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Working Paper

ECB policy and strategy review: Potential improvements

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STUDY

Requested by the ECON committee

Monetary Dialogue Papers, March 2025



ECB Policy and Strategy Review: Potential Improvements



ECB Policy and Strategy Review: Potential Improvements

Abstract

The euro area experienced an unprecedented surge of inflation in 2021 and 2022 followed by a decline in 2023 and 2024. The ECB raised policy rates too late. Simple rules would have prescribed an earlier response. The policy easing since summer 2024, however, is quite in line with such rules. This experience provides a number of lessons that could lead to improvements in the policy strategy that is currently under review. The current level of policy rates appears appropriate. However, there are some important upside risks to inflation.

This document was provided by the Economic Governance and EMU Scrutiny Unit at the request of the Committee on Economic and Monetary Affairs (ECON) ahead of the Monetary Dialogue with the ECB President on 20 March 2025.

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs.

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CONTENTS

LIST OF ABBREVIATIONS	6
LIST OF BOXES	8
LIST OF FIGURES	8
EXECUTIVE SUMMARY	9
1. INFLATION AND POLICY RATES: WHERE DO WE STAND	10
1.1. The surge of inflation and its subsequent decline	10
1.2. The late response of policy rates and the role of forward guidance	13
2. DID THE ECB REACTION FUNCTION CHANGE?	18
3. SIMPLE RULES PROVIDING (FORWARD) GUIDANCE	21
3.1. Calculating policy prescriptions	21
3.2. Forecast-based versus outcome-based rules	23
3.3. Rules from the Fed's report	25
4. RISKS TO THE OUTLOOK	27
4.1. Current forecasts and lessons from past forecast performance	27
4.2. Potential risks going forward	32
5. CONCLUSIONS AND RECOMMENDATIONS	38
REFERENCES	40

LIST OF ABBREVIATIONS

CES	Consumer expectations survey
CPI	Consumer price index
DFR	Deposit facility rate
EA	Euro area
ECB	European Central Bank
ECON	Committee on Economic and Monetary Affairs
EMS	European monetary system
EU	European Union
Fed	United States Federal Reserve
FOMC	Federal Open Market Committee
GCEE	German Council of Economic Experts
GDP	Gross domestic product
GNP	Gross national product
HICP	Harmonized index of consumer prices
LNG	Liquefied natural gas
MRO	Main refinancing operation
OECD	Organisation for Economic Co-operation and Development
OIS	Overnight index swap
OW	Orphanides and Wieland (2013)
PCE	Personal Consumption Expenditure
SAFE	Survey on the access to finance of enterprises
SMA	Survey of monetary analysts
SPF	Survey of professional forecasters
STR	Short-term rate

TPI Transmission protection instrument

US United States

LIST OF BOXES

Box 1: Factors contributing to the rise of inflation	17
Box 2: Calculating policy rate prescriptions from simple rules	22

LIST OF FIGURES

Figure 1: Inflation: Euro area and US	10
Figure 2: Components of the HICP	11
Figure 3: Euro area: consumer price index and inflation target (Jan-2018=100)	12
Figure 4: Inflation differentials across the euro area	13
Figure 5: Inflation and central bank interest rates	14
Figure 6: Inflation decomposition according to Ascari et al. (2024)	17
Figure 7: Policy rates relative to consumer price inflation over time	18
Figure 8: Policy rates relative to domestic inflation (GDP deflator) over time	19
Figure 9: Ex-post real policy rate versus domestic inflation minus 2%	20
Figure 10: Interest rate prescriptions from Taylor's (1993) rule	21
Figure 11: Interest rate prescription from forecast-based OW rule	23
Figure 12: Interest rate prescriptions from outcome-based OW rule	24
Figure 13: U.S.: Monetary policy rules from the Federal Reserve's Report	25
Figure 14: ECB staff projection of core HICP inflation (6 March 2025)	27
Figure 15: Actual inflation and inflation expectations and forecasts (one-year-ahead)	28
Figure 16: Inflation expectations and forecasts error (one-year-ahead)	29
Figure 17: Actual inflation and inflation forecasts (one-quarter-ahead)	30
Figure 18: Policy rate and simple rule forecasts published by Norges Bank	32
Figure 19: Firms' inflation expectations	33
Figure 20: Households' inflation expectation uncertainty	34
Figure 21: 10-year German government bond yields (5-minute resolution data)	36
Figure 22: Average probability distribution of TPI activation expectations	37

EXECUTIVE SUMMARY

- The euro area experienced an unprecedented surge of inflation in 2021 and 2022. However, the ECB kept rates on hold well into 2022. As a consequence, real policy rates declined as inflation rose and this contributed to the rise of inflation. Reasons for the late response included the explicit commitment (forward guidance) to let inflation rise above target for some time together with a large forecasting failure.
- Simple monetary policy rules that respond to recent data on inflation and output gaps prescribed higher policy rates well in advance of the interest rate hikes of the ECB in 2022 and 2023. Inflation declined in 2023 and 2024. However, the policy easing implemented by the ECB since summer 2024 appears quite in line with the prescriptions from such rules.
- Monetary policy in the euro area should rely less on medium- and longer-term forecasts. Instead, a greater focus on near-term developments in core inflation and domestic inflation is advisable. Simple policy rules responding to recent inflation and output data can provide useful guidance.
- The current monetary policy stance seems fairly appropriate. Yet, with the deposit facility rate been reduced below core inflation, the ECB may be well advised to wait with further rate cuts until core inflation and domestic inflation have converged more closely to the inflation target.
- The de-coupling from US interest rates may not be sustainable for much longer. A number of surveys indicate upside risks to inflation. Furthermore, a major shift towards debt-financed government spending including defence is under way adding further upside risks to inflation.
- The use of explicit, fixed forward guidance played a key role in the excessively late response of monetary policy to the surge of inflation in 2021 and 2022. It is not advisable to use forward guidance in this manner again. By contrast, ECB policy from 1999 to 2020 was characterised by the so-called Taylor principle. Inflation above target coincided with higher/positive real policy interest rates, inflation below target with negative real policy rates. This should be given more weight again in policy deliberations.
- Meanwhile, the ECB need not give up on the basic idea of forward guidance. This idea is not to try and manipulate expectations by financial market participants, business and households in a direction that they might regret afterwards. Rather, the idea is to conduct monetary policy in a way that makes it predictable and credible. The ECB's numerical inflation target, the publication of its policy strategy and the publication of staff forecasts contribute to making policy more predictable and credible. Similar to the Fed, the ECB should publish the prescriptions from a set of simple monetary policy rules that it considers useful benchmarks for monetary policy. The implications of these rules should then be considered regularly in policy deliberations.
- The ECB should consider publishing its own interest rate forecasts similar to other central banks. These forecasts do not constitute fixed forward guidance. They are adjusted with every meeting to prevailing economic conditions and the economic outlook. The Central Bank of Norway regularly publishes both, its forecast of the policy rate and a forecast of the prescriptions from a simple policy rule.
- Alternatively or additionally, it would be helpful if the ECB would publish a survey of inflation, growth and interest rate projections by the Governing Council members similar to the FOMC projections published by the Fed. This would help the ECB watchers assess a reasonable range of forecasts held by ECB decision makers and could serve to improve the forecasting processes at central banks and among market participants.

