BANK OF ENGLAND

Speech

The economic outlook

Speech given by

Michael Saunders

External Member of the Monetary Policy Committee

Bank of England

Solent University, Southampton

10 June 2019

The views expressed here are not necessarily those of the Bank of England or the Monetary Policy Committee. I would particularly like to thank Michal Stelmach and Matt Swannell for their help in preparing this speech. I have received helpful comments from various colleagues at the Bank, for which I am most grateful.

Let me begin by setting out this speech's three key themes. First, despite the drop in CPI inflation over the last year – and the further decline expected late this year – the output gap is probably closed. Second, the economy is likely to gain support over the next year or two from slightly better global growth and, conditioned on a smooth Brexit, reduced uncertainty. Third, I suspect that (assuming a smooth Brexit) consumer spending will outperform the forecast in the May *Inflation Report*. This would reinforce the prospect that the economy moves into significant excess demand over the next 2-3 years, and hence that some further monetary tightening is likely to be needed to keep inflation in line with the 2% target over time.

***

Over most of the period since the 2016 Brexit vote, the UK economy has grown by 0.4%-0.5% QoQ on average – a modest pace by historical norms, but slightly above the economy's reduced potential. The labour market continued to tighten, and the MPC judged in late 2018 that the output gap had closed, with supply and demand in the economy broadly in balance.

In the last couple of quarters, the underlying pace of UK activity has slowed. Consumer spending continued to grow steadily, but exports have been squeezed by weaker global growth. Rising effects from Brexit uncertainty have hit investment and housing, notwithstanding a surge in stockbuilding in Q1.

The MPC's central forecast in the May *Inflation Report*, which is conditioned on a smooth Brexit, is for modest growth in Q2 and Q3, as the Q1 surge in stockbuilding fades. Growth rises a little above trend from early 2020, pushing the economy into significant excess demand, with the result that inflation is forecast to be above the 2% target and rising 2-3 years ahead. Given this outlook, the MPC judged at the May meeting that some further monetary tightening is likely to be needed over the 3-year forecast period to keep inflation on target over time.

Summary of MPC Forecast in May 2019 *Inflation Report* (Feb 2019 Forecast in Brackets)

	Projections			
	2019 Q2	2020 Q2	2021 Q2	2022 Q2
GDP growth (% yoy)	1.6 (1.3)	1.5 (1.5)	2.1 (1.8)	2.2
CPI inflation (% yoy)	2.1 (1.9)	1.7 (2.2)	2.1 (2.1)	2.2
LFS unemployment rate (%)	3.8 (4.0)	3.9 (4.1)	3.7 (4.0)	3.5
Excess supply/Excess demand (%)	-¼ (-¼)	0 (0)	+½ (+¼)	+1
Conditioning Path for Bank Rate (%)	0.7 (0.7)	0.8 (0.9)	0.9 (1.1)	1.0

Note: Modal projections for GDP, CPI inflation, LFS unemployment and excess supply/excess demand. Projections were only available to 2022 Q1 in February. For details of assumptions used in the forecasts, see the latest *Inflation Report*. Source: Bank of England.

I broadly agree with that outlook, but would like to discuss three particular issues:

- First, how can we reconcile the view that the output gap has closed with the fact that inflation has been lower than expected early this year and is set to fall below target later this year?
- Second, why should growth pick up without any easing in monetary or fiscal policies?
- Third, why is consumer spending doing better than expected? Will this continue?

I will conclude with some implications for my view of the appropriate monetary policy setting.

What does recent weakness in inflation indicate about spare capacity?

Let's start with inflation. Output gap estimates are inevitably uncertain. The MPC's estimates use a range of indicators, including prices, costs and surveys of capacity pressures. In general, labour market data suggest the output gap has closed. For example, the jobless rate is slightly below the MPC's estimate of equilibrium, vacancies are around a record high, while pay growth has risen to around a target-consistent pace (allowing for productivity trends). Indeed, the high level of recruitment difficulties suggests the economy may already be in excess demand. But if you just consider the inflation data, you might conclude there is still some spare capacity. For example, even though energy prices rose and wage growth overshot MPC expectations over the last year, CPI inflation in Q1 this year was lower than expected. In the recent *Inflation Report* (published on 2 May), the MPC cut its nearterm inflation forecast and expects CPI inflation to fall to about 1¾% YoY late this year. So what is going on?

Figure 1. UK – Outturns for CPI Inflation Compared to MPC Forecasts Made Four Quarters Earlier

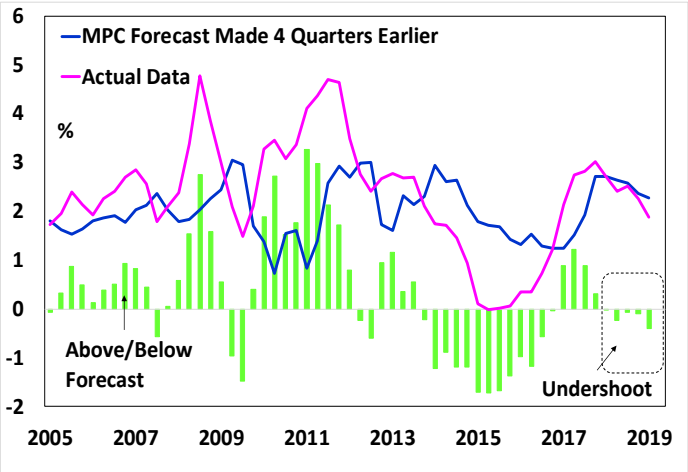
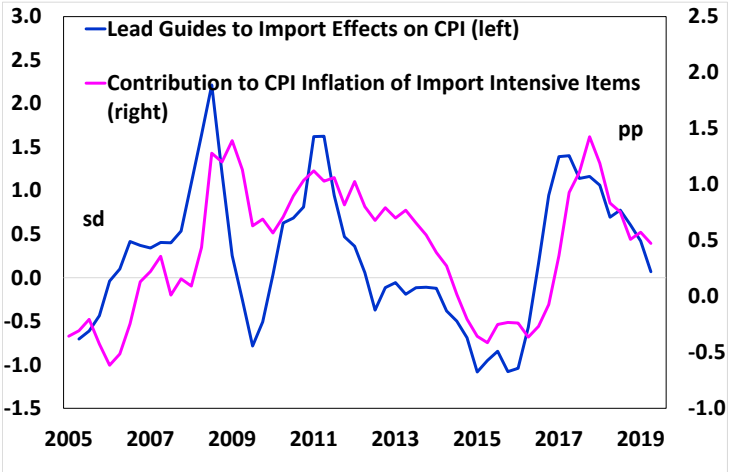


Figure 2. UK – Indicators of Contribution to CPI Inflation From Changes in Import Prices



Note: The left chart compares CPI inflation outturns with the MPC's central (mode) forecast (market rate path) made four quarters earlier. The latest data are Q1 this year. In the right chart, the blue line is the average of the BoE Agents survey of finished goods import costs, the manufacturing PMI output price series, output price inflation, and the EC survey of manufacturers' selling prices, all as standard deviations from average. The pink line shows the contribution to CPI inflation from items with above-average import content (excluding fuel, education and effects of VAT changes). Sources: IHS Markit/CIPS, European Commission, ONS and Bank of England.

