Turning Points and Monetary Policy Strategy - speech by Catherine L. Mann

Given at the Lámfalussy Lectures Conference in Budapest, Hungary

06 February 2023

Speech

1. Introduction

Over the last week or so, many advanced economy central banks increased their policy rates. The Federal Reserve increased by 25 basis points, the European Central Bank and the Bank of England by 50, although the Bank of Canada signalled a pause and the Bank of Japan maintained its updated yield curve control target. It seems that at least some central bankers are seeing a turning point in data to which they are responding with an inflection in their respective policy paths. Recent market chatter has focused on when central banks will stop hiking and if they will reverse, with fears torn between the risks of overtightening and stopping too soon. What has everyone been looking for and what have they seen?

It is worthwhile even to consider what we mean by a turning point. In general, it reflects data that reveal transition points between phases of a business cycle. This can help guide monetary policy makers with the calibration of future policy. It is difficult, though, to identify a cyclical turning point in real time, even more so to foresee one ahead of time so that policies (and portfolios) can be adapted to the future path of the macroeconomy. Harbingers of macroeconomic turning points may occur at different points in time in different parts of the macroeconomy, and in different regions across the world, even when hit by a common global shock. Moreover, what represents a turning point in the data which would lead to a re-assessment of policy is related to the mandate of the central bank. Calibrating policy to affect inflation is key for all, but some have to be equally mindful of how policy affects other metrics of macroeconomic performance, for example employment.

One approach to identifying turning points puts substantial weight on forecasts from large macroeconomic models, because these take account of the complex inter-relationships among economic variables and policy. One must be humble about the stability of the relationships, for example of inflation dynamics and the monetary policy transmission mechanism, that underlie predicted turning points and macro outcomes. Adding to these uncertainties are policy spillovers. For example, as a UK monetary policy maker, I am mindful of other central banks decisions, as reflected in their assessment of their turning points, and their impact on the UK economic situation.

All this adds up to acknowledging that macro data and forecasts need to be complemented by a range of more granular data and higher frequency assessments of what data presage the turning points in the inflation process that represents, according to our remit, a sustainable return to the 2% target. Putting too much trust in simple, linear, historically estimated macro-relationships risks making a policy mistake when uncertainty is high (Mann, 2022a). My reading of the more granular data and likely asymmetries in the

inflation process has led me to vote for a more robust monetary policy path that stays the course because inflation dynamics have not yet been quelled.

Today, I'd like to put more structure on how I think about these turning points, mostly by using the UK as an example, but also with some views across regions and through the lens of different channels of the monetary policy transmission mechanism.
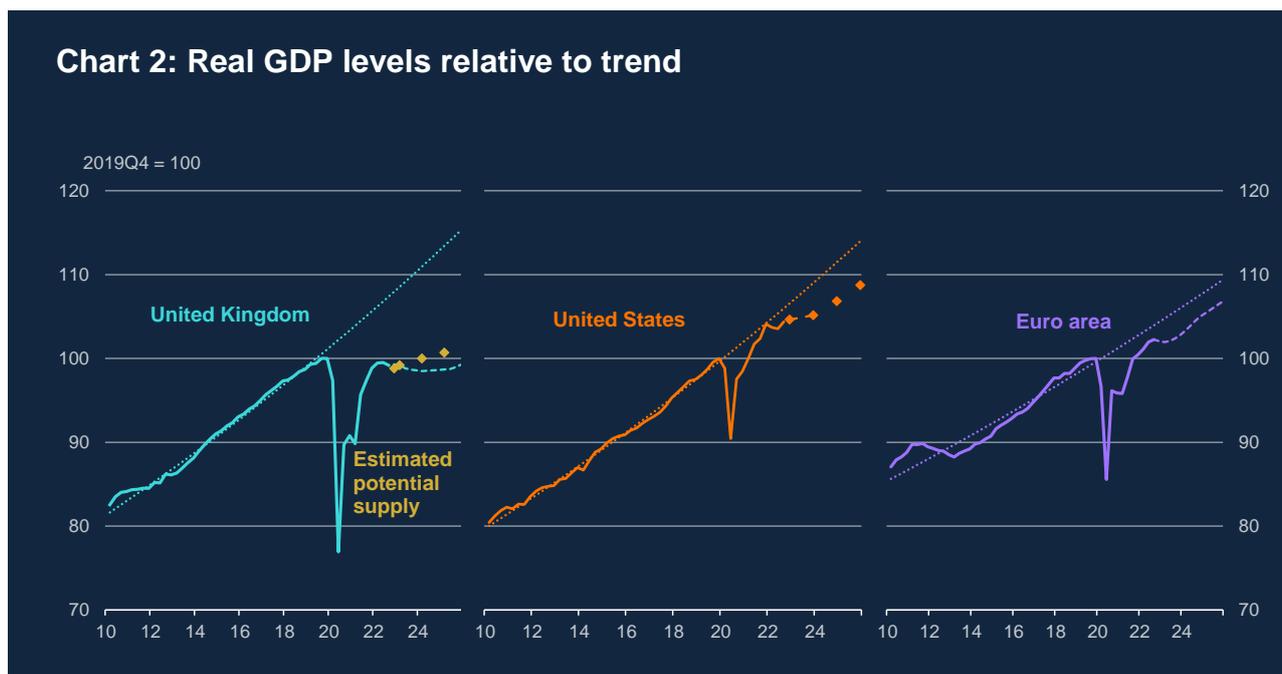
2. Current conjuncture

To start, let's look at the macro top-line: headline inflation in **Chart 1**. Is there a turning point already visible in the data? For the US and the euro area, yes; for the UK, maybe stabilization. Considering just the UK, is stabilization of headline inflation the signal that we are done? Or do we need to wait longer, including for other parts of the economy to turn, before a policy pause or reversal is appropriate? A closer inspection of the chart shows that inflation components particularly exposed to external drivers are not all moderating. Energy prices are capped for now, and goods prices are decelerating, but food prices continue to surge, increasing to 16.8% in December, at a 45-year high. Services inflation posted at 6.8%, a 30-year high; and it has been at or over 6% for 5 consecutive months. Depending on the set of underlying inflation contributors one might look at, one could come to different conclusions, and possibly identify multiple turning points. The stabilization of headline inflation, therefore, is not yet the harbinger of a turning point towards a sustainable return to the 2% target.

