Analysis

Monetary policy and (dis)inflation: a Euro Area perspective

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Gabriele Galati, Annelie Petersen, Sebastian Rast

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Authors: Gabriele Galati, Annelie Petersen, Sebastian Rast. With thanks to colleagues at DNB, and in particular Bas ter Weel, Niels Gilbert, Inge Klaver, Marco Hoeberichts for the useful exchange of views, Maarten van Rooij for his work on expectations of Dutch households and Jonas Arias for sharing code/replication materials. All remaining errors are ours.

De Nederlandsche Bank NV
P.O. Box 98
1000 AB Amsterdam
Internet: www.dnb.nl
Email: info@dnb.nl

Executive summary

Over the past decade, the euro area economy has moved from a prolonged period of very low and stable inflation to one characterised by a sequence of large shocks, persistent inflationary pressures, and elevated uncertainty. Structural forces – such as geoeconomic fragmentation, climate change and technological change – are likely to make inflation more volatile going forward. In such an environment, monetary policy faces the challenge of larger and more frequent deviations of inflation from target, both above and below, while operating under considerable real-time uncertainty.

Credibility lies at the core of effective monetary policy. A credible commitment to the ECB's symmetric 2% inflation target anchors long-term inflation expectations, which in turn stabilises wage- and price-setting behaviour and facilitates the return of inflation to target after a shock. While short-term inflation naturally fluctuates in response to shocks, well-anchored long-term expectations signal beliefs that the central bank is firmly committed to price stability. This anchoring can be understood along three dimensions: the level of expectations relative to target, the degree of disagreement and uncertainty across agents, and the sensitivity of long-term expectations to short-term shocks. Large supply shocks – such as energy price increases or supply chain disruptions – can generate non-linear inflation dynamics through indirect effects along production networks and second-round effects via expectations. If credibility weakens, these channels can amplify inflation persistence and make it significantly more costly to return inflation to target.

Evidence from the 2021-2024 inflation surge suggests that inflation expectations in the euro area remained broadly anchored, with some emerging vulnerabilities. Market-based measures indicate that, since the start of the hiking cycle, long-term expectations have largely returned to levels consistent with the ECB's target. However, uncertainty and sensitivity to short-term shocks have increased compared with the pre-pandemic period. Survey-based expectations of professional forecasters remain centred around 2%, although dispersion has risen somewhat, indicating greater uncertainty about the medium-term outlook. The patterns observed following the start of the ECB's monetary tightening cycle in mid-2022 are consistent with the view that credible policy can support anchoring. By contrast, households' expectations appear less firmly anchored: they display an upward bias and substantial dispersion, even after inflation declined.

The inflation surge and subsequent disinflation underscore the challenges and trade-offs facing monetary policy when shocks are large and their persistence uncertain. In 2021 and early 2022, the ECB was confronted with a surge in inflation whose strength and persistence were difficult to assess amid the uncertainty caused by the ongoing pandemic and the implications of Russia's invasion of Ukraine. Together with the legacy of the low inflation era, which included asset purchase programs and forward guidance, this added to a late start of the hiking cycle. However, once the ECB started hiking rates, it did so forcefully. Counterfactual evidence suggests this tightening contributed significantly to disinflation: if the ECB had stuck to its usual hiking pace (25 basis points per meeting), inflation would likely have been significantly higher for a longer period. The forceful reaction partly compensated for earlier caution, as the same analysis suggests that the start of the hiking cycle could have come earlier in 2022. An earlier response could have reduced the inflation peak further, at the cost of weaker economic activity.

Zooming out, monetary policy transmission appears to have been relatively strong. Monetary policy has succeeded in bringing down inflation without causing a recession, which points at a comparatively favourable inflation-output trade-off. This is consistent with broadly anchored long-term inflation expectations, suggesting that credibility likely helped contain inflation without triggering a self-reinforcing rise in expectations.

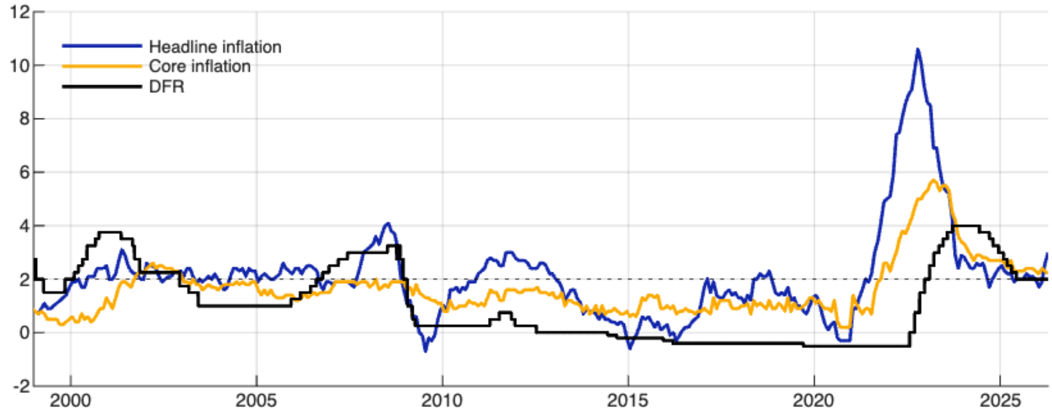
It helped avoid more persistently high inflation and a deep downturn of the kind seen in the 1970s and 1980s, when inflation expectations were much less firmly anchored.

Overall, the recent experience highlights the importance of agility. Credibility remains a precondition for effective policy, but it is not self-sustaining: it depends on the perceived willingness of the central bank to respond when risks to price stability increase. This is especially true in an environment in which expectations, particularly those of households, are likely to be more sensitive to shocks than in the past. Looking ahead, monetary policy needs to remain data-dependent. In a more volatile environment, however, data-dependence may require responding earlier when shocks show signs of having persistent effects. This calls for close attention not only to inflation outcomes, but also to risks of de-anchoring, monetary transmission and the inflation-output trade-off.

1. Introduction

Over the past decades, central banks have faced different inflation environments, which have put their monetary policy frameworks to a test. After a prolonged period of low and stable inflation, the euro area economy experienced a phase of elevated and volatile inflation, following a sequence of major shocks (Figure 1). In July 2021, the ECB reviewed its monetary policy strategy, and in July 2025 it published an assessment of its strategy, underscoring the importance of a framework that allows for effective responses to major changes in the inflation environment (ECB, 2025a). The ECB noted that the inflation environment will be more uncertain and potentially more volatile because of structural shifts related to geopolitical fragmentation, digitalisation and artificial intelligence, demography, climate change and changes in the financial system. As a result, there may be larger deviations of inflation in both directions from the ECB's target, posing challenges for the conduct of monetary policy.

Figure 1. Euro area HICP inflation and ECB policy rate
Percent



Source: Eurostat, ECB, DNB calculations. Notes: Headline and core inflation are measured as the year-on-year rate. DFR stands for Deposit Facility Rate. Latest observation is April 2026.

Maintaining price stability rests on two interacting elements: a credible monetary policy framework and a policy stance decided in response to changing economic conditions. Credibility anchors long-run inflation expectations to the ECB's inflation target. When financial markets, professional forecasters, firms and households trust that the central bank will deliver low and stable inflation over the medium term, this belief feeds into inflation expectations and wage- and price-setting decisions, helping inflation return to target even before policy action is taken. Credibility is therefore a prerequisite for an effective transmission of the policy stance, which is primarily implemented through changes in the policy rate and reflects the ECB's response to changes in the economic outlook. Policy changes affect output and inflation through channels in the financial sector and the real economy. For example, a policy tightening raises borrowing costs and affects credit conditions, thereby dampening aggregate demand, cooling economic activity and easing price pressures. The role of different drivers of inflation can be explained with the Phillips curve (see Box 1).[1]

[1] For a detailed overview of how the policy stance is transmitted to the economy, see also ECB (2026) and Bonomolo et al. (2024). Effective transmission depends also on smoothly functioning financial markets and a resilient banking sector. Macroprudential measures implemented since the Global Financial Crisis have strengthened the resilience of euro area banks to large shocks (ECB, 2025b). Together with instruments such as the Transmission Protection Instrument (TPI), they support the smooth transmission of monetary policy through the financial system.

