



BANK OF ENGLAND

Speech

Shifting balance of risks

Speech given by

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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.

I want to make three key points in this speech.

- With persistently high Brexit uncertainties and softer global growth, the UK economy has weakened markedly in recent quarters, opening up a modest amount of spare capacity.
- The economy could follow very different paths depending on Brexit developments. But in my view, even assuming that the UK avoids a no-deal Brexit, persistently high Brexit uncertainties seem likely to continue to depress UK growth below potential for some time, especially if global growth remains disappointing.
- In such a scenario – not a no-deal Brexit, but persistently high uncertainty – it probably will be appropriate to maintain an expansionary monetary policy stance and perhaps to loosen further. Of course, the monetary policy response to Brexit developments will also take into account other factors including, in particular, changes in the exchange rate and fiscal policy.

Persistently high Brexit-related uncertainties

The level of uncertainty facing UK businesses and consumers has been relatively high since the EU referendum. But these uncertainties have risen again in recent months, especially regarding Brexit.

For example, the latest results from the Bank of England's Decision Maker Panel (DMP) survey,¹ including results gathered during this month, suggest that more than 50% of firms say that Brexit is an important source of uncertainty for their business (see figure 1). This index of Brexit uncertainty is close to the peaks seen around the turn of the year, just before the previous cliff edge, and is far above the levels seen in 2017 and most of 2018.² The high level of Brexit uncertainty is broadly based across industry sectors, reflecting the widespread impacts of Brexit across the economy. The three sectors reporting the highest levels of uncertainty in Q3 were wholesale and retail (the sector most reliant on EU imports), accommodation and food (largest user of EU migrant labour), and manufacturing (the biggest exporter to the EU), see figure 2.

The same message of high uncertainty comes from the regular Deloitte CFO surveys. Since early this year, more than 50% of firms have reported that they face 'high' or 'very high' uncertainty (see figure 3). This is similar to the peaks seen in the euro area crisis of 2011-12 and around the time of the 2016 EU referendum. When asked to rank the sources of uncertainty, Brexit is top.

The high level of UK-specific uncertainty is also evident in financial markets. The gap between the implied volatility of sterling's exchange rate over the next 12 months and implied volatility on a range of other currencies is several standard deviations above average, and exceeds any level seen before late-2018 (using daily data since 1999, see figure 4).

¹ The Decision Maker Panel (DMP) survey was launched just over three years ago, soon after the 2016 Brexit referendum, as a cooperative effort by the BoE, the University of Nottingham and Stanford University. It is now one of the largest regular business surveys in the UK. It is proving invaluable in providing the MPC with timely insights into economic conditions and prospects.

² Latest survey results are for Q3 2019, with the September figures surveyed over the period 6-20 September.

Figure 1. UK – DMP Brexit Uncertainty Index

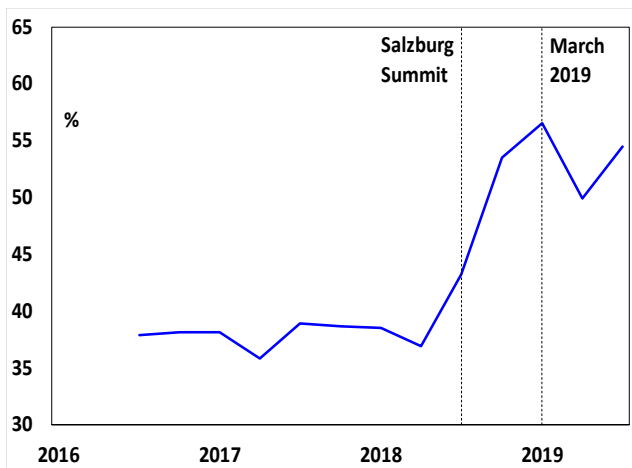
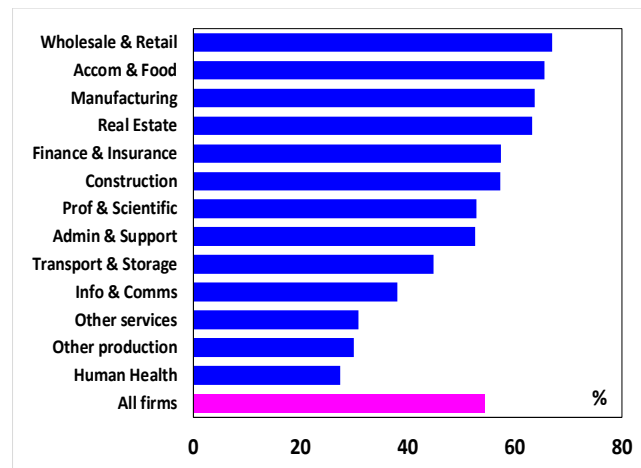


Figure 2. UK – DMP Brexit Uncertainty By Sector



Note: The results are based on the question 'How much has the result of the EU referendum affected the level of uncertainty affecting your business?'. The charts show the percentage of respondents who view Brexit as 'their top' or 'one of their top three' sources of uncertainty. The remaining businesses reported Brexit to be 'one of many' or 'not an important' source of uncertainty for their business. Before August 2018, when the question about uncertainty was not asked every month, missing values are interpolated. All values are weighted. The left chart shows quarterly averages, the right chart shows data for Q3 2019. Sources: DMP survey and Bank of England.

Figure 3. UK – Pct of Firms Reporting 'High' or 'Very High' External Uncertainty (Deloitte Survey)