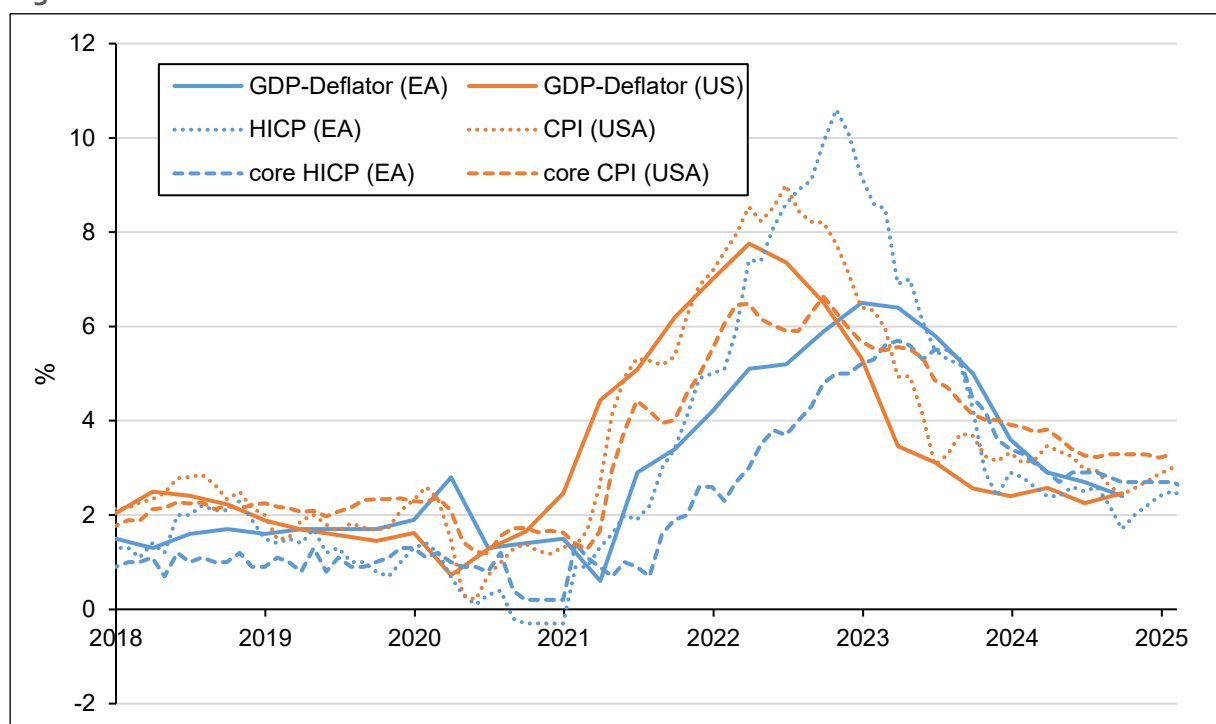
1. INFLATION AND POLICY RATES: WHERE DO WE STAND

1.1. The surge of inflation and its subsequent decline

The European Central Bank's (ECB) primary objective is price stability. This is laid down in the EU Treaties. Yet, the quantitative definition of this objective is up to the ECB. In 1999, the ECB had started out with a numerical inflation objective for the harmonised index of consumer prices (HICP) of an increase below 2% over the medium term. As a consequence of its first strategy review in 2003, it clarified that this was meant to be an increase in the HICP of below, but close to, 2%. Finally, as a result of its strategy review in 2020/21, the ECB announced a point target of 2% in July 2021. Subsequently, HICP inflation rose to more than 10% by the fall of 2022. What went wrong? What were the drivers? Did policy have anything to do with it, and if so, how can it be improved? Where do we stand now, what are the risks going forward, and what policy is needed to keep inflation closer to target in the future? Those are some of the questions that are relevant to the upcoming Monetary Dialogue between ECB President Lagarde and Members of the European Parliament from the Committee on Economic and Monetary Affairs (ECON) as well as to the 5-year review of the ECB strategy that is undertaken this year.

The euro area shared the experience of an unprecedented surge of inflation with other currency jurisdictions around the world including the United States (US). **Figure 1** compares the development of year-on-year inflation in the US (orange lines) and the euro area (blue lines). It includes three different types of measures, the headline index of consumer prices (US CPI, euro area HICP), the core index excluding energy and food prices (core CPI, core HICP) and the broadest measure of domestic inflation, the gross domestic product (GDP) deflator. The latter includes prices of investment goods, construction and government services, but excludes imported goods and services. Importantly, it captures domestic price rigidities that play a key role in the welfare cost of inflation.

Figure 1: Inflation: Euro area and US



Source: Eurostat and Federal Reserve Economic Data.

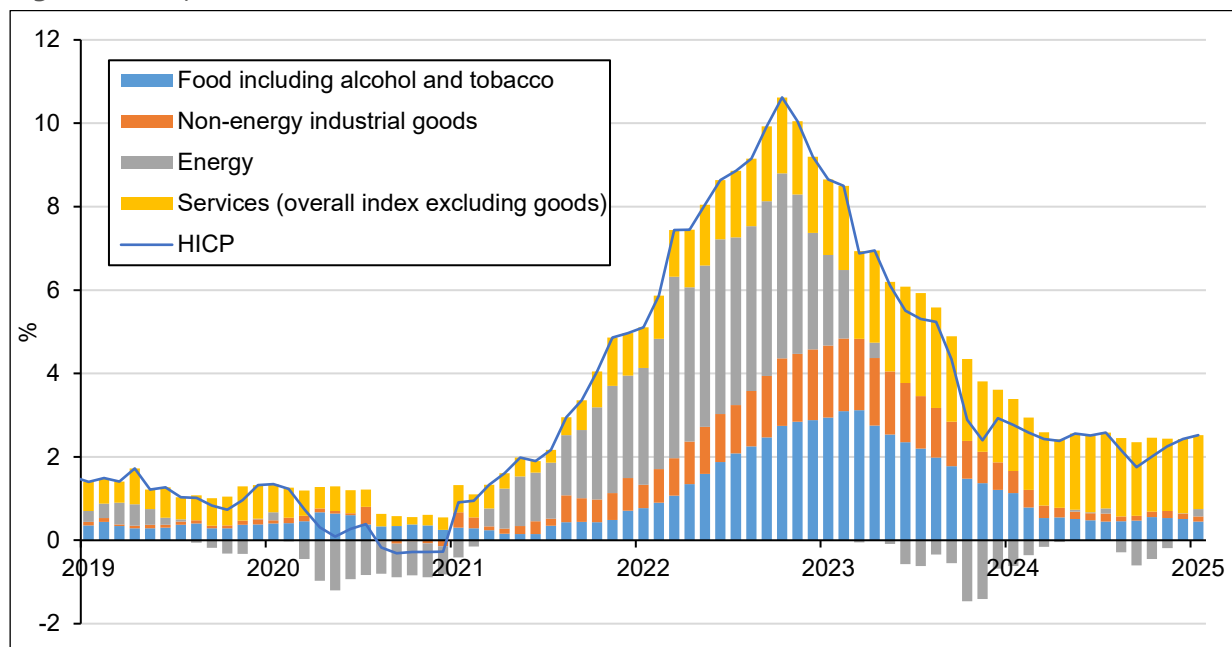
The rise of inflation began at the start of 2021. Interestingly, inflation had remained relatively stable during the COVID-19 recession in 2020 but surged in 2021 as economic activity resumed. Inflation rose further in 2022 following the Russian war of aggression against Ukraine. The war disrupted natural gas supplies and caused energy prices to skyrocket across Europe and elsewhere. Inflation then declined strongly in 2023 and more slowly in the first half of 2024.

