterly averages					2018		2019	
	2000–07	2008–09	2010–12	2013–14	2015–17	H1	H2	Q1	Q2
Change in employment (thousands)^(a)									
of which, employees	70	-59	67	130	101	116	106	100	80
of which, self-employed and other ^(b)	55	-67	32	106	80	139	69	3	n.a.
Job-to-job flows ^(g)	16	7	35	24	21	-23	37	97	n.a.
Surveys of employment intentions^(c)									
Agents ^(d)	0.8	-1.7	0.3	0.9	0.5	0.3	0.3	0.1	-0.1
BCC ^(e)	19	-3	8	26	23	24	21	19	21
CBI ^(f)	3	-20	-3	17	17	14	11	5	16
REC ^(f)	58	44	56	63	62	62	61	57	54
Surveys of recruitment difficulties ^(c)	2.77	2.00	1.84	2.15	2.42	2.37	2.48	2.50	n.a.
Agents ^(h)	1.5	-2.5	-1.1	0.4	1.8	2.6	3.0	3.3	3.1
BCC ⁽ⁱ⁾	61	55	51	57	65	63	72	72	60
CBI, skilled ^(j)	27	15	16	23	33	30	32	29	33
CBI, other ^(j)	8	2	2	3	9	9	9	10	7

Sources: Bank of England, British Chambers of Commerce (BCC), CBI, CBI/PwC, KPMG/REC/IHS Markit, ONS and Bank calculations.

- (a) Changes relative to the previous quarter. Figure for 2019 Q2 is Bank staff's projection, based on data to May.
 (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, 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) 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.
 (i) Percentage of respondents reporting recruitment difficulties over the past three months.
 (j) Net percentage of respondents expecting skilled or other labour to limit output/business over the next three months (in the manufacturing sector) or over the next 12 months (in the financial services and business/consumer/professional services sectors).

In the *May Report*, the MPC judged that demand and supply had been broadly in balance around the turn of the year, but that a small margin of excess supply had begun to emerge in 2019. That assessment, based on the evidence from both statistical filtering techniques and the components of spare capacity, is little changed. It is consistent with the MPC's judgement that underlying demand growth has been below potential in the first half of 2019 (Section 2).

The latest data suggest that the labour market remains tight, although employment growth has softened (**Table 3.A**). As a result, wage growth remains stronger than in recent years. Continued weakness in productivity growth means that unit labour cost growth has picked up, raising domestic inflationary pressures (Section 4).

There are some signs that companies may be operating a little below normal capacity. The CBI survey measure of capacity utilisation, for example, has fallen to below its historical average (**Chart 3.1**).

The MPC judges that a small margin of excess supply will persist in coming quarters, as underlying demand growth remains below potential (Section 5).

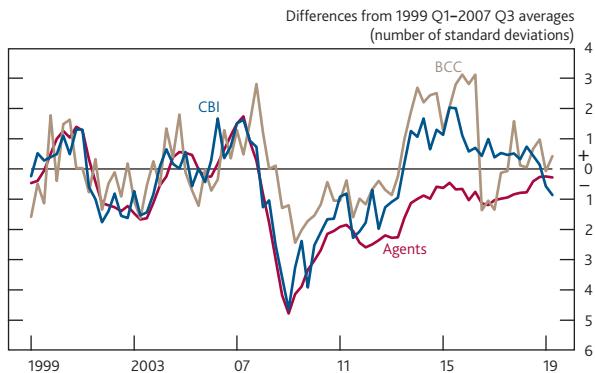
3.1 The labour market

The unemployment rate fell slightly in the three months to May, to 3.8%, a little lower than expected in the *May Report* (**Chart 3.2**). That remains below the MPC's assessment of the equilibrium rate of unemployment — of 4½% — that would be consistent with inflation at the target in the medium term.

Employment growth has softened in 2019. It was 0.1% in the three months to May, down from 0.5% in the three months to February. The number of employees fell in the latest data, while self-employment rose sharply. The slowdown in overall employment growth may be a consequence of companies finding it harder to recruit, given a smaller pool of available labour. It may also reflect an easing in the demand for labour as underlying GDP growth has slowed (Section 2). The number

Chart 3.1 Some indicators suggest that companies are operating a little below normal capacity

Survey indicators of capacity utilisation^(a)

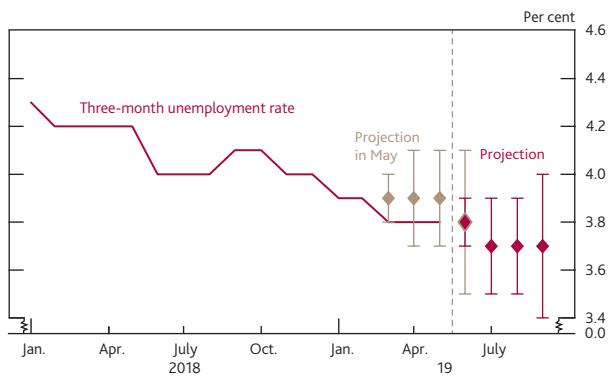


Sources: Bank of England, BCC, CBI, CBI/PwC, ONS and Bank calculations.

(a) Measures are produced by weighting together surveys from the Bank's Agents, the BCC (non-services and services) and the CBI (manufacturing, financial services, business/consumer/professional services and distributive trades) using shares in nominal value added. The BCC data are not seasonally adjusted. The Agents' data for 2019 Q2 are for May.

Chart 3.2 The unemployment rate is expected to fall slightly to 3.7% in 2019 Q3

Unemployment rate and Bank staff's near-term projection^(a)

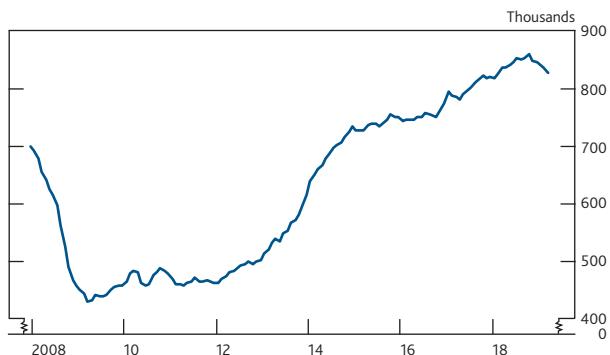


Sources: ONS and Bank calculations.

(a) The beige diamonds show Bank staff's central projections for the headline unemployment rate for the three months to March, April, May and June 2019 at the time of the May 2019 Report. The red diamonds show the current staff projections for the headline unemployment rate for the three months to June, July, August and September 2019. 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.

Chart 3.3 There are signs that demand for labour may have eased

Number of vacancies



of vacancies has fallen back a little in recent months (**Chart 3.3**), and is around 4% lower than its peak in the three months to January. In addition, the REC index of demand for staff fell a little further in 2019 Q2 (**Table 3.A**).

Alongside the slowing in employment growth, the participation rate fell a little to 63.9% in the three months to May. The participation rate remains high, however, as the proportion of people who want to work has increased within certain demographic groups in recent years. For example, rises in the state pension age, as well as improved health and longevity, have raised the participation rates of older workers.⁽¹⁾

Average hours worked fell back a little in the three months to May. That fall appears to partly reflect the unwinding of the temporary boost to hours in Q1 arising from Brexit-related stockpiling. In particular, average hours worked in the manufacturing sector rose strongly as output in that sector increased. Since then, manufacturing output has fallen back.

Employment growth is projected to remain positive at 0.2% in 2019 Q3, consistent with surveys of employment intentions such as the REC and the Bank's Agents (**Table 3.A**). The unemployment rate is expected to be 3.7% (**Chart 3.2**), as expected at the time of the May Report.

Despite the easing in labour demand and employment growth, the labour market remains tight. For example, some survey measures of recruitment difficulties remain above historical averages. And job-to-job flows — which will, in part, reflect the degree to which employers are competing to hire employees — are close to pre-crisis rates (**Table 3.A**).

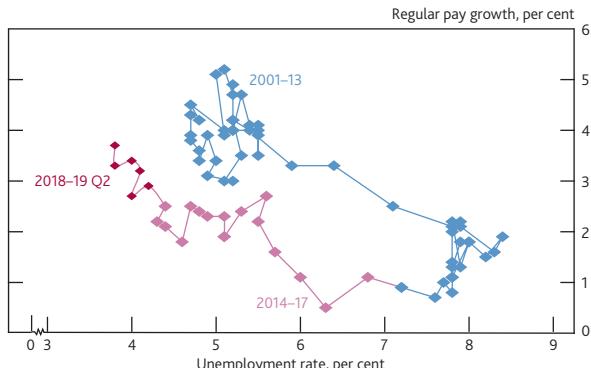
The tightness of the labour market has been associated with faster pay growth. As shown in a wage Phillips curve, lower rates of unemployment over the past year have been accompanied by higher wage growth (**Chart 3.4**), as companies have paid more to secure employees from a smaller potential pool of labour. Annual growth in whole-economy regular average weekly earnings (AWE) — which excludes bonuses — rose to 3.6% in the three months to May. A small part of that rise may reflect the increase in the National Living Wage in April. Private sector regular pay growth also rose to 3.7%, the fastest rate since 2008.

There are signs that pay growth is likely to stabilise. According to the Bank's database, median pay settlements in the private sector were around 2½% in the 12 months to June, down slightly from 2¾% in the previous 12 months, and survey indicators of pay growth have edged down in the latest data

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

Chart 3.4 Wage growth has picked up as the unemployment rate has fallen

Wage Phillips curve: wages and unemployment^(a)



(a) Whole-economy AWE total pay excluding bonuses and arrears of pay. Percentage change on a year earlier. Diamond for 2019 Q2 shows Bank staff's projections, based on data to May.

Table 3.B Survey indicators suggest pay growth is likely to stabilise

Indicators of pay growth

	Quarterly averages					
	2002–07	2010–17	2018 H1	2018 H2	2019 Q1	2019 Q2
Average weekly earnings growth (per cent)^(a)						
Whole-economy total pay	4.2	1.9	2.5	3.3	3.3	3.6
Private sector total pay	4.2	2.0	2.6	3.4	3.3	3.7
Whole-economy regular pay ^(b)	3.9	1.8	2.8	3.3	3.3	3.7
Private sector regular pay ^(b)	3.8	1.9	2.9	3.4	3.5	3.8
Survey indicators of pay growth						
CBI ^(c)	n.a.	1.9	2.5	2.5	2.9	2.5
Agents ^(d)	2.4	1.6	2.2	2.5	2.4	2.3
CIPD ^(e)	n.a.	1.6	2.0	2.0	2.0	n.a.
Survey indicators of pay growth for new recruits						
REC ^(f)	56.7	56.7	61.4	62.7	61.1	59.0

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 2019 Q2 are Bank staff's projections, based on data to May.

(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. Data for financial services only available since 2009 Q1, and other sectors since 2008 Q2.

(d) The scores refer to companies' labour costs over the past three months compared with the same period a year earlier. Scores of -5 and 5 represent rapidly falling and rapidly rising costs respectively, with zero representing no change. Services and manufacturing scores are weighted together using employee job shares from Workforce Jobs.

(e) Pay increase intentions excluding bonuses over the coming year. Data only available since 2012.

(f) Quarterly averages for the pay of permanent and temporary new placements weighted together using LFS employee job shares. A reading above 50 indicates growth on the previous month and below 50 indicates a decrease.

(Table 3.B). Four-quarter growth in whole-economy AWE regular pay is expected to average around 3½% over the rest of 2019 (Table 3.C).

Although pay growth has risen over the past year, it remains lower than before the financial crisis, despite a lower unemployment rate (Chart 3.4). That is likely to reflect subdued growth in productivity — the amount of output that can be produced per worker — which has reduced the wage rises that companies can afford to offer their employees.