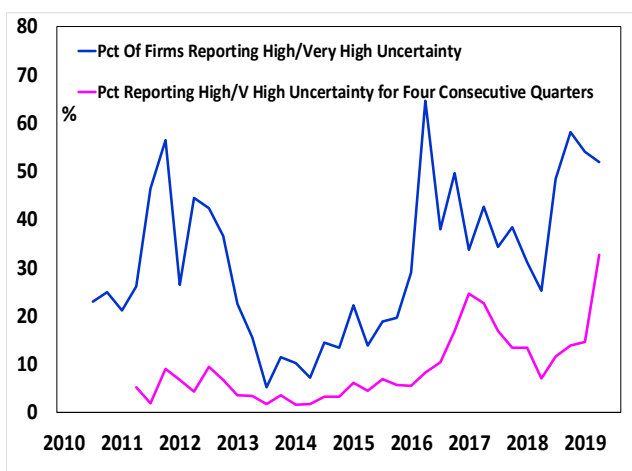
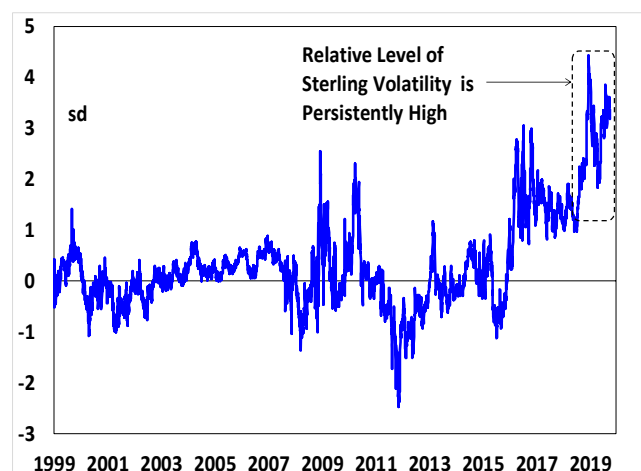


Figure 4. UK – Gap Between 12-month Implied Volatility on Sterling and Volatility on Other Major Currencies



Note: The right chart shows the gap (standard deviations from average, taken over 1999-2015) between 12-month implied sterling volatility and 12-month volatility on a range of other major currencies, using daily data. Sources: Deloitte CFO survey, Eikon from Refinitiv and Bank of England.

Whereas previous spikes in uncertainty were usually temporary – a quarter or two – the current uncertainties have become more persistent and entrenched. Roughly one third of firms in the Deloitte survey have reported 'high' or 'very high' uncertainty for four consecutive quarters, far above levels in earlier years (see figure 3).³

³ I am grateful to Deloitte for providing the micro data, in anonymised form, for the CFO survey. See also Saunders (2019).

The horizon at which firms expect these uncertainties to be resolved keeps rolling forward (see figure 5). At the start of this year, more than 40% of firms expected Brexit uncertainties to be resolved by the end of 2019. Now, only 12% of firms have that view: more than 60% expect Brexit uncertainties to be resolved by the end of 2020. Allowing for the fact that a horizon of end-2020 is now less distant than it was at the start of the year, the mean length of time until firms expect uncertainty to be resolved has been fairly stable: it is always a few quarters ahead.⁴

The uncertainties mostly reflect fears of adverse Brexit outcomes, rather than the possibility of a better than expected outcome. A rising share of UK firms report that Brexit is having an adverse effect on their business expectations (see figure 6), and surveys by the BoE Agents suggest that firms believe a no-deal Brexit would be especially painful.⁵

Figure 5. UK – Pct of Firms That Expect Brexit Uncertainty to be Resolved at Various Horizons

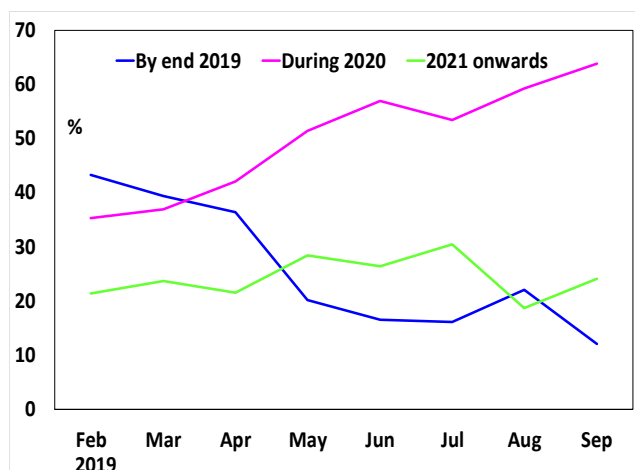
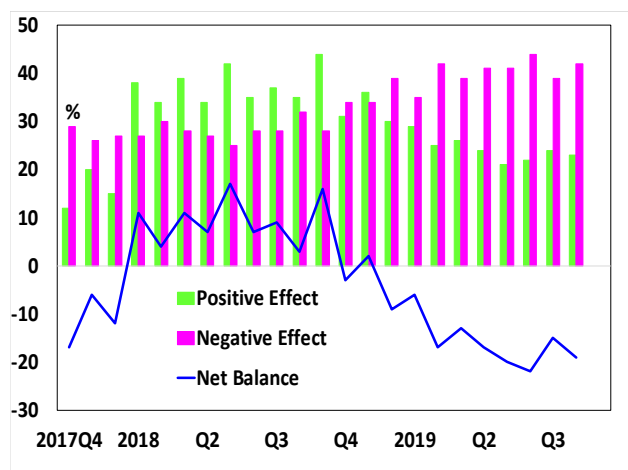


Figure 6. UK – Pct of Firms Reporting that Brexit is Having a Positive or Negative Impact on Their Expectations for Business Activity



Note: Data in left chart are from the DMP survey. In the right chart, the survey covers firms with turnover above £1m only. Sources: DMP survey, Lloyds Business Barometer and Bank of England.

There is extensive evidence that high uncertainty with downside risks is bad for economic growth.⁶ The key point is that for households and businesses, many major decisions (eg on investment, house purchase, hiring, R&D) 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.

⁴ For example, I assume that in February 2019, firms which reported that they expect uncertainty to be resolved by end-2019 had an average horizon of five months (the middle of the rest of this year), while end-2020 would be a horizon of 16 months (mid-2020) and 2021 or beyond would be a horizon of 34 months (end-2021). I weight together the share of firms expecting uncertainty to be resolved by end-2019, end-2020 and 2021 or beyond to get an average date at which firms expect uncertainty to be resolved. The result that the average horizon for uncertainty to be resolved has been fairly stable is pretty consistent across different methods of calculation.

⁵ See box on pages 12-14 of the *Inflation Report* published August 2019.

⁶ See, for example, Dixit and Pindyck (1994), Bloom, Bond and Van Reenen (2007), Bloom (2009), Barrero, Bloom and Wright (2017), Bloom *et al.* (2018), Broadbent (2019) Caldara *et al.* (2019), Faccini and Palombo (2019).