Chart 1: Contributions to annual consumer price inflation
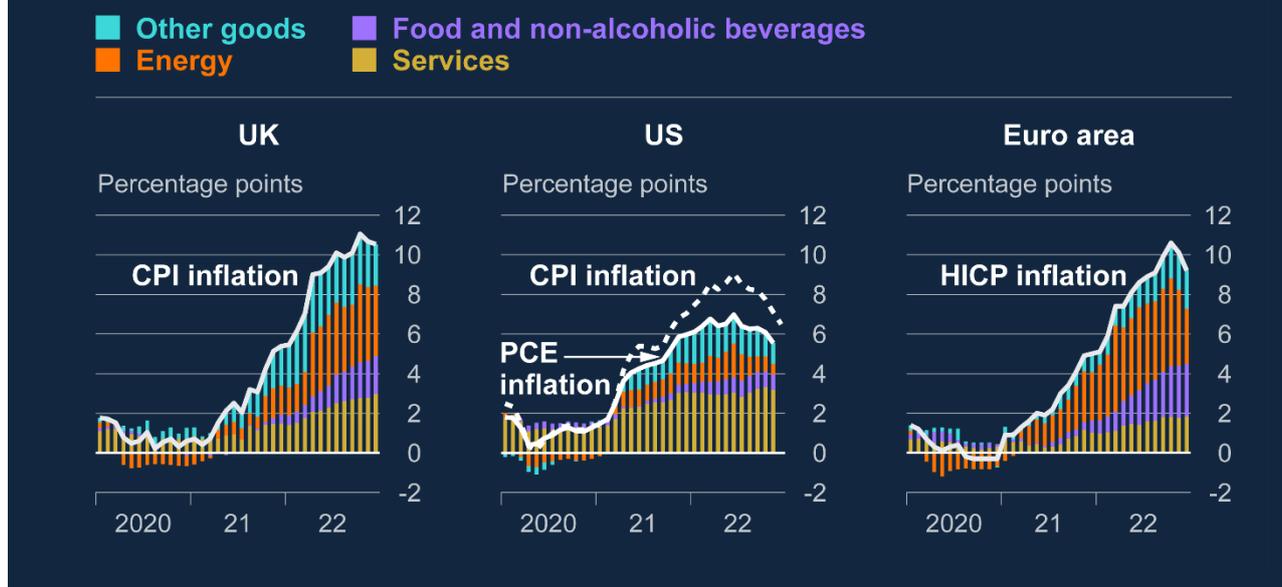
Source: Eurostat, ONS, Refinitiv Eikon from LSEG, US Bureau of Economic Analysis, US Bureau of Labor Statistics and Bank calculations. Notes: Energy includes fuel and household energy bills. Other goods is the difference between overall inflation and the other contributions identified on the chart, and therefore includes alcohol and tobacco. The latest data are December 2022 outturns for UK, euro area, and US CPI, and November for US PCE.

But maybe a turning point could be in the offing? A simple view of the inflation process is that inflation comes from 'too much demand relative to supply' (frequently termed as the output gap). Based on this simple assessment, **Chart 2** shows the demand side, and thereby sheds more light on the recent inflation behaviour of the three regions. UK GDP was about at target over the pre-Covid period 2010-19, when GDP was about on trend - so supply equalled demand. Now, the UK's demand condition is notable in failing to return to the pre-Covid level of GDP, much less approach its pre-Covid trend. Yet, inflation is stubbornly high in the UK.

Chart 2: Real GDP levels relative to trend

2019Q4 = 100

United Kingdom

Estimated potential supply

United States

Euro area

Source: Bank of England, ONS, Board of Governors of the Federal Reserve System, US Bureau of Economic Analysis, Eurostat, European Central Bank and Bank calculations. Notes: United States and Euro area forecasts shows implied levels from their respective growth rate forecasts published in December 2022. US forecasts show the midpoint estimate. Dotted lines show the pre-Covid (2010-2019) trend. Dashed lines for the UK and Euro area and diamonds for the United States represent forecasts. Golden diamonds on the United Kingdom represent estimated potential supply from the February 2023 *MPR* forecast. Latest observation: 2022 Q3 (realised data), 2025 Q4 (forecasts).

All three regions faced a sequence of shocks to both demand and supply - first, the Covid and lockdown-induced global demand rotation and subsequent supply bottlenecks yielded high goods prices, chip shortages, and output problems around the world. Before the economy had a chance to return to equilibrium, the energy shock caused by Russia's invasion of Ukraine raised gas prices globally, but because of more fragmented markets, had implications far more dire for the euro area and UK. However, the UK has also been affected by a third type of shock which makes it unique: no other country chose to unilaterally impose trade barriers on its closest trading partners (Freeman et al., 2022).

Focusing on just the supply side now, the trend in potential supply has shifted down according to the most recent supply stocktake reviewed in last Thursday's Bank of England Monetary Policy Report.[1] It appears that increases in early retirement and long-term illness have reduced labor supply and Brexit has reduced trade and investment

[1] See the **Monetary Policy Report – February 2023**.

efficiencies. Supply weakness can be an important ingredient in the search for turning points in inflation, even if demand is weak as well.

3. Real-time indicators of macroeconomic turning points

First, turning to the labour market to look for turning points, rising unemployment is an ex-post indicator of the business cycle, not a harbinger. But early warning of turning points in the labor market can presage a turning point in wage growth, which might herald a turning point in the rate of price inflation.

The ratio of the number of vacancies to the number of unemployed (also known as the V/U ratio), is a leading indicator and summary statistic of labor market tightness. **Chart 3** shows that while the ratio has fallen in recent months, it remains at record highs, driven both by high vacancy levels and low unemployment rates in the UK. This is a unique combination historically in the UK labor market, which highlights why current labor market conditions don't resemble the behaviour after previous supply shocks such as the 1970s. Typically, the V/U ratio is strongly pro-cyclical, so this ratio should fall in recessions and rise in booms. But the step-change in the level of the ratio post-Covid means it is hard to read how far we should expect the ratio to fall in advance of a possible future recession.[2]

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[2] For a recent discussion of the V/U ratio in the US context, see Figura and Waller (2022).