Generally, inflation in the US occurred a bit faster and peaked earlier than in the euro area. In both economies, inflation was already far above the respective central bank's target by the end of 2021, even a good bit more so in the US. Thus, inflation had clearly taken off before the Russian attack on Ukraine in February 2022 and cannot just be blamed completely on Vladimir Putin. Yet, the war served as an accelerant.

While inflation has come down in 2023 and 2024 with the decline in energy prices, it remains distinctly above the inflation targets adopted by the Federal Reserve (Fed) and the ECB¹. In the euro area, it seems stuck at roughly 70 basis points above target. In the US, it even seems to be moving up a bit.

Figure 2 provides more details on consumer prices in the euro area. Energy prices (grey) declined in the coronavirus recession and moved back up during the recovery in 2021. Another sign that demand was back. The war in 2022 caused a disruption of supply, not only with regard to oil but also with regard to pipeline-dependent natural gas supplied in Europe and replaced by liquefied natural gas (LNG).

Figure 2: Components of the HICP



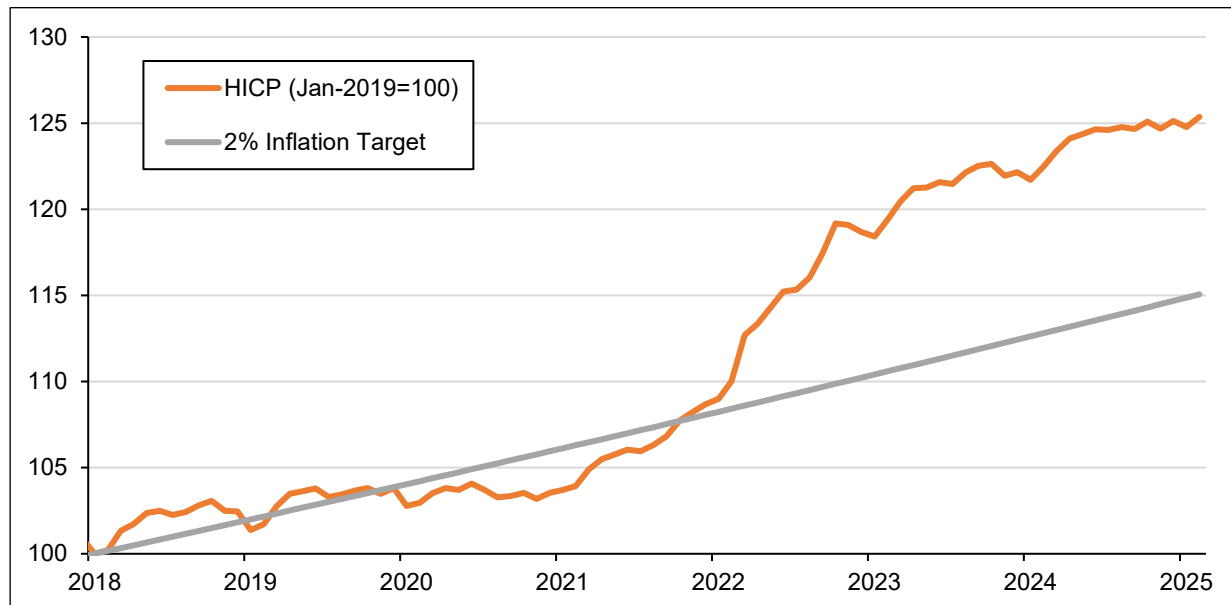
Source: Eurostat.

Non-energy industrial goods may have played a role in HICP inflation in 2022 due to supply-chain problems as demand recovered. Services inflation picked up as wages increased due to pressure to recoup purchasing power losses. And in 2024 service inflation is what keeps consumer prices rising faster than the ECB's target. This effect is even stronger in domestic inflation as indicated by the GDP deflator which comprises all domestically-produced goods and services. The overall loss of households' purchasing power during these three years was about 20%. This can be gleaned from the increase in the level of the HICP in **Figure 3**. From voter surveys it is understood that the large loss of purchasing power

¹ Note, the Fed defines its inflation objective with respect to the Personal Consumption Expenditure (PCE) deflator (not shown here) and not the CPI. Here, the CPI and core CPI are shown for better comparability with the euro area HICP.

and resulting frustrations of households and workers played a key role in elections in the US as well as euro area Member States.