3.2 The outlook for potential supply

In February, in its annual reassessment of supply-side conditions, the MPC judged that annual growth in the potential supply capacity of the economy — which is determined by the quantity of labour available and the amount of output that those in employment can produce — was likely to average a little below 1½%. That is lower than pre-crisis rates, which averaged close to 3%.

Labour supply growth is projected to be subdued relative to recent years although only a little below its pre-crisis average rate (Table 3.D). Almost all of the future increase in labour supply is expected to come from population growth. The MPC's forecast is conditioned on the ONS's principal population projection, published in 2017. That projection implied a slowing in net migration. The latest data showed that net migration slowed in 2018 Q4, but remained a little above the ONS projection.

Much of the weakness in UK potential supply growth relative to the decade prior to the crisis can be accounted for by weaker productivity growth (Table 3.D). In February, the MPC revised down its near-term projections for productivity growth, and growth has remained weak since then. It is estimated to have fallen by 0.5% in the year to 2019 Q2 on a per-hour basis, and risen by 0.2% on a per-head basis.

Brexit-related uncertainties appear to have weighed on productivity growth since 2016. That is partly because Brexit appears to have had a negative effect on the output of firms that are more uncertain about the impact on their business. These firms tend to trade more with the EU and to be more productive than average. It may also reflect businesses devoting resources to planning for Brexit. For example, responses to the Decision Maker Panel (DMP) Survey in 2019 Q1 suggested that three quarters of CFOs were spending some time planning for Brexit. Finally, it may also reflect lower investment growth associated with the prolonged period of uncertainty associated with the Brexit process.

Table 3.C Monitoring the MPC's key judgements

Developments anticipated in May during 2019 Q2–2019 Q4	Developments now anticipated during 2019 Q3–2020 Q1
Unemployment	Broadly unchanged
• Unemployment rate to average 3¾%.	• Unemployment rate to remain around 3¾%.
Participation	Broadly unchanged
• Participation rate to remain around 64%.	• Participation rate to remain around 64%.
Average hours	Broadly unchanged
• Average weekly hours worked to remain around 32.	• Average weekly hours worked to remain around 32.
Productivity	Broadly unchanged
• Quarterly hourly labour productivity growth to average ¼%.	• Quarterly hourly labour productivity growth to average ¼%.
Wages	Revised up slightly
• Four-quarter growth in whole-economy AWE regular pay to average around 3¼%.	• Four-quarter growth in whole-economy AWE regular pay to average around 3½%.

As in May, four-quarter productivity growth is projected to pick up to a little above 1% in the second and third years of the forecast (Section 5). The outlook for productivity growth is likely to remain sensitive to the form of the UK's future trading relationship with the EU.⁽²⁾

Table 3.D Potential supply growth is projected to remain subduedDecomposition of estimated potential supply growth^(a)

	Quarterly averages				
	1998–2007	2008–10	2011–14	2015–19 Q1	2019 Q2–22 Q3
Annual potential supply growth (per cent)	2.9	0.2	1.6	1.7	1.4
of which, potential labour supply growth	0.7	0.1	1.5	1.0	0.6
of which, population	0.7	0.9	0.7	0.6	0.5
of which, participation	0.1	-0.1	0.0	0.2	0.0
of which, unemployment^(b)	0.2	-0.4	0.3	0.3	0.1
of which, average hours	-0.3	-0.3	0.4	-0.1	0.0
of which, potential productivity growth ^(c)	2.2	0.1	0.1	0.6	0.9
of which, capital deepening^(d)	1.1	0.7	0.2	0.5	0.5
of which, total factor productivity^(e)	1.0	-0.6	-0.1	0.2	0.3

Sources: ONS and Bank calculations.

- (a) Average percentage point contributions to annual growth unless otherwise specified. Contributions may not sum to the total due to rounding.
- (b) Positive numbers indicate that a fall in the equilibrium unemployment rate has increased potential labour supply.
- (c) The decomposition is based on a growth-accounting framework using a constant returns to scale Cobb-Douglas production function, with total output to capital elasticity of ½. Total factor productivity is a residual.
- (d) Capital deepening refers to growth in capital services per person-hour. Capital includes structures, machinery, vehicles, computers, purchased software, own-account software, mineral exploration, artistic originals and R&D. Calculations are based on Oulton, N and Wallis, G (2016), 'Capital stocks and capital services: integrated and consistent estimates for the United Kingdom, 1950–2013', *Economic Modelling*.
- (e) Total factor productivity growth refers to improvements in the efficiency with which both capital and labour are used to produce output.

(2) For details, see '[EU withdrawal scenarios and monetary and financial stability: a response to the House of Commons Treasury Committee](#)'.

Box 4

Capital and labour growth

For much of the period since the financial crisis, investment growth has been weak, while employment growth has been relatively strong (**Chart A**). As a result, capital deepening — growth in the capital to labour ratio — has been subdued, and is well below its pre-crisis rate. That trend is apparent across the G7 economies (**Chart B**).

Chart A Investment growth has been weak relative to employment growth since the crisis

Four-quarter growth in business investment and employment^(a)



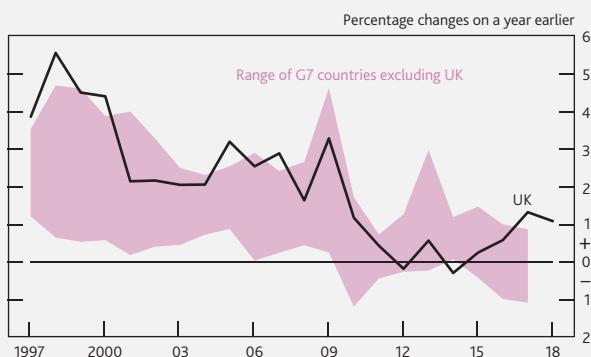
Sources: ONS and Bank calculations.

(a) Four-quarter moving average growth rate.

(b) Chained-volume measure. Data adjusted for the transfer of nuclear reactors from the public corporation sector to central government in 2005 Q2.

Chart B Growth in capital to labour ratios have been weak across the G7 economies

G7 capital to labour ratios^(a)



Sources: ONS, Penn World Table 9.1 and Bank calculations.

(a) Annual estimates of capital to labour ratios calculated as capital services divided by employment in heads. For the G7 economies (excluding the UK), the estimates of capital services are from Penn World Table. For the calculation of the UK capital to labour ratio, see **Chart C** footnote (a). UK measure is for the private sector.

Companies might have been less incentivised to invest in capital if the returns on the investment are lower, such that it results in less additional output. That would be consistent with subdued growth in total factor productivity (TFP), which measures the efficiency with which capital and labour are used to produce output. TFP growth has been weak across advanced economies since the financial crisis, and that could in turn

reflect slower global trade growth. Trade growth tends to be associated with productivity gains through greater economies of scale, increased competition and exposure to new ideas.

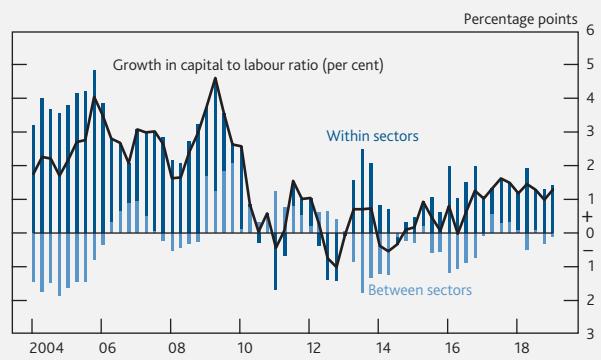
Companies might also have invested less if the cost of capital relative to labour has risen. Heightened global policy uncertainty since the crisis (**Chart 1.3**, Section 1) may have increased the required rate of return on new investments, incentivising firms to meet new demand with labour rather than with capital.⁽¹⁾ Heightened uncertainty may have also encouraged some businesses to increase employment rather than capital because hiring is typically a more flexible way to increase capacity. Those global developments could have been exacerbated in the UK by increased Brexit uncertainties, although growth in the capital to labour ratio has risen a little since 2016.

In the UK, subdued growth in the capital to labour ratio compared with the pre-crisis period is largely accounted for by lower growth in capital relative to the number of people employed within sectors (dark blue bars in **Chart C**).

Manufacturing accounts for a large part of that weakness, as investment has been weak and the past downward trend in employment has levelled off somewhat. The manufacturing sector is also likely to be particularly affected by slower global trade growth.

Chart C Subdued growth in the UK capital to labour ratio has been largely accounted for by lower capital to labour growth within sectors

Contributions to four-quarter growth in the UK capital to labour ratio^(a)



Sources: ONS and Bank calculations.

(a) Total capital to labour ratio calculated as capital services divided by employment in heads. Contributions between sectors calculated using changes in each sector's relative labour share. Contributions within sectors are residuals.

A small part of the slowdown also reflects a shift in the sectoral composition of the UK economy, away from industries that use a lot of capital towards those that are less capital-intensive (light blue bars in **Chart C**). That reflects a structural trend in which the services sector has grown more

(1) For more information, see Broadbent, B (2019), '[Investment and uncertainty: the value of waiting for news](#)'.

rapidly than the manufacturing sector in the UK, like in other advanced economies. Production in the services sector tends to be more labour-intensive than in manufacturing.

The capital to labour ratio is likely to continue to grow at a subdued pace in coming years. Around a third of respondents

to the Agents' labour market survey expected to use more capital than labour over the next 12 months (Box 2). But growth in the capital stock, and therefore the capital to labour ratio, is expected to remain lower than before the crisis, as Brexit-related uncertainties weigh on business investment and TFP growth remains weak.

4 Costs and prices

- CPI inflation was at the 2.0% target in June.
- Inflation is projected to fall below the target over the next six months as energy prices decline.
- From next year inflation is expected to pick up as the impact of lower energy prices fades, sterling's recent depreciation pushes up import prices, and domestic inflationary pressures rise.

Chart 4.1 CPI inflation is expected to fall below the 2% target in the coming months

CPI inflation and Bank staff's near-term projection^(a)

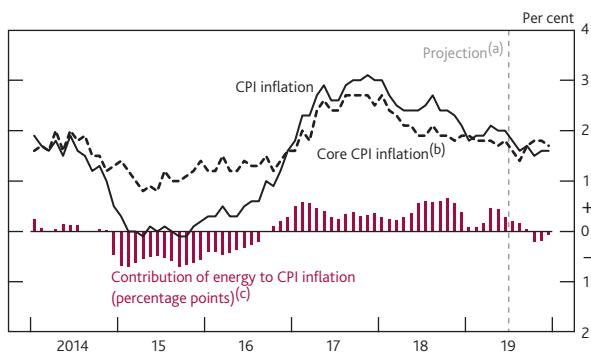


Sources: ONS and Bank calculations.

(a) The beige diamonds show Bank staff's central projection for CPI inflation in April, May and June 2019 at the time of the May 2019 *Inflation Report*. The red diamonds show the current staff projection for July, August and September 2019. The bands on each side of the diamonds show the root mean squared error of the projections for CPI inflation one, two and three months ahead made since 2004.

Chart 4.2 Energy prices are expected to drag on CPI inflation in 2019 H2

CPI inflation, core CPI inflation and the contribution of energy



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

(a) Bank staff's projection. Fuels and lubricants estimates use Department for Business, Energy and Industrial Strategy petrol price data for July 2019 and are then based on the sterling oil futures curve.

(b) CPI inflation excluding food, energy, alcohol, tobacco and non-alcoholic beverages.

(c) Contribution of fuels and lubricants and electricity, gas and other fuels to annual CPI inflation.