Box 1: The Phillips curve explained

Economists often summarize the different influences on inflation using the Phillips curve (Phillips, 1958). It formalizes the idea that prices and wages tend to rise faster when the economy is running hot and slower when it is cooling. Following Hazell et al. (2022) it can be written as

Inflation today = Long-run inflation expectations + sensitivity to economic slack + supply-side shock

- Long-run inflation expectations capture the views of households, firms and financial markets about where inflation will settle in the long-run (say in 5-10 years).
- Economic slack refers to how strong demand is relative to the economy's capacity to produce — in other words, how much spare capacity there is in the economy. It is often measured by the output gap - the difference between actual output and potential output. When demand is strong and firms are operating close to capacity, price and wage pressures tend to rise. When demand is weaker and spare capacity increases, these pressures tend to ease. A tighter monetary policy stance cools demand and increases spare capacity, while an easier stance supports demand and reduces it.
- Supply-side shock captures temporary disturbances, such as an energy price shock, that push inflation up or down for a period of time.

Economic slack and supply-side shocks move over time, but in the absence of further shocks they should eventually fade. From the central bank's perspective, the challenge is to keep long-run inflation expectations anchored close to its inflation target and to prevent past inflation and temporary supply-side shocks from affecting short-run inflation dynamics in ways that feed into long-run expectations.

The dynamics of inflation and its drivers are not stable over time and evolve with the economic environment. The way inflation expectations are formed can change, economic conditions evolve, the monetary policy stance adjusts, and its transmission to inflation and activity may vary accordingly. As a result, the economy does not respond uniformly to shocks or policy. In short, monetary policy operates in an environment of state dependency and potential non-linearities: both the impact of policy and the underlying economic relationships change over time. This poses an important challenge for policymakers, who must assess these changing relationships and the trade-offs they entail in real time, under considerable uncertainty.

This analysis addresses two key questions. First, how did the ECB deliver price stability in this environment, characterised by large shocks, high inflation and heightened uncertainty? Second, to what extent can lessons from the high-inflation episode inform the assessment of current and future shocks, such as geopolitical shocks related to the conflict in the Middle East and the associated energy price risks? In addressing these questions, this analysis focuses on the role of credibility, inflation expectations and the monetary stance in maintaining price stability. Section 2 focuses on the credibility of the euro area monetary policy strategy. It clarifies what anchoring means, how it can be assessed and how inflation expectations have evolved in recent years. Section 3 turns to the monetary policy stance and its transmission to the euro area economy. It provides empirical evidence on how the ECB responded to changing economic conditions and how, in turn, those responses shaped inflation and economic activity. Section 4 concludes with lessons learned.

2. Central bank credibility and anchoring of inflation expectations

The ECB's monetary policy strategy is built around a symmetric 2% inflation target over the medium term. The medium-term orientation allows limited, temporary deviations from target in response to (supply-side) shocks, provided long-run inflation expectations remain well-anchored to the inflation target. The underlying idea is that monetary policy cannot offset such shocks directly, and that inflation outcomes in the medium term depend critically on whether these shocks become embedded in inflation expectations and wage- and price-setting behaviour. A credible monetary policy, which is reflected in anchored inflation expectations, can prevent initial inflation pressures from becoming persistent. It is therefore a prerequisite for an effective monetary policy particularly in a more uncertain, shock-prone inflation environment.

2.1 Why inflation expectations matter for inflation persistence

Large shocks can push inflation above 2% in the short term, and these inflationary pressures could become more persistent if indirect and second-round effects materialise. Indirect effects arise through production networks or disruptions in global supply chains. A cost shock in a key sector (e.g., energy) raises production costs for downstream industries, which may pass these increases on to customers. Through such input-output linkages, shocks that are initially sector-specific can have broader and more persistent macroeconomic effects. The same holds for supply chain disruptions, like the blockade of the Strait of Hormuz, which has reduced the international transport of oil and gas products by almost 15% since the onset of the conflict. Second-round effects arise when an initial inflation shock feeds into wage- and price-setting behaviour. Inflation expectations are an important indicator of such effects (Lane, 2026; Schnabel, 2026). If the ECB's commitment to price stability is perceived as less credible, longer-term expectations may drift away from the ECB's target. Price-setting and wage formation could then become more responsive to shocks, reinforcing inflationary pressures unless offset by a timely monetary policy response. In this case, inflation persistence would become self-sustaining and costly to reverse. Indirect and second round effects thus entail non-linear risks to inflation (Lagarde, 2026). These risks have become particularly relevant in a world of high uncertainty and more frequent large supply-side shocks.

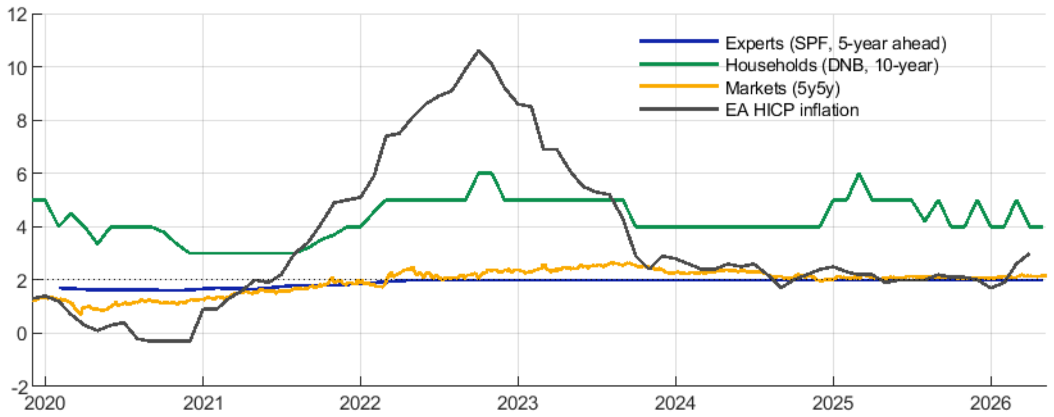
2.2 Assessing the anchoring of inflation expectations

The credibility of monetary policy is best assessed through long-term inflation expectations across different groups of agents. Short-term expectations naturally fluctuate with incoming inflation news – such as energy prices or supply disruptions — without necessarily signalling a loss of confidence in the central bank's commitment to its target. By contrast, longer-term expectations should remain anchored at the central bank's target if policy is credible, and drift only if that credibility erodes. That is why central banks monitor a range of agents — households, firms, financial market participants, and professional forecasters — each providing a distinct perspective on inflation expectations (Figure 2). Household expectations influence wage growth demands and consumption patterns, while firms' expectations shape changes in price-setting. Market-based measures and surveys among professional forecasters provide information on investors' and experts' assessment of the inflation outlook. When expectations are aligned across these groups – even amid large short-term inflation fluctuations – this provides strong evidence that the central bank's credibility is intact.

Inflation expectations can be measured using two approaches. The first relies on survey data, which provide a direct reading of agents' views. In the euro area, a key source is the ECB's *Survey of Professional Forecasters* (SPF), which collects quarterly HICP inflation forecasts from a panel of around seventy experts over a long and consistent sample, allowing a comparison across cycles. More recently, central banks have introduced surveys of households and firms.[2] A key advantage of survey measures is that they allow analysis of disagreement and sources of heterogeneity across participants. The second approach relies on market-based measures.[3] In the euro area, inflation-linked swaps are actively traded and are available at high frequency, which allows expectations to be tracked in real time. These measures combine pure expectations and inflation risk premia, which must be disentangled using a model.

Figure 2. Average inflation expectations and inflation over time

Percent



Source: Bloomberg, ECB SPF, DNB calculations. Notes: Expert expectations are from the ECB's SPF, household expectations from the DHS and LISS surveys. Sample period from December 2019 until April 2026 for household expectations, until 11 May 2026 for market expectations and until April 2026 for HICP. ECB SPF is quarterly from 2020Q1-2026Q2.

Three complementary dimensions of anchoring can be distinguished: level anchoring, uncertainty anchoring and shock anchoring.[4] First, *level anchoring* refers to how closely long-term inflation expectations remain tied to the central bank's target (see Figure 2). Persistent deviations from 2% signal weaker anchoring. Second, *uncertainty anchoring* refers to how concentrated expectations are around the inflation target. In other words, it measures how much forecasters agree with each other about long-run inflation, and how confident each one is in their own forecast. This is illustrated in Figures 3-5 in the next subsection. Even if average long-run inflation expectations across agents are close to 2%, wide disagreement across agents or high individual uncertainty of agents around their best guess of future inflation may signal a weaker anchoring of expectations. Third, *shock anchoring* (also referred to as sensitivity anchoring), captures the extent to which inflation shocks are transmitted to long-term inflation expectations. Shock anchoring can be examined through the responsiveness of long-term expectations to identifiable inflation shocks or through co-movement between long-term and short-term inflation expectations. Well-anchored expectations imply limited sensitivity or responsiveness.

[2] Examples of household surveys include the ECB Consumer Expectations Survey (CES), the DNB Household Survey (DHS) and the Longitudinal Internet Studies for the Social Sciences (LISS). The ECB's Survey on the Access to Finance of Enterprises (SAFE) collects views of firms in the euro area. Longer-running firm surveys are conducted by the Bank of Italy and the Banque de France.

