Monetary policy in the face of large shocks – speech by Silvana Tenreyro

Given at The Resolution Foundation and hosted jointly with the Society of Professional Economists, London

Speech

Good evening. Let me start by thanking the Resolution Foundation and the Society of Professional Economists for co-hosting this event.

This is my final public speech as an MPC member and I would like to take the opportunity to thank my current and former colleagues on the MPC and the Bank of England's staff. It has been a true privilege to serve on the committee and work with so many talented and dedicated people, indefatigably committed to public service.

This has not been a quiet six years on the MPC. Two once-in-a-generation shocks of extreme virulence have hit the economy in a space of less than three years: first the pandemic, and its various aftershocks; and then the war in Ukraine, and its effect on energy and other commodity prices. The economy has also faced changes in international trading relations, most importantly, the UK's exit from the EU, and between the US and China. And there have been several episodes of global and domestic financial volatility.

In my speech today, I will attempt to put the scale of these shocks into historical context. I will then ask what monetary policy can do to maintain credibility when faced with such large shocks, before touching on lessons for economic forecasting and communications.

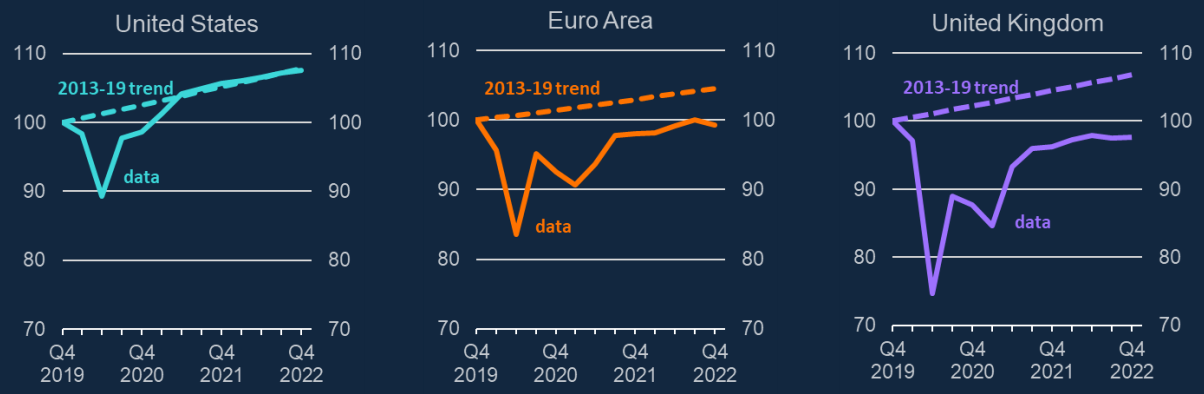
1. Once-in-a-generation shocks

Both of the enormous shocks that have affected the economy – the pandemic and the war – have been global in nature. The pandemic affected everyone, while the economic effects of the Ukraine war have also been widely felt, given the importance of energy and commodities to economic activity.

Despite being global shocks, their effects have differed markedly across countries. **Chart 1** shows the path for household consumption compared to its pre-pandemic trend in each of the UK, the US, and the euro area. In the US, consumption quickly recovered to around its pre-pandemic trend, whereas in the UK it remains some 9 percentage points below, with the euro area somewhere in between.

In **Tenreyro (2021a)** I highlighted how one of the key drivers of these differences was the different fiscal response across jurisdictions. In the UK and the euro area, fiscal policy largely aimed at preserving jobs and maintaining incomes. In the US, fiscal policy was a more widespread demand stimulus, increasing aggregate household income well above its pre-Covid trend. This large US demand stimulus, combined with rolling supply disruptions related to the pandemic, was also the driver for much of the rapid global increase in goods-price inflation from 2021, as I discussed in **Tenreyro (2021b)**.

Chart 1: Real household consumption

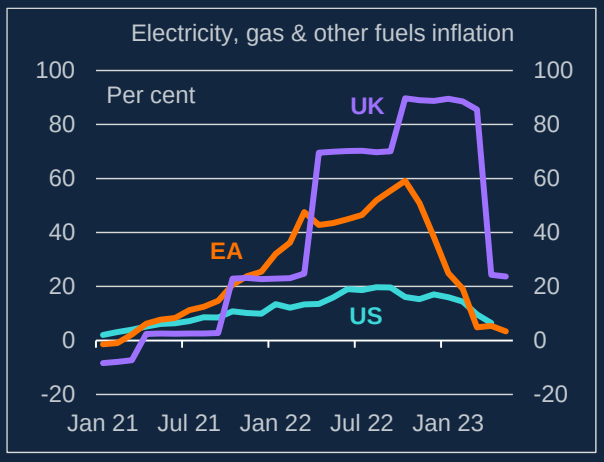


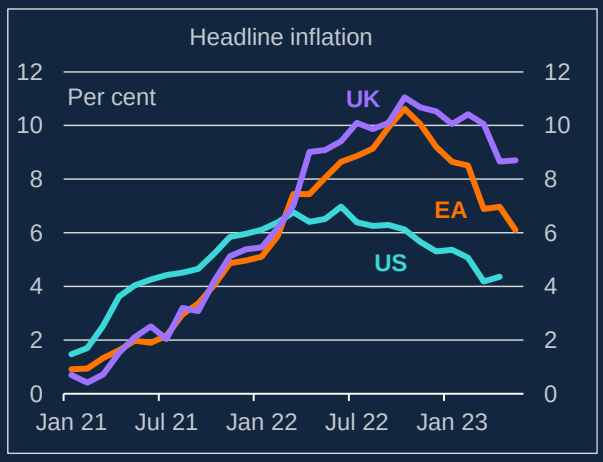
Notes: Indexed to 2019 Q4=100.
Sources: Bureau of Economic Analysis, Eurostat, Office for National Statistics and Bank calculations.

