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## The contribution of monetary policy to disinflation

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## The contribution of monetary policy to disinflation

### *Key takeaways*

- Much of the inflation increase in 2021 and 2022 was due to sectoral shocks on which monetary policy has close to no traction. What monetary policy can do, or fail to do, is to ensure that the effects of these shocks dissipate swiftly.
- We argue that, absent the somewhat delayed but vigorous increases in policy interest rates since 2022, inflation would have subsided more slowly in 2023.
- Central banks' most important contribution to inflation is to demonstrate commitment to achieving their targets and ensuring that low inflation remains the norm for price- and wage-setting decisions.

This Bulletin evaluates the role of monetary policy in the 2021–23 inflation hump. It first puts the current inflation episode in a historical perspective. It then argues that much of the post-pandemic inflation increase was due to sectoral shocks on which monetary policy has little traction. Some disinflation was likely as these shocks unwound. But we argue that it would have been slower and less complete without vigorous monetary policy tightening. Through counterfactual simulations, we show that, had central banks not increased policy rates, real interest rates would have fallen sharply, stimulating aggregate demand and keeping inflation high.

### The current inflationary episode in historical perspective

The current inflationary surge has been unique. Since the mid-1980s – a period of generally benign inflation outcomes across advanced economies (AEs) – typical inflation outbreaks saw inflation rise by about 4 percentage points, before returning to its initial level one to two years after the inflation peak (Graph 1.A). In the current episode, inflation in Organisation for Economic Co-operation and Development (OECD) countries rose almost twice as much as in the past. Inflation was also unexpectedly stubborn after the initial flare-up. While most forecasts up to late 2021 showed inflation rapidly returning to target, actual readings surprised on the upside until late 2022. This contrasts with the persistent overshooting of inflation forecasts in the decade before the pandemic.

In some respects, the current episode resembles that of the 1970s. That decade also saw large inflation outbreaks across much of the world, with energy prices playing a catalytic role. The 1970s also saw many failed disinflations. On average, inflation fell by less than it rose, plateauing at a higher level than before its upswing. The median increase in an inflationary surge was about 8 percentage points, while the median decrease in subsequent disinflations was only half as large (Graph 1.B).

One explanation for the failure of disinflations in the 1970s is that many economies transitioned to a high-inflation regime. Inflation was initially a surprise, but its persistence caused households and businesses to view it as a pervasive feature of their environment (Borio et al (2023)). Reinforcing this, fiscal and monetary policies remained expansionary until late in the decade. This made the successful disinflations in the 1980s more challenging and costly. Once the inherently self-stabilising properties of a

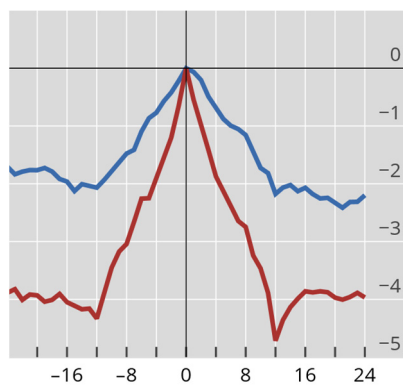
low-inflation regime were lost, restoring price stability called for sharp interest rate increases and deep recessions.<sup>1</sup>