[3] In this analysis, market-based measures of inflation expectations are not adjusted for inflation risk premia, which compensate investors for bearing inflation risk. These premia reflect both uncertainty about the inflation outlook and the price attached to that risk. They can account for a sizeable part of movements in inflation-linked swap rates, especially at longer horizons (ECB, 2021). As a result, the estimated sensitivity of market-based measures may differ from — and at times exceed — that of the underlying expectations component, which is conceptually closer to survey-based forecasts.

[4] See Ball and Mazumder (2011), Bernanke (2007), Galati et al. (2023), Kumar et al. (2015), Neri et al. (2022), and Reis (2021).

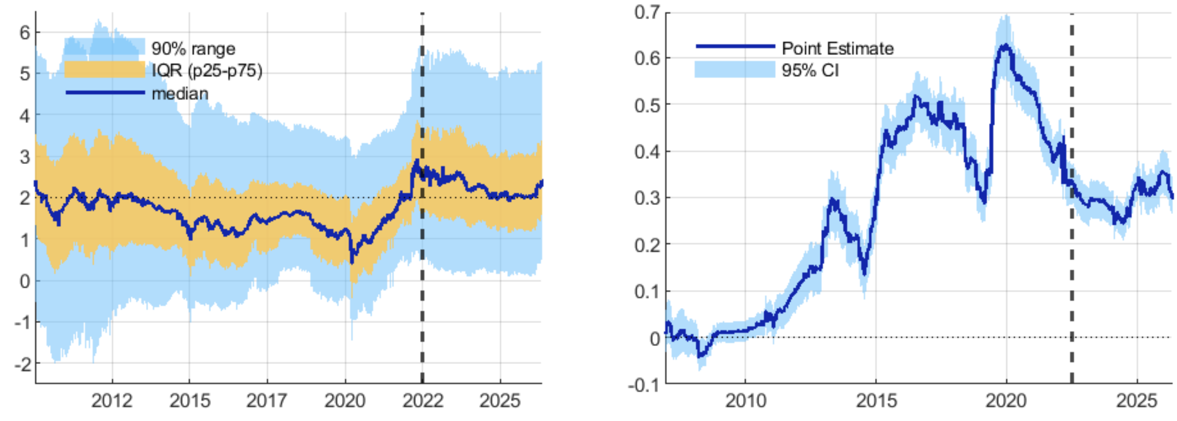
2.3 The ECB's response to inflation and the anchoring of inflation expectations

Large shocks following the Covid-19 pandemic generated substantial inflationary pressures, yet inflation expectations remained broadly anchored – albeit with some residual vulnerabilities – likely supported by the ECB's policy response. After several years of low inflation, during which expectations of market participants and professional forecasters had drifted below the ECB's target, the euro area was hit by a sequence of large inflationary shocks in 2021-2022. The reopening of the global economy in 2021, followed by the Russian invasion of Ukraine in February 2022, led to a sharp rise in headline inflation across the euro area and other economies. From mid-2022 onwards, the ECB responded forcefully to this surge. Inflation subsequently reversed course, declining towards levels close to – though still slightly above – 2% (Figure 1). Evidence across different measures and dimensions of anchoring suggests that, since the start of the tightening cycle, expectations have remained broadly anchored, despite some vulnerabilities.

2.3.1 Financial markets

After several years of deviations from target, market-based inflation expectations appear to have been anchored in terms of their level since markets started to price in ECB hikes in Q2 2022. Level-anchoring had weakened during the low-inflation period of 2015-2020, when policy rates were constrained by the effective lower bound (ELB) and expectations drifted below the ECB's target. As inflation surged, expectations rebounded in 2021 and briefly overshot in late 2021-early 2022 (Figure 3, left panel). As markets anticipated the tightening cycle by the ECB from spring 2022, this upward trend halted. In 2023-2024, following a series of sharp increases in policy rates and a rapid decline in realised inflation, long-term expectations moved back towards 2%, with only a slight uptick since March 2026. A similar pattern is visible in the dispersion of market-based inflation expectations: it increased during the inflation surge in 2021-2022 and declined thereafter, although it remains above pre-pandemic levels.

Figure 3. Market long-run inflation expectations: distribution and sensitivity
Lhs: Percent, rhs: percentage points



Source: Bloomberg, DNB calculations. Notes: LHS figure shows the median of market-based expectations of EA inflation over the next 10 years (the blue line) and the options-implied probability distribution of these expectations. The yellow area represents the interquartile range, while the blue area shows the 10-90% range. The RHS figure shows rolling estimates of the sensitivity of long-term inflation expectations (5y5y) to short-term inflation expectations (1y1y), based on 500-day rolling OLS regressions using two-day changes. The blue line shows the estimated coefficient, the shaded area represents 95% confidence intervals. In both panels the vertical dashed line indicates the first ECB rate hike on 1 July 2022. Last observation: 11 May '26.

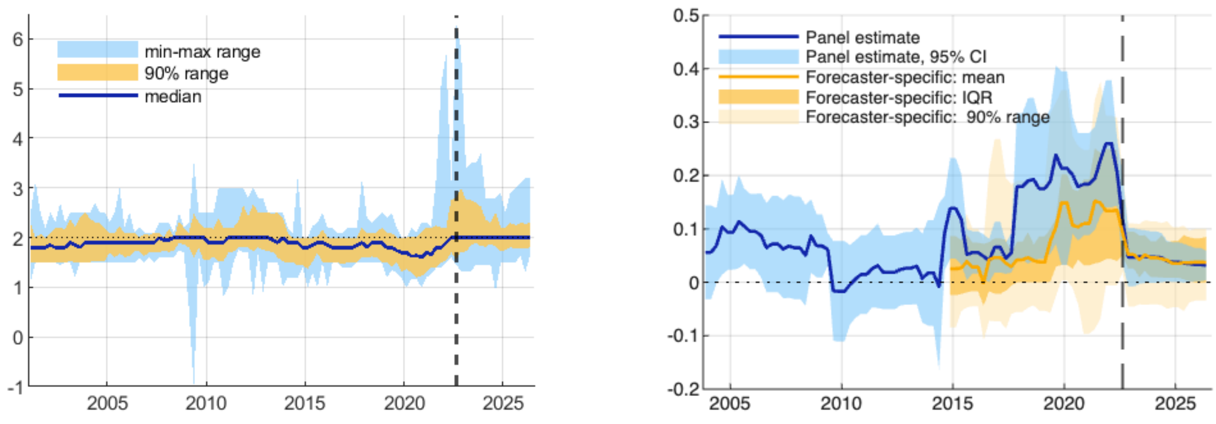
Evidence on the shock anchoring of market-based inflation expectations paints a broadly similar picture. The sensitivity of long-term inflation expectations (5y5y) to short-term inflation expectations (1y1y) had been close to zero prior to the Global Financial Crisis. In the years that followed, this sensitivity gradually increased, rising further during the low-inflation period, when policy rates were at the effective lower bound, and during the pandemic, peaking around 2020 (Figure 3, right panel). More recently, as inflation has declined, this sensitivity has fallen again, although it remains above zero. Over the full sample, a one-percentage-point revision in short-term expectations was associated, on average, with a 0.27 percentage point revision in long-term expectations. This indicates that long-term expectations are not fully insulated from short-term shocks. Taken together, these findings suggest that while level anchoring remains broadly intact, both uncertainty (Figure 3, left panel) and sensitivity to short-term shocks (Figure 3, right panel) have increased, pointing to some vulnerability in a more volatile inflation environment.

2.3.2. Professional forecasters

Professional forecasters' long-run inflation expectations remain broadly anchored around 2%, particularly since the time of the ECB's monetary tightening, although dispersion has increased somewhat more recently. Some signs of a downward drift in long-run expectations were evident during the low-inflation period of 2015-2020, but expectations recovered as inflation surged in 2021 (Figure 4, left panel). Since then, long-term expectations of professional forecasters have remained firmly anchored in level terms, with the median close to or at the ECB's inflation target, especially since mid-2022. By mid-2022, the mean had drifted up to around 2.2%, but by early 2024 it had moved back towards 2%. This stabilisation coincided with the ECB's forceful response to rising inflationary pressures. Dispersion shows a broadly similar pattern: it widened significantly during the inflation surge and narrowed markedly following the onset of monetary tightening. However, disagreement among forecasters remains above pre-pandemic levels and has edged up again more recently, driven by an increasing share of expectations above 2%.