Chart 3: Ratio of vacancies to the number of unemployed

Ratio

United States

United Kingdom

Germany
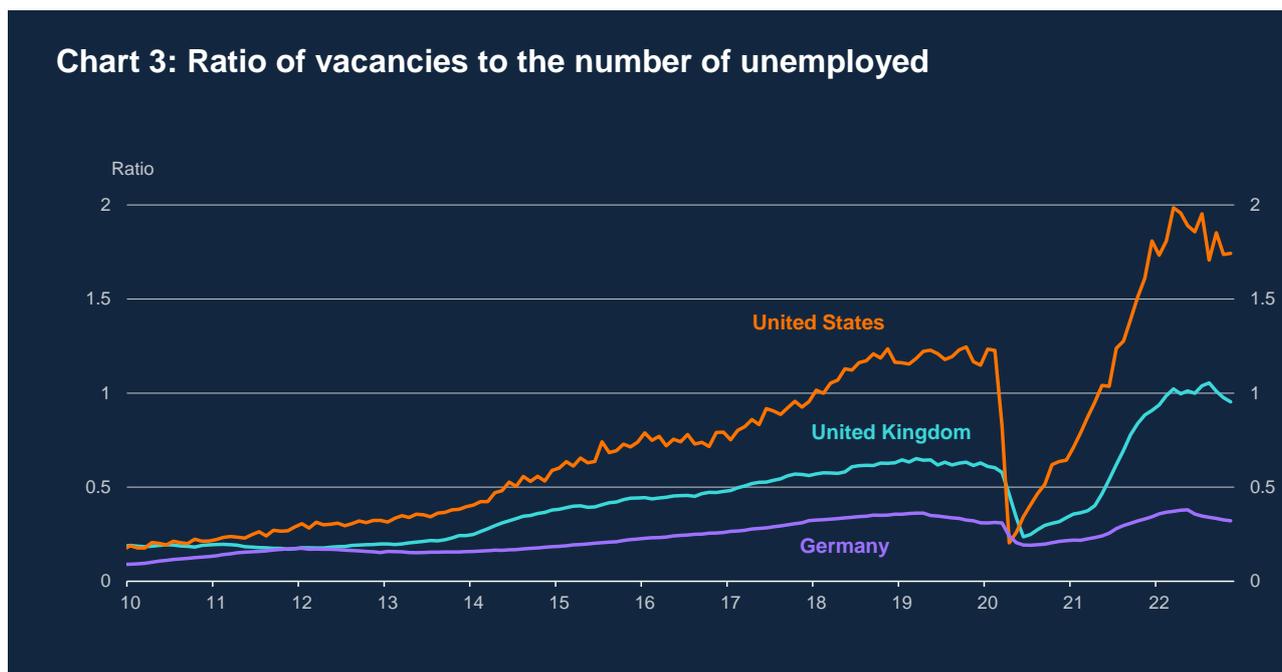
Source: ONS, OECD, US Bureau of Labor Statistics and Bank calculations. Latest observation: November 2022.

The V/U ratio may not be as good a bellwether for a coming recession, but may be useful when thinking about wage inflation. If there is a mismatch between UK labour demand and supply, in part driven by the structural changes in the labour market that Covid and lockdowns brought about, and in part due to the rapid rise in production costs for firms resulting from Russia's invasion of Ukraine, then wage growth could stay stronger for longer, presenting upside risk to inflation.

But the labor market is just one source of information on turning points. The OECD's Composite Leading Indicator (**Chart 4**) provides a qualitative assessment of early signals of turning points in business cycles drawing on a vast amount of underlying data.[3] A fall below the long term average indicates a negative deviation from trend, and thus warns of recession. At the moment, the UK indicator is quite a notable outlier compared to either Germany or the US in indicating a large, negative deviation from long-term average.

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[3] See the **OECD Short-Term Indicators Dashboard**. OECD CLIs are constructed from economic time series that have similar cyclical fluctuations to those of the business cycle, but, and importantly, which precede those of the business cycle. They contain a selected subset of the MEI database, which covers macroeconomic indicators for the following major subject areas: (1) GDP and its components and industrial production, (2) selected commodity output variables (crude steel, crude petroleum etc.), (3) business and consumer tendency survey series, (4) selected manufacturing variables (deliveries, stocks, new orders etc.), (5) Construction, (6) domestic trade, (7) labor market series, (8) consumer and producer prices, (9) money aggregates, (10) interest rates, (11) financial variables, (12) exchange rates, (13) international trade and (14) balance of payments data.

Past data indicates reasonable accuracy in front-running downturns in activity. This is consistent with the view that the UK suffers not only from the Covid and energy shocks, but also the negative supply shock - the "worst of all worlds".

Chart 4: OECD's composite leading indicator (CLI)

Long-term average = 100
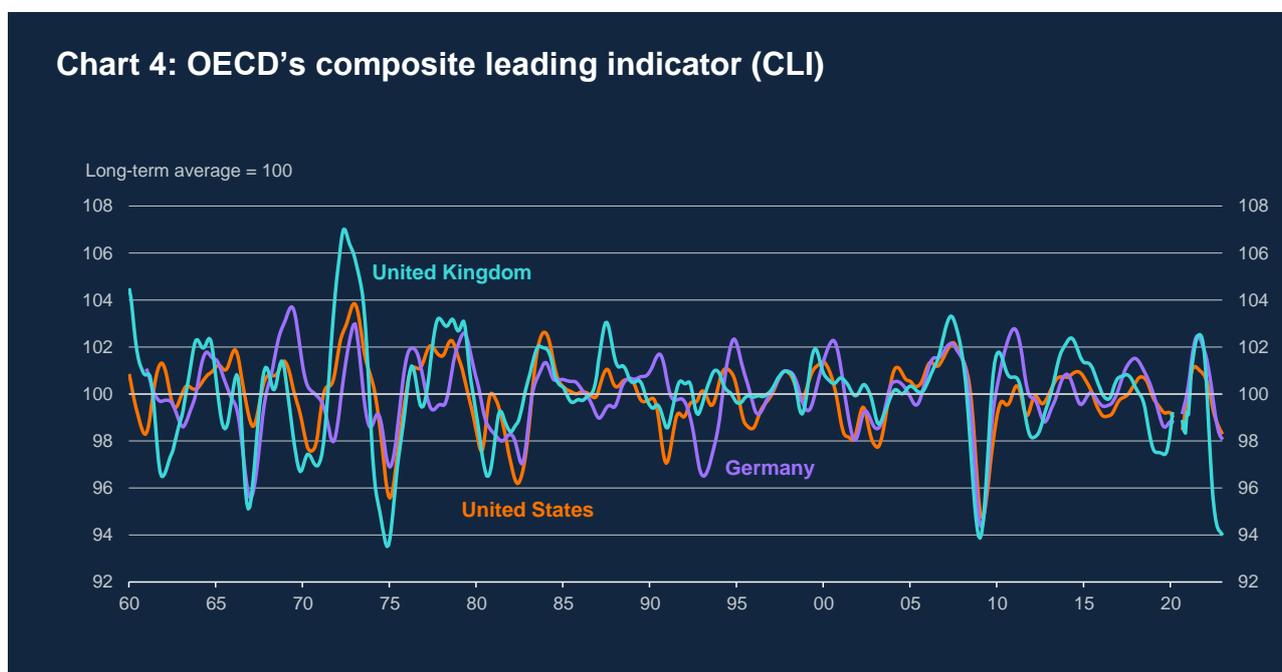
Source: OECD. Notes: Data covering the Covid-19 period (March – August 2020) removed from series as an outlier. Latest observation: December 2022.