The other major cause of different outcomes was differences in the scale of the energy shock across regions. **Chart 2 (left panel)** shows that the increase in retail energy prices was far larger in the euro area and the UK – both net energy importers – than in the US, which was largely unaffected by the increase in European gas prices stemming from the war in Ukraine. This led to a larger reduction in real incomes in the UK and euro area, contributing to weaker consumption.

Differences in the size, as well as in the timing of the energy shock are also a primary reason for different inflation dynamics across regions (**Chart 2, right panel**). In the US, the cumulative increase in retail energy prices from the end of 2019 (implied by the inflation rates in **Chart 2**) peaked at less than 30%. In the euro area, it reached 80% at peak, though started to reverse quickly soon afterwards. In the UK, the figure was over 110%. And given the lagged nature of the Ofgem pricing mechanism in the UK, it only started reversing very recently – in April 2023.

Chart 2: Retail energy prices and inflation





Notes: CPI inflation for the UK and euro area; PCE inflation for the US.
Sources: Bureau of Economic Analysis, Eurostat, Office for National Statistics and Bank calculations.

Any assessment of cross-country inflation dynamics also needs to account for the relative impact of energy prices on measures of core or domestic inflation. Energy is directly or indirectly an input to all sectors, even in the services sector, as recently quantified in **Dhingra and Page (2023)**.[1] So while measures of core inflation or even core services inflation can be useful proxies for domestically generated inflation in some circumstances (see **Tenreyro, 2019a**), they have also been heavily influenced by the energy-price shock. Moreover, given some explicit or implicit wage indexation in the UK depends on measured rates of headline CPI or RPI inflation, there is likely to have been at least some impact on wage growth, irrespective of the tightness or otherwise of the labour market.[2]

These two large shocks have also been the source of the cost-of-living crisis. Higher energy prices reduced the real income of the UK, which is not something that monetary policy can offset. Even if we had known about the shocks in advance, then the best that monetary policy can do is choose, within the remit, whether the shock affects the economy through temporarily higher inflation, or instead through higher unemployment and lower nominal income growth. In either case, **real** incomes necessarily fall. Later in the speech, I examine whether, if the MPC could somehow have known about the war in Ukraine (and the energy shock) in advance, it could have achieved a better balance of inflation and unemployment, given its remit.

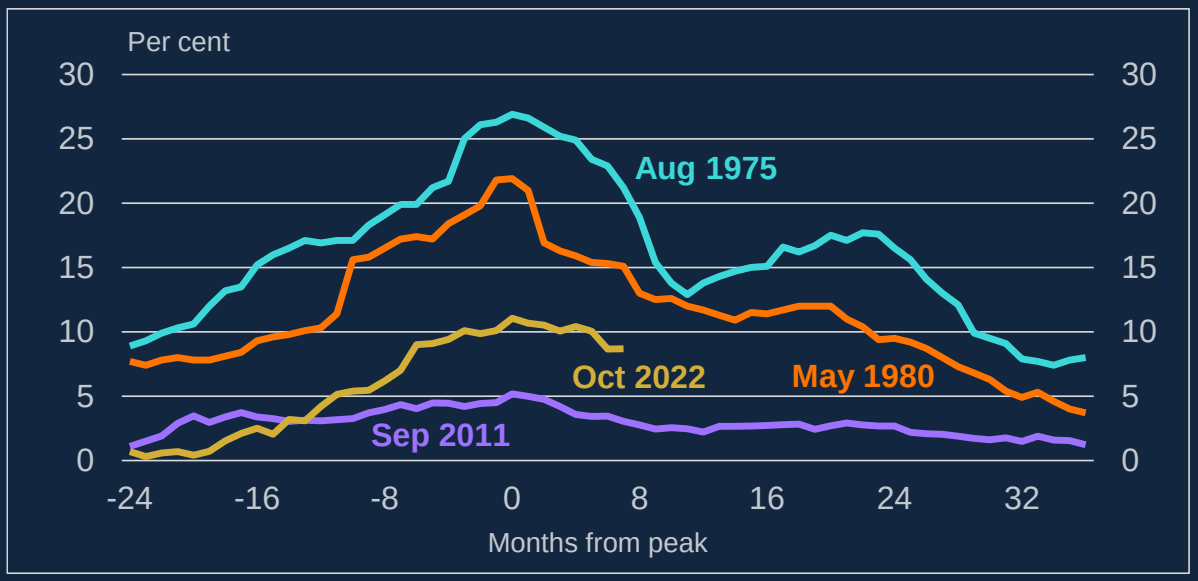
The MPC's remit also recognises that inflation will depart from target as a result of shocks. The remit is clear that while the MPC should always be aiming to bring inflation back to target, inflation should not always be at 2%. Indeed, in the face of large shocks, the remit

[1] See also **Dhingra (2023)**.
[2] In **Tenreyro (2022)** I discussed the role that a tight labour market played in determining the strength of second-round effects from the increase in energy prices.

explicitly states that the MPC should consider the speed with which it aims to bring inflation back to target, in order to avoid variability in output.

As well as comparing across regions, we can also compare the inflation increases with those in response to previous energy-price increases. The recent energy price increase has been larger than other episodes in the past 50 years, including those that hit the economy in the 1970s. Despite the larger shock, the rate of CPI inflation last year was well below the peaks UK inflation measures reached in the 1970s and early 1980s (**Chart 3**).

Chart 3: UK headline inflation during energy price increases



Notes: Dates refer to month of peak in inflation. Headline inflation measured as RPI inflation in 1975 and 1980; CPI inflation in 2011 and 2022.
Sources: Office for National Statistics and Bank calculations.