Figure 4. Professional forecasters' long-run expectation distribution and sensitivity

Lhs: Percent, rhs: percentage points



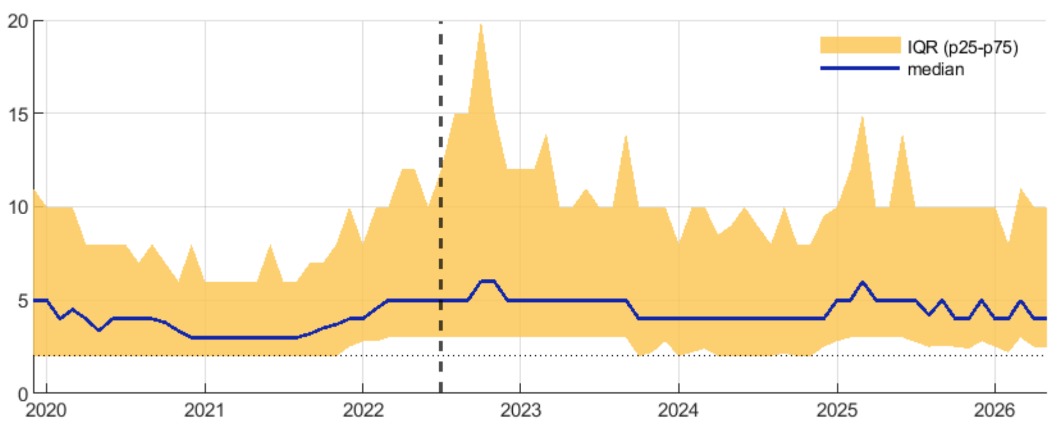
Source: ECB SPF, DNB calculations. Notes: The left-hand-side panel shows the distribution of 5-year-ahead inflation expectations; the last observation is 2026Q2. The right-hand-side panel shows the sensitivity of revisions in long-run expectations to revisions in short-run (1-year-ahead) expectations. The estimates are based on 20-quarter rolling-window regressions. The blue line shows the coefficient estimate from a panel regression with forecaster fixed effects. The yellow distribution shows the distribution of coefficient estimates from separate forecaster-level regressions. The later starting date reflects the limited number of forecasters with enough observations to estimate these rolling regressions. In both panels the vertical dashed line indicates 2022Q3.

Similar to market-based measures, the shock anchoring of professional forecasters' expectations weakened during the inflation surge and strengthened as the ECB tightened its policy. The sensitivity of long-run expectations to revisions in short-term expectations had increased since the mid-2010s and reached a peak during the inflation surge (Figure 4, right panel). Since the start of the ECB's tightening cycle in mid-2022, this sensitivity has dropped sharply. At the same time, sensitivity has differed substantially across individual forecasters, as illustrated by the wide yellow range in the right panel of Figure 4. Overall, the heterogeneity shown in Figure 4 is noteworthy, as professional forecasters typically follow macroeconomic developments and central bank communication closely. This is also consistent with a broader literature showing that even expert forecasts can display wide disagreement, overreaction to news and persistent belief distortions (Bordalo et al., 2020; Bianchi et al., 2022; Patton and Timmermann, 2010; Fisher et al., 2026).

2.3.3. Households

Households' expectations appear less firmly anchored to the ECB's target. Evidence from a representative survey of Dutch households points to a weakening of anchoring since inflation rose sharply above target in 2021.[5] First, households' expectations exhibit a systematic upward bias, which has widened since 2022. The median of long-term inflation expectations increased significantly during the inflation surge and has remained elevated even as inflation returned close to 2% in 2024 (Figure 5). This contrasts with the expectations of professional forecasters and market participants. Second, disagreement among households is substantially higher, as reflected in a wider interquartile range. Moreover, expectations are tilted towards higher inflation: mean expectations exceed the median. Third, households' perceived probabilities of high long-term inflation (4% or higher) have increased markedly during the period of above-target inflation (Galati et al., 2026). These findings suggest that in terms of level anchoring, Dutch households' long-term inflation expectations are not firmly anchored to the ECB's target. In terms of shock anchoring, ten-year ahead inflation expectations were considerably more responsive to realised inflation during the high-inflation period of 2021-2022, but have become less sensitive when inflation came down (Galati et al., 2026).

Figure 5. Household long-run inflation expectations
Percent



Source: DNB calculations. Notes: The vertical, black-dashed line indicates July 2022. The sample period runs until May 2026.

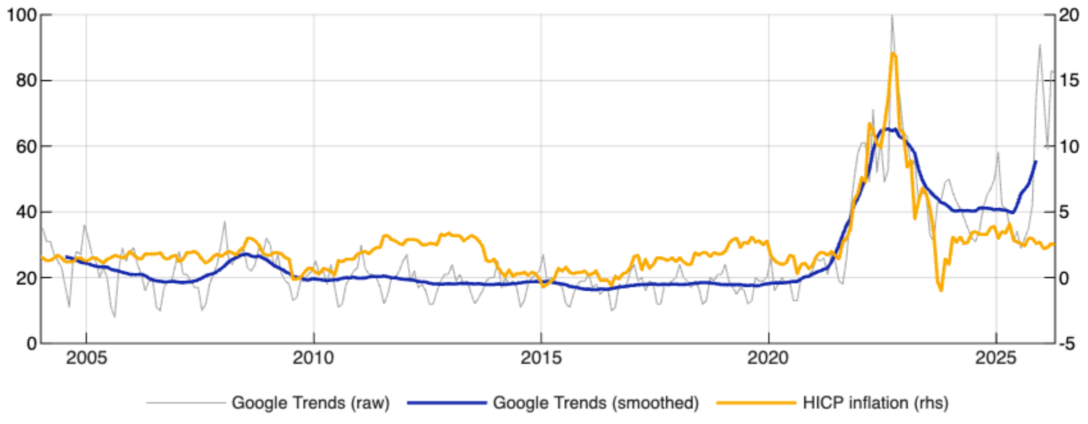
[5] The survey of Dutch households' expectations is conducted monthly among ~2400 participants by Centerdata since December 2019 and asks questions about the levels of their short- and long-term inflation expectations (1- and 10-years ahead respectively). Once every quarter, participants are also asked for probability distributions of their inflation expectations.

Results from the ECB Consumer Expectations Survey (CES), conducted among households in the six largest euro area countries point to a more nuanced picture. Five-year-ahead inflation expectations – which have been available since August 2022 – appear well anchored in level terms and their sensitivity to inflation surprises has been limited (Baptista et al., 2025). At the same time, the CES reveals considerable disagreement across households and uncertainty at the individual level. The differences between the CES and the Dutch household survey may partly reflect the longer forecast horizon used in the latter.

The literature offers various explanations for the weaker anchoring of households' inflation expectations, which are shaped by the economic environment and past inflation experiences.[6] In periods of low and stable inflation, expectations tend to be relatively inert, as consumers become rationally inattentive to news about inflation (Lamla and Vinogradov, 2019). When inflation rises sharply, expectations adjust abruptly: as households pay greater attention to inflation - particularly of salient goods and services - and their expectations become more sensitive to current prices (Pfäuti, 2026). This is consistent with evidence from Google Trends (Figure 6), where search interest in "Inflation" surged and has remained elevated even as inflation has declined.[7] Sharp rises in inflation can trigger the recall of similar past inflationary episodes, contributing to abrupt adjustments in expectations (Gennaioli, Leva, Schoenle and Shleifer, 2025). More broadly, lifetime inflation experiences can leave lasting scars, implying that another high-inflation episode could make households' expectations more sensitive to future inflation surprises (Malmendier and Nagel, 2016; Nagel and Malmendier, 2026). This effect could be reinforced by households' tendency to focus on price levels: when salient prices are perceived as high, inflation is also perceived to be high. Taken together, these mechanisms suggest weaker anchoring of expectations in environments with frequent price changes. Even if long-run expectations currently appear stable, elevated attention to inflation, combined with renewed inflationary shocks, could prompt upward revisions in household expectations, increasing the risk of de-anchoring.

Figure 6. Attention to inflation

Google trends: Index points (max=100), HICP inflation: Percent



Source: Google trends, Eurostat and DNB calculations. Notes: The grey line shows Google Trends searches of the topic "Inflation" in the Netherlands. The blue line is a 12-month centred moving average of the raw search interest. The yellow line measures HICP inflation as a year-over-year rate in the Netherlands. The sample period goes from January 2004 until April 2026.

[6] For a detailed overview of the different explanations, see Weber et al. (2022) and D'Acunto et al. (2024).
[7] One recent study examines the gap between household expectations and those of experts in terms of the disagreement in the narrative of drivers of inflation between general and specialized newspapers (Trebbi, 2025).