4.1 Recent developments and the near-term outlook

CPI inflation was 2.0% in June, in line with the forecast in May (Chart 4.1). Inflation has been close to the target for the past few months after declining through much of last year as the boost from sterling's earlier depreciation faded.

Inflation is expected to fall below the 2% target in the near term largely due to a weaker contribution from energy prices (Section 4.2). Petrol prices are expected to decline, so the contribution of fuels and lubricants to CPI inflation turns negative. Similarly, retail gas and electricity prices are expected to fall in Q4 as recent falls in wholesale prices lead to a reduction in the Ofgem energy price cap. Core inflation, which excludes the effects of energy and other volatile components such as food, was 1.8% in June, and is expected to be at similar rates over much of the next six months (Chart 4.2).

Core services price inflation has increased slightly in recent months, in part because unusually weak contributions from car insurance and rents are beginning to fade. This gradual pickup is expected to continue over the forecast as domestic inflationary pressures build (Section 4.3). Those pressures push CPI inflation slightly above the target in the medium term (Section 5).

Developments in inflation expectations, which can influence wage and price-setting decisions, have been mixed but remain consistent with inflation being around the target in the medium term (Section 4.4).

4.2 External cost pressures

Energy prices

Wholesale oil and gas prices have fallen since the May Report (Chart 4.3). Sterling oil prices are around 6% lower than they were three months ago, and around 9% lower than a year ago.

Chart 4.3 Sterling oil prices and wholesale gas prices have fallen since May

Sterling oil and wholesale gas prices

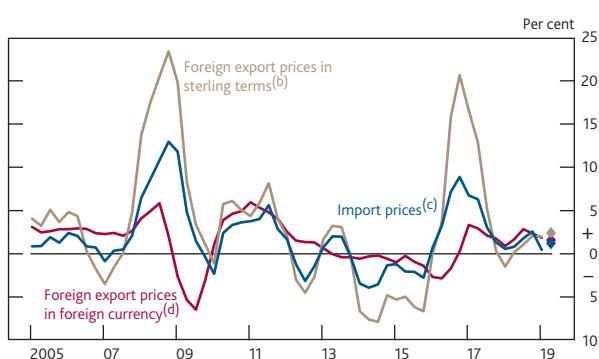


Sources: Bloomberg Finance L.P., Eikon from Refinitiv and Bank calculations.

(a) US dollar Brent forward prices for delivery in 10–25 days' time converted into sterling.
(b) One-day forward price of UK natural gas.

Chart 4.4 Import price inflation was close to zero in the year to Q1

Import prices and foreign export price inflation^(a)



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

(a) The diamonds show Bank staff's projections for 2019 Q2.
(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.

Chart 4.5 Inflation among import-intensive components has fallen back from its 2017 peak

CPI inflation by import intensity^(a)



Sources: ONS and Bank calculations.

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

The fall in the dollar oil price has been even larger, but this has been partially offset by sterling's depreciation.

Oil prices affect inflation directly through their impact on fuel prices. Petrol and diesel pump prices were a little elevated relative to the sterling oil price in June. This appears to reflect unusually high margins in the retail sector. These have tended not to persist in the past, so both lower wholesale costs and a normalisation of margins are expected to push down fuel prices over the coming months.

Wholesale gas prices — which feed through into retail energy prices with a lag — have fallen by 14% since the May Report (Chart 4.3). Wholesale electricity prices have fallen by 2%. These wholesale prices are an important part of retail energy companies' costs and are used by Ofgem to calculate the energy price cap that affects some common tariffs. Given the recent fall in wholesale costs, the cap — which is reviewed twice a year — is projected to fall in October. Retail gas and electricity prices are consequently projected to drag on CPI inflation in Q4, causing the total contribution of energy to inflation to swing from 0.4 percentage points in Q2 to -0.2 percentage points in Q4 (Chart 4.2).

The MPC's August projections assume that oil, gas and electricity prices will remain flat after two quarters such that they make a neutral contribution to inflation in the later part of the projections. That is a change from previous forecasts in which they were assumed to follow the futures curves. The reasons for this change are outlined in Box 5.

Non-energy import prices

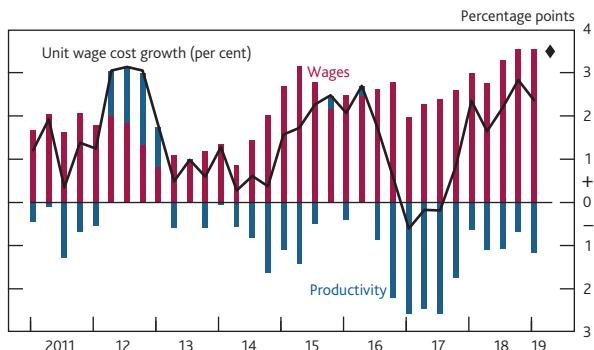
Import price inflation has been relatively subdued over the past year (Chart 4.4), following high rates over 2016 and 2017 after sterling's referendum-related depreciation.

The past increase in import prices associated with the 2016 depreciation appears to have largely been passed through to consumer prices. The inflation rate of import-intensive CPI components — those which are imported or have a higher share of imported inputs — has fallen back from its 2017 peak (Chart 4.5). The impact of higher import prices on CPI inflation appears to have faded somewhat faster than had been expected previously. As discussed in a box in the November 2015 Report, the effect of imported price pressures on consumer prices varies over time and will depend on the factors driving the change in the exchange rate.

Sterling has depreciated by around 4% since the May Report (Section 1), which will lead to higher import prices in the future. The outlook for inflation will continue to be sensitive to movements in the exchange rate, which in turn will remain sensitive to Brexit developments. Box 6 in Section 5 sets out how the MPC's projections for growth and inflation might be

Chart 4.6 Unit labour cost growth has strengthened in recent years

Contributions to four-quarter private sector unit wage cost growth^(a)



Sources: ONS and Bank calculations.

(a) Private sector AWE regular pay divided by private sector productivity per head, based on the backcast for the final estimate of private sector output. The diamond shows Bank staff's projection for 2019 Q2. See Table 4.C in the November 2018 *Inflation Report* for more details.

different under alternative paths for the exchange rate and other asset prices.

4.3 Domestic cost pressures

The growth of labour costs — which are an important part of many companies' overall costs — has picked up (Section 3). The extent to which the cost of labour affects companies' production costs per unit of output depends on how it is growing relative to productivity. Those unit labour costs have grown slightly faster in recent years as wage growth has strengthened and productivity growth has weakened (Chart 4.6).

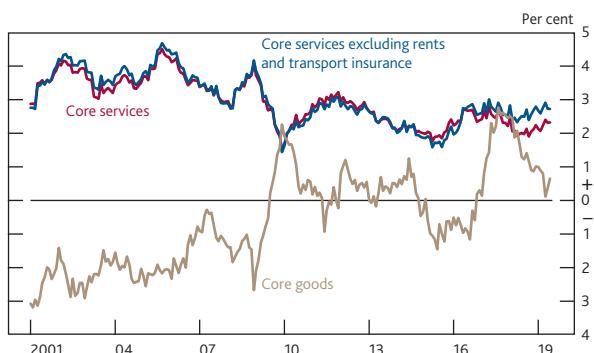
Unit labour cost measures can be used as indicators of domestically generated inflation (DGI). The recent pickup in labour cost growth means that these measures are now towards the top end of ranges estimated to be consistent with CPI inflation at the target.

Some price-based measures of DGI have been more stable, and remain below or towards the bottom end of their target-consistent ranges. Core services inflation focuses on a subset of the CPI basket that is largely domestically produced, as well as excluding some volatile components such as airfares. This measure has risen a little in recent months, but remains low by historical standards. It has been depressed recently by particular weakness in a small number of components, notably car insurance and rents (Chart 4.7). The unusual weakness in insurance price inflation has begun to ease and is expected to dissipate in the next few months. The weakness in rents inflation is likely to persist for a little longer; although private sector rents inflation has begun to pick up, most social housing rents cannot be increased until April 2020.

The rate of core services price inflation that is consistent with overall inflation at the target is uncertain. Before the crisis, goods prices fell on average (Chart 4.7). This meant that the target-consistent rate of services price inflation was substantially above 2%. Although goods prices are likely to continue to get cheaper relative to services, the pace of relative decline is likely to be lower than pre-crisis for several reasons. First, the prices of imported goods fell in the pre-crisis period as several large emerging economies integrated into global supply chains. This is not expected to be repeated, so import prices are expected to rise in the future. Second, productivity in industries which produce goods increased much faster than in the service sector in the pre-crisis period, but this differential has been much smaller recently. Third, the measurement of clothing price inflation has changed — bringing it more in line with standard practice — such that it is likely to be higher now than before the crisis. Altogether, this means that the rate of services price inflation consistent with

Chart 4.7 Core services price inflation remains low by historical standards

Core goods and core services CPI inflation^(a)

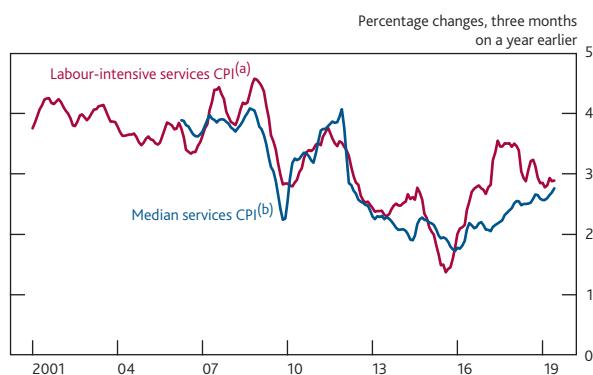


Sources: ONS and Bank calculations.

(a) Core services CPI excludes airfares, package holidays, education and VAT. Core goods CPI excludes food, non-alcoholic beverages, alcohol, tobacco, energy and VAT. Where Bank staff have adjusted for the rate of VAT there is uncertainty around the precise impact of those changes.

Chart 4.8 Price-based indicators of DGI have picked up since 2015

Indicators of domestically generated inflation



Sources: ONS and Bank calculations.

(a) Labour-intensive services CPI contains the top 15 components of core services CPI by labour content, assessed using the *United Kingdom Input-Output Analytical Tables 2014*. Data are adjusted by Bank staff for changes in the rate of VAT, although there is uncertainty about the precise impact of those changes.

(b) The median annual inflation rate of around 190 services items in the CPI basket. These data have not been adjusted for changes in the rate of VAT.

the target is likely to be lower than pre-crisis. However, it is hard to know precisely how much lower it will need to be.

Several other price-based measures of DGI have picked up since 2015, although trends over the past year have been varied. The median inflation rate of the CPI's services items — a measure of services price inflation less affected by volatility in individual items — suggests that DGI has increased gradually since 2015 (the blue line in **Chart 4.8**). A measure of inflation using only labour-intensive services suggests DGI picked up more sharply after 2015, but has fallen slightly over the past two years (the red line in **Chart 4.8**). Measures based on prices which have been relatively responsive to wage growth or the output gap in the past have also picked up in recent years, but have been fairly stable lately.⁽¹⁾

Although these measures are all constructed differently, ultimately all of them put a lot of weight on price inflation in different parts of the services sector. However, there are reasons why goods prices may also be informative about domestic inflationary pressures. Goods prices adjust more frequently than services prices, with 24% of goods prices changing every month compared with only 9% of services prices.⁽²⁾ Although this probably reflects a need to adjust more frequently to external cost pressures, it may also reveal domestic inflationary pressures at an earlier stage if the influence of external factors can be identified and removed.