The first factor is that the **pass-through of sterling's Brexit-related depreciation seems to have occurred earlier and is now fading faster than expected**. Roughly 55% of that depreciation (and trends in world export prices) has been passed through to UK import prices, close to the MPC's expectations. Based on historical experience, the MPC has expected this rise in import prices to feed through gradually to the CPI over four years (ie second stage pass-through), hence adding materially to inflation in each of those years.[1]

However, in practice, the CPI data suggest a different profile. Among items with relatively high import content – and which therefore should be more affected by import price changes -- inflation surged more than expected in 2017 and early 2018, but has slowed markedly since then. The contribution to annual inflation from import-intensive CPI items recently has been less than we would expect if second stage pass-through was operating as expected.[2]

One possible reason is that second stage pass-through may tend to be asymmetric, and faster when import prices rise rather than fall. The BoE estimates of pass-through are derived over episodes that include a mix of rises and falls in import prices. The assumption is that second stage pass-through is symmetric: i.e. a 10% rise in import prices lifts consumer prices by a certain amount and a 10% drop in import prices cuts consumer prices by the same amount, and the speed is the same in both cases. However, in practice, this may not hold for the UK. For example, figure 3 shows the estimated pass-through from import prices to consumer goods prices (which have a high import content), estimated separately for increases and decreases in import prices.[3] Longrun pass-through is roughly 0.5 in both cases: after 3-4 years, a 10% rise in import prices lifts consumer goods prices by about 5% and a 10% drop in import prices cuts consumer goods prices by about 5%. But pass-through tends to be faster when import prices rise, concentrated in the first two years, implying that inflation rises quickly and then slows. When import prices fall, the effect on prices is more delayed, mainly in years 3 and 4. Seen in this light, the recent pattern that sterling's depreciation produced a faster rise and fall in inflation than expected may actually not be so unusual.[4]

This is consistent with what is sometimes referred to as the 'rockets and feathers' phenomenon, to describe the asymmetric behaviour of prices as they rise and fall.[5] In turn, this asymmetry could be a reflection that consumer goods prices are relatively inflexible downwards and/or that the output of sectors that produce traded goods and services is relatively inflexible upwards.

The MPC's latest forecasts assume that second stage pass-through will still add materially to CPI inflation over the next 12-18 months. In my view, given the recent weakness in guides to imported cost pressures, it would not be a surprise if pass-through continues to fade faster. This could help cap inflation nearterm, but would not have much effect either way on the inflation outlook 2-3 years ahead – the horizon most relevant

[1] A 10% rise in import prices is estimated to lift the CPI by nearly 3%, broadly consistent with the share of imports in the CPI. See box on pages 28-29 of the November 2015 *Inflation Report*.
[2] Inflation among import-intensive items in the CPI also reflects some domestic pressures.
[3] We use a standard model outlined in Burstein and Gopinath (2014). See details in the appendix at end of speech.
[4] This seems to hold on average but there is some variation across cycles. Forbes (2015) discusses factors that can affect the speed and scale of pass-through of exchange rate swings to the CPI.
[5] See Peltzman (2000), Delatte and Lopez-Villavicencio (2012), Razafindrabe (2017), Alsamara, Mrabet and Dombrecht (2018).

for monetary policy. This is because the MPC's forecasts already assume that pass-through will fade over time and have little impact on CPI inflation 2-3 years out.

Figure 3. UK – Estimated Pass-Through to Consumer Goods Prices from Rises/Falls in Import Prices

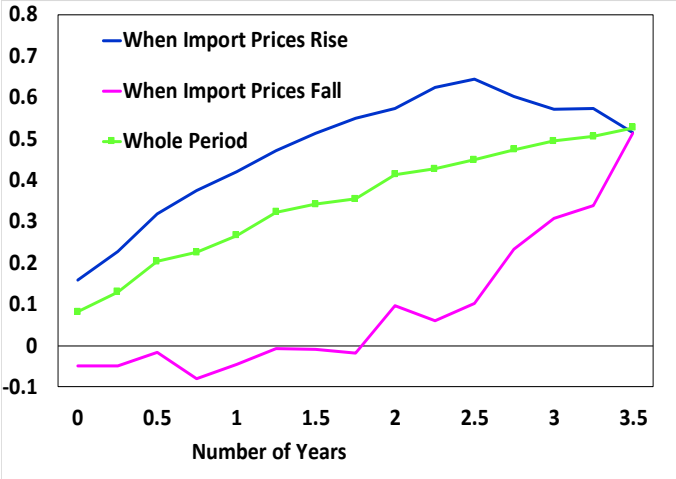
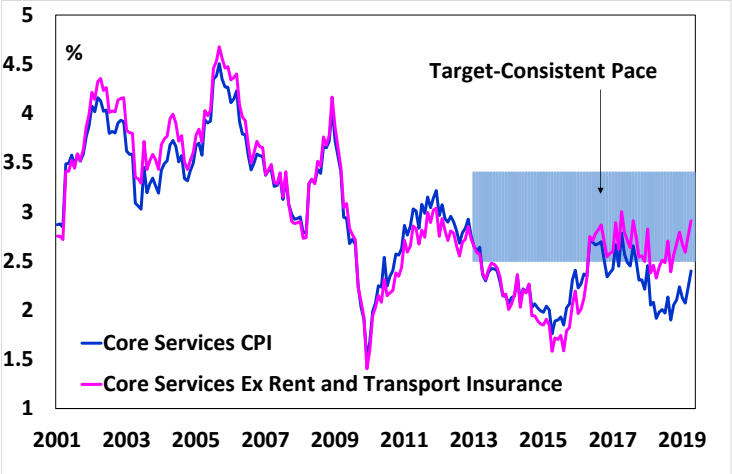


Figure 4. UK – Core Services Inflation Including and Excluding Rent and Transport Insurance



Note: In the right chart, the approximate target-consistent pace is estimated by making varying assumptions on the path of other components of CPI inflation. It is calibrated for core services inflation but would probably be similar for the measure excluding rents and transport insurance. Core services inflation is measured excluding the effects of VAT changes. Sources: ONS and Bank of England.

The second factor in the recent inflation undershoot is that **core services inflation – which is less affected by currency swings – has been unexpectedly weak**, falling from about 3% YoY in early 2017 to around 2% since early 2018 (latest is 2.4% YoY).[6] This is below BoE estimates of a target-consistent rate (2½%-3½% YoY). The lack of any appreciable pickup in this measure over recent years at first glance seems very much at odds with the MPC's view that the output gap has closed over that period.