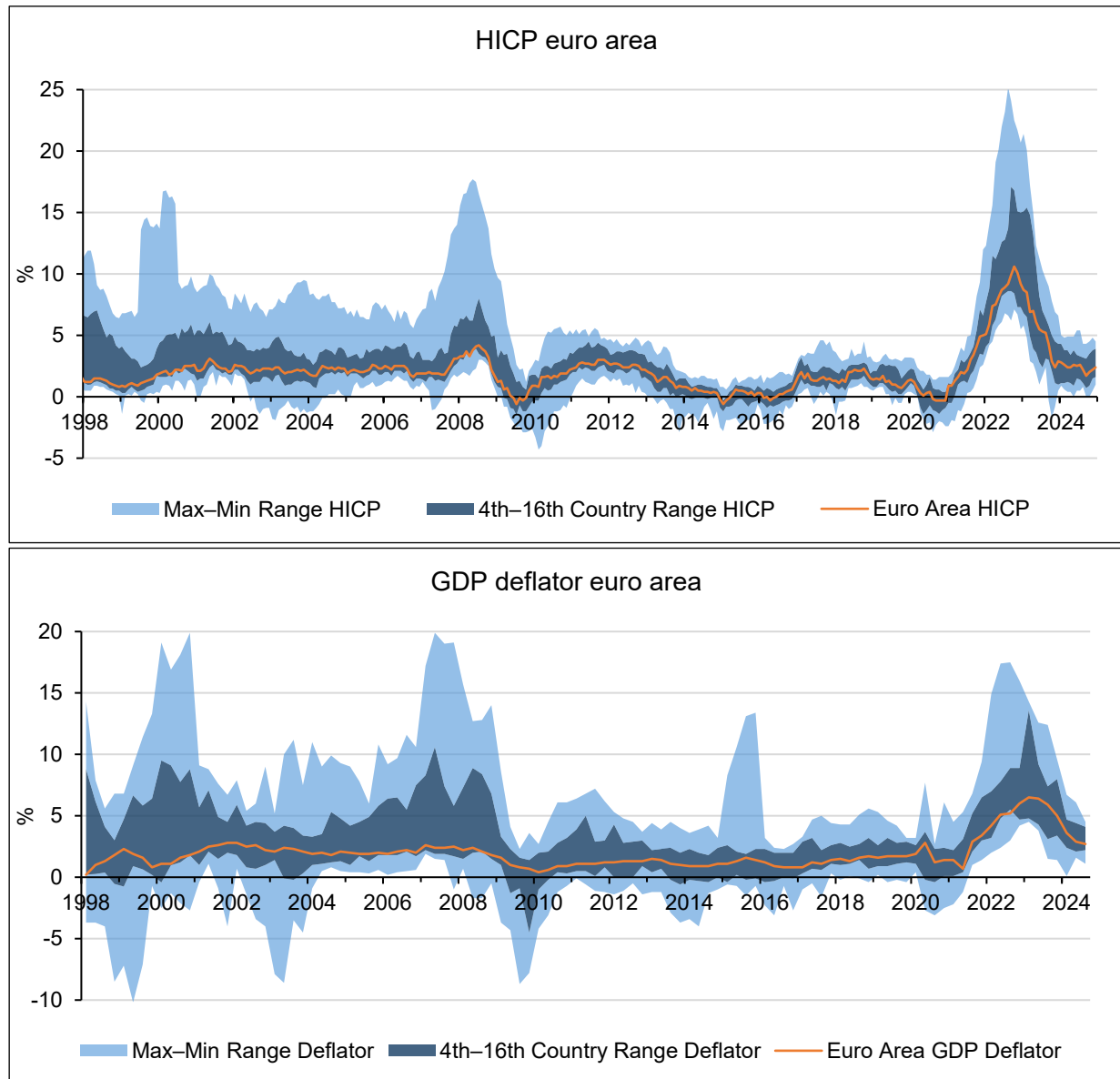
Figure 3: Euro area: consumer price index and inflation target (Jan-2018=100)



Source: Eurostat and authors' calculation.

As shown in **Figure 4**, inflation differentials between euro area Member States widened significantly during the energy crisis following the Russian attack on Ukraine. This is true for consumer price inflation as well as domestic inflation. There existed significant cross-country differences in terms of dependence on deliveries of natural gas and oil from Russia. Furthermore, the extent of price-fixing by governments concerning electricity and natural gas prices differed across countries resulting in heterogeneous fiscal costs.

With the decline of inflation rates, however, the heterogeneity has also declined. Inflation differentials have normalised. In fact, most recently, the difference between the country with the highest and the one with the lowest rate of inflation, whether it is measured by means of the HICP or the GDP deflator, is smaller than throughout most of the history of the euro area.

Figure 4: Inflation differentials across the euro area

Source: Eurostat and authors' calculation.

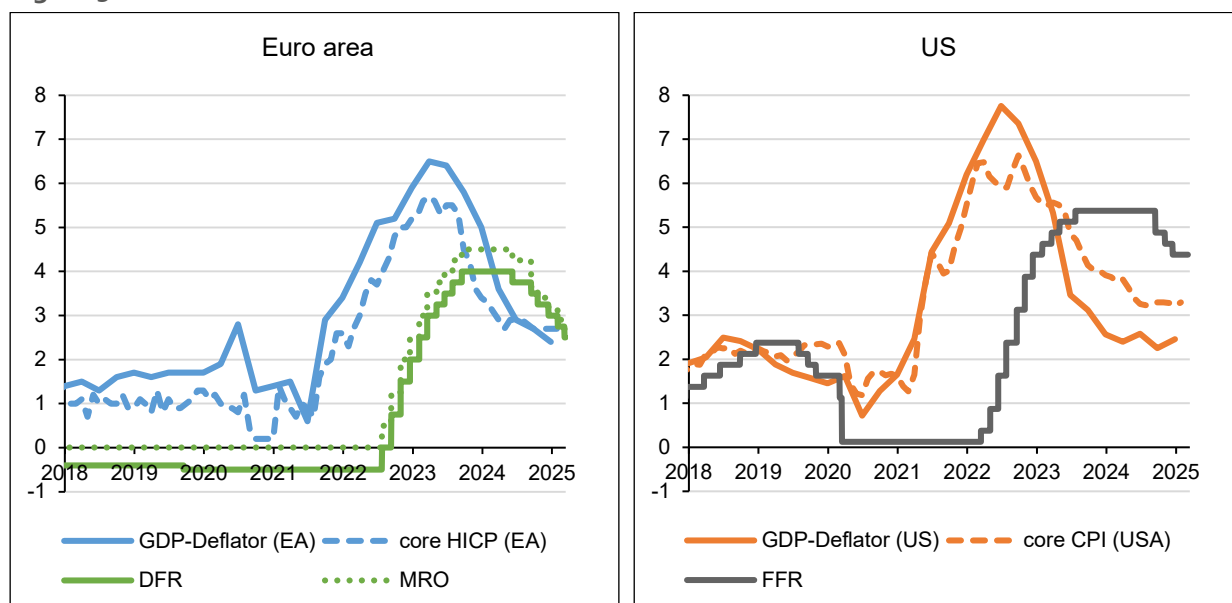
Note: The "Max-Min Range" represents the range between the highest and lowest values among the 20 Euro area countries for the HICP in each month and the GDP deflator in each quarter. The "4th-16th Country Range" excludes the three highest and three lowest values, showing the dispersion of inflation measures within this middle range. For consistency over time, the data shown here reflect the current 20 Euro area countries, rather than the changing composition used in other figures. Since HICP data for Croatia is only available from 1999 onward, only the other 19 Euro area countries are included for earlier periods.

1.2. The late response of policy rates and the role of forward guidance

For quite some time, central banks, including the Fed and the ECB, did not react to the increase in inflation by raising policy rates. As shown by **Figure 5** it took about 1 ½ years until interest rates were increased. The ECB kept the key policy rate that is the deposit facility rate, at a negative level of -0.5% until mid-2022, despite HICP inflation surpassing 5% already by the end of 2021. The Fed kept the federal funds rate (FFR) target at a range of 0-0.25% till March 2022, despite CPI inflation surpassing 7.2% already by the end 2021.

With inflation and inflation expectations rising during this period, ex-post and ex-ante real interest rates declined quickly. The effective easing of financial conditions served to boost aggregated demand. Demand exceeding supply allowed firms to raise prices quickly, and, once the energy crisis hit, to pass on cost increases to customers.

Figure 5: Inflation and central bank interest rates



Source: Eurostat and Federal Reserve Economic Data.