3. The monetary policy stance and time-varying transmission

This section studies how the ECB adjusted its policy stance during the recent inflation episode and how those decisions affected inflation and economic activity. The main idea is simple: the ECB changes policy rates when the economy changes, and those interest-rate decisions then feed back into the economy. Because this interaction is unlikely to be fixed over time, the analysis uses a model that allows both the ECB's policy response and the transmission of policy to vary across periods. This makes it possible to assess how the ECB responded as inflation surprised to the upside, whether monetary policy transmission changed during the recent tightening cycle, and how much policy contributed to the subsequent disinflation.

3.1 A time-varying model of monetary policy and the economy

Monetary policy and the economy interact in both directions: the ECB sets policy rates in response to economic conditions, which in turn respond to monetary policy. Capturing this two-way relationship requires a framework in which a set of key economic variables can jointly influence each other over time. The *Vector Autoregression* (VAR) is a standard tool economists use for this purpose. It is a system of equations in which each variable depends on its own past values and on the past values of all the others. Our model contains five variables: HICP inflation, the output gap, the short-term interest rate (our measure of the monetary policy stance), and the growth rates of bank lending and of stock prices, which capture credit and financial conditions.[8] The model is estimated with Bayesian methods on quarterly data from 1999Q1 to 2025Q4, using the algorithm in Arias et al. (2026).

A key feature of the model is that it allows both the ECB's response to economic conditions and the broader relationships in the economy to evolve over time. This flexibility matters because two decades of euro area history offer multiple reasons why such relationships might have shifted. For long stretches of the sample the policy rate was constrained by the ELB, with the ECB conducting policy primarily through non-standard measures. The economy was also hit by exceptionally large shocks — the global financial crisis, the sovereign debt crisis, the COVID-19 pandemic, and recent geopolitical shocks — which raised the volatility of inflation and economic activity far above its usual range. Slower-moving forces may have been at work as well, such as the secular decline in real interest rates, changes in the slope of the Phillips curve, or shifts in the speed at which monetary policy is transmitted to inflation and economic activity. The model allows these relationships to drift gradually over time, along with the size of the shocks affecting the economy (Primiceri, 2005; Cogley and Sargent, 2005). The model can thus deliver a picture of monetary policy and its transmission that may look quite different in 2022 than it did in 2008.

One of the equations in the model captures the conduct of monetary policy: how the short-term interest rate responds to economic conditions. This equation represents the *systematic* part of monetary policy: the regular, data-dependent way in which the ECB adjusts its policy stance in response to inflation, economic activity, and credit and financial conditions when deciding the appropriate level of policy rates. It also allows this policy response to change over time. The ECB's actions, however, are not always fully explained by this systematic behaviour; deviations from it are interpreted as monetary policy *shocks*. Box 2 explains this decomposition in intuitive terms. To distinguish the two components, we combine two sets of identifying restrictions. First, we impose sign restrictions (Uhlig, 2005) on how the variables respond to a monetary policy shock, consistent with economic theory: a shock that raises the short-term interest rate

[8] The output gap is computed as detrended real GDP based on a HP-filter. We use the 3-month Euribor as a proxy for the policy rate, as it is available consistently over the full sample, but it also captures expectations about the rate path over the very near term.

lowers stock prices on impact, while loan growth, economic activity, and inflation decline within a few quarters. Second, we impose restrictions on the ECB's reaction function inspired by Arias et al. (2018) and Arias et al. (2026): all else equal, the ECB raises rates in response to higher inflation, stronger activity, or faster credit growth.[9] Beyond these restrictions, the model is left unrestricted, in particular we do not separately identify demand or supply shocks.

Box 2: The interest rate equation explained

Today's short-term interest rate =
(a) response to contemporaneous (current) economic and financial conditions
+ (b) response to lagged (past) economic and financial conditions
+ (c) response to the lagged interest rate
+ (d) monetary policy shock

(a) + (b) + (c): systematic monetary policy (=rule) (d): deviation from rule (=shock)

Example: Suppose energy prices jump and inflation rises. The central bank may respond immediately by raising the policy rate through (a), its reaction to current economic conditions. A more hawkish central bank will typically raise rates more strongly; a more dovish one will move more cautiously. Even if no new shock occurs next quarter, rates may still increase further because the earlier inflation rise continues to matter through (b), the response to past conditions, and because policy rates are often adjusted gradually through (c), the response to the lagged interest rate. If inflationary shocks occur repeatedly, both (a) and (b) can keep pushing rates up. The gradual adjustment is known as interest rate smoothing. It reflects the tendency of central banks to avoid abrupt rate changes, partly because the effects of monetary policy are uncertain and partly to limit unnecessary financial volatility. Any additional rate change beyond this systematic pattern — for example because the central bank reacts to risks not fully captured by the model, or because with hindsight the decision may be seen as a policy mistake — is captured by (d), the monetary policy shock.

In the next sections, we use this model to examine why inflation and interest rates evolved as they did during the recent inflation episode (Section 3.2), whether the ECB's policy response and the effects of monetary policy changed over time (Section 3.3), and — through counterfactual analysis — how monetary policy contributed to the recent disinflation (Section 3.4).

3.2 Explaining the ECB's interest-rate response during the inflation surge

The results suggest that the ECB's response to the inflation surge unfolded in two phases. In 2021 and early 2022, inflation repeatedly surprised to the upside, while the short-term rate remained below the path implied by the ECB's estimated response to economic conditions. This reflected a cautious interest-rate

[9] Pure sign restrictions on impulse responses can pick up non-monetary shocks whose impulse responses superficially resemble those of a monetary policy shock — the "shock masquerading" problem highlighted by Wolf (2020). Additional restrictions on the systematic component of monetary policy as in Arias et al. (2026) mitigate this concern by directly constraining the parameters of the ECB's reaction function rather than relying on impulse response signs alone. The analysis focuses on the short-term interest rate as the primary monetary policy instrument and does not separately model non-standard measures such as TLTROs, the APP, and the PEPP. The reaction-function restrictions are accordingly not imposed during the effective lower bound period, when the ECB could not freely adjust the short-term rate and relied primarily on these non-standard tools.

response in an environment of high uncertainty, even as the ECB adjusted other parts of its policy stance. Once the hiking cycle began in mid-2022, policy became more forceful, with short-term rates eventually moving somewhat above the model-implied benchmark. The following analysis first asks whether the recent episode differed from earlier periods, before examining the two phases in more detail.

Most movements in short-term interest rates reflect the ECB's systematic response to evolving economic conditions, both over the full sample and during the recent inflation episode. As explained in Box 2, the model decomposes changes in the short-term interest rate into a systematic component and a monetary policy shock component. The systematic component is further split into a contemporaneous response to shocks hitting the economy and a lagged, predictable component. Table 1 shows that systematic monetary policy accounts for most short-rate movements, while monetary policy shocks explain only around one fifth of the total.[10] The contemporaneous component captures the ECB's immediate response to new information, while the lagged component reflects the gradual adjustment of policy to past macroeconomic developments and the tendency of central banks to smooth interest rate changes over time. This gradual adjustment has been particularly important in the post-pandemic period, when a sequence of inflationary shocks pushed policy rates in the same direction over several consecutive quarters.

Table 1. Decomposing EA short-rate movements: systematic policy vs shocks

Percent

	Systematic response		Monetary policy shock
	Contemporaneous	Lagged/predictable	
Full sample (1999-2025)	41.5	35.6	22.9
Non-ELB sample	42.9	36.0	20.9
Post-Covid (2021Q2-2025)	32.7	48.9	17.8

Source: DNB calculations. Notes: Decomposition of the 4-quarter cumulative change in the short-term interest rate into contributions from three components: the predictable component, the unpredictable component due to non-monetary policy shocks (=contemporaneous systematic), and the unpredictable component due to monetary policy shocks. Relative contributions are computed four quarters ahead for each rolling forecast origin and then averaged across the relevant sample period: the full sample in the first row, the non-ELB sample in the second row, and the post-Covid period in the third row. The non-ELB sample excludes 2012Q4-2022Q1.