The lower peak in inflation in part reflects a better starting point: the 1970s energy shocks came after many years of steadily rising inflation. It could also signal a policy framework with greater credibility than in the past. But given the scale of the shocks we have seen, how should policymakers go about retaining credibility, and ensuring inflation does come back to target at an appropriate horizon?

2. Monetary policy credibility

For modern central bankers, credibility is sacrosanct. Not long after the Bank of England's independence, the economist and central banker **Alan Blinder, 2000** surveyed 84 central bank leaders, and the vast majority said credibility was 'of the upmost importance'.[3] If they had been given the option, some may have said it was even more important than that.

[3] 70 out of 84, with the other 14 saying it was 'quite important'.

This is because for inflation-targeting central banks, credibility is a fundamental asset. Credibility means that the central bank is trusted to do what it says it will do. In this case, trust that it will fulfil its inflation-targeting remit. Without that trust, individuals and businesses may come to expect inflation persistently above (or below) target, and arrange contracts that push their own prices and wages higher (or lower) in response. These expectations of inflation away from target risk turning into a self-fulfilling prophecy.

Ultimately, medium-term inflation is always within monetary policymakers' control. But greater credibility can make the inflation target less costly to achieve. With expectations anchored by a credible inflation-targeting framework, inflation is less volatile in response to shocks.[4] And following large inflationary shocks, such as those we have seen over the past few years, a smaller reduction in activity is needed to bring inflation back to target.[5]

If credibility is so important, how do we obtain it? And once we have it, how do we keep it? In the views of those 84 central bankers, some of the most important factors were an independent and transparent central bank, a history of fighting inflation and above all, a history of honesty: fulfilling promises and remits. The UK's monetary framework meets all of these criteria, with an independent Bank of England, and a Monetary Policy Committee accountable for a quantitative inflation-targeting remit given to it by government.

Monetary policy credibility in the UK therefore derives from the framework and the MPC's history of fulfilling its remit. But this description seems at odds with how many commentators discuss the concept. There are often suggestions that an interest rate decision at a particular meeting, or hawkish communications that sound tough on inflation are needed, to ensure or win back credibility.[6] Similarly, in the wake of the sharp increase in sterling risk premia after the September 2022 fiscal event, there was much commentary on the size of interest-rate increase needed to restore credibility, as measured by the value of sterling.

I do not believe that such shortcuts exist. Monetary credibility cannot be won (or lost) from one month to the next. We must earn it (and keep it) the hard way, through a long history of fulfilling the remit, and transparently explaining how we do so. In particular, the MPC should set policy to meet the inflation target in the medium-term. Sometimes that will require higher interest rates, and sometimes lower. But I do not see any trade-off between meeting the inflation target and ensuring credibility.

Restoring credibility after the 1970s

To illustrate the process, the natural case study economists turn to is the experience of regaining credibility in the 1980s. Starting in 1973, inflation in the US was above 5%

[4] See e.g. Erceg and Levin (2003), '**Imperfect credibility and inflation persistence**.'
[5] See e.g. Ball (1995), **'Disinflation with imperfect credibility'**.
[6] See e.g. **'The Bank of England's credibility is still on the line'**. in the *Financial Times* (22 June 2023).

almost continuously for nearly a decade, with a third of that period above 10%. In the UK the situation was even more difficult, with RPI inflation above 5% for almost 13 years, and in double digits for over half of this period. Inflation expectations soared, and by almost any metric, monetary policy had very little credibility.

The restoration of credibility has been studied particularly extensively in the US, where there was arguably a decisive victory over inflation at an earlier point.[7] (In the UK a longer-lasting improvement came after the adoption of inflation targeting in 1992.) In the US, under Federal Reserve Chair Paul Volcker, monetary policy was tightened sharply. This generated a recession, reduced inflation, and reduced longer-term interest rates (Volcker's preferred metric of policy credibility).[8]

The lesson from this period is not, however, that tight monetary policy or an interest-rate decision on a given month can restore or maintain credibility, in and of itself. Rather, Volcker restored monetary policy credibility and lowered inflation expectations by first reducing the rate of inflation. The chain of events is clear from the time pattern of the data, with a recession starting in 1981, followed by a fall in inflation in 1982. Finally, there was a reduction in longer-term interest rates, as the disinflation slowly helped build credibility, with a new history of relatively low inflation and a central banker fulfilling their promise.[9]

Even though it is itself an outcome of the framework and the history of its success in controlling inflation, credibility, or a lack of it, can also clearly affect that success. It is an input into the inflation outlook as well as an output of inflation control. As such, it is important to be able to measure it and its effect on inflation.

Anchored inflation expectations

In the theoretical wisdom I have sketched, and in central banking circles, credibility is typically seen as synonymous with anchored inflation expectations. So much so, that metrics of long-term inflation expectations derived from financial markets are often used as a measure of central bank credibility.