The incentive for firms and households to defer spending is greater if delay is not costly, or if uncertainty is expected to be resolved fairly soon. This point about the horizon at which uncertainty might be resolved is quite a subtle point, but important. If firms know at the outset that uncertainties will continue for many years, then there is less temptation to delay investment until the point when uncertainties will be resolved – because such a lengthy delay would mean deferring for a long time the profits that the investment would be expected to generate. You might as well get on with things. This seemed to be the attitude of many firms in 2017 and early 2018. But if the horizon over which firms expect uncertainty to be resolved is quite short, then the cost of delay seems relatively small, and firms will probably put spending on hold to a greater extent.

It follows that the current persistent rolling uncertainty is likely to be especially damaging.⁷ Firms keep expecting Brexit-related uncertainties to be resolved fairly soon – hence providing a temptation to defer major spending until the situation is clearer – only to find that the situation is just as uncertain (if not more uncertain) a few months later. So they defer spending again, and again.

The adverse impact of Brexit uncertainty comes out clearly in some recent excellent research by Nick Bloom and others, using the DMP survey: firms which report high levels of uncertainty related to Brexit are significantly more cautious over investment than other companies.⁸

Figure 7. UK – Net Balances of Firms Expecting to Increase Investment/Hiring/Discretionary Spending, Split By Level of Uncertainty

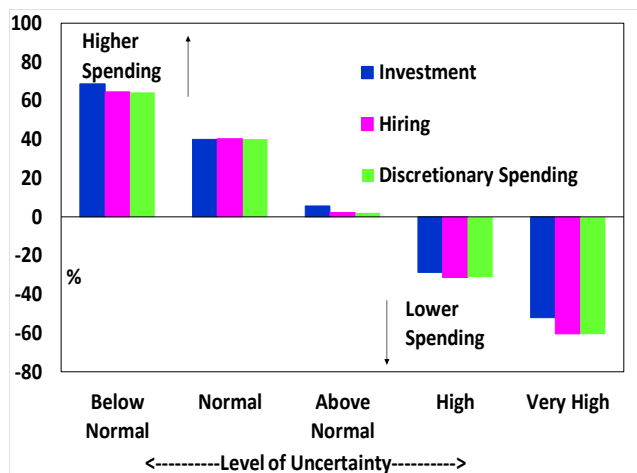
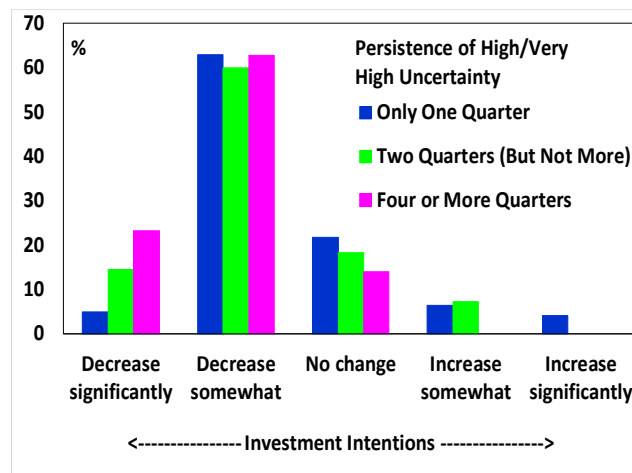


Figure 8. UK – Distribution of Firms' Investment Intentions, Split By Persistence of High/Very High Uncertainty



Note: In the left chart, the results are averaged over 2010-19. In the right chart, data are averaged since the start of 2018, the period in which persistently high uncertainty has been a feature. No firms that reported high/very high uncertainty for at least four consecutive quarters expected to increase investment. Sources: Deloitte CFO survey, Eikon from Refinitiv and Bank of England.

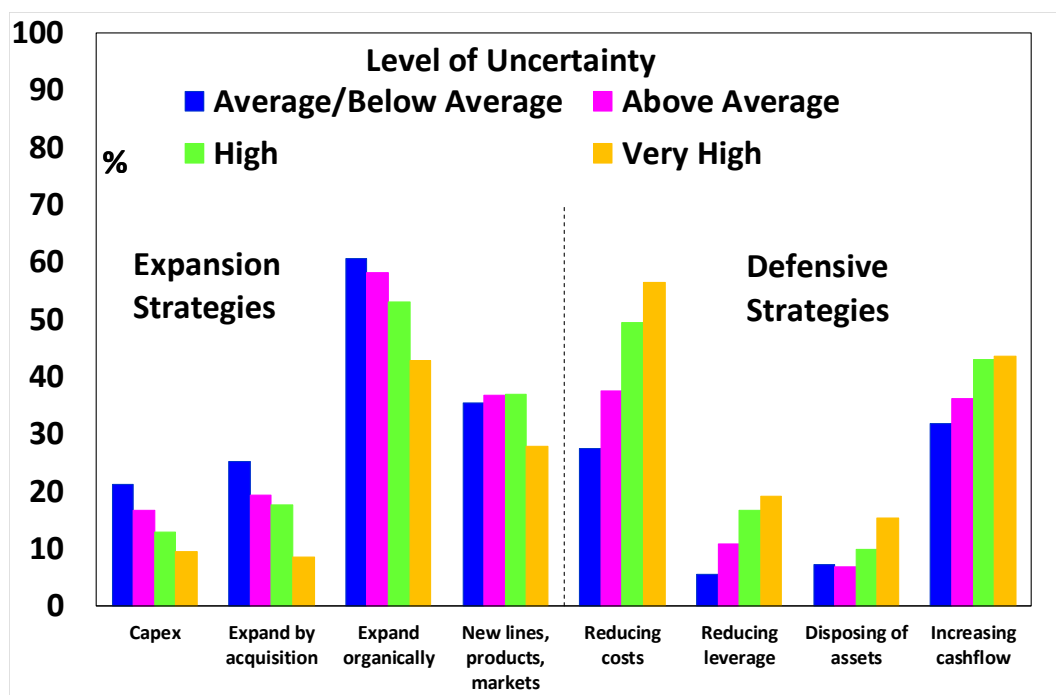
The link from high uncertainty to weak investment is also evident in the Deloitte CFO survey microdata, which shows that firms which report they face higher uncertainty tend to have markedly weaker investment

⁷ See Broadbent (2019).