Table 4.A Monitoring the MPC's key judgements

Developments anticipated in May during 2019 Q2–2019 Q4	Developments now anticipated during 2019 Q3–2020 Q1
Household energy prices	Broadly unchanged
• Electricity and gas prices drag on CPI inflation in 2019 Q4, as Ofgem's energy price cap is assumed to be lowered.	• Electricity and gas prices drag on CPI inflation in 2019 Q4, as Ofgem's energy price cap is assumed to be lowered.
Import prices	Revised up
• Non-fuel import prices to fall by just under ¾% in the year to 2019 Q4.	• Non-fuel import prices to rise by ¾% per quarter, on average.
Unit labour costs	Broadly unchanged
• 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 3%.
• Four-quarter growth in whole-economy unit wage costs to average just under 3%; growth in private sector regular pay based unit wage costs to average around 3¼%.	• Four-quarter growth in whole-economy unit wage costs to average around 2¾%; growth in private sector regular pay based unit wage costs to average around 3½%.
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.

In the MPC's central projection, domestic inflationary pressures are projected to build gradually over the latter part of the forecast period (Section 5). This is expected to be accompanied by stronger growth in the various price-based indicators of DGI.

4.4 Inflation expectations

Domestic wage and price-setting behaviour can be affected by people's expectations about the likely future rate of inflation. If companies expect average prices to rise more quickly, they may increase their own prices by more, for example.

The MPC monitors a range of indicators of inflation expectations — derived from financial market prices and surveys of households and companies — to assess whether they remain consistent with the 2% target.

Measures of inflation expectations derived from financial market indicators increased over 2018 H2 and have remained above their historical averages in 2019 (**Table 4.B**). This is in contrast to similar measures in the US and euro area, which have fallen (Section 1).

(1) For example, see Figure 8 in Saunders, M (2019), 'The economic outlook'.

(2) For more details, see Bunn, P and Ellis, C (2011), '[How do individual UK consumer prices behave?](#)', Bank of England Working Paper No. 438.

Table 4.B Financial market measures of inflation expectations are elevated, but households' expectations are generally close to their post-crisis averages

Indicators of inflation expectations^(a)

Per cent

	2000–07 ^(b)	2010–17	2018				2019		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3 ^(c)
One year ahead inflation expectations									
Households^(d)									
Bank/GfK/TNS ^(e)	2.4	3.0	2.9	2.9	3.0	3.2	3.2	3.1	n.a.
Barclays Basix	2.8	2.6	2.5	2.4	2.5	2.6	2.6	2.5	n.a.
YouGov/Citigroup	2.5	2.4	2.4	2.5	2.7	2.7	2.7	2.6	n.a.
Companies^(f)	n.a.	1.6	3.7	2.3	2.4	2.0	1.0	1.2	n.a.
Financial markets^(g)	2.6	2.9	3.0	3.1	3.2	3.4	3.4	3.4	3.5
Two to three year ahead expectations									
Households^(d)									
Bank/GfK/TNS ^(e)	n.a.	2.8	2.9	2.9	2.9	2.8	2.9	3.0	n.a.
Barclays Basix	3.2	3.0	3.0	2.9	3.0	3.0	3.0	3.0	n.a.
Companies^(f)	n.a.	n.a.	3.7	2.5	2.4	1.9	1.4	1.2	n.a.
Professional forecasters^(h)	2.0	2.1	2.0	1.9	2.0	1.8	2.0	1.8	2.0
Financial markets^(g)	2.8	3.0	3.3	3.3	3.4	3.6	3.5	3.6	3.7
Five to ten year ahead expectations									
Households^(d)									
Bank/GfK/TNS ^(e)	n.a.	3.2	3.4	3.6	3.6	3.5	3.4	3.8	n.a.
Barclays Basix	n.a.	3.7	4.1	4.0	3.9	4.1	4.0	4.1	n.a.
YouGov/Citigroup	3.5	3.2	3.1	3.2	3.3	3.2	3.1	3.2	n.a.
Financial markets^(g)	3.0	3.3	3.4	3.4	3.4	3.5	3.5	3.6	3.5
Memo: CPI inflation	1.6	2.3	2.7	2.4	2.5	2.3	1.9	2.0	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) Averages from 2000, or start of series, to 2007. Financial market data start in October 2004, YouGov/Citigroup data start in November 2005 and professional forecasters data start in 2006 Q2.

(c) Financial market data are averages to 24 July 2019.

(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 trades sector. Companies are asked about the expected percentage price change over the coming 12 months and the following 12 months in the markets in which they compete. 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 from swaps.

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

The increases in shorter-term financial market measures may reflect expectations about the economic impact of Brexit. Some Brexit outcomes could involve tariffs and a sterling depreciation and hence higher import prices. All else equal, these would push up inflation over the next few years.

There may also be market-specific factors affecting these measures. Financial market expectations are for RPI inflation, so can be affected by changes in the expectation for the wedge between RPI and CPI inflation. In addition, the UK's Debt Management Office has issued fewer index-linked gilts since the start of 2019 than in previous years. This reduction in supply may be pushing up the price of index-linked securities, boosting implied inflation expectations.

Developments in the inflation expectations of households and firms have been mixed, but they are generally closer to their post-crisis averages.

The latest Bank/TNS survey of households suggested that expectations for inflation in one and two years' time were broadly stable in 2019 Q2, and close to their average levels since 2010 (**Table 4.B**). Expectations for inflation in five years' time picked up to the highest level since the survey began in 2009. But there was no material increase in either the YouGov/Citigroup or the Barclays Basix surveys at that horizon. Inflation expectations across the various surveys remain higher than the 2% CPI inflation target on average, possibly as a result of respondents referring to a different price index such as the RPI. Differences in spending patterns and cognitive biases may also contribute.⁽³⁾

Inflation expectations among companies have fallen slightly, with respondents to the *CBI Distributive Trades Survey* expecting below-average inflation over the next year. The inflation expectations of professional forecasters rose slightly in Q3, and are in line with the 2% target (Box 7).

Overall, the MPC judges that inflation expectations remain anchored. The MPC will continue to monitor measures of expectations closely.

(3) For more details, see Tenreyro, S (2019), 'Understanding inflation: expectations and reality'.

Box 5

The assumptions for energy prices in the MPC's projections

In order to produce its forecasts for GDP growth and inflation, the MPC makes assumptions about the future path of energy prices. The MPC has decided to change these assumptions for this and future *Reports* to make the forecast simpler and more transparent. This box provides more detail about the changes.

Energy prices — made up of fuel and utility prices — directly account for 6% of the CPI basket. They also have an indirect effect on inflation because energy is used as an input in the production of other items in the basket. And there is a further indirect effect on both inflation and GDP growth via their impact on real household incomes and demand.

In previous *Reports*, the MPC has assumed that the wholesale costs of oil, gas and electricity follow their respective futures curves. The futures price of an asset is the price of entering into a contract today to buy or sell the asset on some agreed future date. The set of prices for all future dates form the futures curve. The futures curve cannot be directly interpreted as financial market participants' expectations for spot prices because risk premia and other factors, such as storage costs, can affect futures prices. But expectations do play a major role.⁽¹⁾

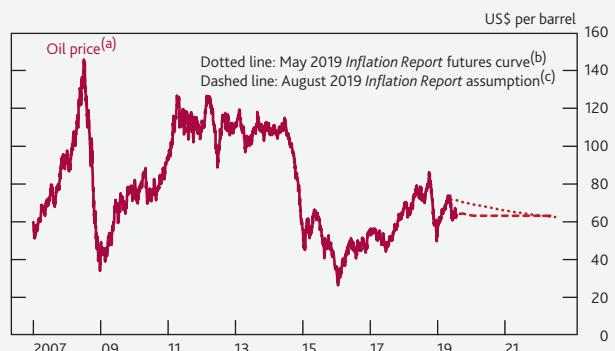
In this *Report*, the MPC has assumed that the wholesale prices of oil, gas and electricity remain unchanged over much of the forecast period. The MPC's near-term forecasts for the next two quarters will continue to assume that wholesale prices follow the futures curve, but beyond that they are assumed to remain flat.⁽²⁾

Chart A illustrates this change for oil prices. In the *May Report*, the futures curve was downward sloping, which mechanically implied that oil prices fell over the forecast. In this *Report*, the MPC is assuming the oil price remains flat over much of the forecast period.

Wholesale costs are the dominant driver of fuel and utility prices, so this change affects the MPC's inflation forecast. Given the downward-sloping oil futures curve at the time of the *May Report*, wholesale costs dragged on CPI inflation throughout the forecast. In the *August Report*, the assumed path for oil prices is flat, such that wholesale costs are projected to make a broadly neutral contribution to inflation after 18 months. Overall, the change pushes up the inflation forecast by 0.1 percentage points relative to May at the end of the second and third years of the forecast.

Chart A The MPC now assumes that oil prices will be unchanged over the forecast after two quarters

Assumptions about oil prices in the May and August *Inflation Reports*



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

(a) US dollar Brent forward prices for delivery in 10–25 days' time.

(b) Fifteen working day average to 24 April 2019.

(c) Based on monthly Brent futures prices for two quarters, then held flat. Fifteen working day average to 24 July 2019.

The main advantage of the new assumption is simplicity. The assumption that wholesale prices are flat after two quarters means the contribution of energy prices to inflation in the later years of the forecast will not change as much between forecasts. That will make the key judgements underlying the MPC's inflation forecast clearer. Moreover, there is little to choose between the two methodologies in terms of forecast performance.

(1) For a discussion of the information content of the oil futures curve, see Nixon, D and Smith, T (2012), 'What can the oil futures curve tell us about the outlook for oil prices?', *Bank of England Quarterly Bulletin*, 2012 Q1.

(2) Longer-dated futures prices will still be used to forecast changes in Ofgem's energy price cap, which uses futures prices for 12 months forward in part of the calculation.

5 Prospects for inflation

Underlying UK GDP growth has softened to below-potential rates, reflecting weaker global growth as well as the impact of Brexit-related uncertainties. Growth is expected to remain subdued in coming quarters, as those uncertainties have intensified over the past few months and are assumed to remain elevated in the near term. CPI inflation is projected to fall temporarily below the MPC's 2% target over the second half of 2019 as energy prices decline. Conditioned on a smooth withdrawal of the UK from the EU, Brexit-related uncertainties are assumed to subside over the forecast period. Together with a boost from looser monetary conditions, the decline in uncertainties leads to a recovery in demand growth to robust rates. As a result, excess demand and domestic inflationary pressures build. CPI inflation picks up to materially above the MPC's 2% target by the end of the forecast period.

The MPC's projections are affected by an inconsistency between the asset prices on which they are conditioned — which reflect a higher perceived probability of a no-deal Brexit among financial market participants — and the smooth Brexit assumption underlying the central forecasts. In the event of a Brexit deal, sterling would be likely to appreciate and market interest rates and UK-focused equity prices to rise. Box 6 shows some stylised sensitivities of the MPC's projections to changes in asset prices.

UK GDP growth has been more volatile than usual over the first half of 2019, largely due to developments relating to Brexit. For example, GDP growth of 0.5% in 2019 Q1 was boosted by companies building up stocks in order to mitigate the effects of a possible disruptive EU exit on 29 March. For the same reason, some firms in the car industry brought forward their usual summer shutdowns to April, and the resulting decline in production weighed on output in Q2. The unwind of the effect from stockbuilding will also have weighed on GDP growth in that quarter. UK GDP is expected to have been flat in Q2.