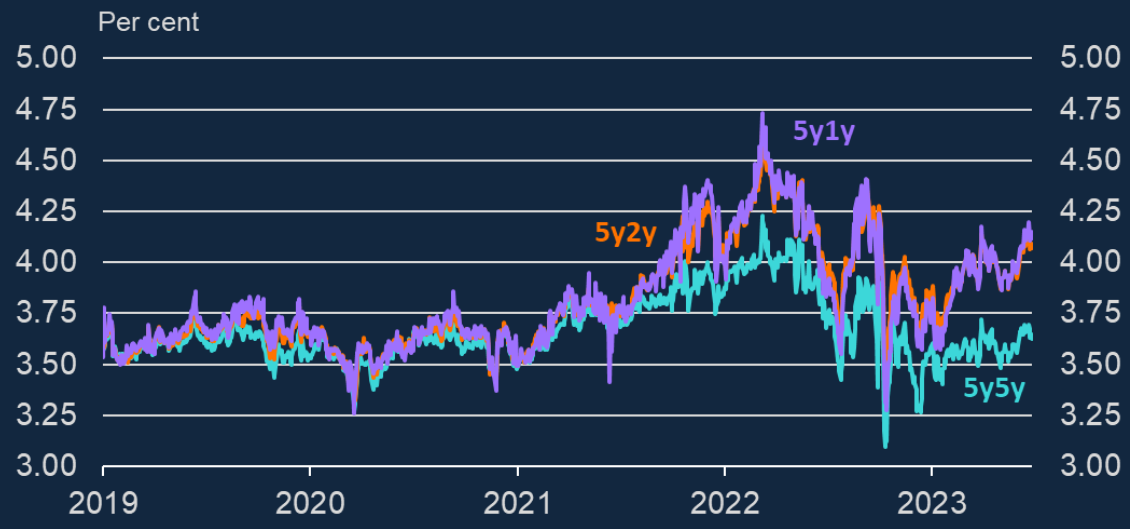
Financial-market measures have the advantage that they are derived from contracts that involve market participants putting significant sums of money on the line. Participants have every incentive to be well informed about the inflation outlook, which should be reflected in accurate expectations. Longer-term expectations, as proxied by the 2-year or 5-year

[7] 'According to Goodfriend and King (2005), **'The incredible Volcker disinflation'** was 'arguably the most widely discussed and visible macroeconomic event of the last 50 years of U.S. history'.
[8] See Goodfriend and King (2005), **'The incredible Volcker disinflation'**, and the FOMC transcripts quoted therein.
[9] The debate in general is a quantitative one: how much demand needs to slow down to compress price growth.

inflation swap rate, 5-years forward, can tell us what financial markets think will happen at a point when shocks have subsided, potentially giving a clearer read on anchoring.[10]

These measures, shown in **Chart 4**, also have some major disadvantages, however. At a practical level, they are measures of inflation compensation – not expectations. In the UK they reference RPI rather than CPI, with the wedge between the two inflation rates varying over time. The instruments can also be illiquid, and are heavily used for hedging pension liabilities. Both of these factors can lead to movements in compensation unrelated to expectations or risks of future CPI inflation.[11] Inflation compensation also includes risk premia, owing to future inflation risks. While inflation risks can be indicative of future policy actions (such as a greater willingness to tolerate inflation), they can also just be a reflection of the distribution of shocks hitting the economy.[12]

Chart 4: Financial-market measures of inflation compensation



Notes: Data to 27 June. 5y1y, 5y2y and 5y5y denote, respectively the one, two and five year swap rates, five years ahead.
Source: Bloomberg Finance L.P.

More fundamentally, as I set out in **Tenreyro (2019b)**, if we care about inflation expectations because they can feed back into inflation itself, it is far from clear that financial-market inflation expectations are the ones that matter. In the simple textbook models at the heart of monetary economists' intuition, there is one set of inflation expectations, which also accurately predict future inflation in the absence of shocks. In

[10] UK RPI is due to be aligned with CPIH from February 2030. Expectations of this change will now be affecting the five year swap rate, five years forward, but not yet the one or two year swap rates, which therefore provide a clearer read on recent movements.
[11] As discussed in **Vlieghe (2021)**, for example.
[12] There are models that estimate the CPI expectation components of financial market inflation compensation measures, but these are naturally imperfect for instance given risk premia are unobservable.

these models, controlling inflation expectations is sufficient to control inflation. In reality, expectations may differ across different households, firms, financial market participants and policymakers. To work out the appropriate policy response, we need to ask which expectations have changed. How will those changes influence actual inflation dynamics? And how can policy best offset any changes in a way that meets the MPC's remit?

On their own, changes in financial market inflation expectations are not likely to lead to self-fulfilling inflationary dynamics. Market participants have no role in firms' price-setting decisions, nor in their wage negotiations with workers. This is why the literature has moved to understanding inflation expectations of both firms and households (as more relevant for pricing decisions and wage negotiations). In a new paper (**Bandera, Barnes, Chavaz, Tenreyro and von dem Berge, 2023**) with Bank of England co-authors, we summarise the literature on the factors shaping inflation expectations, and in particular the role of monetary policy, and the effect of inflation expectations on inflation and activity. We conclude that despite their prominent role in economic models and policy debates, the understanding of the formation and economic impact of expectations in the literature remains limited. But we do draw some tentative conclusions, which I think have important implications for policy.

On the effect of monetary policy on household and firm expectations, empirically: identified monetary policy shocks have significant effects on inflation, but more limited (if any) direct effects on inflation expectations. There is even evidence that the effect on expectations often goes in the 'wrong' direction.[13] Instead, although household and firm inflation expectations tend to follow actual inflation, they are also often highly sensitive in the short run to volatile but salient components of the basket, such as the prices of energy and food, which are largely outside the control of monetary policy.

There is also mixed evidence on the impact of household and firm inflation expectations on activity and inflation. It is important to differentiate according to the type of shock: in response to a supply shock that increases household inflation expectations, spending tends to fall, rather than rise. For firms, developments in their own sector appear to be more important than aggregate inflation expectations. It is possible that the weakness of these channels in the UK stems in part from a recent history of low and stable inflation.[14]

[13] See e.g. Andre, Pizzinelli, Roth and Wohlfart (2022), **'Subjective Models of the Macroeconomy: Evidence From Experts and Representative Samples'**. When asked how higher interest rates will affect inflation, households and firms more often than not respond that they would increase price or cost inflation. See also Barrett and Adams (2022), **'Shocks to Inflation Expectations'** which suggests that households have a stagflationary view of the world.

[14] Werning (2022), **'Expectations and the Rate of Inflation'**, and Beaudry et al. (2022), **'Looking Through Supply Shocks versus Controlling Inflation Expectations: Understanding the Central Bank Dilemma',** offer a different take: future inflation expectations become less relevant in a high inflation environment. Instead, spot or past inflation, or 'level-k thinking' expectations (intra-temporal expectations of what others might do concurrently) are key.