⁸ See Bloom *et al.* (2019).

intentions than those reporting uncertainty is around or below average (see figure 7).⁹ Firms do not compensate for weaker investment by spending more in other areas. Rather, the Deloitte survey suggests that heightened uncertainty leads firms to hunker down and cut spending in a range of other areas, including employment and discretionary spending. In general, higher uncertainty causes firms to attach a much greater priority to defensive strategies such as reducing leverage, controlling costs, increasing cashflow and disposing of assets. As well as attaching a lower priority to investment, firms facing high or very high uncertainty also attach a lower priority to making acquisitions, launching new products and achieving organic growth. Innovation suffers (see figure 9).

Figure 9. UK – Pct of CFOs That Attach a ‘High Priority’ to Key Business Strategies, Split By Level of Uncertainty



Note: Results are averaged over 2010-19. Sources: Deloitte CFO survey and Bank of England.

With high uncertainty persisting, these effects are compounding. The adverse effects of high uncertainty in Q3 are reinforced by the fact that uncertainty was also high in Q2 and Q1. This is partly because some of the adverse effects of high uncertainty on investment come through with a lag. It is also because of an adverse feedback loop, whereby high uncertainty in one quarter weakens economic growth, which in turn hits investment (and hiring) in subsequent quarters.¹⁰ It is also possible that an extended period of high uncertainty has a cumulative scarring effect, because firms and households take the view that the UK will be permanently more prone to instability and uncertainty than they previously believed. Results from the Deloitte survey suggest that the share of firms that expect to cut investment ‘significantly’ is notably higher among firms that have reported ‘high’ or ‘very high’ uncertainty for at least four consecutive quarters than those

⁹ This holds for individual firms as well: a rise in the reported level of uncertainty tends to produce a significant deterioration in the same firm’s intentions for investment and hiring. See Saunders (2019).

¹⁰ There may also be adverse longer run effects through reduced innovation and R&D spending. See Bansal *et al.* (2019).

which have only reported it for a shorter period (see figure 8).¹¹ The same holds for hiring. This is perhaps analogous to the process whereby severe recessions and crises create a mood of risk aversion that often lingers well beyond the immediate period of difficulty, creating a higher level of precautionary saving (or a lower neutral interest rate).¹²

Moreover, for some firms – especially those with operations in more than one country – the logical response to persistently high uncertainty in the UK is to divert investment, supply chains and business relationships away from the UK to other countries. That spending may be permanently lost, rather than simply deferred.

The economy has slowed markedly

These adverse effects of high uncertainty are becoming clearer in UK macro data.

The economy has slowed markedly since early this year. As the MPC had warned, some activity data have been unusually volatile, reflecting various erratic factors including shifts in the timing of car factory shutdowns and large swings in inventories before and after the no-deal deadline at the end of March. However, taking the first half of the year as a whole, GDP growth averaged just 0.1-0.2% QoQ, down from an average of 0.4% QoQ in 2017-18 (see figure 10). Growth has been considerably weaker than the MPC expected, and indeed the softest half year since 2009.

Figure 10. UK, US and EA – Average QoQ Growth in Real GDP

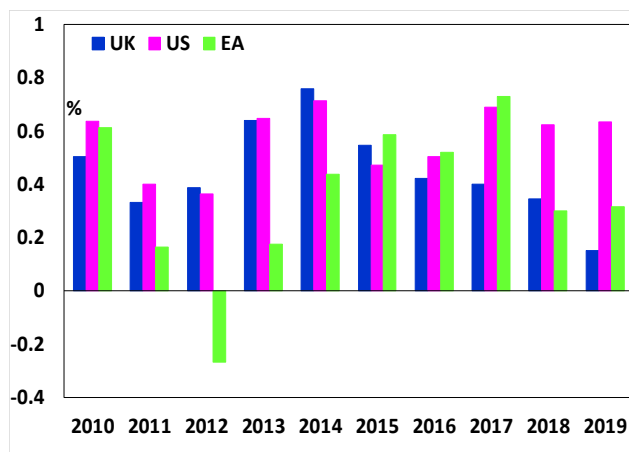
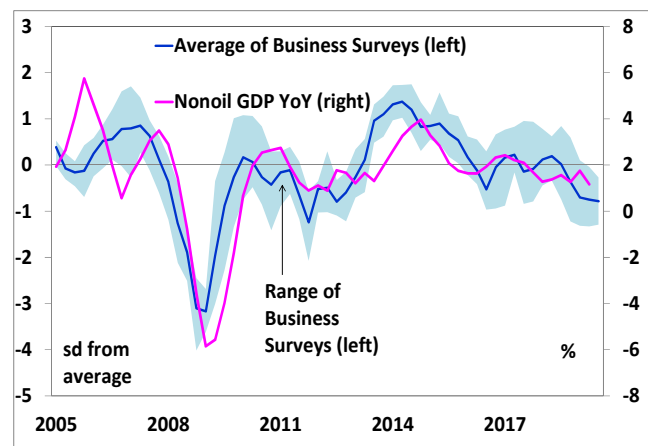


Figure 11. UK – Business Surveys and Real GDP Growth



Note: In the left chart, the figure for 2019 is the first half year. The right chart uses business survey results from the CIPS, EC, BCC, FSB, ICAEW, and BoE Agents. Sources: Eikon from Refinitiv, FSB, ICAEW, and Bank of England.

Upcoming activity data may well continue to be unusually volatile, but the available indicators point to a similarly sluggish pace of GDP growth in Q3. Moreover, business surveys suggest the economy's momentum continues to weaken (see figure 11).

¹¹ This effect is statistically significant; see details in the Appendix.

¹² See Bloom (2009), Haldane (2015), Vlieghe (2017), Albert and Gómez-Fernández (2018).

The slowdown partly reflects external factors, with exports hit by weaker growth in global GDP and world trade. But the UK slowdown cannot all be blamed on global influences. In particular, economic growth has slowed much more here than in the US and EA, even though the rise in global trade tensions has not led to any actual or threatened hikes in tariffs on UK exports.