## The ongoing disinflation in historical perspective<sup>1</sup>

Relative to inflation peaks, % pts difference

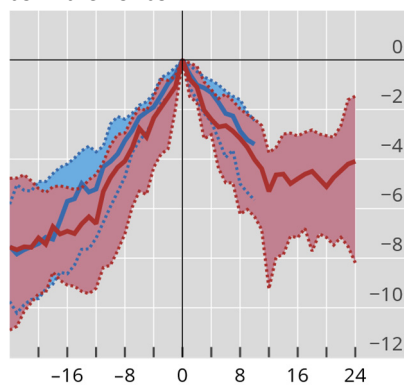
Graph 1

A. Historical disinflation trajectories take less than two years



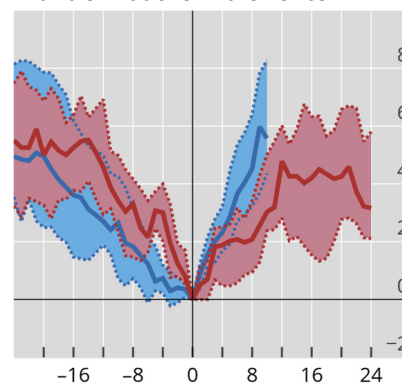
Headline: Core:  
— Median —

B. Path of headline inflation increased as much in current episode as in the 1970s<sup>2</sup>



1970s headline: 2022-23 headline:  
— Median —  
— Interquartile range —

C. Real rates increased less before and more after the peak compared with disinflations in the 1970s<sup>3</sup>



1970s: 2022-23:  
— Median —  
— Interquartile range —

<sup>1</sup> Each disinflation episode is captured when the 13-month moving average is at its peak, under the conditions that (i) there are no other peaks in the preceding and the following 12 months; (ii) the peak is between 3 and 25%; and (iii) the peak is at least 3 percentage points higher than the lowest troughs in the preceding and the following 12 months. Month = 0 is when the actual headline inflation value is at the highest during that particular episode. Panel of 30 AEs and 28 EMEs; largest time sample depending on data availability. <sup>2</sup> 1970s episodes: AT, AU, BE, CA, CH, CN, CY, DK, DZ, ES, FI, FR, GB, GR, HK, ID, IE, IN, IT, JP, KR, KW, LU, MA, MT, MY, NO, NZ, PE, PH, PT, SE, SG, TH, US and ZA. 2022-23 episodes: AE, AU, BR, CA, CH, CL, CZ, DK, DZ, EA, GB, HK, HU, ID, IL, JP, KR, MA, MX, MY, NO, NZ, PE, PH, PL, RO, SE, SG, TH, TR, US, VN and ZA. <sup>3</sup> Ex post real rates calculated as policy rate minus year-on-year headline inflation.

Sources: OECD; World Bank; Refinitiv Datastream; national data; BIS.

A comparison with the 1970s, however, also provides grounds for optimism about the current inflationary outlook. This is because, even though the shocks that have driven the recent inflation surge resemble those in the 1970s, monetary policy institutions are very different.

After the “conquest of inflation” in the 1980s, most central banks adopted frameworks squarely focused on price stability. This coincided with a period of benign inflation outcomes across almost all AEs, and an increasing number of emerging market economies (EMEs). To be sure, these new monetary policy frameworks could not prevent extreme events, such as wars or pandemics, from raising inflation temporarily. After all, these events can trigger spikes in specific sectoral prices that push up inflation directly and, by raising input prices, can have second- and third-round effects that prolong the initial inflation shock over several quarters. But monetary frameworks focused on price stability can cement the credibility of a low-inflation norm. This, in turn, anchors wage- and price-setting behaviours to be consistent with low and stable inflation over the medium run.

Central banks’ enhanced commitment to price stability is evident in their policy responses to the current inflationary surge. After an initially delayed response to higher inflation, the rise in interest rates was large, rapid and synchronous across the world (Graph 1.C). In some countries, the partial unwinding of central bank balance sheets provided additional tightening.

<sup>1</sup> In the United States, the federal funds rate increased from 11% in 1979 to 20% in 1981, triggering a severe recession. Sharp monetary tightening was also observed in continental Europe, where many central banks adopted stricter pegs to the Deutsche mark. See Ciccarelli and Mojon (2010).