Table 1 provides the broad picture: a closer look at two key episodes tells us more about the recent inflation cycle.[11] The first is the initial phase of the inflation surge from mid-2021 (Figure 7), when inflation rose sharply while the policy rate remained unchanged. The second is the subsequent tightening cycle starting in mid-2022 (Figure 8), when the ECB raised rates at a fast pace. In both figures, the black solid line shows the actual path, while the black dotted line shows what the model would have expected at the starting date if no new shocks had occurred and economic relationships had remained unchanged.[12] The difference between these two lines is the forecast error. The bars split this forecast error into contributions from monetary policy shocks (blue bars) and non-monetary shocks, such as demand and supply shocks (yellow bars). For the short-term interest rate panels, the red dotted line shows the path implied by the ECB's systematic policy response

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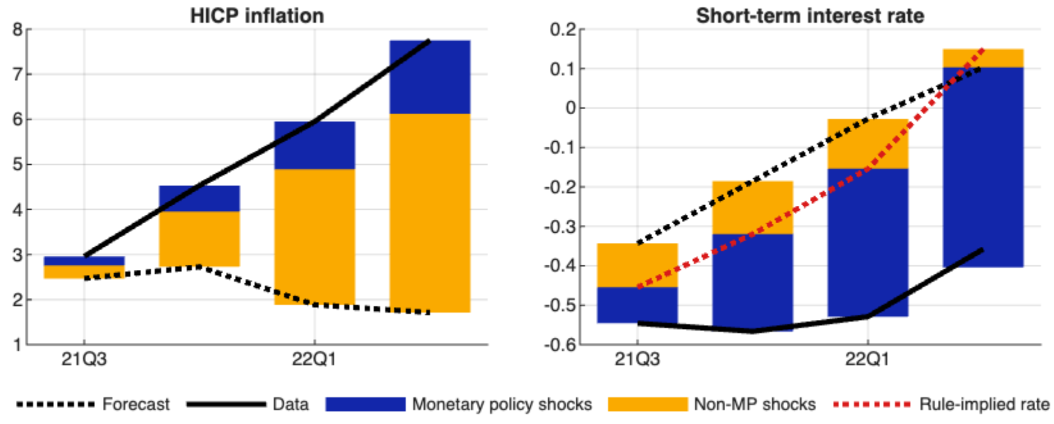
[10] Our model is a small-scale model containing key variables, while in practice the ECB monitors a wide array of indicators. Therefore, the identified monetary policy shocks may partly reflect ECB responses to information or risks not explicitly included in the model.
[11] For earlier analyses on the inflation surge also see the following DNB analyses: Ascari et al. (2023) and Bonomolo et al. (2024).
[12] Of course, in reality shocks are never equal to zero and the further out one forecasts the more likely that the economic relationships also change relative to the starting point. We address the role of changes in economic relationships in section 3.3.

to those non-monetary shocks. The gap between the red dotted and black dotted lines captures this systematic response, while the gap between the black solid and red dotted lines captures monetary policy shocks.

During the first episode, inflation rose by more than expected while the short-term interest rate remained below the path implied by the ECB's systematic policy response (Figure 7). As inflation surged through 2021 and early 2022, the ECB did begin to adjust its policy stance by changing forward guidance and winding down asset purchases, but policy rates remained unchanged until July 2022. Figure 7 therefore shows two developments: inflation moved above the model forecast, while the short-term rate remained below the model-implied policy response, as shown by the black solid line lying below the red dotted line. The inflation surprise mainly reflects non-monetary shocks, including the stronger-than-expected post-pandemic recovery, supported in part by fiscal policy, as well as Russia's invasion of Ukraine and the associated rise in gas prices. In this environment of exceptional uncertainty, not least surrounding Covid and the then-new Omicron variant[13], the interest-rate response was initially more cautious than the systematic policy response implied by the model.

Figure 7. Decomposition of forecast errors as of 2021Q2

Percent



Source: DNB calculations. Notes: The black dotted line shows the model forecast assuming no further shocks, based on information available in 2021Q2 and parameter values estimated at that date. The red dotted line shows the interest rate path implied by the estimated policy rule as of 2021Q2, given the shocks hitting the economy, i.e. the model's systematic monetary policy response. The black solid line shows realised data. Bars show the decomposition of forecast errors into monetary policy and all other (non-monetary policy) shocks. HICP inflation is measured as the year-on-year rate.

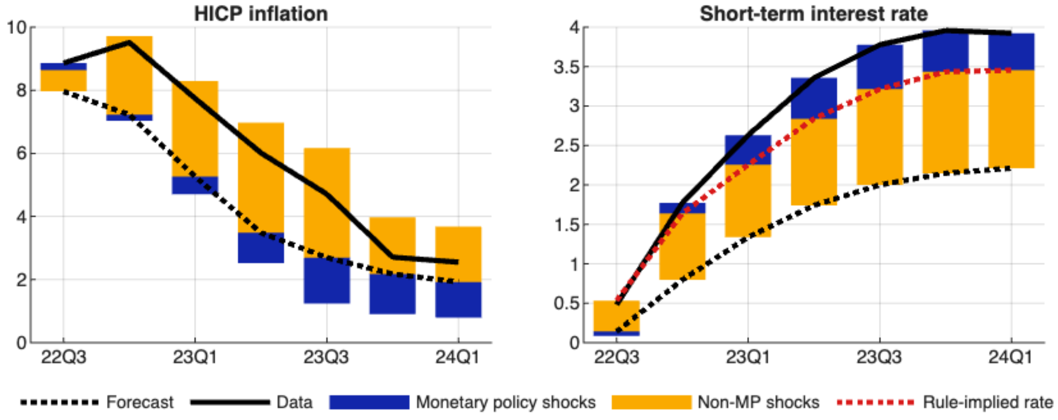
Once the hiking cycle began, however, the ECB tightened more forcefully, with short-term rates moving above the model-implied policy response in 2023 (Figure 8). In this phase, persistent inflationary pressures and the gradual adjustment of policy rates generated an aggressive hiking cycle. The decomposition attributes most of the movement in short-term rates to the systematic component of policy, with a smaller contribution from monetary policy shocks. Toward the end of the hiking cycle, policy was somewhat more restrictive than the systematic policy benchmark would have suggested, contributing to a faster return of inflation towards target. This later phase also coincided with some upward pressure on long-run inflation

[13] Although vaccination rates increased substantially over the course of 2021, the emergence of the Omicron variant in late 2021 led to the reintroduction of containment measures in several countries and renewed uncertainty about the economic outlook. At the same time, it was still unclear how persistent supply bottlenecks and energy-price increases would prove to be.

expectations, as discussed in Section 2, making the risk of de-anchoring a relevant policy consideration. Taken together, the evidence points to an initially cautious rate response followed by forceful tightening as inflation proved stronger and more persistent than previously expected.

Figure 8. Decomposition of forecast errors as of 2022Q2

Percent



Source: DNB calculations. Notes: The black dotted line shows the model forecast assuming no further shocks, based on information available in 2022Q2 and parameter values estimated at that date. The red dotted line shows the interest rate path implied by the estimated policy rule as of 2022Q2, given the shocks hitting the economy, i.e. the model's systematic monetary policy response. The black solid line shows realised data. Bars show the decomposition of forecast errors into monetary policy and all other (non-monetary policy) shocks. HICP inflation is measured as the year-on-year rate.

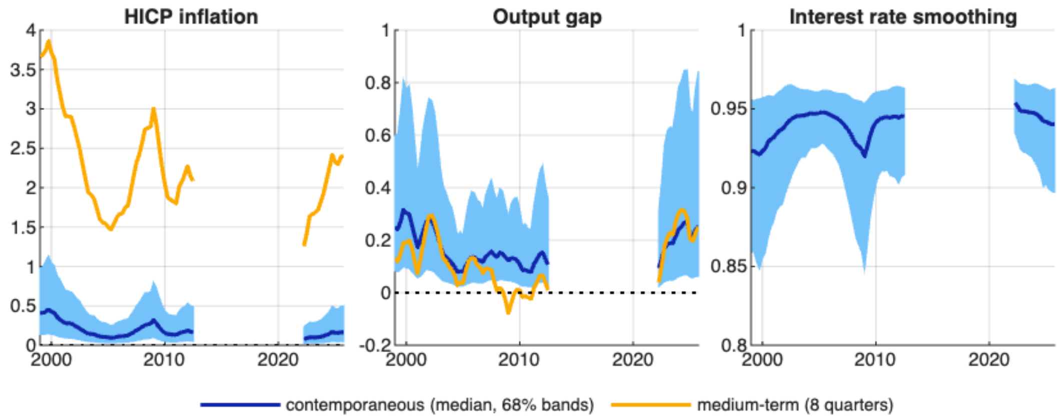
3.3 Time-variation in systematic policy and strength of transmission

The model can also show whether the ECB's policy response and the transmission of monetary policy changed over time. The previous section explained which shocks drove recent inflation and interest-rate movements**.** Here, we ask whether the underlying relationships themselves changed over time. We focus on two relationships: how the ECB systematically responds to inflation and economic activity, and how policy-rate decisions affect prices and activity. The first is captured by the estimated coefficients in the interest-rate equation. The second is captured by the estimated response of inflation and real activity to a change in the interest rate. We distinguish between the overall strength of transmission and the inflation-output trade-off. Stronger transmission means that inflation and real activity respond more to a given interest-rate change. A favourable trade-off means that inflation can be brought down at a lower output cost. The main finding is that the ECB's reaction function remained strongly focused on inflation stabilisation, while the recent tightening cycle appears to have benefited from relatively strong transmission to inflation and a comparatively favourable inflation-output trade-off.