Abstracting from those temporary factors, the underlying pace of UK GDP growth appears to have slowed since 2018 to below its potential rate. Subdued underlying UK GDP growth reflects weaker global growth as well as the impact of Brexit-related uncertainties. Those factors are expected to continue to weigh on growth in the near term, and to a greater extent than was expected at the time of the May Report. Globally, growth has slowed and is expected to remain at below-potential rates over coming quarters, partly reflecting the impact of an intensification of trade tensions. Domestically, firms' perceived uncertainties related to the Brexit process have become more entrenched. Contacts of the Bank's Agents report having become more uncertain about the economic outlook than they had been prior to the extension

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

	Projections			
	2019 Q3	2020 Q3	2021 Q3	2022 Q3
GDP(c)	1.0 (1.2)	1.4 (1.7)	2.4 (2.1)	2.5
CPI inflation(d)	1.7 (1.8)	1.9 (1.7)	2.2 (2.1)	2.4
LFS unemployment rate	3.7 (3.7)	4.0 (3.9)	3.7 (3.6)	3.3
Excess supply/Excess demand(e)	- $\frac{1}{4}$ (- $\frac{1}{4}$)	- $\frac{1}{4}$ (+ $\frac{1}{4}$)	+ $\frac{3}{4}$ (+ $\frac{3}{4}$)	$\frac{1}{4}$
Bank Rate(f)	0.7 (0.7)	0.5 (0.8)	0.5 (0.9)	0.6

(a) Modal projections for GDP, CPI inflation, LFS unemployment and excess supply/excess demand. Figures in parentheses show the corresponding projections in the May 2019 *Inflation Report*. Projections were only available to 2022 Q2 in May.

(b) The projections have been conditioned on the Term Funding Scheme and the prevailing prices of a broad range of assets, which embody market expectations of the future stocks of purchased gilts and corporate bonds. The main assumptions are set out in the 'Download the chart slides and data' link at www.bankofengland.co.uk/inflation-report/2019/august-2019.

(c) Four-quarter growth in real GDP. The growth rates reported in the table exclude the backcast for GDP. Including the backcast 2019 Q3 growth is 1.0%, 2020 Q3 growth is 1.4%, 2021 Q3 growth is 2.4% and 2022 Q3 growth is 2.5%. This compares to 1.3% in 2019 Q3, 1.7% in 2020 Q3 and 2.1% in 2021 Q3 in the May 2019 *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.

of the EU withdrawal deadline (Box 2). The proportion of respondents to the DMP Survey that expect uncertainty to be resolved in the near term has fallen significantly over the past few months (Section 2). Those uncertainties about the nature of the transition and the UK's eventual trading relationship with the EU, and therefore the economy's future path, will weigh on spending.

Underlying UK GDP growth is projected to remain relatively soft over the next few quarters, and is somewhat weaker than in May. As a result, the small margin of excess supply that is judged to have emerged persists over the next year or so. Headline output growth may continue to be volatile around that underlying path while Brexit-related uncertainties remain elevated.

CPI inflation has been close to the MPC's target throughout 2019 so far and was 2.0% in June. Inflation is expected to fall in the near term, reflecting lower energy prices. Core inflation, which excludes the effects of energy, food, alcohol and tobacco, was 1.8% in June, and is expected to be close to that rate over much of 2019 H2.

As in previous *Reports*, and consistent with the general approach to condition forecasts on Government policy, the MPC's projections (summarised in **Table 5.A**) assume a smooth transition to the average of a range of possible outcomes for the United Kingdom's eventual trading relationship with the European Union.⁽¹⁾ Consistent with that conditioning assumption, Brexit uncertainties are assumed to wane over the second half of the forecast period. All else equal, this boosts GDP growth and inflation.

The projections are also conditioned on a range of UK asset prices. Over the past few months, monetary conditions have loosened. The market yield curve currently implies that Bank Rate is expected to fall in the near term, and ends the forecast period at 0.6% (**Table 5.B**), around 40 basis points lower than in the May 2019 *Report*. The sterling exchange rate is 4% lower than in May. The lower path for market interest rates partly reflects the influence of global factors; interest rate expectations have fallen in the US and euro area as well as the UK (Section 1). UK asset price developments have also been driven by the growing weight that market participants have placed on the possibility of a no-deal Brexit. In contrast to the MPC's forecast, which assumes a smooth Brexit, asset prices encompass the full range of potential Brexit outcomes, and the rising perceived likelihood of no deal has contributed

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

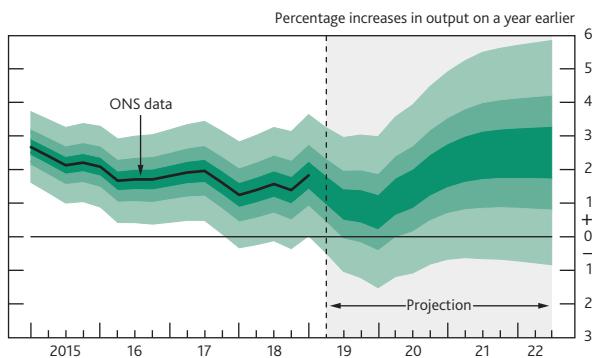
Per cent	2019				2020				2021				2022				
	Q3(b)	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
August	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
May	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

(a) The data are 15 working day averages of one-day forward rates to 24 July 2019 and 24 April 2019 respectively. The curve is based on overnight index swap rates.

(b) August figure for 2019 Q3 is an average of realised overnight rates to 24 July 2019, and forward rates thereafter.

(1) Unless otherwise stated, the projections shown in this section are conditioned on: Bank Rate following a path implied by market yields; the Term Funding Scheme; the Recommendations of the Financial Policy Committee and the current regulatory plans of the Prudential Regulation Authority; the Government's tax and spending plans as set out in the Spring Statement 2019; commodity prices following market paths for two quarters, then held flat; the sterling exchange rate remaining broadly flat; and the prevailing prices of a broad range of other assets. The asset prices that the forecast is conditioned on embody market expectations of the future stocks of purchased gilts and corporate bonds. The main assumptions are set out in the 'Download the chart slides and data' link at www.bankofengland.co.uk/inflation-report/2019/august-2019.

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



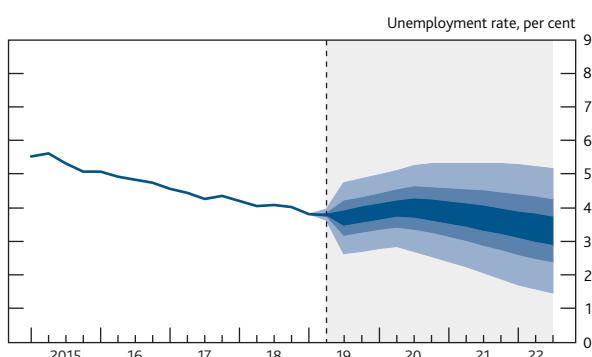
The fan chart depicts the probability of various outcomes for GDP growth. It has been conditioned on the assumptions in Table 5.A footnote (b). To the left of the vertical dashed line, the distribution reflects uncertainty around revisions to the data over the past. To aid comparability with the official data, it does not include the backcast for expected revisions, which is available from the 'Download the chart slides and data' link at www.bankofengland.co.uk/inflation-report/2019/august-2019. To the right of the vertical line, the distribution reflects uncertainty over the evolution of GDP growth in the future. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that the mature estimate of GDP growth would lie within the darkest central band on only 30 of those occasions. The fan chart is constructed so that outturns are also expected to lie within each pair of the lighter green areas on 30 occasions. In any particular quarter of the forecast period, GDP growth is therefore expected to lie somewhere within the fan on 90 out of 100 occasions. And on the remaining 10 out of 100 occasions, GDP growth can fall anywhere outside the green area of the fan chart. Over the forecast period, this has been depicted by the light grey background. See the box on page 39 of the November 2007 *Inflation Report* for a fuller description of the fan chart and what it represents.

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

	Mode	Median	Mean
2019	1.3 (1.5)	1.3 (1.5)	1.3 (1.5)
2020	1.3 (1.6)	1.3 (1.6)	1.3 (1.6)
2021	2.3 (2.1)	2.3 (2.1)	2.3 (2.1)

(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 May 2019 *Inflation Report* excluding the backcast. The projections have been conditioned on the assumptions in Table 5.A footnote (b).

Chart 5.2 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.A 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 2019 Q2, a quarter earlier than the fan for CPI inflation. That is because Q2 is a staff projection for the unemployment rate, based in part on data for April and May. The unemployment rate was 3.8% in the three months to May, and is projected to be 3.8% in Q2 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.

to the lower market path for interest rates and the depreciation of the exchange rate, as well as weighing on some risky asset prices. Taken together, financial and monetary conditions have become more supportive of GDP growth and CPI inflation.

Under these assumptions, GDP growth is projected to pick up during 2020 and to be robust throughout the rest of the forecast period (Chart 5.1). Global growth picks up gradually, supported by lower interest rates in advanced economies (Key Judgement 1). UK domestic demand growth also rises as the dampening effect from Brexit-related uncertainties dissipates (Key Judgement 2). UK GDP growth is higher than in May in the latter part of the forecast period (Table 5.C), reflecting the boost to demand from looser monetary conditions.

As in previous *Reports*, potential supply growth is expected to remain subdued relative to pre-crisis rates. Consequently, the pickup in GDP growth to robust rates results in rising excess demand, which reaches 1¾% of potential GDP by the end of the forecast period, materially higher than in May (Key Judgement 3). The unemployment rate is projected to fall to 3.3% (Chart 5.2), well below the MPC's estimate of its equilibrium rate of 4¼%.

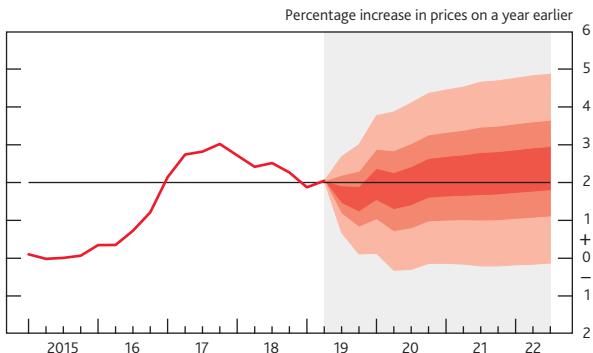
Building excess demand leads to rising domestic inflationary pressures. After falling in the near term, CPI inflation is projected to rise above the MPC's 2% target (Chart 5.3). At the end of the forecast period, it is 2.4%, notably higher than in the May *Report* (Chart 5.4).

However, while these projections assume that there is a smooth Brexit, the asset prices on which they are conditioned have been affected by a higher perceived probability of a no-deal Brexit. In the event of a Brexit deal, sterling would be likely to appreciate and market interest rates and UK-focused equity prices to rise. To illustrate the impact of those effects, Box 6 shows stylised sensitivities of the MPC's projections to changes in asset prices. Illustrations suggest that projections for excess demand and inflation would be lower based on asset price assumptions more consistent with a smooth Brexit.

At its meeting ending on 31 July 2019, the MPC voted to maintain Bank Rate at 0.75%, to maintain the stock of sterling non-financial investment-grade corporate bond purchases, financed by the issuance of central bank reserves, at £10 billion and to maintain the stock of UK government bond purchases, financed by the issuance of central bank reserves, at £435 billion. The factors behind that decision are set out in the Monetary Policy Summary on pages i–ii 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.

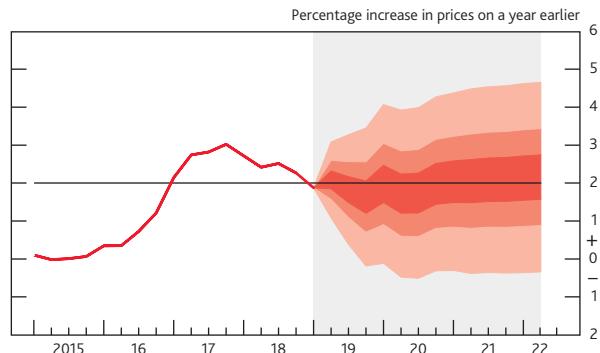
(2) The Minutes are available at www.bankofengland.co.uk/monetary-policy-summary-and-minutes/2019/august-2019.