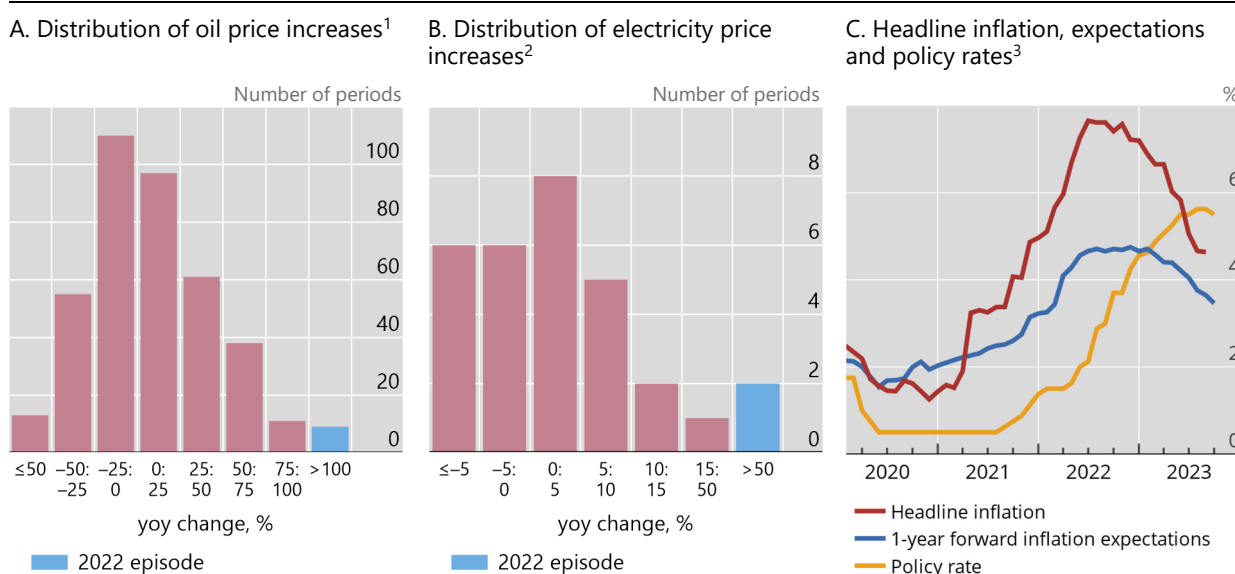
## Assessing the contribution of monetary policy to the surge and decline of inflation

As in the 1970s, extreme energy price shocks first ignited and then reinforced the current inflation surge. Compared with the historical experience of the past 30 years, the increases in oil, gas and (for European countries) electricity prices have been exceptionally large (Graphs 2.A and 2.B).

Other factors were also at play. An appreciation of the US dollar compounded the effect of higher energy prices and, due to typical lag in the pass-through to import prices, increased the persistence of the inflation shock.<sup>2</sup> Higher energy prices dovetailed with the Covid-related reallocation of resources to goods during lockdowns and back to services when customer-oriented sectors resumed activity.<sup>3</sup> Finally, the substantial easing of fiscal and monetary policies during Covid contributed to the stimulation of aggregate demand for several quarters into the post-Covid recovery.

### Inflation expectations remained well anchored despite large shocks

Graph 2



<sup>1</sup> Based on monthly average Brent crude oil price since 1990. <sup>2</sup> Based on the average semiannual price from 2007 for users with annual consumption of 500–150,000 MWh, excluding taxes and levies. <sup>3</sup> Median values across 11 advanced and 24 emerging market economies, based on the Survey of Professional Forecasters.

Sources: Eurostat; Consensus Economics; Refinitiv Datastream; national data; BIS.

Even if it cannot instantaneously offset the effects of exceptionally large supply side shocks, sound monetary policy ensures that inflation, along with pricing- and wage-bargaining decisions, reverts to target and low-inflation norms in a reasonable time frame, rather than settling persistently at a higher level. As inflation started increasing in mid-2021, so did short-term inflation expectations (Graph 2.C). This increase may have reflected that economic agents doubted whether central banks were determined to rein in inflation by tightening policy sufficiently. However, as soon as the pace of monetary policy tightening accelerated, in mid-2022, inflation expectations plateaued and eventually decreased. The steepening of interest rates provided a strong signal of central banks' commitment to stabilising inflation by tightening monetary conditions as necessary.

That said, a more formal and precise assessment of the exact contribution of monetary policy to disinflation is not easy. Indeed, the picture is clouded by the effects of the dissipation of the originating shock itself, as well as the broader reaction of the economy to higher prices. For this reason, models help illustrate and quantify how increases in policy rates transmit to economic activity and inflation.

<sup>2</sup> See Rees (2023).

<sup>3</sup> See Rees and Rungcharoenkitkul (2021) and Igan et al (2022).