The only times the UK measure was this negative were during the Great Financial Crisis and during the 1973-75 recession. However, consistent with our remit, what we are actually looking for is a turning point on inflation. And only in one of those cases did inflation come down, in the other it stayed persistently high. In interpreting this chart, we should consider whether the overall economic situation is more like 1973 than 2009 – and position monetary policy accordingly.[4]
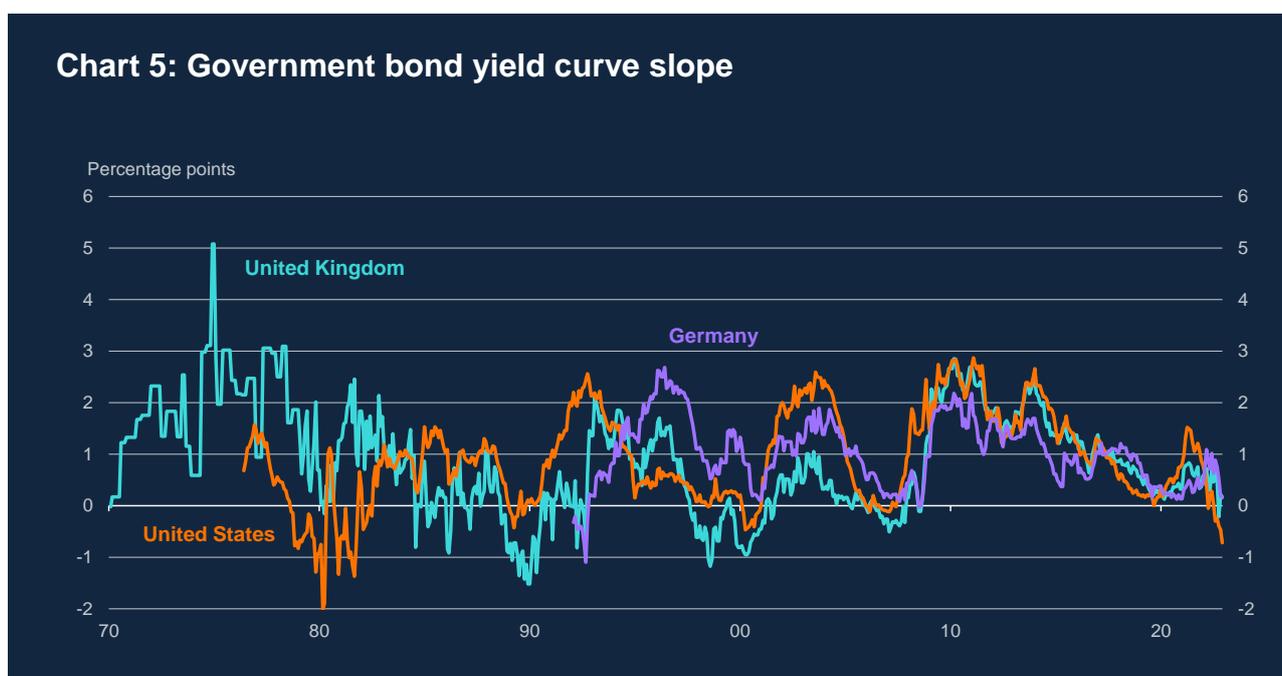
Financial market measures, particularly the yield curve, can also be used to infer market participants' perceptions of turning points, for demand and inflation. In normal times, yield curves tend to slope upwards, as investors demand a premium for holding longer term bonds (also known as term premium). When the slope turns negative, the yield curve is said to be inverted, which is viewed by some as an early indicator of a recession.[5] For expectations of shorter term yields to be higher than longer term yields, markets must either expect central banks to tighten in the short term and thereby induce a recession, or

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[4] Of course, there was no independent MPC and no explicit inflation target in the 1970s but I think it is still useful to note that there can be a recession while inflation stays high.

[5] Favero et al. (2019) show that the predictive power of the yield curve slope declined in the post-GFC but pre-Covid sample as it relies on short-term policy rates being correlated with future growth.

anticipate central banks needing to cut interest rates at some point in the future in response to a recession (Benzoni et al., 2018).

Chart 5 shows that since the 1970s, the UK yield curve slope has been positive over 82% of the time. It turned negative in late 2022, for the first time since 2008. Taking into account the endogenous reaction of yields to monetary policy and forward guidance, to me, this indicates that the economy is in a transitionary phase, as is monetary policy.

Chart 5: Government bond yield curve slope

Percentage points

United Kingdom

Germany

United States

70   80   90   00   10   20

Source: Bloomberg Finance L.P, Board of Governors of the Federal Reserve System, OECD, Tradeweb and Bank calculations. Note: the slope is calculated as the difference between the 10-year and 2-year nominal government bond yield. Latest observation: December 2022.

There are two potential caveats to the yield curve as a turning point indicator. While statistically it has predicting power, it's accuracy on how far away the downturn may be can vary quite significantly. And finally, it is important not to forget that yields are highly correlated across major economies, shown by the strong co-movement of lines in Chart 5, highlighting the importance of the global financial cycle (Miranda-Agrippino & Rey, 2020) and international spillovers. Therefore, the signal for any one particular economy might be mixed with signals about the general direction of the world economy, and in particular the US.