The Fed started raising rates in March 2022, a few months ahead of the ECB, and pursued a more aggressive tightening path. The ECB began raising interest rates in July 2022, continued tightening until mid-2023 and maintained the deposit facility rate at a level of 4% until September 2024 before easing gradually. While the ECB deposit facility rate (DFR) of 2.5% has now reached a level slightly below core inflation, the Fed's federal funds rate target of 4.25 to 4.5% remains far above core inflation in the US. Interest rate policy is diverging.

Importantly, the late response of interest rates to the rise of inflation above the ECB and the Fed's inflation targets, was in a sense pre-announced. It was part of the central bank's so-called "forward guidance". Applying its newly-revised strategy on 22 July 2021, the ECB provided the following forward guidance on monetary policy at its press conference:

"The Governing Council today revised its forward guidance on interest rates. We did so to underline our commitment to maintain a persistently accommodative monetary policy stance to meet our inflation target.

In support of our symmetric 2% inflation target and in line with our monetary policy strategy, the Governing Council expects the key ECB interest rates to remain at their present or lower levels until we see inflation reaching two per cent well ahead of the end of our projection horizon and durably for the rest of the projection horizon, and we judge that realised progress in underlying inflation is sufficiently advanced to be consistent with inflation stabilising at two per cent over the medium term. This may also imply a transitory period in which inflation is moderately above target."

This forward guidance played a key role in shaping the policy response to the rise of inflation. It implied that the ECB would accept a moderate, transitory rise of inflation beyond its target. Arguably, inaction on policy rates was consistent with this forward guidance. Not surprisingly, the ECB has been criticised

for waiting too long to raise interest rates. More recently, ECB President Lagarde explained that she regretted having felt bound by the forward guidance and referred to a failure of textbook cases and pure models.²

Similarly, the Fed conducted a review of its monetary policy strategy in 2020. As a result, it adopted a new framework of "flexible average inflation targeting." The Fed's new approach explicitly allows for a temporary overshoot of its 2% inflation target. In particular, coming out of a period of below-target inflation, this would, according to the Fed, help increase the long-run average inflation rate to 2% (Federal Reserve, 2020a). In implementing this strategy, the Fed issued the following forward guidance in its monetary policy statement on 16 September 2020 (Federal Reserve 2020b):

"With inflation running persistently below this longer-run goal, the Committee will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. The Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved."

Fed Chairman Jerome Powell, speaking at the Dallas Fed event on 14 November 2024, suggested that this approach might be open for debate in the future.³

Not only the respective forward guidance, but also the forecasts of the Fed and the ECB provided support for postponing a possible tightening of policy rates along with the observed rise of inflation and short-run inflation expectations. They considered the rise of inflation transitory and did not see a need for raising policy rates. In fact, the ECB's monetary policy statement of 9 September 2021, stated:

"The current increase in inflation is expected to be largely temporary and underlying price pressures are building up only slowly. The inflation outlook in our new staff projections has been revised slightly upwards, but in the medium term inflation is foreseen to remain well below our 2% target."

Furthermore, ECB representatives insisted throughout 2021 that the rise of inflation was transitory and inflation rates would soon decline again.⁴ Similarly, Fed officials gave speeches and interviews to express their view that inflation would quickly decline again without a policy tightening.⁵

However, expansionary monetary and fiscal policies that were initially aimed at stabilising the economy during the pandemic period contributed to prolonged inflationary pressures. Recent empirical research using US and euro area data suggests that demand-side factors played a major role in driving inflation

² See [Financial Times, 27 October 2023](#), Lagarde: "But what I regret personally is to have felt bound by our forward guidance," she adds, referring to the commitment the ECB had given not to start raising interest rates until it had stopped buying billions of euros in mostly government debt, which it did slowly over the first six months of 2022. "I should have been bolder." ... "But what we should have learned is that we cannot just rely only on textbook cases and pure models. We have to think with a broader horizon."

³ As reported by [Reuters, 22 November 2024](#), Chair Powell stated: "you don't promise an overshoot, you just target inflation". As early as 12 October 2022, Governor Bowman (2022), highlighted risks associated with the use of explicit forward guidance. She argued that explicit forward guidance may have contributed to an overly accommodative monetary policy stance, despite a significant rise in inflation in the first half of 2022.

⁴ See, for example, [Reuters, 23 September 2021](#), "Many of the drivers of a recent spike in euro zone inflation are temporary and due to fade in the next year, European Central Bank President Christine Lagarde said", or [Reuters, 8 November 2021](#), "Euro zone inflation will ease next year and remains too weak in the medium term, European Central Bank chief economist Philip Lane told a Spanish newspaper, repeating the bank's long-standing message that high price growth is temporary.", or [Reuters, 29 November 2021](#), "The ECB believes that inflation peaked in November, meaning it would be premature to raise interest rates as price increases look likely to slow gradually next year, ECB board member Isabel Schnabel said."

⁵ For example, Chicago Fed President Charles Evans said on [5 October 2021 on CNBC](#) that the Fed soon will be facing the familiar charge of keeping inflation elevated to healthy levels, and likely will have to keep rates low. As late as [November 18, 2021, Reuters](#) reported that he said monetary policy is in a "good place," and that he still "believes currently high inflation will recede next year and end 2022 closer to 2% than many people think", allowing the Fed to stay patient on policy. Other members of the FOMC voiced similar views through summer and fall of 2021.

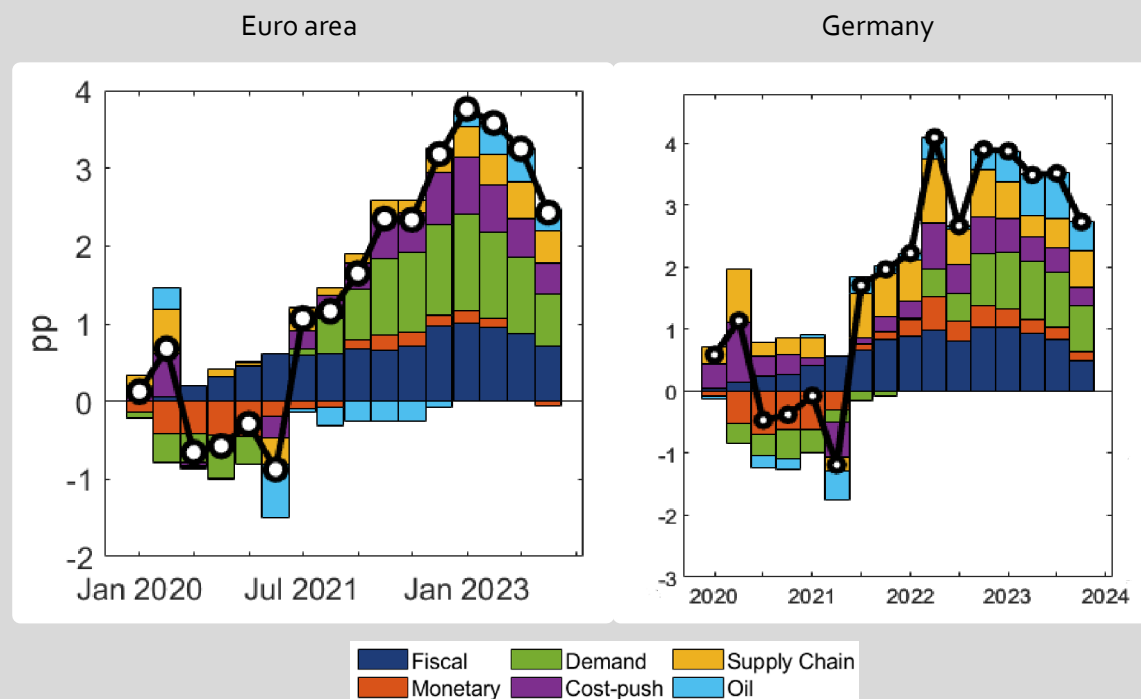
as discussed in **Box 1**. Accordingly, the support provided to aggregate demand helped allow firms to raise prices. Some studies suggest that demand-side impulses contributed more than half of the rise of inflation. Thus, blaming inflation exclusively or mostly on Vladimir Putin's war of aggression on Ukraine and the subsequent energy crisis is not right.