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

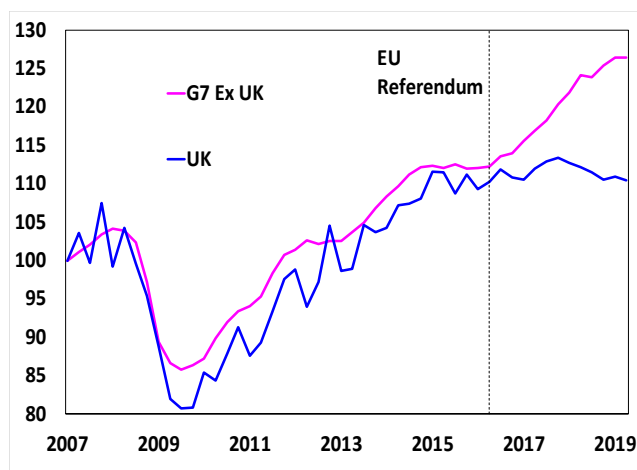
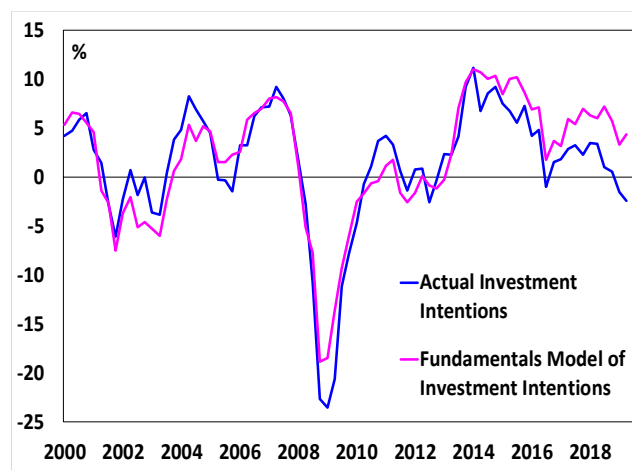


Figure 13. UK – Companies' Investment Intentions: Actual and Fitted Value Based on Fundamentals



Note: In the right chart, investment intentions are measured using the average of BCC, CBI and BoE Agents surveys, weighted across different sectors of the economy. The underlying survey measures are scaled to match the mean and variance of four-quarter business investment growth since 2000. Sources: Eikon from Refinitiv and Bank of England.

The biggest impact of heightened uncertainty has been on business investment, which has not risen at all since the Brexit vote, compared to an average gain of 13% among the other G7 countries (see figure 12). The trend in investment since Q2 2016 has been the weakest among the G7, and compares with double digit gains in the US, France, Germany, Italy and Japan. The shortfall in investment is also evident by comparing firms' reported investment intentions with the path that you would normally expect given other factors that drive investment. As shown in figure 13, from 2000 to 2015, investment intentions largely tracked a path determined by corporate profitability, the cost of capital, and survey measures of capacity use in firms. But since the Brexit vote, investment intentions have undershot markedly compared to these fundamentals. As a rough guide, this shortfall implies that business investment is now about 12% lower than it would be if investment intentions had followed these fundamentals in the three years since the EU referendum.¹³ There is no sign of catchup: indeed, investment intentions have recently weakened further.

Uncertainties over the UK's future trading relations and expectations that those trading relations will worsen also may be hitting export demand, by putting UK-based firms at a disadvantage compared to those whose

¹³ This estimate is based on the normal relation between the surveys of investment intentions and actual business investment, and uses the difference between the actual path of investment intentions and a counterfactual path based on trends in fundamentals that affect investment. The model is estimated over 2000Q1-2015Q4. This estimate is broadly consistent with that derived from the DMP data, which point to a shortfall of about 11% since the 2016 referendum, see Bloom *et al.* (2019).

future EU access is certain. UK export volumes outperformed versus import growth in the UK's trading partners in 2017 (helped by sterling's depreciation), but exports underperformed markedly in 2018, and continued to underperform in the first half of this year.¹⁴ The CBI's regular surveys suggest that service sector firms have reported worsening competitiveness in intra-EU markets for five consecutive quarters, the worst run since the survey began 16 years ago (see figure 14). I doubt if this reflects worsening price competitiveness: after all, sterling's exchange rate is relatively low. I suspect the issue is more of non-price competitiveness, with foreign customers looking to diversify long term relationships away from UK firms amidst Brexit uncertainties. In recent months, the share of service sector firms reporting that overseas competition is hindering exports has risen sharply. Similarly, the BoE agents have recently noted that some EU-based firms have been reshaping supply chains to exclude or limit the role of UK firms.¹⁵

Consumer spending has continued to grow steadily, but there are signs that consumers are being more cautious in their pattern of spending. Spending on non-discretionary items is rising by roughly 2% YoY, similar to the precrisis average. However, the growth of discretionary and semi-discretionary spending has slowed from around 3½% in 2016-17 to about 1½% YoY since early 2018, well below the precrisis pace (see figure 15). Similarly, housing activity is subdued, and this has fed through to weaker trends in housebuilding.

Figure 14. UK – Service Sector Export Competitiveness and Constraints from Foreign Competition

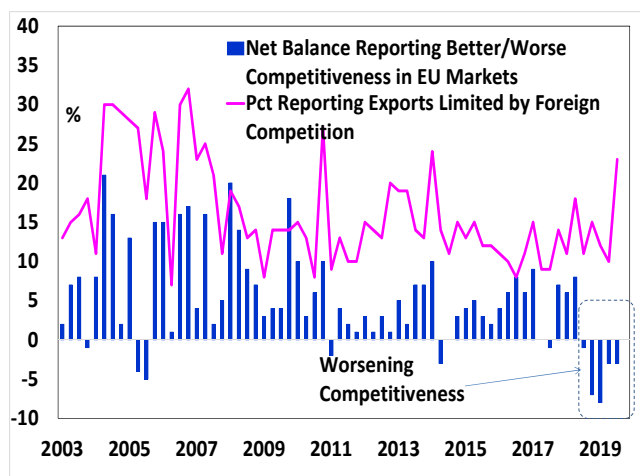
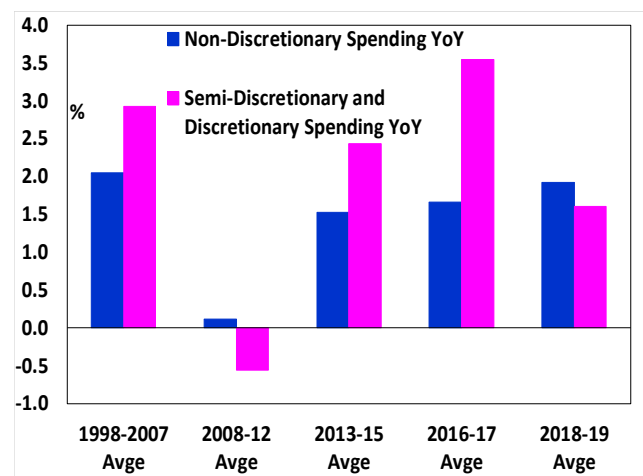


Figure 15. UK – Split of Consumer Spending Growth



Note: In the right chart, consumer spending is classified according to the definition in ONS (2012). The latest figure is the average for 2018Q1 to 2019Q1 inclusive. Sources: CBI, ONS and Bank of England.