4. Expectations and turning points

Inflation expectations have played a particularly important role for my monetary policy decisions (Mann, 2022a and 2022b). I have emphasized not just the mean or median responses, but that the whole distribution of expectations matter for monetary policy. In previous speeches, I have referenced the DMP survey of expectations by firms of their own prices one year ahead. Although still skewed, the right tail of these distributions have started to tighten, and the mean expected price one year ahead has fallen somewhat to 5.7%. If realized, however, this is still quite far above 2%.

Household expectations are particularly important for inflation dynamics. Only if households are willing to pay their prices can firms realize their expected pricing power; if there is a buyer revolt that could signal a turning point. **Chart 6** shows the difference between point estimates of the right and left tails of household inflation expectation distributions two years ahead, which takes us to 2025, near the end of the MPC's forecast horizon. This is a measure of asymmetry in the distribution of inflation expectations. The higher this measure, the larger is the right tail relative to the left. This measure peaked in Q3 2022, suggesting that that right tail - which represents an upside risk to the monetary policy maker - may be moderating. However Q3 2022 was also the peak of energy prices and mortgage rates. Regardless, expectations remain positively skewed and, at 4.5% on average, well above target-consistent rates.

Chart 6: 90th minus 10th percentile of the distribution of Bank of England/Ipsos Inflation Attitudes Survey-implied household expectations 2 years ahead


Percentage points

90th - 10th percentile
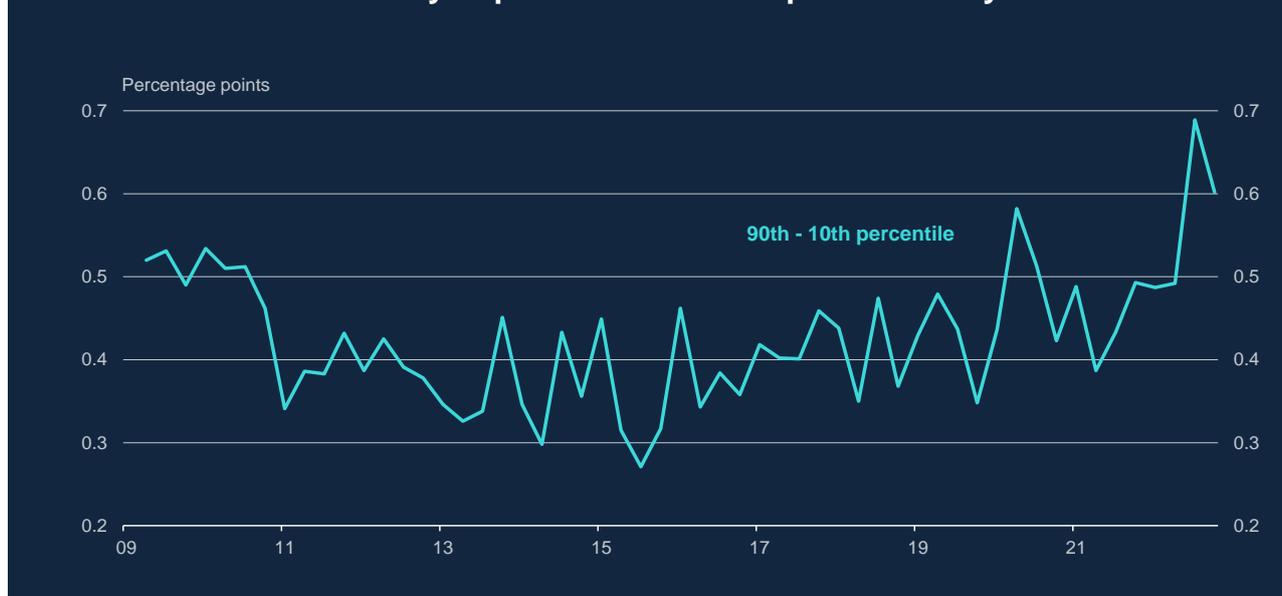
Source: Bank of England/Ipsos Inflation Attitudes Survey and Bank calculations. Notes: The chart shows the difference between the 90th and 10th percentile of the distribution of responses about CPI inflation 2 years ahead. Latest observation: Q4 2022.

5. Inflation forecasts and turning points

Zooming out from the more granular and higher frequency data to search for turning points, and as a rationale for spending so much time on these other indicators, I would like to show how macro forecasts for the UK economy have evolved over the last year. These forecasts come from the Monetary Policy Reports in which the MPC sets out its best collective judgement about the likely evolution of the UK economy over the next three years.

Obviously, predicting inflation has been particularly difficult over the past few years. It is not surprizing that macroeconomic predictions haven't been able to keep pace with the inflation shocks, which is shown by the vintages of projections in **Chart 7.** I'd rather focus on the medium-term, where inflation in all these vintages, is projected to be around the target of 2% by the middle of 2024, to then fall further, or not, depending on the forecast vintage. These projections incorporate conditioning assumptions of announced fiscal policy and the market expectations for the Bank Rate. But they also reflect chosen econometric methods and past economic relationships.

Chart 7: Bank of England forecasts for consumer prices
Levels and year-on-year changes
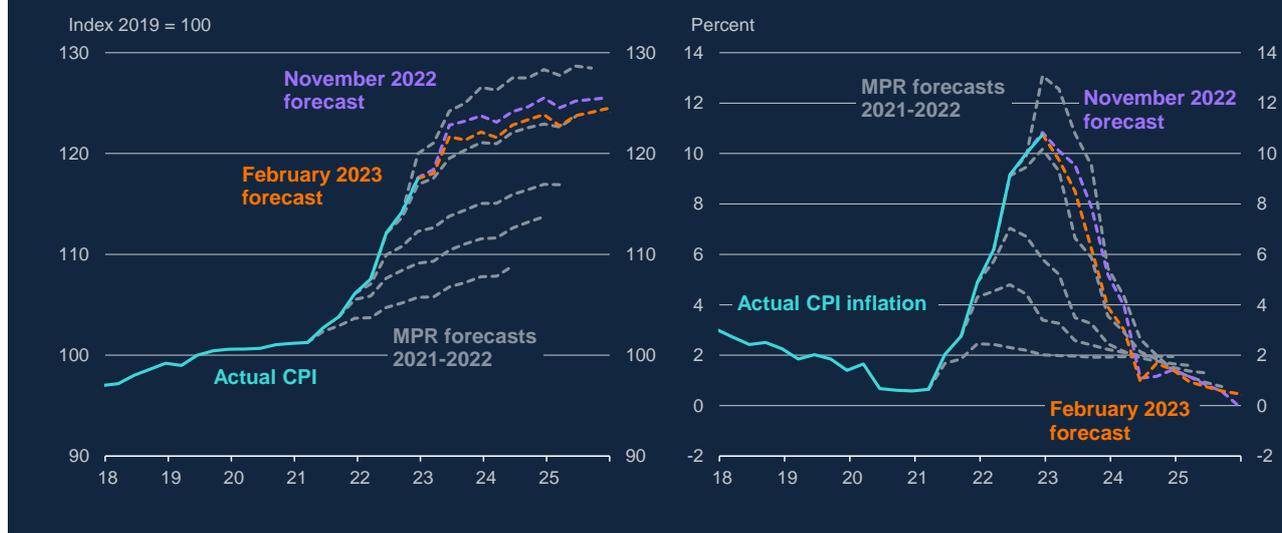
Source: ONS and Bank of England. Latest observation: 2022 Q4 (realised) and Q1 2026 (forecast).