Furthermore, these studies shed new light on what monetary policy could have achieved. Monetary policy works on the demand side. Transmission to inflation via aggregate demand takes several quarters. However, earlier rate tightening could have served to counteract other demand-side forces at an early stage and well before they feed through to inflation. Additionally, a more cautionary communication would have highlighted the risks for more persistent inflation rather than the belief that it would subside by itself. Such a communication could have helped dampen the rise of inflation via the expectations channel of monetary policy. In fact, such an approach was recommended in time by standard monetary policy rules such as the Taylor rule (see section 3).

Importantly, several of these studies emphasise the link between the financing of expansionary fiscal policy via government debt and inflation. Fiscal dominance suggests that inflation may be driven at least partly by the need for financing fiscal measures by reducing the real value of nominal government debt. For example, Barro and Bianchi (2024) investigate the fiscal roots of inflation during 2020 to 2023 for 37 OECD countries, among them 17 Member States of the euro area. They suggest that about 80% of effective government financing came from the inverse effect of unexpected inflation on the real value of public debt, whereas only around 20% reflected conventional public finance (increases in current or future taxes or cuts in future spending).

Box 1: Factors contributing to the rise of inflation

Recent empirical studies by Barro and Bianchi (2023), Dynan and Elmendorf (2024), Giannone and Primiceri (2024) and Ascari et al. (2024) contradict the view that the surge of inflation was caused exclusively or even primarily by the war in Ukraine, the resulting energy crisis and other supply-side factors. They suggest that demand-side stimuli including monetary and fiscal policies, have contributed significantly to the sharp rise in inflation. To give an example of these empirical findings, we reproduce two panels from Ascari et al (2024) in **Figure 6**. They show a decomposition of domestic inflation (GDP deflator) into different impulses. Unexpected demand-side (green), fiscal policy (dark blue) and monetary policy (red) stimuli are distinguished from supply-side stimuli, such as supply chain problems (yellow), cost-push inflation (purple) and oil supply shocks (light blue). The calculations based on a Bayesian vector autoregression model, which identifies the stimuli with sign restrictions, demonstrate that the three demand-side drivers account for more than half of the rise of inflation in the euro area and in Germany.

Figure 6: Inflation decomposition according to Ascari et al. (2024)

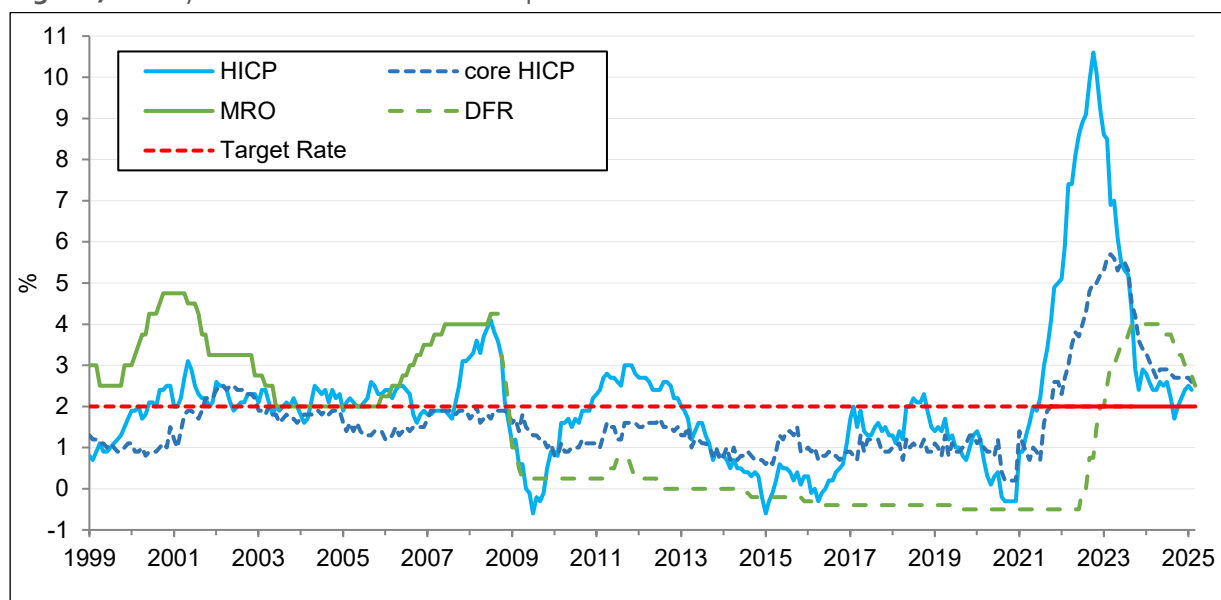
Source: Ascari et al (2024).

Notes: Breakdown of the inflation rate (GDP deflator) into 6 different impulses. Fiscal: fiscal policy, Demand: non-policy demand, Supply Chain: supply chain, Monetary: monetary policy, Cost-push: cost pressure, Oil: oil supply.

2. DID THE ECB REACTION FUNCTION CHANGE?

In order to judge the ECB's decision not to respond to the rise of inflation in 2021 with rate increases, it is of interest to check whether this constitutes a deviation from how interest rate policy was conducted before that, or whether it is fully consistent with past behavior. To shed some light on this question, we compare the key policy rate setting between January 1999 and February 2025 with inflation in **Figure 7**.

Figure 7: Policy rates relative to consumer price inflation over time



Source: Eurostat and ECB.

From January 1999 to September 2008, the relevant policy rate for money market conditions was the rate on so-called main-refinancing operations (MRO, green solid line). As of October 2008, the ECB changed its operating procedure to allocating its refinancing at a fixed rate with unlimited amounts (fixed rate full allotment). Since then, the demand-driven nature of the operating procedure has pushed money market rates down towards the DFR (green dashed line). Consumer price inflation is depicted by two measures, the headline HICP and the core HICP. The red target rate is set at 2%. During the earlier period of below (but close) to 2% it is dashed.