The overall policy conclusion I draw from this evidence is that it would be unwise to attempt to use inflation expectations, or some other metric of perceived credibility, as an intermediate target of monetary policy. In simple models, there is a close relationship between expectations and actual future inflation outturns. In reality, the two objects can diverge – measured expectations will move in response to actual inflation and energy and food prices. So in the short-term, these expectations are affected by volatile shocks, but less so by monetary policy. When faced with a situation in which inflation is set to return to target, but expectations or perceptions of credibility have moved, there is no trade-off for monetary policy. The route back to full credibility and anchored inflation expectations involves bringing inflation back to target, responding to changes in expectations only to the extent they affect the medium-term inflation outlook.

This conclusion has historical echoes. In the UK and in the US, the policy tightening in response to the 1970s inflation was implemented in part via the adoption of money growth measures as intermediate targets. These monetary targets were themselves aimed at restoring policy credibility. But when money growth volatility left policymakers with a choice between meeting their intermediate targets, and their ultimate objective of controlling inflation, the money targets were abandoned, as low and stable inflation was deemed the ultimate path to credibility.

Monetary policy rules

Another commonly proposed way of ensuring credibility and keeping inflation expectations anchored is by following a monetary policy rule.[15] The best known of these rules is a Taylor rule, which in its most basic form, recommends that for each percentage point increase (or decrease) in inflation, interest rates should be raised (or cut) by more than one percentage point in response. In simple models, such a rule is sufficient to always bring inflation back to target after a shock. As a result, if a policymaker can promise to follow such a rule at all times, then inflation expectations should remain anchored.

Unfortunately, backward-looking rules or policies such as standard Taylor rules do a particularly bad job of stabilising inflation when there are lags in the transmission of monetary policy. I discussed in **Tenreyro (2022)** how there are many sources of these lags, with one particularly visible one being the effect of monetary policy on mortgage rates. With a high proportion of fixed-rate mortgages, the majority of the effect of the large and rapid policy tightening so far on mortgage rates has not yet occurred, as indeed is the case for the overall impact of monetary policy on inflation.

In the presence of policy lags, changing policy aggressively in response to past data can become destabilising, rather than stabilising. This is especially the case in response to shocks with large transitory components or following a succession of rate changes in one

[15] See e.g. Taylor (1992), **'Discretion versus Policy Rules in Practice'**.

direction, when it can lead to overtightening. By the time additional policy changes have their largest effects on inflation, either the shock has already reversed, or the cumulative impact of past policy has already brought inflation back to target. As a result, a backward-looking policy rule is likely to become highly suboptimal, and inconsistent with the remit. A policymaker who adopted one would be faced with a similar choice as under an intermediate policy target: to stick to the rule in the hope of retaining credibility, or to abandon it and set whatever (discretionary) policy was better able to meet the inflation target and fulfil the remit, ensuring long-run credibility.

The idea that monetary policy needs to be forward-looking is something that the MPC has stressed since its inception. In 1997, **Mervyn King**, then Chief Economist, set out that 'The guiding principle of monetary policy,' was 'to look ahead and act early'. And that the inflation target did 'not mean setting policy according to the current rate of inflation'. The then future Chief Economist, **Andy Haldane**, had described such a strategy colourfully as 'the monetary policy dog…chasing one's tail'. In the terminology of **Haldane (1998)** and **Svensson (1997)**, policymakers instead needed to do 'inflation forecast targeting'. Given lags between changes in monetary policy and their effects, a forecast becomes essential in setting appropriate policy.

To sum up, my view is that there are no shortcuts to obtaining credibility, nor, in the face of very large shocks, to maintaining it. As the MPC has always done, it must interpret all of the economic data, including different measures of inflation expectations, and judge what they imply for its inflation forecast. It can then set policy, in line with the remit, to ensure inflation settles at 2% in the medium term.

3. Forecasting and models

I have discussed so far how policymakers need to fulfil their remits to maintain credibility, and that given the presence of policy lags, they need to produce forecasts to meet their inflation targets. An additional risk, then, is that if those forecasts are not accurate enough, policymakers could mistakenly set policy in a way that led to suboptimal outcomes.

On the topic of forecasting, the Bank's Court recently commissioned a broad review into the Bank's forecasting and related processes during times of significant uncertainty. I would not try to anticipate what the conclusions of an extensive review might be. But as a soon-to-be outside observer of the MPC's forecasts, I will offer some reflections of my own, which may help inform some of the current external debate.

Forecasting

There are three areas where I have found that the nature of the MPC's forecast is not always well understood outside the Bank. First, the role of **forecast uncertainty**; second,

the difference between **short-term and medium-term forecasts**; and third, that the MPC only makes **conditional forecasts**.