In most macroeconomic models, inflation dynamics are captured by a Phillips curve that links inflation to changes in economic activity or employment, inflation expectations and exogenous shocks. The central bank may influence inflation either by steering aggregate demand or by influencing inflation expectations. The response of inflation to real activity is estimated to be very small, implying that a decline in inflation of even 1 or 2 percentage points through a reduction in demand would require a deep recession. Yet monetary policy can also influence inflation expectations directly. Central banks can maintain a low inflation environment, even in the face of unavoidable but transitory inflationary outbreaks, through a credible reaction function that commits to raising rates sufficiently to rein in inflation. The anticipated and systematic component of changes in monetary policy – as reflected by the reaction of the central bank to economic conditions and inflation – play a crucial role in shaping the disinflation path. This is particularly crucial when the initial shocks fade away, but elevated inflation remains engrained and feeds into its core component.

To illustrate the impact of monetary policy on inflation through inflation expectations, we compare inflation trajectories in the United States under different assumptions about the monetary policy rule and the extent of policy tightening. This is based on a medium-scale macroeconomic model of the United States<sup>4</sup> similar to those used for policy analysis in many central banks (Graph 3).<sup>5</sup> We first construct a baseline scenario so that the model matches observed US data on inflation, GDP growth and interest rates, assuming the model's estimated policy rule (red line). We then compare that to an alternative simulation in which we impose the same shocks but adjust the policy rule to one that reacts much more strongly to deviations of inflation from target (blue line). This more aggressive policy rule delivers only a marginal improvement in the upward inflation trajectory, at a substantial cost in terms of output.

The modest inflationary benefits of faster tightening do not mean, however, that monetary policy does not matter. In an alternative scenario in which the central bank completely disregards the prescriptions of a sound inflation-fighting framework and does not tighten policy at all (yellow line), inflation rises much further. Moreover, it later fails to revert towards target, even though the shocks that caused inflation to rise die down. Lack of monetary policy tightening also stimulates aggregate demand to unsustainable levels, laying the ground for a significant recession down the track when the central bank finally takes steps to restore price stability.

The key takeaway of this exercise is that even though a rule committing the central bank to tighter monetary policy may not necessarily be able to offset initial inflationary pressures, the commitment can limit the propagation of initial price increases to core items of the inflation basket and secure a smooth subsequent disinflation process. Hence, central bank credibility cannot be taken for granted. It requires setting monetary policy rates consistently with the price stability objective of the central bank.

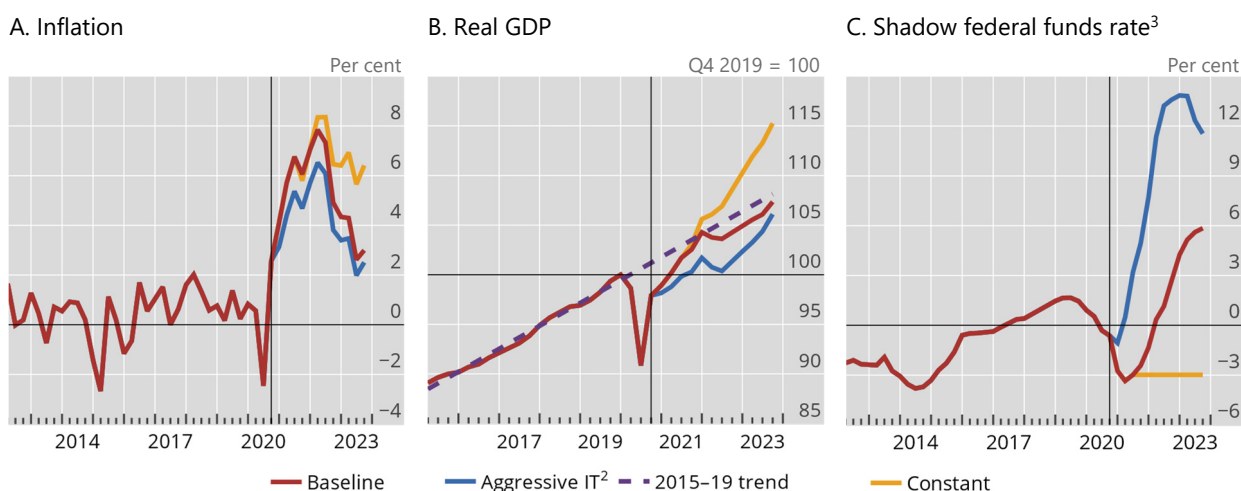
To illustrate what can happen when credibility wanes, we complement this first set of simulations with another one from a calibrated model in which households and businesses learn dynamically about the behaviour of the central bank and its commitment to fighting inflation (Graph 4). The purpose is again to analyse how the central bank's reaction to surprise inflation influences the path of inflation. In the first scenario, agents remain confident that ultimately inflation will return to 2%, ie long-term inflation expectations remain perfectly anchored (blue line). In the second, agents learn about central banks' reaction and preferences by observing outcomes, so their expectations on long-term inflation depend on the path of inflation that reflects, among other factors, the monetary policy stance (red line).