However, in my view, we cannot lean too much on core services inflation (or any single measure) as a clean guide to domestic inflation pressures. Swings in sterling and commodity prices have some impact on core services inflation, and sterling's depreciation probably fuelled the temporary pickup in 2017 – an effect which now is fading. Core services inflation also is currently being reduced by idiosyncratic weakness in rents and car insurance (which have weights of 20% and 1% respectively in core services). Of course, we should not simply dismiss all items with particularly low or high inflation rates as erratic. But weakness in rent and car insurance probably has little implication for medium-term inflation prospects. For example, much of the recent weakness in rents reflects the direct impact of the government-led decline in social housing rents.[7] Private sector rents slowed since 2016, but now seem to be picking up again. Transport insurance prices fell 9% YoY in Q1 – the biggest drop among the EU 15 countries -- after unusually rapid growth previously and

[6] Core services inflation is defined here as services CPI excluding education, air travel and package holidays.
[7] In the 2015 summer Budget, the Chancellor announced that social housing rents would be cut by 1% YoY for four years. This began in April 2016. The drop in rents charged by registered social landlords and local authorities since 2016Q1 has accounted for roughly two thirds of the slowdown in overall CPI rents since then. The drop in social housing rents is due to end in April 2020, with rents then scheduled to rise by CPI inflation plus 1% for 5 years. For details on the policy changes, see Wilson (2019).

in anticipation of legal changes relating to some injury claims.[8] The weakness in rents and car insurance is likely to fade over the forecast period. Indeed, transport insurance prices picked up a bit in April and social rents are set to rise by about 3% YoY from next year.

Figure 5. UK -- CPI Rents YoY

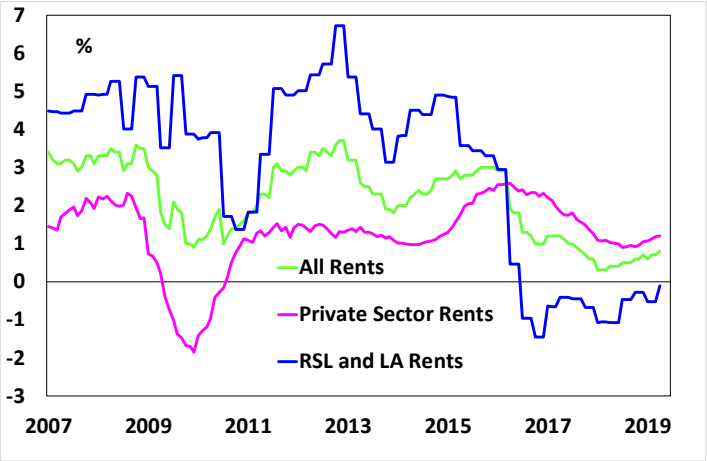
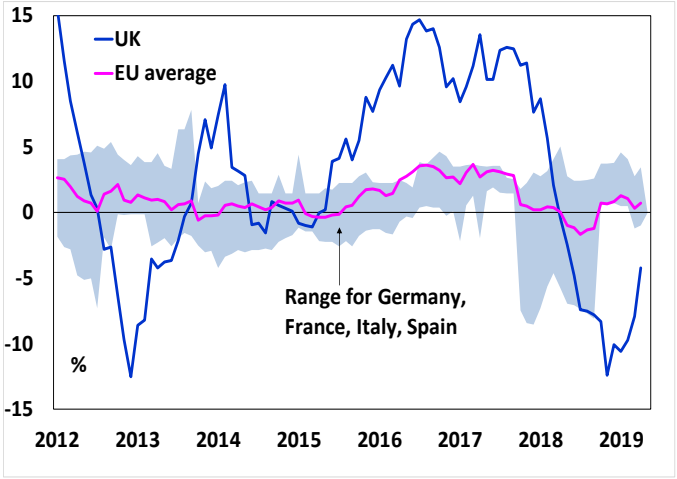


Figure 6. UK and EU – YoY Change in Transport Insurance Costs in the CPI



Note: RSL Registered Social Landlords. LA Local authorities. Sources: ONS, Eurostat and Bank of England.

Excluding rent and transport insurance, core services inflation (currently 2.9% YoY) is around a target-consistent pace, which is consistent with the output gap being closed. To be sure, it is still below the average pace of the precrisis period (3½% YoY for 2000-07). Nevertheless, a return to that pace probably would not be consistent with the MPC's inflation remit, because the precrisis period saw exceptionally large declines in prices of imported goods which are unlikely to recur in coming years.

Excluding rent and transport insurance, the current pace of core services inflation is similar to what you would expect given trends in import prices and unit labour costs, and given the usual relation over the last 10 years between these variables and services prices.[9] If the usual lags hold, the gradual rise in domestic cost pressures is likely to push this underlying core services inflation measure a bit higher over the next year or two.

We can see further signs that core services prices are reacting to capacity pressures by drilling down to individual CPI components. Idiosyncratic factors mean that, even allowing for cost pressures from sterling and oil prices, the output gap does not have a statistically significant impact on inflation for roughly half the components of this core services measure.[10] This does not necessarily mean that inflation among these

[8] The law relating to some personal injury claims was changed by the Civic Liability Act 2018. The previous strong gains in part reflected increases in the Insurance Premium Tax.
[9] Model estimated over 1994Q1 to 2016Q4, using quarterly data, with a dummy from 2009Q1. The coefficients on unit labour costs and import prices are stable over time. This model suggests that since 2009, core services inflation has tended to be about 1pp lower than previously for the same growth rates in labour costs and import prices.
[10] We estimated regressions using quarterly data over the period 1997-2016 for each component of core services inflation on 12 lags of each of the following variables: the output gap, the quarterly percentage change in the exchange rate; the quarterly dollar change in the

items is unaffected by the output gap: rather that the effects of the output gap may be masked by idiosyncratic factors other than swings in sterling and oil prices. Among core services items where the output gap has a significant impact in this simple model, the weighted average inflation rate has risen from around 1% YoY in 2010 to 2% YoY in 2015-2016 and about 3% now. Inflation among these items remains below the precrisis pace but, as noted earlier, that precrisis pace would probably not now be consistent with the inflation target. Inflation was relatively weak early this year among items for which the effects of the output gap are not significant in this simple model. But of course, this may not tell us much either way about the output gap, because these are items for which idiosyncratic factors tend to play a major role. In any case, the average inflation rate of these less-cyclical items has ticked up again in the last couple of months.

Figure 7. UK – Core Services Inflation (Ex Rent and Transport Insurance), Actual and Fitted Values