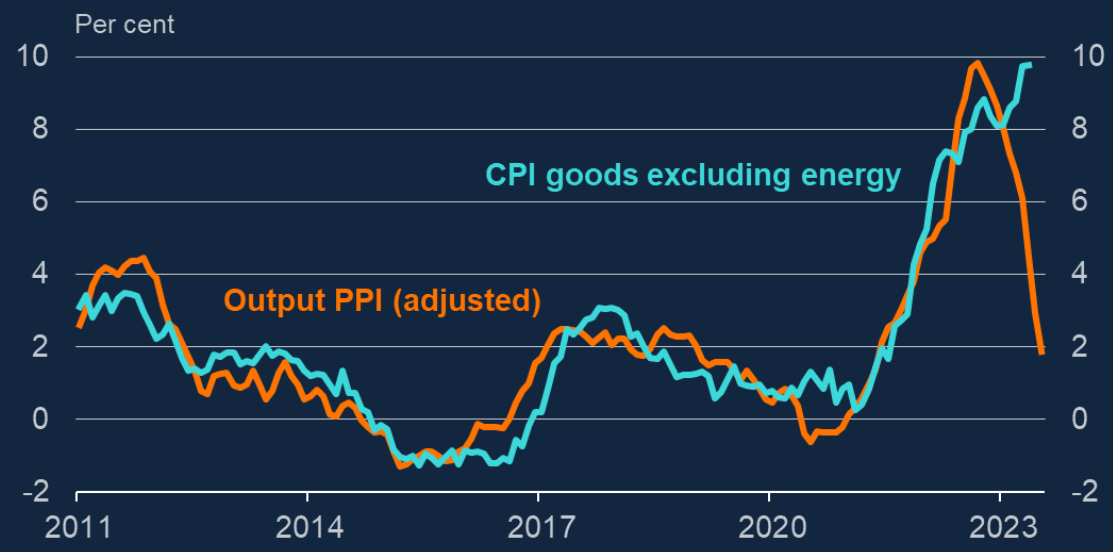
First, many discussions of the MPC's forecasts tend to ignore the ever-present role of **uncertainty**. In the mid-1990s, the Bank brought in the innovation of using fan charts, to highlight that the forecast was a probability distribution. There is uncertainty about the shocks that will arise, about the structure of the economy, and about how policy affects it. The modal (or mean) points of the forecast are important for policy decisions, because they represent the balance of risks. But with the fan chart the MPC is stating that it expects outturns to come in above them, on a symmetric forecast, 50% of the time. Thus, any comparison of outturns with forecast needs to compare (over a long period of time) to the fan chart distributions, not just point estimates such as the mode.

Second, on the type of forecast, the MPC uses different types of analysis, data and judgements when putting together its **short-term forecasts**: often for the next six months or so; and its **medium-term forecasts**, for one to three years ahead. Forecast misses at these different horizons would also have quite different implications for my policy votes.

It may not be surprising that these often depend on different factors. Because data are published with a lag, short-term forecasts are often for things that have already happened, or will do in the near future. Hence, there tend to be a host of other timelier data, including from surveys and from the Bank's Agents, which can give contemporaneous or near-contemporaneous information about likely data outturns.

When there are errors on short-term forecasts, they often come from data revisions, or from unpredictable data volatility, which contains little information about the future. As a result, errors on these short-term forecasts often do not have major implications for the appropriate stance of policy. Errors can also arise if usual statistical correlations between leading indicators and the data break down, as has occurred recently between the PPI output and CPI goods inflation data (**Chart 5**). Again, such discrepancies are often related to volatility, and less often to a persistent structural change in the relationships.

Chart 5: CPI goods (ex. energy) price inflation and producer price inflation



Notes: The PPI series has been mean and variance adjusted to match the CPI series.
Sources: Office for National Statistics and Bank calculations.

In contrast, the medium-term parts of the forecast depend more on the MPC's judgements on macroeconomic factors and behaviour. With fewer reliable leading indicators to go on, and more time for further shocks to arise, this horizon is more uncertain. But given the lags in policy transmission, it is the medium-term forecast that has been more relevant for my policy votes on the MPC.

Third, a crucial but often ignored feature of the MPC's forecast is that it is a **conditional forecast**. It is not a prediction of the absolute probabilities of different outturns occurring. Rather it is a forecast, or a scenario, of what might happen if the various conditioning assumptions came true. It should be interpreted and reported as answering the question 'if all of these conditioning assumptions were to come true, how does the MPC think the economy would evolve?' These include conditioning assumptions for asset prices, for government fiscal policy, and for energy prices. The biggest revisions in the MPC's inflation forecasts over the past 18 months have come from changes in the conditioning path for energy prices, rather than changes in the rest of the forecast.

In some cases – such as for asset prices – these conditioning assumptions are as good predictors of those variables as we have available. If the data turn out differently, then it is a sign that the news came from an unpredictable shock. In other cases – such as for fiscal policy – the conditioning assumption may not always be the best forecast for what is going to happen. By convention, the MPC always assumes that fiscal policy will follow the latest announced Government plans. But this need not constrain monetary policy decisions –

MPC members can always consider alternative assumptions that they deem more likely than the ones incorporated in our forecast.

These three aspects of the MPC's forecast – uncertainty, the role of nowcasting, and conditionality – are important to recognise when scrutinising forecast performance. It is to be expected that there will be differences between the data and point estimates obtained from the MPC's forecast fan charts. And forecast errors in short-term forecasts often point towards noise and volatility in the data. Importantly, changes in the conditioning assumptions do not represent forecast errors, since the purpose of the forecasts is not to try to predict how those conditioning variables will evolve.

Models

In one of my first speeches as an MPC member (**Tenreyro, 2018**), I discussed one important input into the MPC's forecasts and policy deliberations: economic models. The key point I made then is that although models are useful, the MPC's forecasts are based on *judgement*, rather than unthinkingly following some model output. This had always been the case, and continues to hold true today. There is no sense in which the models can lead the forecasts astray, since the MPC is free to make any forecast it wishes, independently of any of the assumptions or results in any of the models it consults.

This contrasted with some concerns about economic modelling, which focused on particular simplifications of specific models, and worries that these simplifications could mislead economists and policymakers. I explained how the way models were actually used in practice by the MPC (and other policymakers) should assuage such worries. As well as the overriding role of policymaker judgement in constructing any forecast, the MPC can draw on findings from a range of different models, both within the Bank and in the wider economics literature, depending on the question of interest.