First, it is clear that the period from about 2000 and 2006 was the golden time of the ECB with respect to the objective of price stability. Consumer price inflation was stable and very close to 2%, which was the upper limit of the numerical objective. From 2007 to 2020, headline HICP was very volatile, but like core inflation, on average quite a bit below the objective.

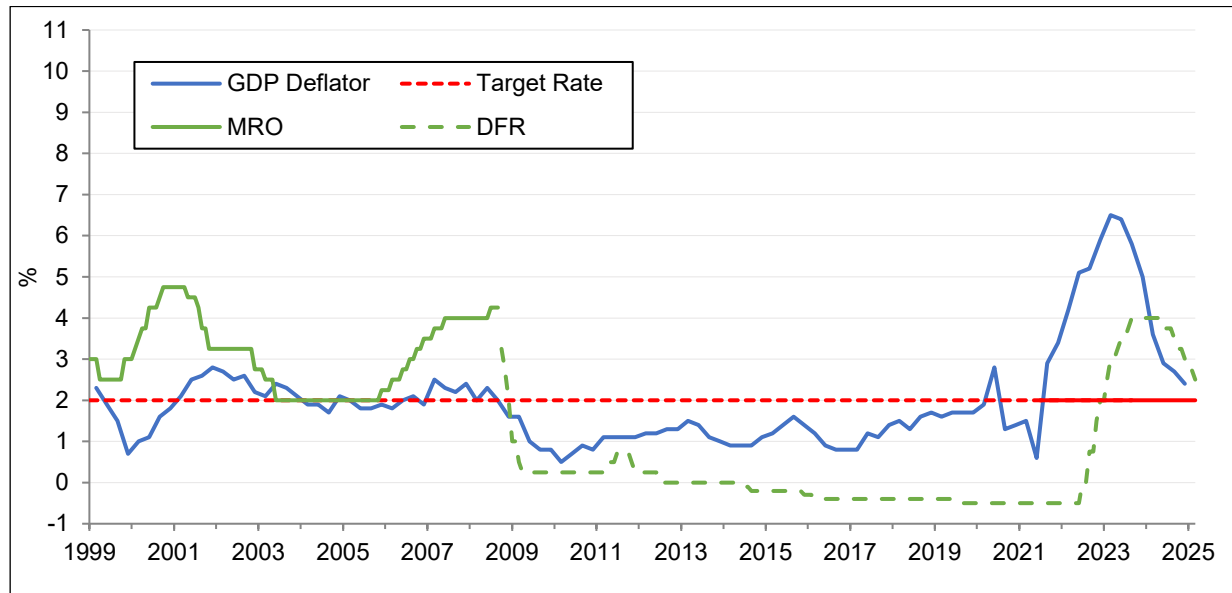
Interestingly, one can see a tendency of the policy rate exceeding (core) inflation, when inflation was above target. Similarly, the policy rate was typically lowered below (core) inflation, whenever inflation was significantly below target. This holds for both periods: 2000 to 2006 and 2007 to 2020. Of course, it does not hold from 2021 to 2023, as discussed previously.

Figure 8 repeats the comparison with domestic inflation measured by the GDP deflator. Again, the period from 2000 to 2006/7 stands out with domestic inflation very close to the 2% upper target limit. In 2008, inflation moved below 2% and remained mostly near 1% till about 2015. Afterwards it shows a slow movement back towards 2% by end of 2019, and a brief but not large drop in 2020.

The real policy rate, that is the MRO or DFR minus domestic inflation, was positive most of the times when inflation was near the target between 2000 and 2007, and negative when domestic inflation was below 2%, from 2008/9 to 2020. In that sense, monetary policy by the ECB between 1999 and 2020

reflected the so-called “Taylor principle — the requirement that interest rates be increased more than one-for-one in response to sustained increases in the inflation rate”(Woodford, 1999). The ECB deviated from this principle in 2021 and 2022 and in this way deviated from past practice. As a consequence, the real rate fell quickly with rising inflation, thereby providing more monetary accommodation.

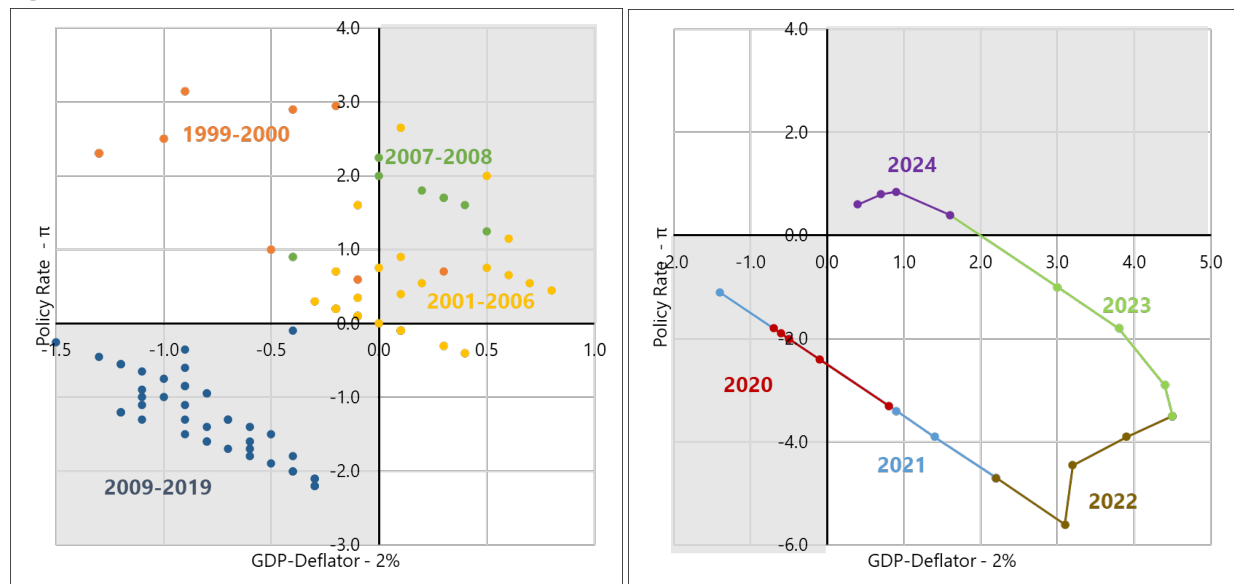
Figure 8: Policy rates relative to domestic inflation (GDP deflator) over time



Source: Eurostat.

Figure 9 provides another perspective on this aspect of the ECB’s reaction function. The two panels plot the ex-post real policy rate against domestic inflation minus 2%. The left panel focuses on the period from 1999 to 2019. The two quadrants in grey shade indicate the areas where the deviation of inflation from 2% and the ex-post policy rate are positively correlated. The top right quadrant shows data points for those quarters where the real rate is positive and inflation above target, the bottom left quadrant shows data for the quarters where inflation is below target and the real rate negative.