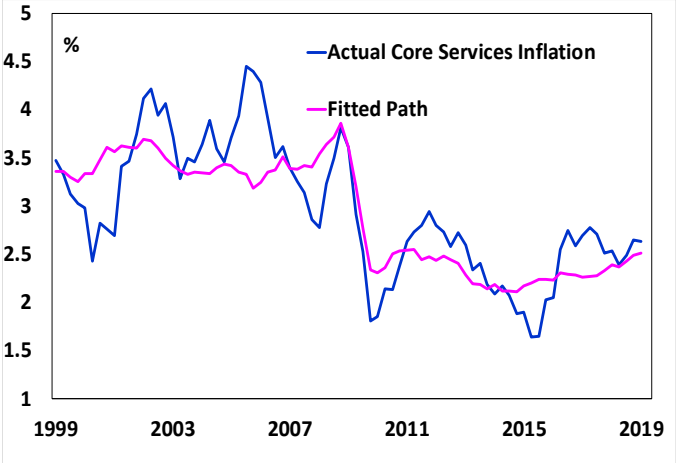
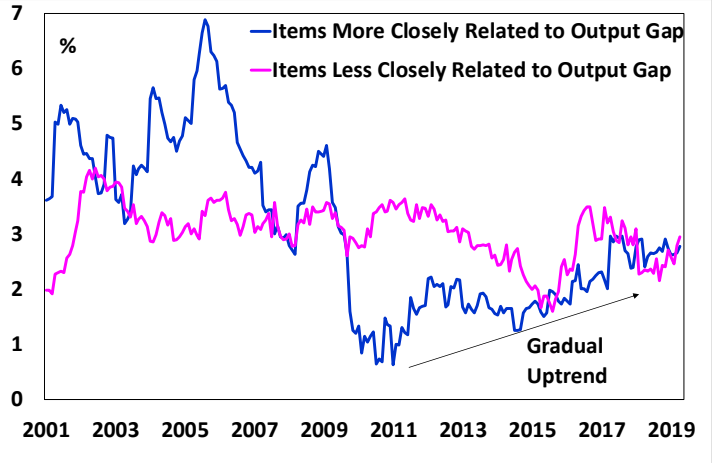


Figure 8. UK – Core Services Inflation (Ex Rent) Split By Estimated Link to Output Gap



Note: Charts exclude effects of VAT changes. Quarterly data in left chart, monthly in right chart. Sources: ONS and Bank of England.

This point about idiosyncratic factors is important in explaining the drop in the MPC's inflation forecast for late this year and early 2020. That forecast reflects the recent weakness in futures prices for natural gas which, if sustained, probably will trigger declines in consumer gas and electricity prices later this year. But this will not have a significant effect on the inflation outlook 2-3 years ahead.

Why might growth pick up? Two inflexion points

Let me turn to the outlook for growth. As in the February IR, the MPC's forecast that the economy will move into excess demand rests on two key inflexion points.

The first is that **last year's slowdown in global growth will prove to be another mini-cycle**, with a mild pickup during this year. There are some signs that this is on track. Quarterly global growth appears to have

oil price; and a time trend. The more cyclical items (for which the output gap is significant) include recreational and sporting services; hairdressing and personal grooming; dry cleaning and repairs to clothing. The less-cyclical items include post charges; insurance for housing, health and travel; hospital and medical services. See Shapiro (2019) for similar work on US data. See McLeay and Tenreyro (2018) for discussion of the effects of idiosyncratic factors on inflation.

troughed in Q3 last year, and shifts in policy and policy expectations for major central banks helped generate a notable easing in global financial conditions in the first four months of this year. However, trade tensions are ongoing and global financial conditions have tightened again in recent weeks.

The second inflexion point is that **UK business confidence and investment expectations are expected to recover a bit as**, consistent with our Brexit assumption, **uncertainty declines** and the economy adjusts smoothly to new trading relations with the EU. This inflexion point is quite important, and worth discussing.

For households and businesses, many major decisions (for example on investment, house purchase, and hiring) are costly to reverse. Hence, when uncertainty -- and especially the scale of downside risks -- is high, there is a clear incentive to defer such major decisions until the situation is clearer.[11] The incentive to wait is greater if uncertainty is expected to be resolved soon, or delay is not costly.[12] The same logic implies that employment should suffer less than investment, given that (with the UK's flexible labour market) hiring is usually more reversible than investment.

Figure 9. UK – Sterling Implied Volatility Relative to Average Volatility of Other Major Cross Rates

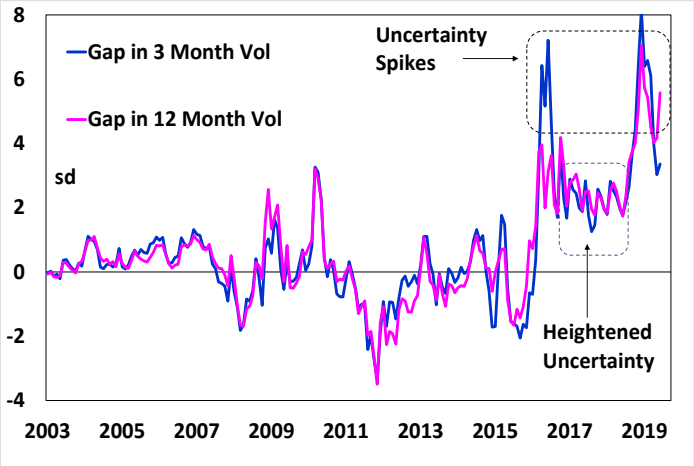
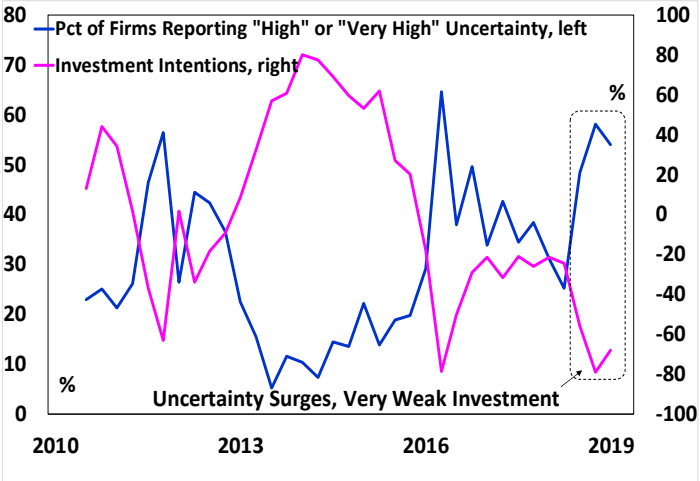


Figure 10. UK – Uncertainty and Investment Intentions



Note: In the right chart, investment intentions are measured by the net balance of firms expecting their capital spending to rise or fall over the next 12 months. Sources: Eikon from Refinitiv, Deloitte CFO survey and Bank of England.

Since early 2016, firms and households have faced heightened uncertainties over the UK's relations with the EU. For example, the implied volatility of sterling (relative to other major cross rates) surged in the runup to the 2016 Brexit vote and stayed high after it in 2017-18. The Deloitte CFO survey shows a similar trend in the share of firms reporting that the level of external uncertainty facing their business is 'high' or 'very high'. Early this year, firms and households faced risks of an imminent no deal Brexit. As a result, the share of

[11] See Dixit and Pindyck (1994), Byrne and Davis (2005), Haddow *et al.* (2013), Julio and Yook (2012), Barrero, Bloom and Wright (2017), Smietanka, Bloom and Mizen (2018), Chen, Lee and Zeng (2019).
[12] See Broadbent (2019).

firms reporting ‘high’ or ‘very high’ uncertainty surged. Sterling volatility rose sharply (versus other currencies), especially 3-month volatility.

The adverse effects of uncertainty are clear in aggregate trends, with a close link between the share of firms that report high or very high uncertainty, and the overall trend in investment intentions (see figure 10).[13] These effects are evident at a micro level: among firms in the Deloitte CFO survey, those that report a higher level of external uncertainty tend to have much weaker investment intentions than those who expect uncertainty to be around average or below (see figure 11).[14] It holds if we track individual firms over time: a rise in uncertainty is associated with a statistically significant deterioration in investment intentions.[15] Note that investment intentions have weakened since the Brexit vote even among firms that reported the same level of external uncertainty. This highlights an important point: the adverse effects of Brexit on investment do not just come from greater uncertainty, but also from a more pessimistic central outlook for the economy. In technical terms, the first moment of the distribution (ie the central case) matters, as well as the second moment (uncertainty around that central case).