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.A 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 May based on market interest rate expectations, other policy measures as announced



5.1 The MPC's key judgements and risks

Key Judgement 1: while global activity has weakened and sentiment has deteriorated, looser financial conditions support the return of world growth to its potential rate in the medium term

Since late 2017, there has been a material and broad-based slowdown in world growth. Four-quarter global GDP growth — based on PPP weights — has slowed from above-potential rates of close to 4% to around 3% at the beginning of 2019. Higher-frequency indicators suggest that global growth is likely to remain subdued in the near term. For example, the JPMorgan global manufacturing export orders PMI has remained at low levels over the past few months (Section 1). In the near term, four-quarter global growth is expected to be somewhat weaker than in May.

The softening in the growth outlook appears in part to have reflected the impact of trade tensions, which have intensified since the May Report. Trade tensions are likely to affect the global economy through both direct and indirect channels. The estimated direct trade effects of the tariffs announced to date are relatively small, lowering PPP-weighted world GDP by around 0.2% by the end of the forecast period. These effects may be magnified by indirect effects of trade policy uncertainty on business confidence, which has deteriorated over the past year or so, particularly in the manufacturing sector. The indirect effects are judged likely to have dampened growth recently and continue to weigh a little on activity over the forecast period.

The slowdown has also reflected the impact of the tightening in financial conditions that occurred during 2018. That tightening was driven in part by the withdrawal of monetary stimulus by the US Federal Reserve, which affected financial conditions in emerging economies too. Growth in China also weakened in response to past domestic policy tightening.

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

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

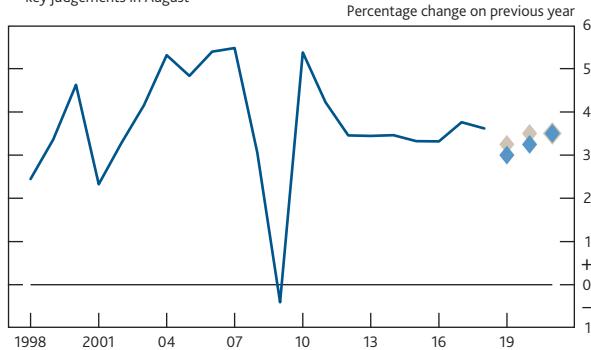
Bank staff's indicative near-term projections that are consistent with the judgements in the MPC's central view evolving as expected.

Key judgement	Likely developments in 2019 Q3 to 2020 Q1 if judgements evolve as expected
1: while global activity has weakened and sentiment has deteriorated, looser financial conditions support the return of world growth to its potential rate in the medium term	<ul style="list-style-type: none"> Quarterly euro-area GDP growth to average a little above ¼%. Quarterly US GDP growth to average around ½%. Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4%; within that, GDP growth in China to average around 6%.
2: on the conditioning assumption that there is a smooth Brexit, UK demand growth recovers after softening in the near term	<ul style="list-style-type: none"> Business investment to fall by 1% per quarter, on average. Quarterly real post-tax labour income growth to average around ¼%. Quarterly consumption growth to average ¼%. Mortgage approvals for house purchase to average about 65,000 per month. The UK house price index to rise by just over 2% in the year to 2020 Q1. Housing investment to fall by ¼% per quarter, on average.
3: as GDP growth recovers to above the subdued rate of potential supply growth, excess demand and domestic inflationary pressures build	<ul style="list-style-type: none"> Unemployment rate to remain around 3¾%. Participation rate to remain around 64%. Average weekly hours worked to remain around 32. Quarterly hourly labour productivity growth to average ¼%. Non-fuel import prices to rise by ¾% per quarter, on average. Electricity and gas prices to drag on CPI inflation in 2019 Q4, as Ofgem's energy price cap is assumed to be lowered. 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 3½%. Four-quarter growth in whole-economy unit labour costs to average around 3%; growth in private sector regular pay based unit wage costs to average around 3½%. Indicators of medium-term inflation expectations to continue to be broadly consistent with the 2% target.

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

◆ Projection at the time of the May Report

◆ Projection consistent with MPC key judgements in August



Sources: IMF WEO and Bank calculations.

(a) Annual average growth rates. 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.

Over 2019 so far, global financial conditions have eased. In particular, forward interest rates have fallen substantially in advanced economies. Easier monetary conditions in the US are expected to continue to contribute to looser financial conditions in emerging markets. Policy measures are also expected to support growth in China. Market participants' expectations of interest rates in advanced economies appear to have eased partly in response to the slowdown in global activity and subdued inflationary pressures. Inflation has remained weak in the euro area and is also a little below target in the US.

In the central forecast, the easing in global financial conditions supports a gradual pickup in world GDP growth to its potential rate by the end of the forecast period. PPP-weighted global growth is projected to rise from 3% in 2019 to 3¼% in 2020 and 3½% in 2021 (Chart 5.5). Weighted by UK export shares, growth is expected to pick up from 2% in 2019 to 2¼%

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

Key Judgement 1: while global activity has weakened and sentiment has deteriorated, looser financial conditions support the return of world growth to its potential rate in the medium term

	Average 1998– 2007	Projections		
		2019	2020	2021
World GDP (UK-weighted) ^(c)	3	2 (2)	2 (2½)	2½ (2½)
World GDP (PPP-weighted) ^(d)	4	3 (3¼)	3¼ (3½)	3½ (3½)
Euro-area GDP ^(e)	2½	1½ (1½)	1½ (1½)	1½ (1½)
US GDP ^(f)	3	2½ (2½)	1¾ (1¾)	1¾ (1¾)
Net trade contribution to UK GDP growth ^(g)	-½	-¾ (-½)	1½ (½)	0 (0)

Key Judgement 2: on the conditioning assumption that there is a smooth Brexit, UK demand growth recovers after softening in the near term

	Average 1998– 2007	Projections		
		2019	2020	2021
Business investment contribution to GDP growth ^(h)	½	-½ (-½)	-½ (½)	½ (½)
Business investment to GDP ratio ⁽ⁱ⁾	9¾	9 (9)	8¾ (9)	9 (9¼)
Household consumption contribution to GDP growth ^(j)	2½	1 (1)	1 (1)	1½ (1½)
Credit spreads ^(k)	¾ ^(l)	1¾ (1½)	1¾ (1½)	1¾ (1¾)
Household saving ratio ^(m)	8½	4½ (4½)	3½ (4)	3¾ (4½)

Key Judgement 3: as GDP growth recovers to above the subdued rate of potential supply growth, excess demand and domestic inflationary pressures build

	Average 1998– 2007	Projections		
		2019	2020	2021
Productivity ⁽ⁿ⁾	2½	-½ (0)	1 (1)	1 (1)
Participation rate ^(o)	63	64 (64)	64 (64)	64 (64)
Average hours ^(p)	32½	32 (32)	32½ (32½)	32½ (32½)
UK import prices ^(q)	½	¾ (-½)	½ (0)	¼ (0)
Dollar oil prices ^(r)	39	64 (70)	63 (66)	63 (64)
Unit labour costs ^(s)	2½	2¾ (2¾)	1¾ (2)	2½ (2½)
Unit wage costs ^(t)	2½	2½ (2¾)	1¾ (2)	2½ (2½)
Private sector regular pay based unit wage costs ^(u)	1¾	3¾ (3)	1¾ (2½)	2¾ (2½)

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 three key judgements. The mapping from the key judgements to individual variables is not precise, but the profiles in the table should be viewed as broadly consistent with the MPC's key judgements.
- (b) Figures show annual average growth rates unless otherwise stated. Figures in parentheses show the corresponding projections in the May 2019 *Inflation Report*.
- (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 Q2, so that has not been incorporated.
- (f) Chained-volume measure. Forecast was finalised before the release of the advance estimate of US GDP for Q2, so that has not been incorporated.
- (g) Chained-volume measure. Exports less imports.
- (h) Chained-volume measure.
- (i) 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 for the first two quarters of the forecast period, then held flat.
- (s) Four-quarter growth in unit labour costs in Q4. Whole-economy total labour costs divided by GDP at constant 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 constant 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 constant prices, based on the mode of the MPC's GDP backcast. Private sector wage costs are average weekly earnings (excluding bonuses) multiplied by private sector employment.

by 2021 (Table 5.E). Those projections are a little lower than three months ago, partly reflecting a greater drag from trade tensions.

The MPC judges that the risks around those projections are broadly balanced. On the one hand, the indirect effects of uncertainty on confidence might be smaller than judged likely in the central projection. On the other, trade tensions could intensify further.

Lower global growth will weigh on UK exports growth relative to May. In addition, net trade has been weaker than expected over the past, and some of that weakness is judged likely to persist over the forecast period, partially offsetting the boost to net trade from sterling's recent depreciation. The contribution of net trade to annual GDP growth is expected to be volatile over 2019 and 2020, reflecting the impact of Brexit-related stockbuilding of imported goods in the UK. In 2021, net trade makes a broadly neutral contribution to UK GDP growth (Table 5.E).

Global factors have weighed on market interest rate expectations in the UK, which have also been affected by the perceived increase in the probability of a no-deal Brexit. The lower expected path for interest rates boosts UK domestic demand relative to the May forecast.

Key Judgement 2: on the conditioning assumption that there is a smooth Brexit, UK demand growth recovers after softening in the near term

As expected, recent UK output data have been volatile, in large part owing to Brexit-related effects on businesses. After growing by 0.5% in 2019 Q1, GDP is expected to have been flat in Q2 (Section 2).

Looking through recent volatility, underlying UK GDP growth appears to have softened in the first half of 2019 to below-potential rates. Subdued growth partly reflects the impact of weaker global demand (Key Judgement 1), as well as the impact of Brexit uncertainties.

Over the past few months, firms' reported uncertainties about Brexit — and therefore about the economy's future path — have picked up. Contacts of the Bank's Agents report being more uncertain about the economic outlook and the proportion of respondents to the DMP Survey who expect uncertainty to be resolved by the end of 2019 is down from around 40% three months ago to less than 20%. The MPC judges that underlying UK GDP growth is likely to remain subdued over the coming year, with Brexit-related uncertainties weighing on spending to a greater extent than in May.

Elevated Brexit uncertainties have weighed heavily on investment spending. Although business investment is

estimated to have grown a little in 2019 Q1, that figure may have been affected by the introduction of a new accounting standard, IFRS 16 (Section 2). More broadly, investment remains low relative to previous expansions and to other countries. Surveys of investment intentions suggest that business spending is likely to remain weak over coming quarters.

Compared with business investment, household consumption growth has remained relatively strong during 2019 H1, underpinned by continued solid growth in real incomes. Consumption growth is projected to be steady in the near term and to remain resilient relative to growth in business investment.

The MPC's forecast is conditioned on an assumption that there is a smooth Brexit. Consistent with that assumption, Brexit-related uncertainties continue to be elevated over the first year of the forecast before subsiding over the second and third years. GDP growth is subdued initially before picking up strongly in the latter part of the forecast period. In particular, as details of the UK's future trading relationships gradually emerge, business investment recovers (**Chart 5.6**).

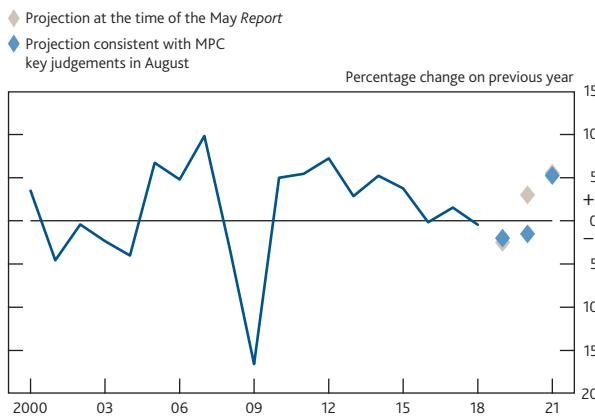
Accommodative monetary conditions also boost domestic demand, supporting business investment and contributing to a recovery in housing investment. Household consumption growth also picks up over the forecast period (**Table 5.F**), as does real income growth, reflecting further falls in unemployment and relatively strong wage growth (Key Judgement 3).