<sup>4</sup> The model is estimated based on US data during the period 1984–2019. The estimates are then used to filter out the shocks that enable the model to reproduce the observed path of the endogenous variables over the subsequent period Q1 2020–Q2 2023. The three rules considered are: (i) "baseline" – the estimated policy rule in the model; (ii) "aggressive IT" – a scenario in which the coefficient on inflation in the policy rule is set to seven times its estimated level; (iii) "constant" – a scenario in which, in Q3 2021, the central bank credibly commits to keeping the federal funds rate fixed for two years, while agents are aware of this commitment and factor it into their decision-making.

<sup>5</sup> The model builds on Del Negro et al (2015). Its adjustment mechanisms reflect a transmission of monetary policy through an IS curve and a Philips curve with model consistent expectations. Qualitatively and quantitatively similar New Keynesian models are used for counterfactuals across OECD countries.

## Aggressive tightening mildly mitigates inflation at the cost of large output contractions, but lack of action jeopardises disinflation<sup>1</sup>

Graph 3



The vertical line corresponds to Q4 2020, the counterfactual start date for the aggressive inflation targeting (IT) scenario.

<sup>1</sup> Estimation of the counterfactuals based on the DSGE model described in the main text. <sup>2</sup> Based on a counterfactual estimated with the coefficient on inflation set to ten and the coefficients on output and output growth set to zero. <sup>3</sup> Federal Reserve Bank of Atlanta shadow federal funds rate (Wu and Xia (2016)) used when the actual federal funds rate is below 0.125%.

Sources: Board of Governors of the Federal Reserve System; Wu and Xia (2016); authors' calculations.

In this case, the scars left by a prolonged period of above-target inflation are clearly more visible because agents' expectations are influenced by recent inflation observations. Hence, to ensure inflation returns to 2% swiftly, the central bank will need to deploy additional tightening, on top of what is prescribed by the rule. To be sure, a lack of reaction by the central bank to higher inflation can de-anchor inflation expectations further, even after the forces that initially raised inflation ease.

Altogether, these model simulations suggest that the broad-based consensus that inflation will return to near 2% by end-2024 may actually reflect the effect of monetary policy tightening on inflation expectations. If powerful enough, this expectation channel may allow a soft landing at the end of the disinflation path.

A scenario with no policy tightening at all is extreme. But it illustrates two relevant points. First, it emphasises the fundamental role of sound and credible policy frameworks. Credible policy frameworks were key to preventing inflation expectations from de-anchoring during the recent inflation surge – as in the yellow scenario in Graphs 3 and 4. The second is that credibility is earned by adjusting the stance of policy, as prescribed by a reaction function consistent with delivering on the price stability mandate. Returning to target too slowly may let inflation norms shift. The formation of households' and firms' inflation expectations is still poorly understood so sudden and non-linear shifts cannot be ruled out. This is where an appropriate calibration of monetary policy, to ensure that it remains consistent with its framework and mandate, plays a key role.