Figure 11. UK – Investment Intentions Among Firms (Net Balance), Split By Level of Reported Uncertainty

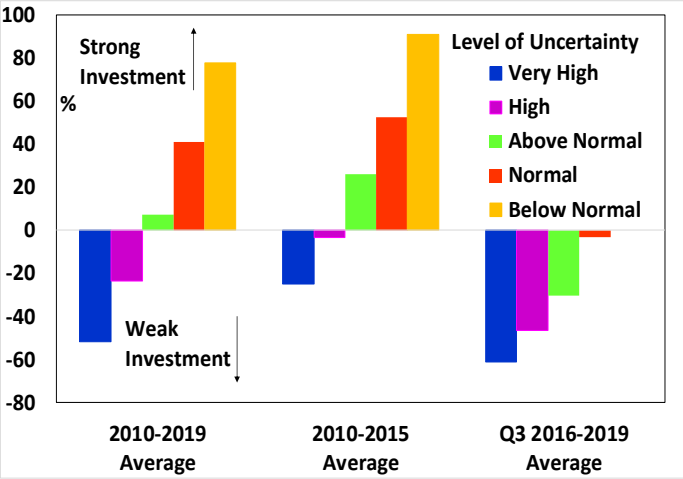
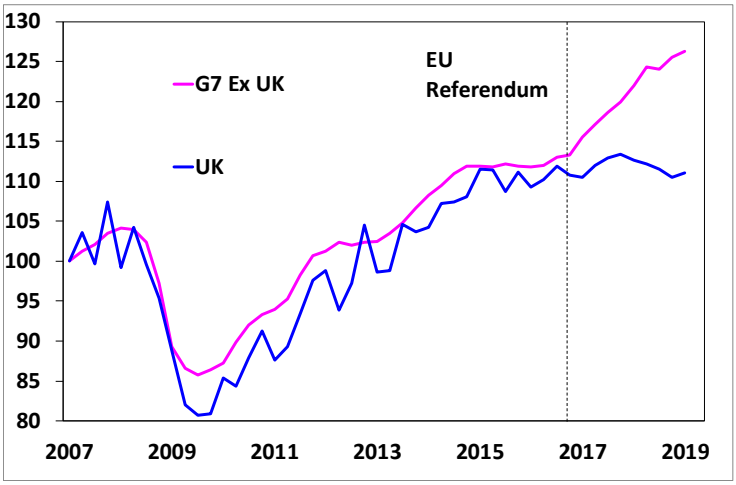


Figure 12. UK and G7 (Ex UK) – Real Business Investment Indexed to Q1 2007 = 100



Note: In the left chart, investment intentions are measured by the average for each period of the net balance of firms expecting their capital spending to rise or fall over the next 12 months. Sources: Deloitte CFO survey, Eikon from Refinitiv and Bank of England.

In all, business investment has been roughly flat since the 2016 Brexit vote – markedly undershooting the G7 average -- even though the background drivers for investment (eg rate of return on capital, cost of capital, corporate balance sheets, capacity use) are relatively favourable.[16] In Q1, with ‘cliff edge’ conditions – uncertainty that is elevated but expected to be resolved quite soon -- the expected cost to firms of delaying

[13] This is also evident in the BoE Decision Maker Panel, see Broadbent (2019).
[14] I am most grateful to Deloitte for providing the micro data, in an anonymised form.
[15] We estimated panel regressions with fixed effects, details in appendix. Hiring intentions also tend to be clearly weaker among firms that report a high or very high level of uncertainty, and weaken among firms that report a rise in uncertainty from one period to another.
[16] Weakness in business investment in 2018 was exacerbated by a sharp drop in investment in aircraft, which may reflect a shift among airlines to leasing planes (from firms based overseas) rather than owning them.

spending was relatively low, because the delay was expected to be relatively brief.[17] In turn, survey readings showed marked weakness in firms' intentions for business investment, training, and hiring early this year.

In late April and early May, sterling's implied volatility fell relative to that on other major cross rates, consistent with a drop in UK uncertainty. But sterling's implied volatility is still relatively high and volatility beyond a 3-month horizon has jumped higher again in recent weeks. In the MPC's central forecast, which assumes a smooth Brexit, uncertainty gradually falls. As a result, we might subsequently expect business investment to recover a bit from recent weakness, reflecting some pent-up demand, helping to support growth. It is unlikely that business investment will regain all the lost ground versus other G7 countries, but at least the shortfall might not expand.

Nevertheless, this recovery is far from certain. A worse central outlook for Brexit, or a series of repeated Brexit cliff edges, could leave business confidence and investment weaker than expected. Moreover, even if Brexit uncertainty falls, it is possible that the recent rise in uncertainty will leave lasting scars on firms' willingness to invest in coming years.[18] I will watch the business surveys closely to see how this plays out.

Why has consumer spending done better than expected? Will this continue?

Let's turn to consumer spending. This has grown at a modest pace since the Brexit vote, but a bit better than expected. For example, since mid-2017, the YoY growth of real consumer spending on average has been 0.8pp higher than the MPC's respective forecasts made four quarters earlier.

I don't think you could say that consumers have been impervious to Brexit uncertainties. Consumer confidence has weakened over the last year -- especially expectations for the general economy. But spending has been supported by loose monetary conditions and stronger real income growth. Monetary conditions have loosened markedly since the Brexit vote, with the mid-2016 policy easing (lower Bank Rate, QE), plus sterling's depreciation, and subsequent decline in spreads on new mortgages and unsecured consumer loans. That loosening encouraged consumers to maintain spending during the temporary real income squeeze caused by sterling's depreciation, and has underpinned growth since then. Household incomes also have benefited from a recovery in the labour share of GDP, which in early 2015 had fallen below the post-2000 range (with a relatively high profit share). And, as noted, Brexit-related uncertainty seems to have had much less adverse impact on hiring than business investment. All in all, the YoY growth in nominal and real household wage income since early 2018 have both been about 1pp above the MPC's forecasts made four quarters earlier, reflecting higher job growth and, recently, higher pay growth.

[17] Indeed, given that sterling was expected to appreciate in the event that a no deal Brexit was avoided, the sterling price of imported capital goods could be expected to fall in such a scenario, hence reducing costs of investment.
[18] See Foerster (2014).