I employed the oft-used analogy of models being like maps. Maps are extreme simplifications of reality, but can still be useful for finding our way, provided we look at the right map at the right time. Different MPC members will have different preferred models at different times – such diversity of opinions is one of the advantages of having a committee. Indeed, at any time, an infinite number of models could be constructed to be consistent with almost any forecast. The role of the MPC is to piece together different intuitions from different models, data, and its own experience, to decide on the best forecasts and policy decisions.

Ultimately, it is the MPC that decides on any forecasts (albeit with considerable help from Bank staff). This contrasts with some central banks where the staff produce forecasts independently of policymakers. Subject to my points about how to judge the success or otherwise of a forecast, any criticism of the forecasts should therefore be apportioned to us, the MPC members who decide on them.

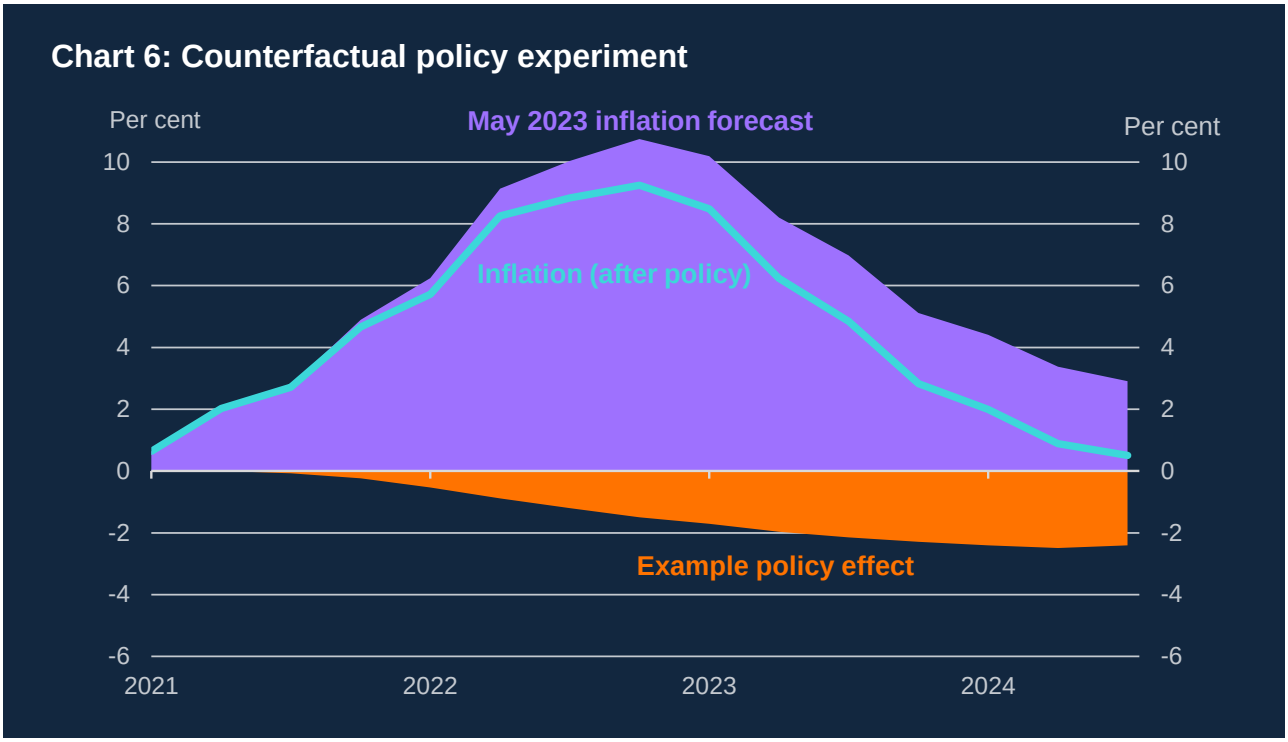
Although their importance for the MPC's forecasts is sometimes exaggerated, I discussed in 2018 other places where models are essential. In particular, we can use models to give quantitative estimates of different economic mechanisms, and to evaluate the effects of different policies. I have used models for these purposes recently, to learn whether counterfactual alternative monetary policy choices could have led to better outcomes over the recent period of very high inflation.

Alternative policies

Looking at policy simulations reveals that irrespective of any MPC forecasts over the past few years, it is questionable whether any realistic alternative monetary policy could have better fulfilled the remit. Using quantitative estimates is essential in any such discussion of policy, in order to allow a realistic assessment of its impact relative to other factors.

These simulations (**Chart 6**) ignore much of the preceding discussion on forecast uncertainty. They ask what the MPC could have done if, hypothetically, it had been able to perfectly predict future outcomes back in 2021, including the rise in energy and other commodity prices stemming from the war in Ukraine.

The purple shaded area in the chart shows CPI inflation up to Q1 this year, and the forecast beyond that, in our May MPR forecasts. The very steep profile of CPI inflation, with a rapid increase and a rapid fall, largely as energy-price increases reverse, is one reason why it would have been difficult for policy do anything materially different in line with the remit.



Notes: Policy effect calculated as the difference between market rate and constant rate inflation forecasts in the MPC's November 2022 Monetary Policy Report, linearly scaled to the size needed to bring inflation to 2% in 2024 Q1.
Sources: Bank of England and Bank calculations.

The orange area layers on a counterfactual, tighter monetary policy. Specifically, it shows a scenario where the MPC had raised rates far faster, starting in the fourth quarter of 2021, to reach almost 7% by 2022 Q2 and a peak of around 9½% this year. This also happens to yield slightly more cumulative tightening than would be recommended by a simple backward-looking Taylor rule of the type I discussed earlier.

The aqua line shows the counterfactual outcome for inflation. Despite raising interest rates far more, inflation still peaks close to double digits, at a little over 9%. The larger benefit would be next year, as the scenario is constructed so that inflation would come back to target at the start of 2024, rather than reaching close to 2% at the end of the year. But this would have had to be traded-off against the costs, in line with the MPC's remit. Unemployment would have needed to be around 4 percentage points higher to deliver this extra reduction in inflation. And crucially, given our obligation to meet the inflation target in the medium term, inflation would undershoot the target significantly later in 2024 and likely to enter deflation in 2025.