By inhibiting investment and the reallocation of resources to more productive uses, Brexit uncertainties also may be contributing to weakness in productivity growth, which has been notably soft so far this year. Annual capital stock growth is now 0.5-0.6pp lower than it would have been had UK business investment risen in line

¹⁴ Trade-weighted import growth in the UK's trading partners is constructed by applying the weights from the BoE's broad ERI basket. The same point is also evident in the OECD's measure of export performance.

¹⁵ Consistent with this, the regular CBI/EC survey of UK manufacturing firms suggests that export orders have recently worsened sharply for manufacturers of intermediate goods.

with the average of other G7 countries since mid-2016. In addition, Brexit uncertainties have created an opportunity cost: for example, a considerable amount of management time has been taken up in dealing with Brexit contingency plans (see figure 16).¹⁶ This probably reduces the amount of time and resources that can be devoted to other more fruitful issues. This is an issue that often comes up in discussions with businesses.

The economy has not crashed. But the effect of Brexit uncertainties is perhaps akin to the economy developing a slow puncture such that growth has slowed to a mere crawl.

Figure 16. UK – How Much CFO Time (Per Week) Is Spent Preparing for Brexit

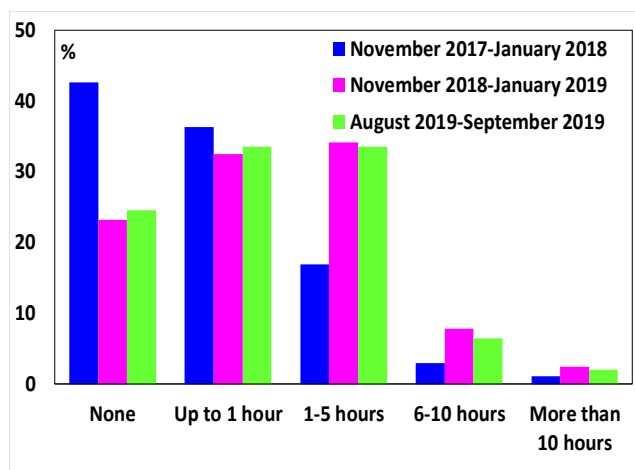
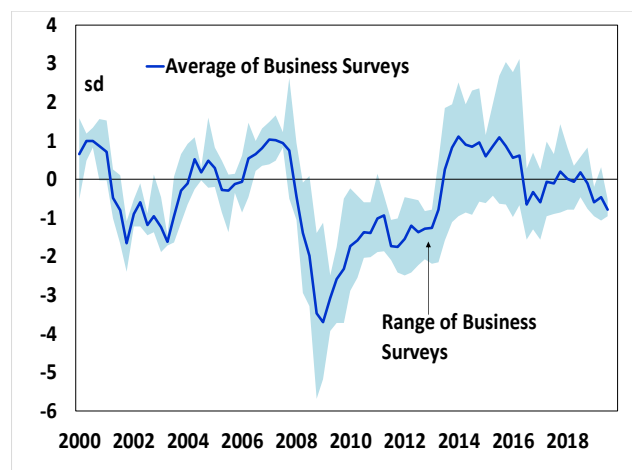


Figure 17. UK – Surveys of Capacity Use in Firms (standard deviations from 2000-07 average)



Note: In the left chart, the results are based on the question ‘On average, how many hours a week are the CEO and CFO of your business spending on preparing for Brexit at the moment? Please select one option for each for CEO and CFO: None; Up to 1 hour; 1 to 5 hours; 6 to 10 hours; More than 10 hours; Don’t know’. Don’t knows are excluded. All values are weighted. The right chart uses surveys from the CIPS, BCC, CBI and BoE Agents. Sources: Eikon from Refinitiv, ONS and Bank of England.

Estimates of potential growth are always slightly uncertain, but generally are around 0.3-0.4% QoQ (1¼%-1½% YoY). Even allowing for the possibility that potential growth might be a little lower (especially because of adverse effects of Brexit on productivity), the economy’s recent growth is probably below potential. As a result, capacity pressures are no longer increasing and may be starting to ease. To be sure, the jobless rate (3.8%) remains slightly below the MPC’s estimate of equilibrium (4¼%). But taken as a whole, business surveys suggest that capacity use in firms has fallen below average (see figure 17). In the August *Inflation Report*, the MPC estimated that the economy would have an output gap of roughly ¼% of GDP in Q3 this year. Since then, Q2 growth undershot expectations and Q3 growth also appears a bit weaker than expected. In my view, the economy now (end of Q3) probably has an output gap of perhaps ⅓% or ½% of GDP or so.

Moreover, there are clear signs that labour demand has softened. The number of job vacancies has fallen 6% since January, the sharpest drop since 2008-09. Quarterly employment growth has cooled from an

¹⁶ The DMP survey suggests that 75% of CFOs report spending some time on Brexit preparations (figures for CEOs are broadly similar).

average of roughly 100k (0.3%) during 2017 and 2018 to about 30k (0.1%) in the last six months. Indeed, the number of employees has fallen slightly in the last six months. All of the recent gain in jobs reflects self-employment, which is often relatively insensitive to swings in the economy.

The Outlook – Will Uncertainty Fall?

In the latest *Inflation Report*, published in early August, the MPC's central forecast was that the underlying pace of growth would remain soft in the near term amidst high uncertainty. Thereafter, the IR central forecast (based on the yield curve at the time) was for a return to above-trend growth from Q2 next year, with a strong recovery in business investment from late next year, so that two or three years ahead the economy would have substantial excess demand, with inflation above target and rising. In that event, some further monetary tightening – limited and gradual – probably would be needed to return inflation to target on a sustained basis.

However, it is important to stress that the prospective shift into excess demand in that central forecast relies heavily on two key inflexion points.