Moreover, the pickup in pay growth has been relatively strong for people with middle and low pay levels.[19] This distribution is likely to reinforce the boost to consumer spending, given that high income groups (for whom pay growth has been more subdued) tend to have a lower marginal propensity to consume than people on average or below-average incomes.[20]

Figure 13. UK – Real Consumer Spending YoY: Actual and BoE Forecast Made Four Quarters Earlier

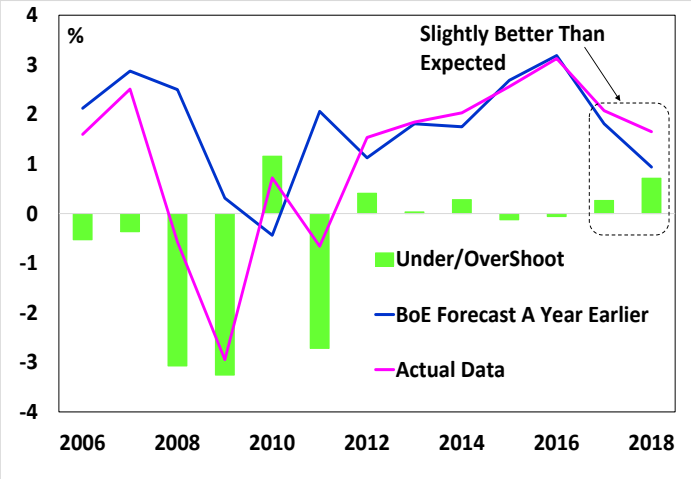
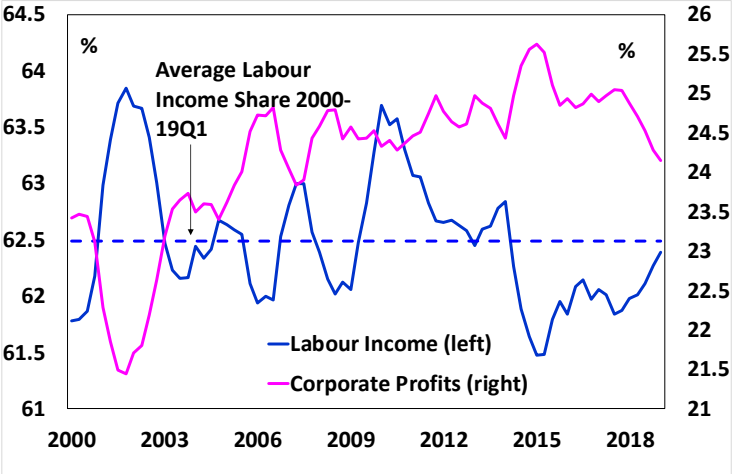


Figure 14. Labour Share and Profit Share in Nominal GDP



Note: The left chart uses projections produced by Bank staff for the MPC, consistent with the MPC's modal projections. The chart shows the average forecasts for calendar year growth produced in the previous year. In the right chart, the labour share is measured using household compensation (DTWM) and mixed income (ROYH) as a share of gross value added at basic prices (ABML). Profits measured for all companies (CGBZ less the alignment adjustment, DMUQ). Sources: ONS and Bank of England.

Looking forward, the May IR projects that household consumption growth will slow a little further this year and next. In the IR, this is driven by a marked slowdown in job growth, such that real income growth weakens in 2019 and 2020 despite the expected lift from lower household gas prices. I regard that as a pretty cautious forecast. Conditioned on a smooth Brexit and the yield curve at the time of the May IR, I suspect that consumer spending will continue to outperform expectations -- probably growing at or slightly above the average pace of the last year or two.

Wage income again is likely to do better than expected. Firms' hiring intentions weakened early this year, probably reflecting fears of a no-deal Brexit. However, hiring intentions have recovered a bit recently and currently point to stronger job growth than implied by the May IR forecast for this year and the next. If uncertainty falls, in line with our Brexit conditioning assumption, then the resultant support for growth is likely to lift hiring intentions, such that job growth remains similar to the last year or two. Pay growth has recently risen to about 3% YoY and the May IR projects a further modest pickup (to about 3.5% in 2020 and 3.75% in

[19] For example, since 2018 Q1, mean gross hourly earnings of full-time employees have risen by an average of 3.4% YoY, versus 4.5% for the median, 4.9% for the bottom decile and 2.9% for the top decile. The pattern is similar in terms of weekly earnings, and for men and women separately.
[20] See, for example, Bunn *et al.* (2017), Carroll, Slacalek and Tokuoka (2014).

2021). That looks reasonable in my view: if anything, with the high levels of recruitment difficulties, risks may lie slightly to the upside.

Figure 15. UK – Data and Forecasts for Consumer Spending and Household Wage Income

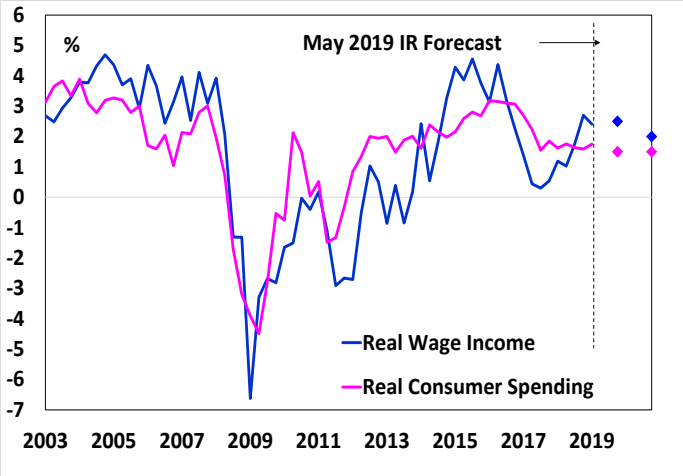
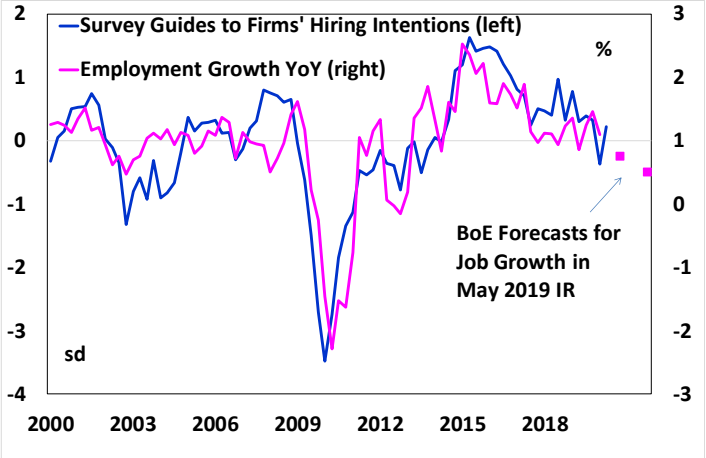


Figure 16. UK – Employment Growth and Survey Guides to Firms' Hiring Intentions



Note: Household real wage income is measured as the combination of employment and average earnings growth, deflated by the CPI. In the left chart, the diamonds show the May 2019 IR forecasts for calendar year growth in 2019 and 2020. In the right chart, hiring intentions are measured using the CBI and CIPS surveys, weighted across different sectors of the economy, and shown as standard deviations from average. The IR forecasts are for Q4 2019 and Q4 2020. Sources: ONS, CIPS, CBI and Bank of England.