The strength of the ECB's systematic response has varied over time, but has always remained strongly geared towards bringing inflation back to target. Figure 9 shows the estimated coefficients of the systematic monetary policy rule for inflation and output, together with the degree of interest rate smoothing. The contemporaneous coefficients (blue) capture how much the short-term interest rate is raised *within the same quarter* in response to a 1 percentage-point increase in inflation or output. On average over the sample, the ECB raises the short-term rate by around 0.2 percentage points within the same quarter when inflation or output increase by 1 percentage point. The medium-term coefficients (yellow) show the increase in the short-term interest rate *after two years*, assuming inflation or output remain one percentage point higher throughout. For the output gap, the contemporaneous and medium-term responses are broadly similar. For inflation, by contrast, the medium-term response is much larger: a contemporaneous response of around 0.2 rises to above 2 after two years. This reflects a gradual adjustment of policy rates, with the response building up over time in line with the high estimated degree of interest rate smoothing. The resulting medium-term response to inflation is well above one-for-one, consistent with the Taylor principle and a policy rule focused on stabilising inflation over the medium term. The post-pandemic period illustrates how the ECB's systematic response adapted as the policy environment changed. As the ECB emerged from a long period in which policy rates had been at or near the effective lower bound, the systematic response to inflation was initially relatively gradual. This reflected both the uncertainty surrounding the end of the pandemic and the legacy of the low-inflation environment, including existing forward guidance, asset purchases and a preannounced sequencing of policy tools. However, this gradualism proved temporary: as inflation broadened, the systematic response to inflation strengthened, and by 2024–25 had risen back to levels close to the pre-ELB average.[14] [15]

Figure 9. The ECB's reaction function (interest rate response) over time

Lhs and middle panel: percentage points; rhs panel: no unit



Source: DNB calculations. Notes: Left-hand-side and middle panels: the blue line and shaded area show the posterior median and 68% credible band of the estimated contemporaneous interest rate response to a 1 percentage point increase in inflation (left-hand-side panel) and the output gap (middle panel), respectively. The yellow line shows the response of the interest rate after 8 quarters, assuming inflation or the output gap remains 1 percentage point higher throughout. Right-hand-side panel: the solid line and shaded area show the posterior median and 68% credible band of the estimated degree of interest rate smoothing, that is, the share of the current interest rate inherited from its own past. Values close to one imply strong inertia; values close to zero imply little persistence and a faster adjustment of interest rates to current conditions. The ELB period is omitted.

The post-pandemic period stands out for relatively strong monetary policy transmission and a comparatively favourable inflation-output trade-off. Figure 10 shows how inflation and real activity respond over time to a monetary policy shock that raises the short-term interest rate by 25 basis points. The effects vary markedly over the sample. The response of activity is strongest around the COVID-19 pandemic

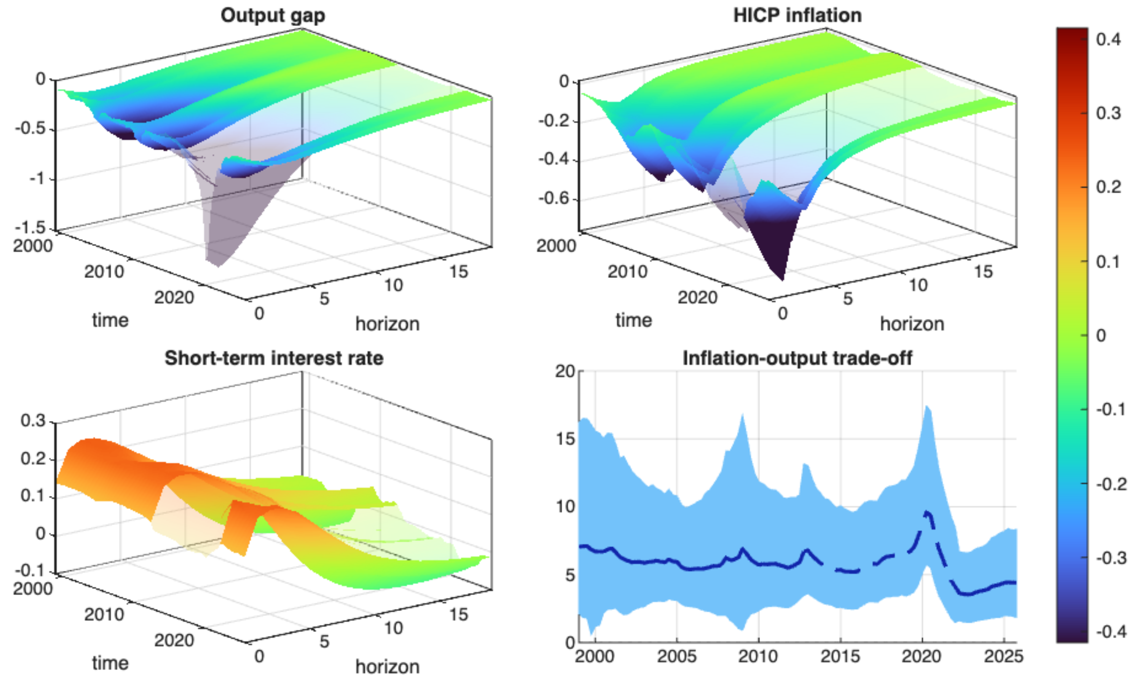
[14] Similar evidence is available from market-based estimates of the ECB's reaction function (see ECB (2025c)), and Bauer et al. (2024) and Bocola et al. (2025) for related work on time-varying perceptions of the monetary policy reaction in the US).

[15] Note that these estimates describe how the ECB's reaction function evolved over time; they do not provide a judgement on its optimality.

and, to a lesser extent, the global financial crisis, possibly reflecting the role of financial frictions in amplifying monetary policy transmission during periods of stress. By contrast, the effects on inflation are strongest in 2021–22, consistent with evidence that firms adjusted prices more frequently in the high-inflation environment (Gautier et al., 2026). Looking at the relative responses of inflation and output, the figure points to a more favourable inflation–output trade-off during the post-pandemic period. This is in line with recent evidence for a broad set of advanced economies, as well as for the euro area specifically (Forbes et al., 2025; Bobasu et al., 2025; Zlobins, 2025).[16] It also links back to the role of credibility discussed in Section 2. Compared with the inflation surge of the 1970s and early 1980s, long-term inflation expectations remained much better anchored during the recent episode. This likely made disinflation less costly: when households and firms expect inflation to return to target, tighter monetary policy can reduce inflation without also having to counteract a self-reinforcing rise in expectations. In this sense, credibility was an important asset in bringing inflation back towards 2% without an unusually large decline in economic activity.[17] Overall, the relatively favourable post-pandemic inflation–output trade-off helps explain why monetary policy could contribute to disinflation without causing unusually large output losses or a deep recession.

Figure 10. Euro area monetary policy transmission over time

Percentage points



Source: DNB calculations. Notes: Time-varying impulse response functions to a monetary policy shock that raises the short-term interest rate by 25 basis points. Responses during the effective lower bound (ELB) period are shown with reduced opacity. The inflation–output trade-off is computed as the ratio of the cumulative output-gap response to the cumulative inflation response over 20 quarters following the shock. The solid line shows the posterior median; the blue shaded areas show 68% credible bands.

[16] Possible mechanisms include a steepening Phillips curve (Ascari et al., 2026; Blanco et al., 2026; Karadi et al., 2026), while other contributions place focus on inflation expectations and central bank credibility (Beaudry et al., 2024, Bocola et al., 2025).

[17] ECB (2025c) presents model simulations based on Dupraz and Marx (2023) showing that, without well-anchored expectations, the recent disinflation would have been slower and more costly.