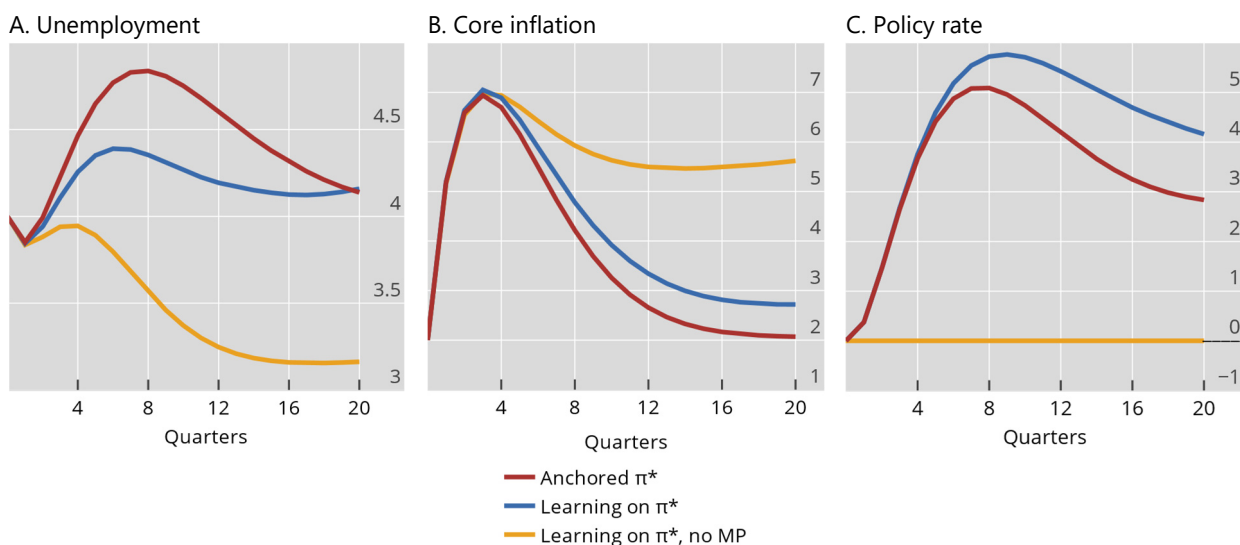
Our simulations point to the possibility of a benign scenario in which the initial sectoral shocks fade away, central banks keep inflation expectations anchored and inflation slowly returns to target "on its own". That said, additional shocks, such as those arising from the war in the Middle East, may emerge and feed another inflation burst. The central banks' job of stabilising inflation at a low level is not over until it is done and it may require a larger slowdown of economic activity than we have experienced so far.

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## Sound monetary policy framework ensures faster reversion of inflation to target<sup>1</sup>

In per cent

Graph 4



<sup>1</sup> Simulations based on the semi-structural model by Hofmann et al (2021).

Source: authors' calculations.

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## References

- Borio, C, M Lombardi, J Yetman and E Zakrajšek (2023): "The two-regime view of inflation", BIS Papers 133.
- Ciccarelli, M and B Mojon (2010): "Global inflation", *The Review of Economics and Statistics*, vol 92, no 3, pp 524–35.
- Del Negro, M, M Giannoni and F Schorfheide (2015): "Inflation in the Great Recession and New Keynesian models", *American Economic Journal: Macroeconomics*, vol 7, no 1, pp 168–96.
- Hofmann, B, M Lombardi, B Mojon and A Orphanides (2021): "Fiscal and monetary policy interactions in a low interest rate world", *BIS Working Papers*, no 954, July.
- Igan, D, E Kohlscheen, G Nodari and D Rees (2022): "Commodity market disruptions, growth and inflation", *BIS Bulletin*, no 54, May.
- Rees, D (2023): "Commodity prices and the US Dollar", *BIS Working Papers*, no 1083, March.
- Rees, D and P Rungcharoenkitkul (2021): "Bottlenecks: causes and macroeconomic implications", *BIS Bulletin*, no 48, November.
- Wu, J and F Xia (2016): "Measuring the macroeconomic impact of monetary policy at the zero lower bound", *Journal of Money, Credit and Banking*, vol 48, no 2, pp 253–91.



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