Monetary conditions are likely to remain favourable if Bank Rate follows the very gentle upward slope at the time of the May IR. The IR assumes some rise in mortgage spreads (about 20bp) over the forecast horizon, so that mortgage rates rise more than Bank Rate. I suspect risks are on the side of stable or even lower lending spreads. To be sure, net interest margins on new mortgage loans have fallen over recent years. However, with the shift to ring fencing of the retail banks, and banks now in aggregate having more deposits than loans, my hunch is that competition in lending markets will remain fierce. And some rise in net interest margins would occur if – with a gently rising policy rate -- lending spreads over riskless rates are stable while banks' deposit rates rise less than one for one with the policy rate.[21] It is notable that, since mid-2016, mortgage lending spreads have generally been lower than expected. Indeed mortgage rates have barely risen since mid-2017 – remaining around record lows -- despite two 25bp rate hikes over that period.

One counter-argument might be that house price inflation has recently slowed, and historically there has been a fairly close link between house prices and consumption. However, those links are probably looser than usual at present.[22] The collateral channel has weakened (or become less immediate) in recent years, with limited spillover from housing wealth to mortgage equity withdrawal. And the factors that may have contributed to recent weakness in house prices – for example, extra housing supply, reduced demand from Buy-to-Let investors, Brexit uncertainties – are likely to hit housing more than overall spending. Despite

[21] See Saunders (2019).
[22] See box on pages 12-13 of the May 2019 *Inflation Report*.

weakness in house prices, households' expectations for their own finances and major purchase intentions – which track spending quite well -- are around average.

Another counter-argument might be that the household savings rate, at just 4.8%, is unsustainably low and likely to correct higher, hence weakening spending. However, in my view, the low savings rate is chiefly the result of wider economic and policy conditions. For example, the low jobless rate and improved sense of job security probably have reduced precautionary savings. Low interest rates have encouraged households to spend rather than save. More broadly, household balance sheets are in fairly good shape, which reduces risks of a sharp rise in savings. The ratio of household wealth to income (net of debts) hit a record high in 2017 and, allowing for subsequent trends in savings and asset prices, remains close to that level now. The household debt/income ratio (excluding student loan debt) has been roughly stable in recent years, and well below precrisis peaks. Moreover, in recent years, official data for household savings have been revised up on average.[23] We may eventually again discover that the savings rate is not as low as currently published. Of course, spending would be likely to suffer if there is a major adverse shock to households' expectations for incomes and wealth. But absent such a driver, I doubt the low savings rate itself is a likely cause of weakness in spending.

Some Monetary Policy Implications

To sum up, in my view, the output gap is probably closed and, assuming a smooth Brexit (as well as the asset prices prevailing at the time of the May *Inflation Report*), risks to consumer spending probably lie to the upside of the latest IR forecast. This would push the economy even further into excess demand than the central projection in the latest IR, with the jobless rate likely to reach new lows. In turn, this would be likely to reinforce upward pressure on domestic cost growth and inflation over the next 2-3 years. In this case, Bank Rate will probably need to rise further over the forecast period than implied by the market path used in the May *Inflation Report* to keep inflation on target over time. I do not expect that policy will have to become restrictive, and expect that any policy tightening is likely to be to a limited extent and at a gradual pace. But we probably would have to return to something like a neutral stance earlier than markets project.

I am not giving a steer on how I might vote at any particular MPC meeting. That will depend on data and the economy's prospects at the time. But there would be costs if we delay tightening until all the potential warning signs across pay, capacity and prices are flashing red. Such an approach would make it less likely that tightening would be limited and gradual, and more likely that the economy would face a painful adjustment. Set against this, at the May meeting, I judged that there was a good case to wait and see more evidence to confirm that the expected improvements in global growth prospects and UK business confidence do come through.

[23] Since the start of 2007, the savings rate on average has been revised up by 3.3 percentage points from the first release. Roughly half of this (1.7pp) occurred in late 2014 as the result of methodological changes. The rest (1.6pp on average) is an underlying revision.

In the event of a no deal Brexit, as the MPC has said, the monetary policy response is not automatic, could go either way and would depend on the balance between the changes in supply, demand and the exchange rate. It is unlikely that monetary policy could fully offset the adverse effects on growth of a no-deal Brexit, given the likelihood of higher inflation and deterioration in the economy's supply side in such a scenario.

I want to stress that the MPC does not necessarily have to keep rates on hold until all Brexit uncertainties are resolved. Of course, we take Brexit uncertainties into account in analysing and forecasting the economy. But the MPC has already raised rates twice since the Brexit vote. We will act again if needed to ensure a sustained return of inflation to target over time.

References

Alsamara, M, Mrabet, Z and Dombrecht, M (2018), 'Asymmetric import cost pass-through in GCC countries: evidence from nonlinear panel analysis', *Economic Modelling*, vol. 75, pages 432-440.

Barrero, J, Bloom, N and Wright, I (2017), 'Short and long run uncertainty', *NBER Working Papers*, No. 23676.

Broadbent, B (2019), 'Investment and uncertainty: the value of waiting for news', speech given at Imperial College Business School, London, available at https://www.bankofengland.co.uk/speech/2019/ben-broadbent-imperial-college-business-school-london

Bunn, P, Le Roux, J, Reinold, K and Surico, P (2017), 'The consumption response to positive and negative income changes', *Bank of England Staff Working Paper*, No. 645, available at https://www.bankofengland.co.uk/working-paper/2017/the-consumption-response-to-positive-and-negative-income-changes

Burstein, A and Gopinath, G (2014), 'International prices and exchange rates', *Handbook of International Economics*, vol. 4, pages 391-451.

Byrne, J and Davis, P (2005), 'The impact of short- and long-run exchange rate uncertainty on investment: a panel study of industrial countries', *Oxford Bulletin of Economics and Statistics*, vol. 67(3), pages 307-329.

Carroll, C, Slacalek, J and Tokuoka. K (2014), 'The distribution of wealth and the MPC: implications of new European data: Online appendix', *American Economic Review*, vol. 104(5), pages 107-111.

Chen, P, Lee, C and Zeng, J (2019), 'Economic policy uncertainty and firm investment: evidence from the U.S. market', *Applied Economics*, vol. 51(31), pages 3423-3435.

Delatte, A and Lopez-Villavicencio, A (2012), 'Asymmetric exchange rate pass-through: evidence from major countries', *Journal of Macroeconomics*, vol. 34(3), pages 833-844.

Dixit, A and Pindyck, R (1994), 'Investment under uncertainty', *Princeton University Press*.

Foerster, A (2014), 'The asymmetric effects of uncertainty', *Economic Review*, Federal Reserve Bank of Kansas City, issue Q III, pages 5-26.

Forbes, K (2015), 'Much ado about something important: how do exchange rate movements affect inflation?', speech given at the 47th Money, Macro and Finance Research Group Annual Conference, Cardiff, available at https://www.bankofengland.co.uk/speech/2015/much-ado-about-something-important-how-do-exchange-rate-movements-affect-inflation

Haddow, A, Hare, C, Hooley, J and Shakir, T (2013), 'Macroeconomic uncertainty: what is it, how can we measure it and why does it matter?', *Bank of England Quarterly Bulletin*, 2013 Q2, available at https://www.bankofengland.co.uk/quarterly-bulletin/2013/q2/macroeconomic-uncertainty-what-is-it-how-can-we-measure-it-and-why-does-it-matter

Julio, B and Yook, Y (2012), 'Political uncertainty and corporate investment cycles', *The Journal of Finance*, vol. 67(1), pages 45-84.