To summarise, even if everything, including the Ukraine war, had been perfectly predictable in advance, I judge that the increase in inflation we have seen would have been broadly as prescribed by the MPC's remit. The remit tells us to focus on the medium-term inflation outlook, trading off inflation misses with real activity in the short run.

4. Central bank communications

While always setting policy to best fulfil its remit, the MPC can also ensure trust and credibility by being open and transparent, and explaining its actions to the public. The Bank of England has long been at the forefront of transparent communication, initially through publication of quarterly Monetary Policy Reports (previously Inflation Reports). It has subsequently continued to take steps to enhance transparency, including publication of further details about its forecasts and publishing minutes of MPC meetings alongside votes.

The Bank has also improved the communication of MPC decisions in myriad ways over my time on the committee. There have been improvements in the readability and accessibility of flagship publications such as the Monetary Policy Report and the MPC minutes. There has been a move towards layered communications at different levels of complexity for different audiences. And there are now many additional fora for both speaking to and listening to the views of both expert economists and the wider public.

We should always be striving to seek further improvements in transparency and communications, however. Looking back on my own public communications, both individually and collectively with the committee, it is worth reflecting on what I have learned or where more could be done. There are three areas where I have come to think, speculatively, that there could be beneficial improvements.

First, there may be scope for the MPC to redouble its efforts to explain the remit and the UK's flexible-inflation targeting framework. This was naturally a focus of much MPC communication shortly after the committee was formed.[16] Various speeches and papers explained the flexibility inherent in the inflation target; its forward-looking nature; the role of transmission lags; and trade-offs between the variability of inflation and the variability of output. We should not take for granted that this understanding of the framework will continue to remain present in people's minds, a quarter of a century on.

Second, it may be useful to continue using multiple scenarios to explain policy decisions, in turn de-emphasising central forecasts. This could help especially when there is large uncertainty over conditioning assumptions, as the MPC has found over the past few years. As discussed in **Broadbent (2022)**, conditional statements and reasoning can often be misconstrued. So using more scenarios may help alleviate those difficulties, avoiding conditional forecasts being understood as unconditional ones.

Third and finally, I have come to think that the advantages of MPC members publishing their own views (or paths) on future policy outweigh the potential costs.[17] For example, I

[16] See e.g. **King (1997)**, **George (1999)**, **Bean (2003)**.
[17] This could be done in speeches, not necessarily alongside the publication of the MPC's forecast.

judged it helpful to publish my preferred future path for interest rates in **Tenreyro (2022)**. As well as being transparent about my aims, expectations of future policy affect fixed-rate interest rates charged and paid to borrowers and savers today, and hence determine part of our current monetary stance. And there have been times when I have judged attempting to influence future interest rates would be a more effective way to achieve a given stance than changing Bank Rate. There are risks: policymakers' views on future rates will change, and it is possible that expectations are misinterpreted as promises. MPC members are also individually accountable for their policy votes, which would make it more difficult for the MPC to publish a collective view on future policy. Any moves towards this type of guidance would certainly place a premium on effective communication.

5. Conclusion

The UK's inflation targeting framework heralded a period of greater macroeconomic stability in the UK. However, the enormous shocks that have affected the economy over the past three years are the largest test the framework has faced. I have argued today that the MPC should respond to those shocks in the way it always has: interpreting the data through the lens of forward-looking forecasts; setting policy to return inflation to the 2% target in the medium term; and transparently explaining how it is doing so.

With that forward-looking framework in mind, my vote to leave Bank Rate unchanged at my final policy meeting rested on what the latest data implied about the medium term. It also required looking ahead to assess whether the large cumulative amount of tightening in train was sufficient to bring inflation back to target.

There had been some unexpected strength in recent inflation and wage growth data. Private-sector pay, which had been growing more slowly on high-frequency measures for several months, had accelerated. There had also been some stronger outturns for core-goods inflation. But translating those data into their implications for medium term inflationary pressures requires forming forecasts about how they will evolve.

Forward-looking indicators had pointed towards falls in both pay growth and core-goods inflation over the rest of the year. There had also been an increase in services inflation, although that had been driven by components that held relatively little signal for future inflationary pressures. Overall, although some of the news was likely to unwind, the data could also be consistent with a slightly slower decline in domestic inflationary pressures. In time, however, the continued reversal of the energy and other cost-push shocks would weigh on goods inflation and, with a lag, on wage growth and services inflation.

Added to this, recent outturns had been determined by a significantly less restrictive stance of policy than we now had in place. There had been rapid successive Bank Rate increases over a period of several months, which would take some time to exert additional

downward pressure on activity and inflation. More recently, there had also been a sharp increase in interest rates at longer horizons – the disinflationary impact of this would be more than sufficient to offset the recent data news, even in the unlikely event that all of that news proved to be persistent. Overall, I therefore judged that the tightening already in the pipeline would be sufficient to bring inflation back to, and most likely below, the target.

This has been an uncertain time for the economy, and setting policy in such circumstances is challenging. But I have no doubt that the Bank of England and the MPC will continue doing their best for the people of the United Kingdom, whatever challenges lie ahead.

I would like to thank Michael McLeay and Lukas von dem Berge for their help producing this speech and for advice and support over the years. I am also grateful to Andrew Bailey, Nicolò Bandera, Lauren Barnes, Natalie Burr, Matthieu Chavaz, Swati Dhingra, Richard Harrison, Jonathan Haskel and Huw Pill for helpful comments and contributions. The views are my own and do not necessarily represent those of the Bank of England or its committees.