The easing in monetary conditions means that the MPC's projection for GDP growth over the latter part of the forecast period is higher than in May. Four-quarter UK demand growth rises to 2.5% in 2022. The risks around the MPC's forecast, which is conditioned on a smooth Brexit, are judged to be broadly balanced. The outlook for demand will depend significantly on the outcome of the UK's withdrawal from the EU, and how households, companies and financial markets respond to developments in the Brexit process.

Key Judgement 3: as GDP growth recovers to above the subdued rate of potential supply growth, excess demand and domestic inflationary pressures build

In the run-up to the February Report, the MPC completed its regular assessment of UK supply conditions, and judged that potential supply would continue to grow at a subdued pace, much lower than before the financial crisis. Much of the weakness relative to pre-crisis norms reflects a judgement that potential productivity will grow more slowly. Potential productivity growth is also likely to be affected by the prolonged period of uncertainty and weaker investment associated with the Brexit process.

Chart 5.6 Business investment^(a)



Sources: ONS and Bank calculations.

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

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

	Average 1998– 2007	Projections		
		2019	2020	2021
Annual average growth rate				
Household consumption ^(b)	3½	1½ (1½)	1½ (1½)	1¾ (1¾)
Business investment ^(c)	2½	-2 (-2½)	-1½ (3)	5¼ (5½)
Housing investment ^(d)	3¼	-¾ (-2)	½ (-¾)	3½ (2¾)
Exports ^(e)	4½	1¼ (3¼)	1¾ (1¼)	1¼ (1¼)
Imports ^(e)	6	4¼ (4¼)	-2½ (0)	1½ (1¼)
Real post-tax labour income ^(f)	3¼	1¼ (1¼)	½ (1)	2 (2)
Four-quarter growth rate in Q4				
Employment	1	¾ (¾)	½ (½)	1 (¾)
Average weekly earnings ^(g)	4¼	3 (3)	3¾ (3½)	4 (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 May 2019 *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) Wages and salaries plus mixed income and general government benefits less income taxes and employees' National Insurance contributions, deflated by the consumer expenditure deflator.

(g) Whole-economy total pay.

Over 2019, underlying GDP growth is judged likely to be below its potential rate, such that a small margin of excess supply in the economy emerges. Further out, however, as demand growth picks up to above potential supply growth, excess demand builds. Given the robust pace of GDP growth (Key Judgement 2), excess demand reaches 1¾% of potential GDP by the end of the forecast period. The unemployment rate falls to 3.3%.

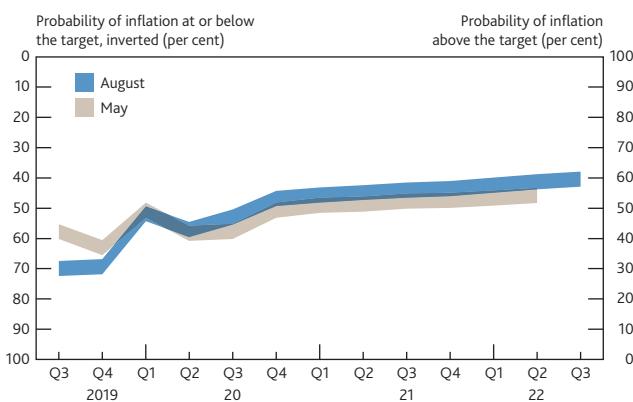
As excess demand builds, domestic inflationary pressures rise. The further declines in unemployment put upward pressure on wage growth, which has risen over the past couple of years (Section 3). Growth in unit labour costs has been robust over the recent past, given relatively strong wage growth and weak productivity growth (Section 4). Given the projected rise in wage growth, unit labour costs grow robustly in the latter part of the forecast period even as productivity growth recovers somewhat. In contrast to labour cost growth, some price-based measures of domestically generated inflation have remained relatively low by historical standards over the past couple of years. As a result, companies' margins in the consumer sector may currently be squeezed. Over the forecast period, consumer-facing companies' margins are assumed to recover and build further as excess demand grows, adding to inflationary pressures.

Domestically generated inflation is projected to exert upward pressure on CPI inflation over the next three years, such that CPI inflation ends the forecast materially above the MPC's 2% target. In the near term, however, inflation is projected to fall, largely due to lower energy prices, which are expected to decline in 2019 H2. Given the MPC's conditioning assumptions about the wholesale costs of oil, gas and electricity, energy prices are projected to make a broadly neutral contribution to inflation over the second half of the forecast period (Box 5). That is a little higher than in May, at which point the forecast was conditioned on a downward-sloping oil futures curve, rather than an assumption that oil prices would remain flat. The 4% depreciation of sterling over the past three months also puts some upward pressure on CPI inflation relative to the May Report.

Conditional on market interest rates and other asset prices, as well as a smooth Brexit, CPI inflation is projected to be 2.4% in 2022 Q3 and is still rising at the end of the forecast period (Chart 5.7). The projection is notably higher than in May, largely reflecting the greater degree of excess demand. Relative to the MPC's central case, the risks to inflation are judged to be broadly balanced.

As with GDP growth, the MPC's projection for inflation will depend significantly on Brexit developments.

Chart 5.7 Inflation probabilities relative to the target

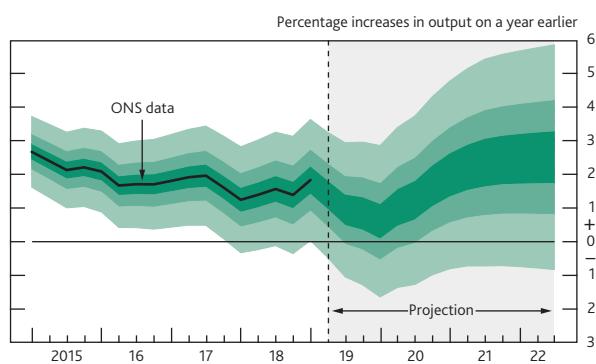


The August and May swatches in this chart are derived from the same distributions as Charts 5.3 and 5.4 respectively. They indicate the assessed probability of inflation relative to the target in each quarter of the forecast period. The 5 percentage points width of the swatches reflects the fact that there is uncertainty about the precise probability in any given quarter, but they should not be interpreted as confidence intervals.

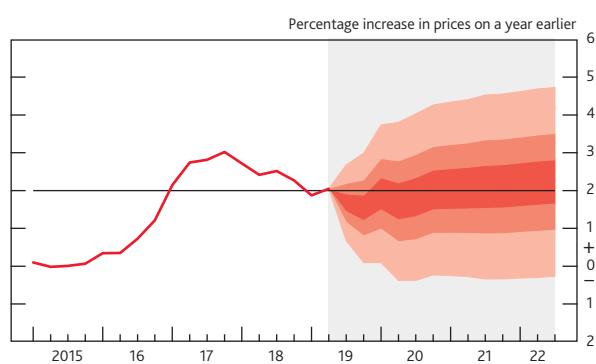
Table 5.G Q4 CPI inflation

	Mode	Median	Mean
2019 Q4	1.6 (1.6)	1.6 (1.6)	1.6 (1.6)
2020 Q4	2.1 (2.0)	2.1 (2.0)	2.1 (2.0)
2021 Q4	2.2 (2.1)	2.2 (2.1)	2.2 (2.1)

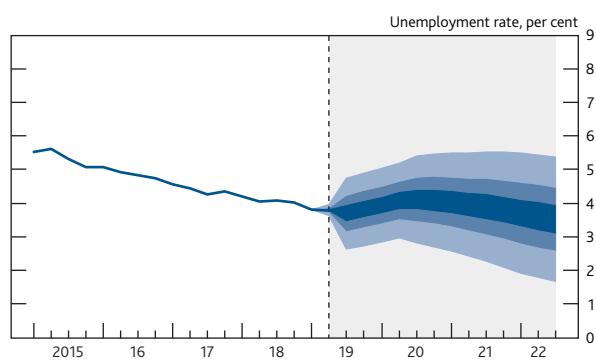
The table shows projections for Q4 four-quarter CPI inflation. The figures in parentheses show the corresponding projections in the May 2019 *Inflation Report*. The projections have been conditioned on the assumptions in Table 5.A footnote (b).

Chart 5.8 GDP projection based on constant nominal interest rates at 0.75%, other policy measures as announced

See footnote to Chart 5.1.

Chart 5.9 CPI inflation projection based on constant nominal interest rates at 0.75%, other policy measures as announced

See footnote to Chart 5.3.

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

See footnote to Chart 5.2.

5.2 The projections for demand, unemployment and inflation

Based on the judgements above and conditioned on the market path for Bank Rate, as well as an assumption of a smooth withdrawal from the EU, the MPC projects four-quarter GDP growth to be below potential in the near term, before picking up to around 2½%. The pickup in demand growth is mainly driven by business investment growth, as Brexit uncertainties are assumed to subside. The risks around the projection, which is conditioned on a smooth Brexit, are broadly balanced.

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. In the near term, there is a small margin of excess supply, but as growth recovers, excess demand builds and the unemployment rate falls.

CPI inflation is projected to fall temporarily below the MPC's 2% target in the second half of 2019, largely reflecting a decline in energy prices. CPI inflation is then judged likely to rise above the target supported by domestic inflationary pressures (**Table 5.G**). The risks around the inflation projection remain balanced.

Charts 5.8, 5.9 and 5.10 show the MPC's projections under the alternative constant rate assumption. That assumption is that Bank Rate remains at 0.75% throughout the three years of the forecast period, before moving towards the market path over the subsequent three years. Under that path, GDP growth is a little weaker for most of the forecast period and unemployment is a little higher. Inflation is slightly lower, although it still ends the forecast above the target.

Box 6

The sensitivities of the MPC's projections to financial market expectations about the Brexit outcome

Consistent with the general approach to condition forecasts on Government policy, the MPC's projections assume a smooth transition to the average of a range of possible outcomes for the UK's eventual trading relationship with the EU. The MPC's projections do not include the possibility that the UK leaves the EU without a deal.

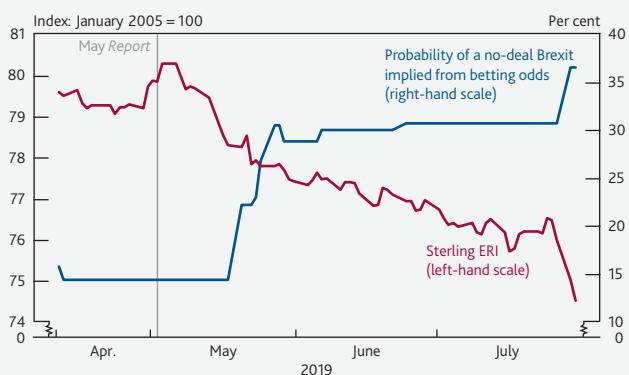
The MPC also conditions its projections on a range of UK asset prices, including market interest rate expectations, the sterling exchange rate, equity prices, corporate bond spreads and bank funding spreads. In contrast to the MPC's Brexit assumption, actual asset prices do take into account the full range of possible Brexit outcomes — including a no-deal Brexit. Asset prices will be affected by the probability market participants attach to each of those outcomes, as well as their judgements about the likely responses of asset prices in each of those events.