The first is that global growth stabilises near term and improves slightly from early next year. I think at the moment the jury is still out on this one, but risks are probably tilted to further disappointment.¹⁷ The volume of world trade has fallen for three consecutive quarters, global business surveys remain downbeat and business investment across the other major advanced economies is slowing. After several decades in which the trend was usually for more globalisation, the recent escalation in tariffs and trade tensions may lead firms to reassess whether the current model of highly integrated and globalised supply chains is optimal. These uncertainties are likely to lead to a mood of greater caution, perhaps akin to the effects of Brexit uncertainty on UK investment.

The second inflexion point is that the UK avoids a no-deal Brexit, with a smooth Brexit – in particular that any changes to the UK's trade arrangements occur in an orderly manner with a long transition – which leads to a substantial drop in uncertainty over the next year or two. I am doubtful on this as well. I am not going to give a running commentary on Brexit developments. But the assumption of a significant drop in uncertainty, and hence a forecast of a strong investment recovery, looks less plausible in my view.

As noted above, the behaviour of companies and households is now more consistent with a scenario of persistently high uncertainty. In the September Monetary Policy Summary, published last week, the MPC noted the possibility that political events could lead to a further period of entrenched uncertainty about the nature of, and the transition to, the UK's eventual future trading relationship with the EU.

In my view, it is not hard to see possible reasons why uncertainty might stay high.

¹⁷ See OECD (2019).

Even though a no-deal Brexit might appear to offer clarity, in practice it seems very probable that uncertainty would be higher rather than lower. A no-deal Brexit would produce an immediate economic shock and abrupt reshaping of the UK's economic landscape, with increases in trade and non-trade barriers affecting imports and exports. This would probably immediately leave some firms unprofitable. Others might face longer term questions about their viability, or whether they would be better off relocating – or prioritising new investment – elsewhere. And the UK's future trade relations with the EU and other countries would still be uncertain.

Uncertainty also may remain very high even if there is not a no-deal Brexit at end-October. There might, for example, be one or more further cliff edge extensions, each of which might end in a no-deal Brexit (and hence heightened uncertainty). Or, if there is a withdrawal agreement, uncertainty probably will remain high over the UK's future trade relations with the EU and other countries. Different possible outcomes for those trading arrangements could imply very different prospects for individual companies and sectors, but firms may not know what outcome to prepare for. The UK may face further cliff edges in the negotiation process.¹⁸

In my view, even without a no-deal Brexit, a scenario of persistently high uncertainty is probably the most likely outcome. That would probably imply continued weakness in business confidence and investment, with softer job growth that drags on consumer spending. As an illustration of such a scenario, I assume that the recent and expected nearterm weakness in business investment continues, while export growth undershoots the IR forecast slightly. This scenario allows for knock on effects to other components of demand, but without any monetary policy response beyond that priced into the yield curve.¹⁹ In this case, the level of real GDP three years ahead would be roughly 2½% below the IR base case (see figure 18). Some of this – roughly a third – would be reflected in lower potential output growth, because of lower capital stock growth.²⁰ The rest would be reflected in lower capacity use, such that the economy still has some spare capacity two years ahead, and CPI inflation remains a little below target three years ahead. Of course, this is just an illustration. There are many ways one could calibrate such an outlook. But the key point is that in such a scenario, the economic outlook would probably be considerably weaker than the central forecast in the August IR, albeit significantly less adverse than a no-deal Brexit.

¹⁸ The existing withdrawal agreement would create a transition period, intended to bridge the period between the date of EU exit and the entry into force of the new, yet to be negotiated, UK-EU partnership arrangements. The transition is scheduled to run until end-2020, with the possibility of extension for up to two years. That deadline is now only 15 months away, a relatively short period given that trade negotiations usually take some time to complete. On average it takes 1½ years to negotiate an FTA with the US, with a further two year transition period until the trade deal actually takes effect (see Freund and McDaniel (2016)). Related research by Moser and Rose (2012), looking at 88 regional trade agreements around the world, estimates that on average it takes about two years for trade deals to be agreed. Again, such agreements are typically followed by a lengthy transition period. The current withdrawal agreement states that a decision on extending the transition period must be taken by mid-2020, setting up a new possible cliff edge only 9 months from now.

¹⁹ The IR base case and alternative scenario both assume that Bank Rate follows the path implied by the yield curve prevailing at the time of the August IR, which included one 25bp cut in Bank Rate over the forecast period.

²⁰ The simulation is produced using COMPASS, the MPC's workhorse forecasting model. In the simulation, business investment is assumed to fall by -3¼% and -3½% in 2020 and 2021, compared to growth rates of -1½% and 5¼% in the August 2019 *Inflation Report*. Export growth is also assumed to slow a little more sharply than in the August forecast, falling to 1¼% and ¾% in 2020 and 2021, rather than 1¾% and 1¼%. Other components of demand respond endogenously. It also is possible that potential growth will be further reduced by extra management time foregone in contingency planning. The simulation does not allow for this.

Figure 18. UK – Scenario of Persistently High Uncertainty (Deviation from August 2019 IR Forecast)

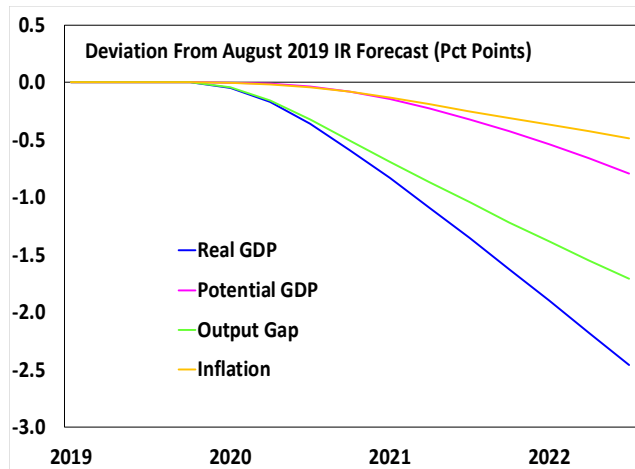
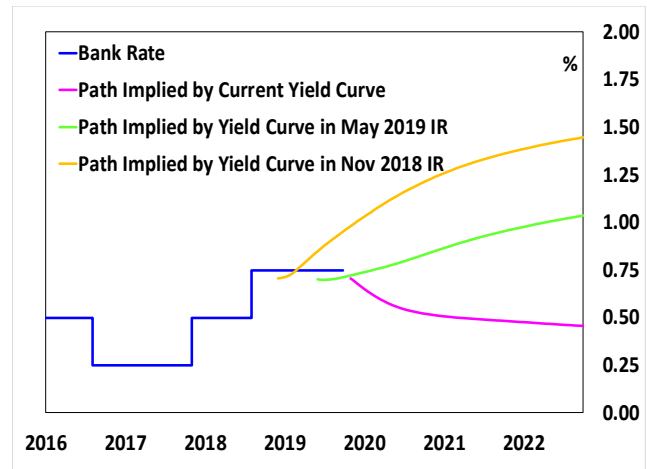