Broadly speaking, the deceleration of inflation in the forecast in 2025 comes from, on the one hand, the assumption that global energy, food, and goods prices are expected to stop rising as dramatically as they did in 2021 and 2022 or even outright fall - though not to prior levels as can be seen on the left-hand side - but also that expected weakness in demand relative to supply should discipline domestic price and wage setting. As the first happens and then the second, in the annual calculation of inflation, high monthly increases would drop out and be replaced by low growth or decreases ('base effects'). The moderation of inflation on the way down would be a mirror of the acceleration on the way up. But considering asymmetries after the turning point is as important as identifying it in the first place: even when we reach a turning point for example in inflation, that does not necessarily mean prices will react the same way up as down.

One trouble with looking at these inflation forecasts is that the annual inflation number not only picks-up price pressures today but also price pressures nearly a year ago. Actually, annual inflation is predominantly a lagging indicator of underlying price pressures. That makes it difficult to discern when a turning point in inflation is happening.

One reason to focus on the annual inflation figure is, of course, that it is explicitly referred to in our remit, frequently reported in the media, and so can give an important steer to wage negotiations and price expectations. But it is also the case that higher-frequency inflation measures month-to-month can be too volatile to give a good read in real time. So, an annual measure lags and high-frequency is too volatile.

As an intermediate approach consider **Chart 8**. It plots changes between rolling three-month average prices in headline (LHS) and core CPI (RHS) at annualized rates. It shows, therefore, what the annual, year-on-year inflation rate would be if price changes between these three month-periods were to compound for a whole year.

Chart 8: International consumer price inflation
3m-on-3m changes at annualised rates in headline (LHS) and core CPI (RHS)
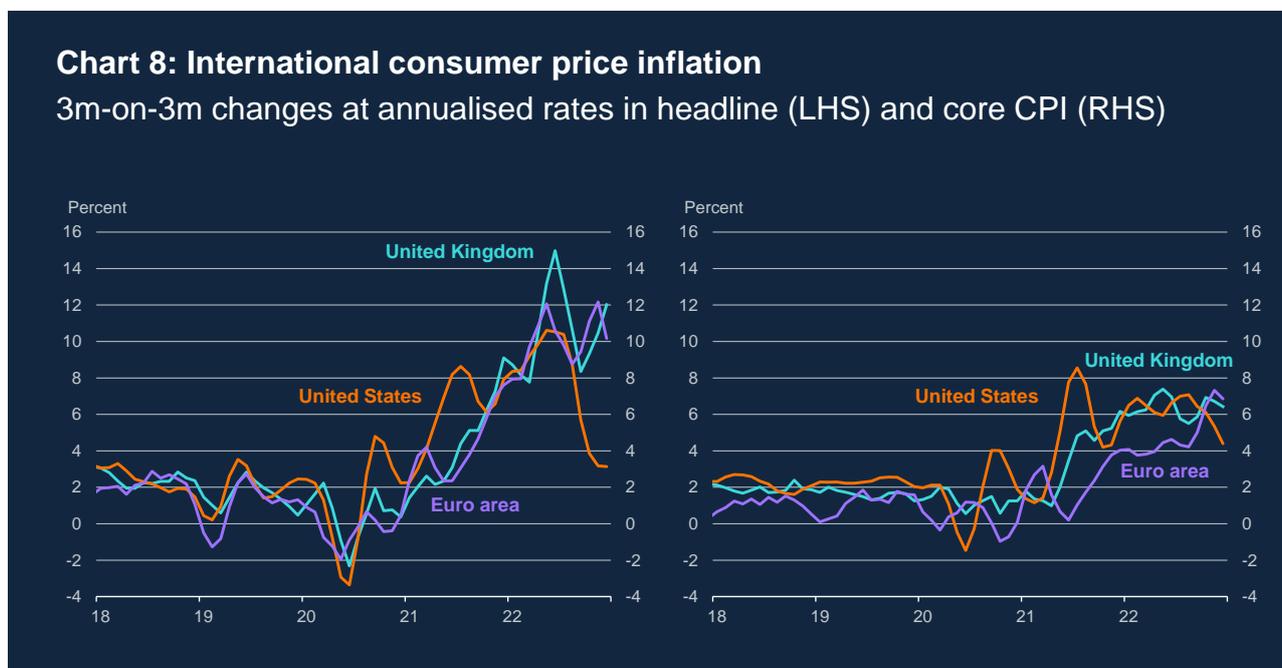
Source: ONS, BLS, Eurostat, and Bank calculations. Notes: Charts show growth in three-month averages of seasonally-adjusted consumer prices over the preceding three-month average. Core CPI for the UK is CPI less energy, food, and non-alcoholic beverages, for US it is CPI less energy and food, and for EA it is CPI less energy, food, and non-alcoholic beverages as reported by the respective statistical authority. Latest observation: December 2022.

The US looks different first with distinct inflationary surges taking inflation to double digits, on account of large fiscal stimulus, even though the US was never as exposed to high energy prices as the rest of the world. Then within just half a year, headline CPI inflation has decelerated rapidly to barely over 3% and core CPI to just over 4%. Can we expect these inflation dynamics to be repeated for the UK?

The UK's headline inflation has shown a steady acceleration throughout 2021 and 2022 (with a spike in April 2022 due to the jump in the Ofgem cap). Inflation rates have firmed around 10% in headline and 6% in core on a 3 month over 3 month annualized basis. There is no clear turning point in these UK data, which puts a premium on the other, more granular assessments of turning points.