Given the MPC's conditioning assumptions, there are some inconsistencies in the forecast. This box is intended to provide some stylised illustrations of the scale of those effects.

Betting odds (**Chart A**) and the Reuters survey of economists suggest that the perceived probability of a no-deal Brexit has risen markedly since May. As a result, sterling's exchange rate (**Chart A**) and UK-focused equity prices (**Chart 1.6**) have fallen. In addition, because many financial market participants expect a monetary loosening in a no-deal Brexit, they have marked down their expectations for Bank Rate (**Chart 1.5**).

Chart A Sterling has depreciated as the perceived probability of a no-deal Brexit has risen

Sterling ERI and perceived probability of a no-deal Brexit^(a)



Sources: Bank of England, Betfair and Bank calculations.

(a) The implied probability is calculated from Betfair betting odds on leaving the EU in 2019 without a Withdrawal Agreement in place. Data from 11 April to 30 July 2019.

The rising perceived likelihood of no deal and market participants' judgements about the effects on the economy and on monetary policy in that event will therefore have moved asset prices further away from levels consistent with the MPC's assumption of a smooth Brexit.

If Brexit proceeds smoothly to some form of deal, asset prices would adjust: the market path for interest rates would be likely to rise, the sterling exchange rate to appreciate, UK-focused equity prices to rise, and credit spreads would be likely to fall. It is not possible to estimate precisely how asset prices would change in the event of a smooth Brexit. However, information from surveys, as well as observing how asset prices have moved as no-deal betting odds have changed, can provide some illustrations. For example, the median responses to a Reuters survey in July suggested that in the month following any Brexit deal sterling would be expected to trade at a level between 4% and 9% higher against the dollar than it was in the run-up to the August Report.

The tables below provide stylised sensitivities of the MPC's projections for growth and inflation to changes in asset prices. In illustrations with these particular constellations of asset prices, GDP growth and inflation would be expected to be lower. However, there is still significant excess demand at the end of the forecast period, which would boost inflation beyond that point.

These sensitivities leave all other assumptions unchanged from the MPC's central projections. Those other assumptions could also adjust in response to Brexit developments. For example, households' and companies' spending would be affected by any changes in the perceived level of uncertainty about the future path of the economy.⁽¹⁾

The economic outlook will depend significantly on the outcome of the UK's withdrawal from the EU and how households, businesses and asset prices respond. As the MPC has previously communicated, the implications of Brexit developments for the appropriate path of monetary policy will depend on the balance of their effects on demand, supply and the exchange rate. Under all circumstances, the MPC will respond to any material change in the outlook to bring inflation sustainably back to the 2% target over time while — consistent with its remit — supporting jobs and activity.

(1) Box 5 in the February 2019 *Inflation Report* sets out some sensitivities of the MPC's projections to movements in uncertainty as well as some asset prices.

Table 1 The sensitivities of the MPC's GDP growth, excess demand and inflation projections to given stylised changes in asset prices, holding everything else constant

Percentage point difference, unless otherwise specified	Four-quarter GDP growth			Excess demand ^(a)	CPI inflation		
	2020 Q3	2021 Q3	2022 Q3		2020 Q3	2021 Q3	2022 Q3
Market path for Bank Rate 25 basis points higher by 2022 Q3	-0.1	-0.1	0.0	-½	-0.1	-0.1	-0.1
5% higher sterling ERI	-0.3	-0.1	0.0	-½	-0.4	-0.3	-0.3
20 basis point higher 10-year gilt yields	-0.1	0.0	0.0	0	0.0	0.0	0.0
Lower credit spreads and higher equity prices ^(b)	0.1	0.0	0.0	0	0.0	0.0	0.0
Total impact of alternative asset price assumptions ^(c)	-0.3	-0.1	0.0	-½	-0.4	-0.3	-0.3
Illustration including impact of alternative asset price assumptions (per cent)	1.1	2.3	2.5	1¼	1.5	1.9	2.1

(a) Per cent of potential GDP.

(b) Includes the impact of a 10 basis point fall in bank funding spreads, a 10 basis point fall in UK investment-grade non-financial corporate bond spreads, a 40 basis point fall in UK high-yield non-financial corporate bond spreads and a 7½% rise in UK-focused equity prices.

(c) This row adjusts for the estimated endogenous response of other asset prices — particularly the exchange rate — to changes in the market path for Bank Rate. As a result, the component rows may not sum to the total impact.

Table 2 The sensitivities of the MPC's GDP growth, excess demand and inflation projections to given stylised changes in asset prices, holding everything else constant

Percentage point difference, unless otherwise specified	Four-quarter GDP growth			Excess demand ^(a)	CPI inflation		
	2020 Q3	2021 Q3	2022 Q3		2020 Q3	2021 Q3	2022 Q3
Market path for Bank Rate 50 basis points higher by 2022 Q3	-0.2	-0.1	-0.1	-½	-0.2	-0.2	-0.2
10% higher sterling ERI	-0.6	-0.2	0.0	-¾	-0.8	-0.7	-0.5
40 basis point higher 10-year gilt yields	-0.1	0.0	0.0	0	0.0	-0.1	-0.1
Lower credit spreads and higher equity prices ^(b)	0.1	0.1	0.1	¼	0.0	0.1	0.1
Total impact of alternative asset price assumptions ^(c)	-0.6	-0.3	0.0	-¾	-0.8	-0.7	-0.6
Illustration including impact of alternative asset price assumptions (per cent)	0.9	2.1	2.5	1	1.1	1.5	1.8

(a) Per cent of potential GDP.

(b) Includes the impact of a 20 basis point fall in bank funding spreads, a 20 basis point fall in UK investment-grade non-financial corporate bond spreads, an 80 basis point fall in UK high-yield non-financial corporate bond spreads and a 15% rise in UK-focused equity prices.

(c) This row adjusts for the estimated endogenous response of other asset prices — particularly the exchange rate — to changes in the market path for Bank Rate. As a result, the component rows may not sum to the total impact.

Box 7

Other forecasters' expectations

This box reports the results of the Bank's most recent survey of external forecasters, carried out in July.⁽¹⁾ On average, respondents expected four-quarter GDP growth to rise slightly over the next three years (**Table 1**), lower than the August *Inflation Report* forecast at the two and three-year horizons. Forecasters' central projections for the unemployment rate implied a pickup over the next three years, on average, in contrast to the fall in the equivalent *Inflation Report* forecast.

External forecasters, on average, expected CPI inflation to remain at the 2% target (**Table 1**). This is below the August *Inflation Report* forecast at the two and three-year horizons.

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

	2020 Q3	2021 Q3	2022 Q3
CPI inflation ^(b)	2.0	2.0	2.0
GDP growth ^(c)	1.5	1.6	1.7
LFS unemployment rate	4.0	4.2	4.4
Bank Rate (per cent)	0.9	1.2	1.4
Stock of purchased gilts (£ billions) ^(d)	439	440	441
Stock of purchased corporate bonds (£ billions) ^(d)	11	11	11
Sterling ERI	78.9	79.7	80.0

Source: Projections of outside forecasters as of 19 July 2019.

(a) For 2020 Q3, there were 21 forecasts for CPI inflation, GDP growth and Bank Rate, 19 for the unemployment rate, 14 for the stock of gilt purchases, 10 for the stock of corporate bond purchases and 9 for sterling ERI. For 2021 Q3, there were 18 forecasts for CPI inflation and GDP growth, 17 for the unemployment rate and Bank Rate, 11 for the stock of gilt purchases, 7 for the stock of corporate bond purchases and 9 for sterling ERI. For 2022 Q3, there were 16 forecasts for CPI inflation, 15 for GDP growth, 14 for the unemployment rate, 15 for Bank Rate, 9 for the stock of gilt purchases, 5 for the stock of corporate bond purchases and 9 for sterling ERI.

(b) Twelve-month rate.

(c) Four-quarter percentage change.

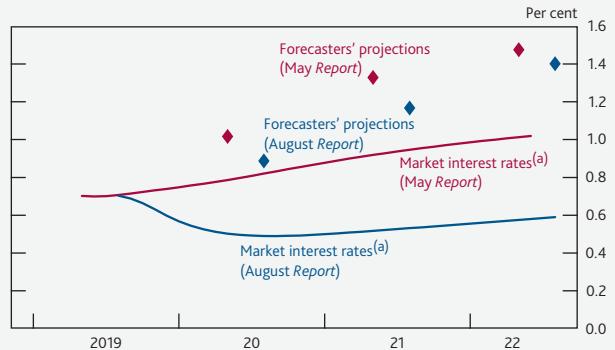
(d) Original purchase value. Purchased via the creation of central bank reserves.

External forecasters' central projections for Bank Rate had fallen relative to three months ago, but by much less than the market-implied path for Bank Rate upon which the MPC's projections are conditioned (**Chart A**). On average, external forecasters project Bank Rate to reach 1.4% in three years' time, compared with a market path that reaches 0.6% at that point. This could be one reason why external forecasters' projections for GDP growth and CPI inflation are lower than the August *Inflation Report* forecasts.

While central projections for Bank Rate have only fallen a little, the average probability that forecasters placed on a cut in Bank Rate to below 0.5% in a year's time has more than doubled to 23%, from 11% three months earlier. And rises in Bank Rate were seen as a little less likely than in May (**Chart B**). 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 A Forecasters' projections of Bank Rate imply a steeper path than market interest rates

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

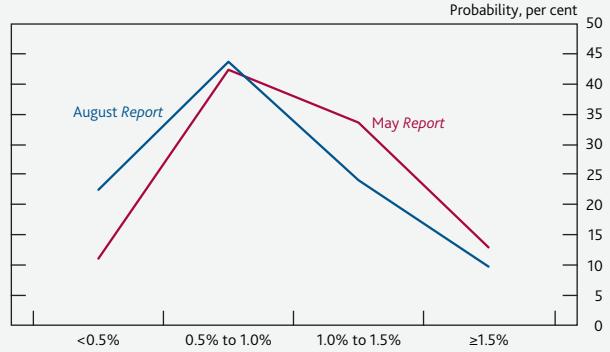


Sources: Bloomberg Finance L.P., projections of outside forecasters provided for *Inflation Reports* in May 2019 and August 2019 and Bank calculations.

(a) Estimated using instantaneous forward overnight index swap rates in the 15 working days to 24 April and 24 July 2019 respectively.

Chart B Forecasters placed a higher probability on lower levels of Bank Rate than three months ago

Average of forecasters' probability distributions for Bank Rate in one year's time^(a)



Sources: Projections of outside forecasters provided for *Inflation Reports* in May and August 2019.

(a) Projections on the boundary of these ranges are included in the upper range, for example a projection of Bank Rate being 1.0% is in the 1.0% to 1.5% range.

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

Glossary and other information

Glossary of selected data and instruments

AWE – average weekly earnings.
CPI – consumer prices index.
CPI inflation – inflation measured by the consumer prices index.
DGI – domestically generated inflation.
DMP – Decision Maker Panel.
ERI – exchange rate index.
GDP – gross domestic product.
HICP – harmonised index of consumer prices.
LFS – Labour Force Survey.
PMI – purchasing managers' index.
RPI – retail prices index.
RPI inflation – inflation measured by the retail prices index.

Abbreviations

BCC – British Chambers of Commerce.
BRC – British Retail Consortium.
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.
COICOP – Classification of Individual Consumption by Purpose.
EC – European Commission.
ECB – European Central Bank.
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.
ICE/BoAML – Intercontinental Exchange/Bank of America Merrill Lynch.
IFRS – International Financial Reporting Standard.

IMF – International Monetary Fund.

ISA – individual savings account.

LTV – loan to value.

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.

S&P – Standard & Poor's.

SMEs – small and medium-sized enterprises.

TFP – total factor productivity.

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.