McLeay, M and Tenreyro, S (2018), 'Optimal inflation and the identification of the Phillips curve', CEPR Discussion Paper, No. 12981.

Peltzman, S (2000), 'Prices rise faster than they fall', *Journal of Political Economy*, vol. 108(3), pages 466-502.

Razafindrabe, T (2017), 'Nonlinearity and asymmetry in the exchange rate pass-through: what role for nominal price stickiness?', *Review of International Economics*, vol. 25(4), pages 711-732.

Saunders, M (2019), 'Pass-through of Bank Rate to household interest rates', speech given at Imperial College Business School, London, available at https://www.bankofengland.co.uk/speech/2019/michael-saunders-speech-at-imperial-college-business-school

Shapiro, A (2019), 'Cyclical and acyclical core PCE inflation', Federal Reserve Bank of San Francisco, updated from: Mahedy, T and Shapiro, A (2017), 'What's down with inflation?', *FRBSF Economic Letter*, 2017-35.

Smietanka, P, Bloom, N and Mizen, P (2018), 'Business investment, cash holding and uncertainty since the Great Financial Crisis', *Bank of England Staff Working Paper*, No. 753, available at https://www.bankofengland.co.uk/working-paper/2018/business-investment-cash-holding-and-uncertainty-since-the-great-financial-crisis

Wilson, W (2019), 'Rent setting: social housing (England)', House of Commons Library, Briefing paper, No. 01090.

Appendix 1 – Asymmetric Pass-Through

In order to estimate the empirical profiles for second stage pass-through, we use a standard dynamic lag regression, where *n = {0…16}* quarters.[24] The baseline model (corresponding to the green line in figure 3) is estimated over 1987-2018 using quarterly data:

$$\Delta p_t = \alpha + \sum_{j=0}^{n} \beta_j \Delta pm_{t-j} + \gamma \Delta oil_t + \delta ERM + \varepsilon_t \quad (1)$$

where:

Δp_t is the change in the log of goods CPI
Δpm_t is the change in the log of non-energy import price deflator
Δoil_t is the change in the log of sterling-denominated oil price
ERM is a dummy for the period when the UK was in the European Exchange Rate Mechanism (1990Q4-1992Q3)

Excluding the output gap as an additional control variable means that the estimated coefficients on import prices are capturing both the direct effects of import price pass-through and the indirect effects that operate through changes in aggregate demand.

Because this specification does not include lagged values of the CPI, the impulse response of the CPI to a change in import prices (second stage pass-through) at horizon *n* is given by the sum of coefficients, $\sum_{j=0}^{n} \beta_j$.

By construction, equation (1) implies that second stage pass-through is symmetric, ie a 10% rise in import prices lifts consumer prices by a certain amount and a 10% drop in import prices cuts consumer prices by the same amount, with the speed of pass-through being the same in both cases. To allow for asymmetries, we augment equation (1) as follows:

$$\Delta p_t = \alpha + \sum_{j=0}^{n} \beta_j^{(+)} \Delta pm_{t-j}^{(+)} + \sum_{j=0}^{n} \beta_j^{(-)} \Delta pm_{t-j}^{(-)} + \gamma \Delta oil_t + \delta ERM + \varepsilon_t \quad (2)$$

where:

$$\Delta pm_t^{(+)} = \begin{cases} \Delta pm, & \Delta pm > 0 \\ 0, & \Delta pm \leq 0 \end{cases}$$

$$\Delta pm_t^{(-)} = \begin{cases} \Delta pm, & \Delta pm < 0 \\ 0, & \Delta pm \geq 0 \end{cases}$$

The difference in pass-through at horizon *n* is given by:

$$\sum_{j=0}^{n} \beta_j^{(+)} - \sum_{j=0}^{n} \beta_j^{(-)}$$

Our results show that this difference is statistically significant (implying faster pass-through when import prices rise), but the pass-through after 3-4 years is similar.

[24] See eg Burstein and Gopinath (2014).

Appendix 2 – Uncertainty, investment and hiring intentions

We investigate the link between uncertainty and firms' investment and hiring decisions by estimating a simple linear regression model. We use the firm level responses – which provide a panel of 280 firms – to Deloitte's survey of Chief Financial Officers and Group Finance Directors of major companies in the UK, covering the period 2010Q3 to 2019Q1. We focus our analysis on three of the survey's questions:

(1) How would you rate the general level of external financial and economic uncertainty facing your business?
(2) In your view how are the following key metrics for UK corporates likely to change over the next 12 months? Capital expenditure
(3) In your view how are the following key metrics for UK corporates likely to change over the next 12 months? Hiring

Firms can answer each one of these questions in one of five ways. We code these categorical responses into the following ordinal variables:

$$Uncertainty\ Index = \begin{cases} 1 = Below\ normal\ level\ of\ uncertainty \\ 2 = Normal\ level\ of\ uncertainty \\ 3 = Above\ normal\ level\ of\ uncertainty \\ 4 = High\ level\ of\ uncertainty \\ 5 = Very\ high\ level\ of\ uncertainty \end{cases}$$

$$Capex/Hiring\ intentions = \begin{cases} 1 = Decrease\ significantly \\ 2 = Decrease\ somewhat \\ 3 = No\ change \\ 4 = Increase\ somewhat \\ 5 = Increase\ significantly \end{cases}$$

In the baseline specification (1) we regress each of capex and hiring intentions on the uncertainty index, controlling for firm-specific (fixed effects) conditions. In specification (2) we also include annual growth in GDP to control from macroeconomic conditions. We find the coefficient on uncertainty negative (and of similar size) and statistically significant in all cases. This result is robust to an ordered probit specification.

We then repeat this exercise, but by splitting uncertainty responses into four separate dummies. The results in (3) and (4), interpreted as relative to 'Normal level of uncertainty', remain robust. The dummies suggest that the extremes of uncertainty have slightly bigger effects than moving between the middle categories.

Table 1. OLS Regression Results

Sample: 2010Q3 2019Q1

Dependent variable	Capex	Hiring	Capex	Hiring	Capex	Hiring	Capex	Hiring
	(1)		(2)		(3)		(4)	
Uncertainty Index (1-5)	-0.39***	-0.42***	-0.26***	-0.29***				
Below normal					0.45***	0.43***	0.31**	0.31**
Above normal					-0.38***	-0.41***	-0.19***	-0.23***
High					-0.75***	-0.80***	-0.45***	-0.51***
Very high					-1.21***	-1.29***	-0.81***	-0.92***
ΔGDP			0.57***	0.54***			0.58***	0.54***
Constant	4.27***	4.30***	2.73***	2.85***	3.47***	3.45***	2.16***	2.23***
Cross-section fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2881	2864	2881	2864	2881	2864	2881	2864
R^2	0.32	0.37	0.41	0.46	0.32	0.38	0.41	0.46

Note: asterisks denote significance at 10% (*), 5% (**) and 1% (***) level.