6. Monetary policy strategy

Chart 9 shows how financial market-implied policy rate expectations were continuously revised through the forecast vintages, which in turn also affected the forecast, since these curves are a key conditioning assumption. The shifting peak in the market-implied curve, both in level space and timing of a peak in the hiking cycle, reflects the extent of uncertainty both around the evolution of data that underpins MPC decisions, as well as the MPC's reaction function. The shift up and steepness of the curve as well as its reversal reflect market expectations of the path that the MPC would need to take in order to meet its target.

**Chart 9: Bank of England policy rate and OIS curves over various forecast vintages**
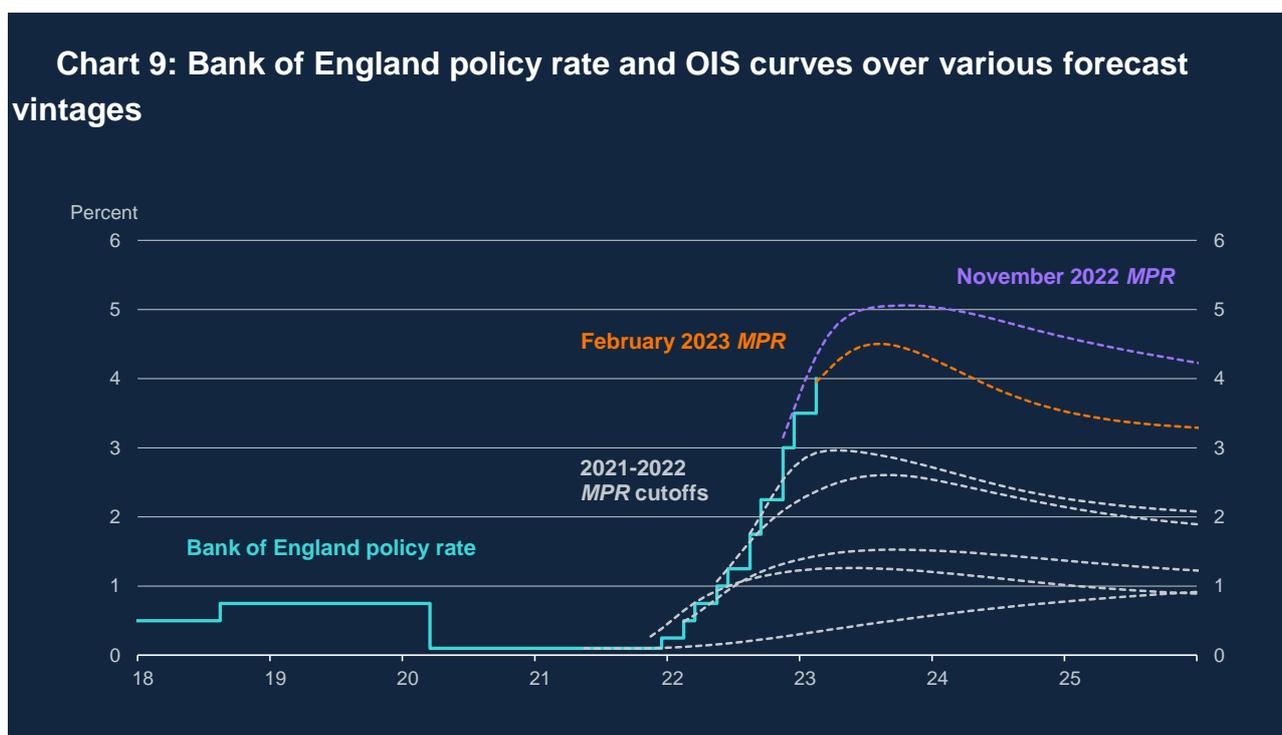
Source: Bank of England, Bloomberg Finance L.P and Bank calculations. Notes: OIS curves are adjusted for the wedge between Bank Rate and SONIA, and reflect the cut-off dates of relevant *Monetary Policy Reports*. Latest observation: 2 February 2023.

From where we started pre-Covid, economies faced a series of shocks to both demand and supply. Taken together with the evidence of the persistence of inflation as well as shifting expectations, achieving the 2% target will require a period of restrictive monetary

policy. The higher frequency and more granular data, along with the model output, help to evaluate whether monetary policy has been sufficiently restrictive for long enough.

A seemingly more direct criterion is the "Taylor principle".[6] That is, in response to an unexpected increase in inflation, the nominal interest rate must rise by more than one-for-one, such that the real rate increases. Easy in theory, but in practice the choice of nominal interest rate and deflator, at what time horizon, over what duration, and relative to what long-run equilibrium real rate are all up for grabs.

Chart 10 below shows the quarterly average yield on a one-year UK government bond deflated by households' inflation expectations for the year ahead. It is therefore designed to answer the question: "What is the expected inflation-adjusted return on a safe investment taken over the next four quarters?"