Figure 19. UK – Path of Bank Rate Implied By Market Yield Curves at Selected Dates



Note: In the right chart, the current, May 2019 and November 2018 curves are estimated using instantaneous forward overnight index swap rates in the 15 working days to 23 September 2019, 24 April 2019 and 24 October 2018, respectively. Sources: Bloomberg Finance L.P. and Bank of England.

Monetary Policy Outlook

There were, of course, uncertainties around Brexit in 2017 and 2018. However, in that period, Brexit uncertainties were having only a modest effect on UK growth, which generally ran a little above potential. With the output gap closing, the MPC tightened monetary policy in 2017 and 2018, moving towards a more neutral stance.

Since early this year, as evidence of weaker UK growth has come through, financial market interest rate expectations have fallen markedly. Market pricing now implies that Bank Rate is likely to be slightly below the current level two and three years ahead (see figure 19).

As the Committee has said, in the event of a no-deal Brexit, the appropriate policy response could go either way, depending in particular on the effects on supply, demand and the exchange rate.

If the UK avoids a no-deal Brexit, monetary policy also could go either way and I think it is quite plausible that the next move in Bank Rate would be down rather than up. One scenario is that Brexit uncertainty falls significantly and global growth recovers a bit, as in the IR base case. In this case, some further monetary tightening (limited and gradual) is likely to be needed over time. Another scenario, and this is perhaps more likely to me, is of prolonged high Brexit uncertainty (even without a no-deal Brexit actually occurring). In this case, it might well be appropriate to maintain a highly accommodative monetary policy stance for an extended period and perhaps to loosen policy at some stage, especially if global growth remains

disappointing. Of course, the monetary policy implications of either scenario would also depend on other factors, including in particular the exchange rate and fiscal policy.

For a monetary policymaker, an extra complexity is that it may well be unclear for some time which scenario is likely to unfold, especially if the choice is between the latter two: a scenario where uncertainty falls markedly or one in which (without a no-deal Brexit) uncertainty remains very high. A monetary policy stance that appears appropriate for one Brexit scenario may be inappropriate for another. However, this is not necessarily a recipe for policy inertia. In the current unusual circumstances, whereby Brexit developments might substantially alter the economic outlook, the cost of a monetary policy reversal is probably quite low. Conversely, an approach of deferring any change in interest rates until it is clear which Brexit scenario is unfolding may mean that we drift away from the appropriate policy stance and subsequently need to adjust rates rather abruptly. In general, I would prefer to be nimble, adjusting policy if it appears necessary to keep the economy on track, and accepting that it may be necessary to change course if the outlook changes significantly.

In steering through these uncertainties, the MPC will of course be guided by our remit and the aim of ensuring a sustainable return of inflation to the 2% target in a way that supports output and jobs.

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Appendix – Persistently high uncertainty

We investigate the link between the persistence of uncertainty and firms' investment and hiring decisions by estimating a simple linear regression model. We use the firm level responses to Deloitte's survey of Chief Financial Officers and Group Finance Directors of major companies in the UK, covering the period 2010Q3 to 2019Q2.²¹ This provides a panel of up to 400 firms (in anonymised form).

Using the survey's microdata, we can track how the level of uncertainty facing individual firms changes over time and how this affects their investment and hiring decisions for the next year. Specifically, we estimate a panel regression where capex (or hiring) intentions are a function of the level of external uncertainty a firm faces, controlling for firm-specific (fixed) and macroeconomic (GDP growth) effects. In addition, we include a dummy which is equal to one for a firm which experienced high/very high uncertainty for n consecutive quarters, or zero otherwise. In the illustrative example below we set $n = \{2, 3, 4\}$.

The results presented in Table 1 suggest that adding a dummy for high/very high uncertainty lasting for at least four consecutive quarters ('Persistence') is broadly equivalent to a one-unit deterioration in the uncertainty score and is statistically significant. In contrast, the lagged values of uncertainty matter only up to one quarter into the past. This suggests that persistence of high uncertainty operates partly via a threshold effect (akin to a different regime) rather than purely via its propagation over time. The results for uncertainty are robust to controlling for different measures of the cost of capital.

Table 1. Panel regression results

Sample: 2010Q3 2019Q2

Dependent variable	Capex	Capex	Capex	Capex	Capex	Hiring	Hiring	Hiring	Hiring	Hiring
Uncertainty	-0.28***	-0.26***	-0.23***	-0.25***	-0.26***	-0.28***	-0.27***	-0.26***	-0.28***	-0.30***
Uncertainty(-1)		-0.05*					-0.04**			
Persistence (n=2)			-0.19***					-0.11**		
Persistence (n=3)				-0.26***					-0.16***	
Persistence (n=4)					-0.34***					-0.20**
ΔGDP	0.57***	0.55***	0.57***	0.54***	0.52***	0.55***	0.54***	0.55***	0.54***	0.52***
Constant	2.77***	2.93***	2.65***	2.76***	2.81***	2.79***	2.93***	2.73***	2.81***	2.91***
Cross-section fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4119	3716	2808	2160	1729	4107	3705	2804	2159	1727
R ²	0.41	0.42	0.44	0.47	0.48	0.47	0.48	0.51	0.53	0.55

Note: asterisks denote significance at 10% (*), 5% (**) and 1% (***) level, using cluster-robust covariance estimators.

We also find that the negative effect of high uncertainty gets deeper as uncertainty persists from its initial shock (ie, as n increases). The effect peaks after around a year, though it still drags on both investment and hiring thereafter. Overall, our results suggest that the effects of uncertainty are greater if we take into account the persistence of uncertainty as well as its level in the latest quarter.

²¹ See Appendix 2 in Saunders (2019) for details on the methodology for coding the categorical responses into ordinal variables.