3.4 Monetary policy contribution to disinflation

A central question for the recent euro area inflation episode is how much monetary policy contributed to the path of inflation. This is difficult to quantify directly, as inflation was shaped by many forces at the same time, including energy prices, supply disruptions, demand conditions, fiscal policy and expectations. Economists therefore often use counterfactual exercises that compare the actual path of the economy with alternative paths in which monetary policy followed a different course. Such exercises do not determine the optimal policy path, but help illustrate how inflation and economic activity might have evolved under alternative policy responses. The ECB's monetary policy strategy assessment (ECB, 2025c), for example, presents a counterfactual in which policy followed market pricing as of December 2021, implying almost no tightening. On average across models, the analysis suggests that inflation would have been 1.5–2 percentage points higher in *each year* from 2023 to 2026 had the ECB not tightened as observed. This represents a relatively extreme scenario and serves as a useful benchmark.[18] The estimate is also likely to be a lower bound, as it abstracts from risks of de-anchoring inflation expectations, despite high-for-long inflation. In what follows, we consider two more incremental counterfactuals. In the first, we assume that the ECB also started to tighten in summer 2022, but did so less forcefully, mimicking a more gradual tightening pace of 25 bp per meeting – the "historical norm" – rather than the aggressive hikes (up to 75 bp per meeting) that it in fact implemented. In the second counterfactual, we assume that the ECB followed the reaction function observed in the pre-GFC period (2002–07) from the beginning of 2022 onward, directly after the decision to end net asset purchases had been announced. This rule was characterised by less interest rate smoothing and a somewhat stronger response to inflation.[19]

Counterfactual exercises suggest that monetary policy contributed significantly to the recent disinflation, while also illustrating the trade-offs involved in adjusting policy (Figure 11). Under the 'gradualist' counterfactual (blue), inflation would have declined more slowly and remained higher for longer, while the output gap would have been more positive. This highlights the role of the ECB's forceful tightening in bringing inflation down. While this came at the cost of some economic activity, the ECB achieved what economists refer to as a "soft landing": no recession took place. Under the second counterfactual (orange), short-term rates start rising from January onward (despite the Omicron outbreak and before the start of the war in Ukraine) and remain around 50-75 bps above the realised path thereafter. Rates reach a similar peak of around 4% as in the data, but a few quarters earlier. In this scenario, inflation peaks around 2 percentage points below the observed peak of about 10% in late 2022. Although this earlier tightening takes place in an environment characterised by a comparatively favourable inflation–output trade-off, it still comes with a noticeable output cost. The output gap would have been around 1 percentage point lower on average in 2022-2024, turning negative instead of remaining close to balance. Importantly, the output-gap measure used here

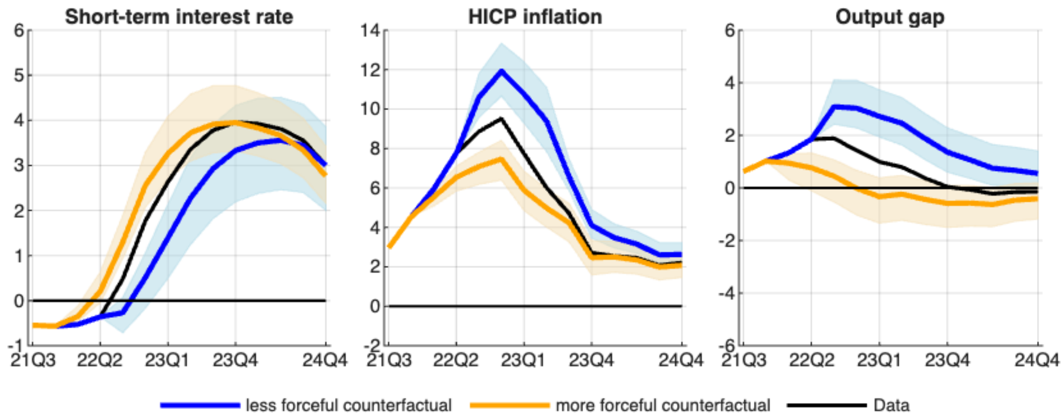
[18] ECB (2025c) presents a range of counterfactual simulations, including counterfactuals based on market-implied policy paths (e.g. Chart 4) but also optimal-policy exercises (Section 2.2.3). These are based on time-invariant, linearised frameworks. Instead, the analysis here allows for time variation in the policy response and in monetary transmission.

[19] The first counterfactual is implemented via a 75 bp monetary easing shock in 2022Q3. The second counterfactual follows the approach by Sims and Zha (2006) and is implemented by changing the reaction function coefficients. In principle, the latter exercise is subject to the Lucas (1976) critique, since it holds the rest of the economy fixed and therefore abstracts from possible changes in the behavior of households and firms when monetary policy changes. These concerns are mitigated to some extent in a time-varying Bayesian framework such as ours, because policy behavior evolves stochastically over time and the reaction-function coefficients imposed in the counterfactual lie within the model's historically plausible range for much of the sample. In that sense, the counterfactual policy paths may be less likely to constitute a genuine surprise to private agents. For related discussion, see also Primiceri (2005). Recent work by McKay and Wolf (2023) and Barnichon and Mesters (2023) developed counterfactual approaches that address Lucas-critique concerns more explicitly.

is based on full-sample information and therefore benefits from hindsight; in real time, estimates of economic slack were subject to considerable uncertainty. Taken together, the two exercises suggest that monetary policy played an important role in supporting disinflation: a less forceful response would have left inflation higher for longer (also implying risks to anchoring), while an earlier, more activist, response could have limited the inflation surge but at a non-negligible cost in terms of economic activity. The exercise is therefore informative about the trade-offs involved, rather than an assessment of the optimal policy path.[20]

Figure 11. Counterfactual policy paths

Percent



Source: DNB calculations. Notes: Solid black lines show realised data. The blue line and shaded area show the posterior median and 68% credible band for a counterfactual in which the ECB increases interest rates less forcefully by sticking closer to hikes of 25 bp per meeting (the "historical norm"). It is implemented via a 75 bp monetary easing shock in 2022Q3. The orange line and shaded area show a counterfactual in which the ECB follows the estimated pre-GFC reaction function (2002–07) from 2022Q1, corresponding to a more "activist" and forceful policy response. HICP inflation is measured as the year-on-year rate.

[20] ECB (2025c) present optimal policy counterfactuals and demonstrate that conditional on the projections available in *real time*, deviations of monetary policy from optimality have not been large and show no systematic pattern over the period from December 2021 until June 2024. With the *benefit of hindsight*, optimal policy would have suggested to raise interest rates earlier and more aggressively, resulting in a lower inflation peak but also lower output growth. Importantly, these optimal policy counterfactuals abstract from risk and uncertainty around the economic outlook and do not take into account possible time-variation in the effectiveness of monetary policy or non-linearities that have likely been relevant during this episode.

4. Lessons learned

ECB credibility is the first line of defence. The term credibility refers to the degree of confidence that the public has in the central bank's determination and ability to fulfil its mandate. A credible commitment to the ECB's symmetric 2% inflation target anchors long-term inflation expectations, which in turn stabilises wage- and price-setting behaviour and facilitates the return of inflation to target after a shock. Anchoring is not one-dimensional and it has three parts: level, uncertainty and shock anchoring. Compared with the inflation surge of the 1970s and early 1980s, long-term inflation expectations remained much better anchored during the recent episode, especially after the ECB started tightening in mid-2022. Households remain the weak spot. Their inflation expectations are typically higher than those of financial market participants and professional forecasters, and after living through a period of high inflation, their attention to inflation remains elevated.

Maintaining credibility requires a timely and appropriately forceful response to emerging inflationary pressures. The model-based analysis suggests that the ECB's response was forceful once it got going, but the initial response was sluggish. In 2021 and early 2022, the ECB did react to changing conditions, but more slowly than the model's systematic rule would have implied. This caution partly reflected substantial economic uncertainty around the end of the pandemic, and our analysis relies partly on ex-post estimates of economic conditions rather than real-time data. Even so, analyses based only on information available at the time suggest that the ECB could have hiked a few months earlier (ECB, 2025c). Once tightening began, the ECB caught up with more forceful hikes than the systematic rule would have implied, especially in 2023. In other words, the later response partly compensated for the earlier caution (see also Bonomolo et al. (2024)). Overall, the policy response helped return inflation to target while expectations remained broadly anchored.

Overall, the ECB managed to bring down inflation to target, without causing too much harm to the economy. The role of the policy tightening is illustrated by a counterfactual analysis. It suggests that, if the ECB had still started tightening in summer 2022 but had stuck to its 'usual' hiking pace of 25bp per meeting, inflation would have fallen more slowly and remained higher for longer. This could also have posed risks to anchoring. Conversely, an earlier, more activist response would likely have lowered the inflation peak, at the cost of a notable drop in output. This would have arisen despite the relatively strong monetary transmission to inflation and the comparatively favourable inflation-output trade-off during the post-pandemic period.

The recent experience highlights the importance of agility: the ECB should be ready to adjust policy, whenever necessary. The ECB's slow start reflected genuine economic uncertainty, but also the use of policy tools such as forward guidance (i.e. promises about the path of policy rates) and quantitative easing, that were difficult to reverse at short notice and contributed to the persistence of policy. In a world that has become more volatile and uncertain, the costs of such policies increase.

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