Chart 10: Nominal and real government bond yields
Deflated by one-year-ahead household inflation expectations
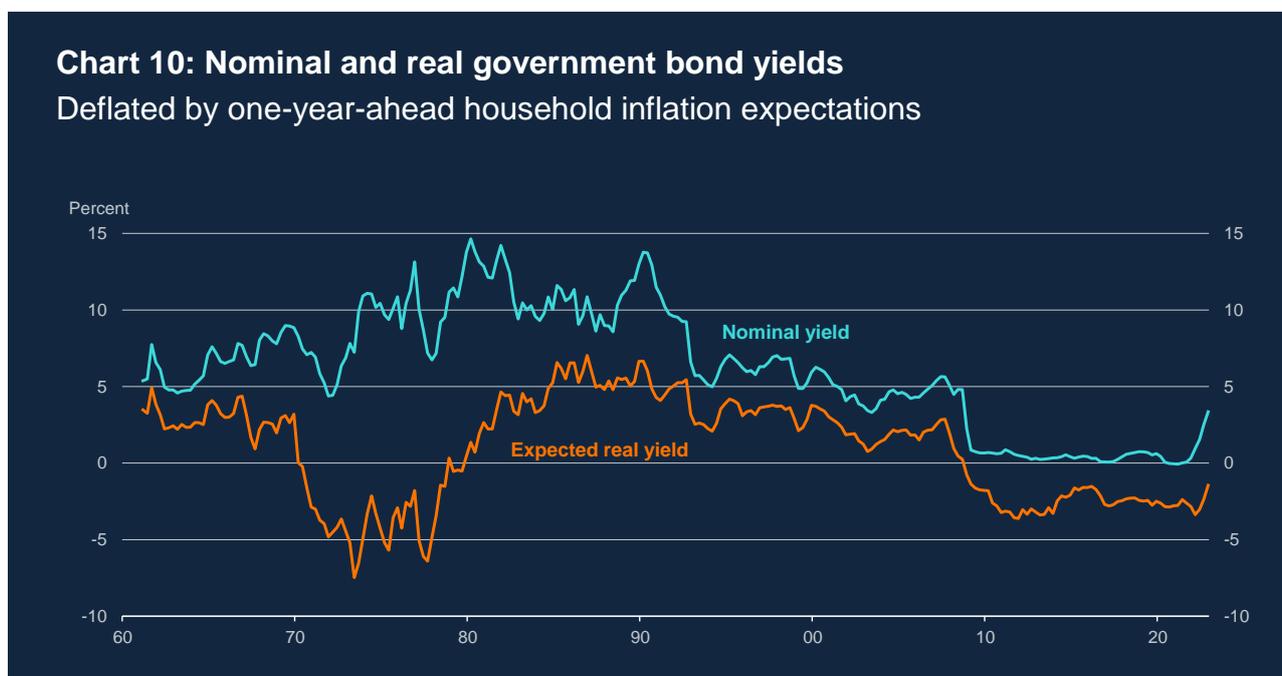
Source: Bloomberg Finance L.P, Tradeweb, Bank of England 'A Millennium of macroeconomic data' and Bank calculations. Latest observation: 2022 Q4.

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[6] For the canonical view, see for example Taylor (1999) and Clarida et al. (1999). It can be shown that if the monetary policymaker puts a high weight on slack in the economy, a weight on inflation that is less than one can still result in a determinate price level (Gali, 2008). However, this technically only holds for a zero inflation steady state. Ascari & Sbordone (2014) show that with positive trend inflation, the region of determinacy shrinks quickly to cover only increasingly high inflation weights. On the other hand, Angeletos & Lian (2021) find that introducing only minor amounts of myopia rules out the problem of indeterminacy prevalent in models with infinitely forward-looking agents.

If we think that expected real returns are what determine consumption and investment decisions, all other things equal, a falling real rate ought to make these cheaper (and thereby stimulate the economy) and a rising real rate ought to make these more expensive.[7] If real rates fall in response to an inflationary shock, the stance of monetary policy actually becomes more expansionary regardless of the direction of nominal rates. Arguably, this is exactly what happened in the 1970s: nominal rates rose but never enough to offset the rising inflationary momentum. As a result, real rates actually fell which allowed inflation to become entrenched.

In contrast, over the last couple of quarters, despite rising inflation, we have been successful in keeping real rates from falling. Therefore, I do not view it likely that we are in a 1970s-style unanchoring of inflation expectations with all the unpleasant side effects. Once inflation and inflation expectations return to the 2% target, it will be appropriate to reverse nominal rates.

So, why keep raising nominal rates now?

First, the real rate in the chart is as much about expectations of future inflation as it is about expectations of policy. If we were perceived as being complacent about inflation, nominal expected yields may come down too soon, mechanically decreasing real rates, and prematurely loosening the stance of monetary policy. If there is uncertainty about the degree of inflation persistence, it is better to assume a high degree because the costs of making a mistake if the true inflation process is more persistent are larger than if the true inflation process is less persistent.

Second, I see material upside risks to our inflation outlook. To achieve target-consistent CPI, the moderation of inflation this year has to be as rapid and complete on the downside as its ratchet-up was last year. The stickiness of one-year ahead, and even more so 2-3-year ahead expectations, and virtually any length contract period point to upside risk. This would again decrease real rates, thus requiring higher nominal rates for longer (Mann, 2022b). From a risk-management point of view, monetary policy has to lean against these upside biases since wage and price inflation are still so high.

Third, why not wait - that is pause the hiking cycle - to see if the inflation dynamics are what I think they are? If inflation indeed is more persistent, then Bank Rate will need to rise again after the pause, to be followed later with reversal. In my view, a tighten-stop-tighten-

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[7] Strictly speaking, what should matter for consumption and investment decisions is not the level or change in this real yield but rather its distance to some time-varying equilibrium rate, the famous r^* (see for example Bailey et al., 2022). It is widely accepted that this has been falling for quite a while due to long-term factors such as demographics (Vlieghe, 2021) but can also be affected by more medium-term headwinds. Therefore, also measured real yields would have to fall over time just to stand still.

loosen policy boogie looks too much like fine-tuning to be good monetary policy. It is both hard to communicate and to transmit through markets to the real economy.

To conclude, from the turning point assessment, I am looking for a significant and sustained deceleration in higher frequency price increases and in the underlying inflation measures and expectations towards inflation rates that are consistent with achieving the 2% target. Uncertainty around turning points should not motivate a wait-and-see approach, as the consequences of under tightening far outweigh, in my opinion, the alternative. We need to stay the course, and in my view the next step in Bank Rate is still more likely to be another hike than a cut or hold.

7. Another turning point and central banks

I've been talking about turning points, but in light of one of the topics in focus at this conference, I would like to highlight a turning or more appropriately a tipping point – that is the tipping point on climate change. The Bank of England has been a leader in assessing the implications of climate change for monetary policy - from former Governor Mark Carney's speech, 'Breaking the Tragedy of the Horizon' (Carney, 2015), the Climate Biennial Exploratory Scenario[8], founding member of the NGFS, to implementing a greening of the corporate bond portfolio.[9]

As more policymakers start to implement policies focused on reducing carbon emissions, such as cap-and-trade, a carbon tax, or carbon border adjustment mechanisms, it is likely that the volatility of inflation will increase, which puts climate policy directly in focus for the price stability objective of central banks. I spoke briefly about this research at the recent panel at the American Economic Association meetings in New Orleans. Stay tuned for an upcoming speech to develop in more depth how the broader policy landscape to address climate change has implications for monetary policy.

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[8] **'Results of the 2021 Climate Biennial Exploratory Scenario (CBES)'.**
[9] See **'Greening our Corporate Bond Purchase Scheme (CBPS)'.**

The views expressed in this speech are not necessarily those of the Bank of England or the Monetary Policy Committee.

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