The top left quadrant contains data from 1999 to 2000, when inflation was rising but still below target at the start of European Monetary Union. At that time, the real rate was already positive. This was also a period when estimates of the equilibrium real interest rate, which determines the degree of restrictiveness of monetary policy for any level of the real policy rate, were typically still well above zero (see Beyer and Wieland 2019). Data points from 2001 to 2008 are mostly in the top right quadrant. The low interest rate period from 2009 to 2019 falls completely into the bottom-left quadrant. The Taylor principle is strongly confirmed. There are almost no observations in the bottom-right quadrant with negative real rates and positive inflation gaps. By contrast, the right-hand-side panel in **Figure 9** shows the deep excursion into the bottom-right-quadrant starting at the end of 2020. The ECB only exited from it into the top right quadrant at the end of 2023.

Figure 9: Ex-post real policy rate versus domestic inflation minus 2%

Source: Eurostat, ECB and own calculation.

In sum, the ECB's reaction function has changed in the period of 2020 to 2023. And it has failed to dampen the surge of inflation with earlier interest rate tightening. Forecast failures and inappropriate forward guidance may have to be blamed. But, of course, there may be other factors that should be considered. For example, the above-mentioned equilibrium real interest rate may have moved, or the business cycle conditions, that is the so-called output gap, may have called for a sharply different policy setting. These factors are included in interest rate rules such as the so-called Taylor rule that we consider in the next section.

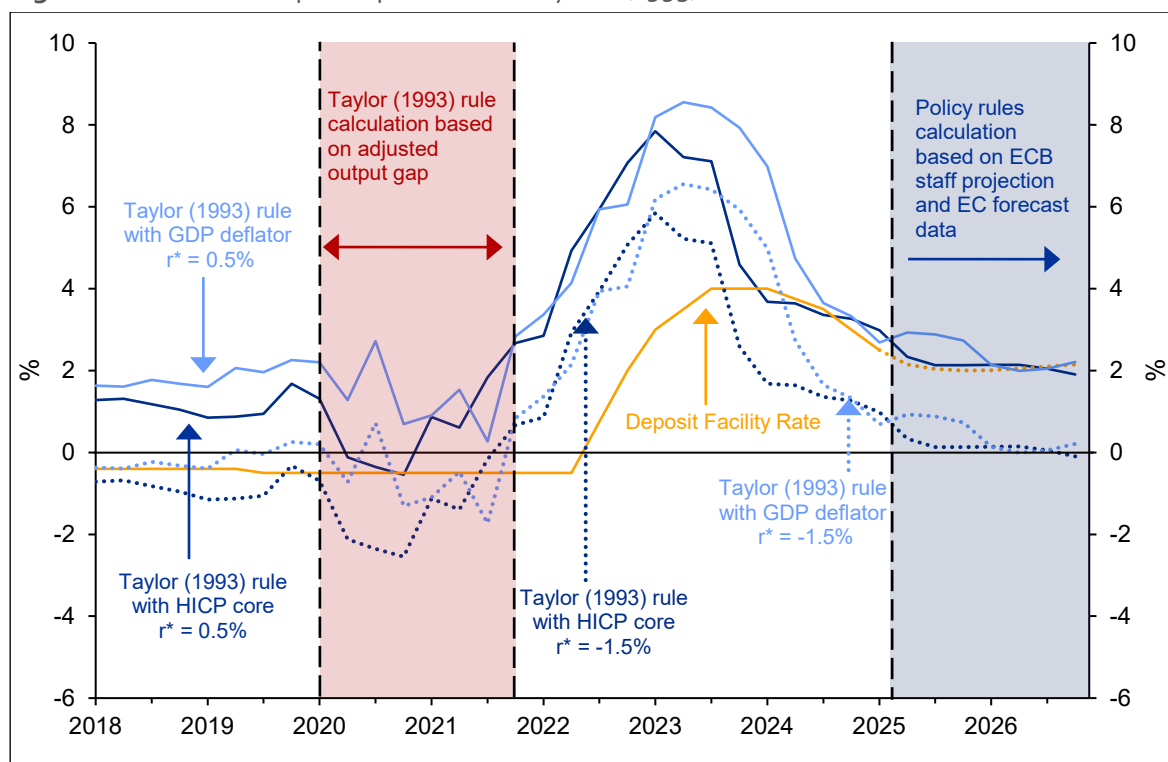
In contrast to the [Financial Times](#) quote of President Lagarde, who blamed reliance on "*textbook cases and pure models*" for sticking with the commitment not to start raising interest rates earlier, the Taylor principle, from which the ECB deviated, is a standard textbook principle. In fact, Old and New Keynesian models require that monetary policy interest rates change more than one for one with inflation (or inflation expectations) in order for inflation to be stabilised at the central bank's target. Thus, there need to be good reasons for deviating from it. One of the reasons advanced is that it is optimal for monetary policy to look through oil price shocks, or supply shocks in general. In other words, it may not be optimal to respond to an increase in the headline index of consumer prices that is primarily driven by a sharp change of energy prices such as following the Russian attack on Ukraine in February 2022. We will take this into account in deriving policy prescriptions from simple rules.

3. SIMPLE RULES PROVIDING (FORWARD) GUIDANCE

3.1. Calculating policy prescriptions

The Taylor principle is embodied in many simple rules for monetary policy. Central banks regularly calculate prescriptions from such rules as a kind of benchmark for monetary policy. The Fed even publishes such interest rate prescriptions from a menu of policy rules in its regulator Monetary Policy Report (Federal Reserve Board, 2025). Furthermore, a recent literature compares the policy of the Fed during 2020 to 2024 to the prescriptions of Taylor-style monetary policy rules, including rules regularly published by the Fed.⁶ In the following, we apply two simple rules to euro area data, the classic Taylor (1993) rule, and the rule from Orphanides and Wieland (2013). In doing so, we update findings from Tatar and Wieland (2024a,b). The two rules are described in Box 2. We use the core HICP and the GDP deflator to compute the prescriptions from the Taylor rule shown in **Figure 10**.

Figure 10: Interest rate prescriptions from Taylor's (1993) rule



Source: Eurostat, ECB, European Commission, LSEG/Refinitiv, Wieland and Tatar (2024b) and authors' calculation.

Note: The adjusted output gaps equal to one eighth of the original gaps. The calculation of the forecasted values is based on the ECB staff macroeconomic projections and the European Commission's forecasts. Since the deflator series are available only with a delay of over two months, for the calculation of the policy rules the GDP deflator series are lagged by one period. The forecasted values for the ECB's deposit facility rate refer to the 1-month Euro Short Term Rate (STR) forward rates which were derived from the Euro STR Overnight Index Swap (OIS) Rates on March 7, 2025 and refer to the third month in the quarter, respectively.

As to the output gap, one has to recognise that the pandemic had a parallel impact on aggregate demand and supply. In Tatar and Wieland (2024a), we propose using a model-based gap capturing the

⁶ See Papell and Prodan (2022, 2024), Bullard (2023, 2024), Clarida (2023), Taylor (2023), Wieland (2023), Lacker and Plosser (2024), Orphanides (2024) and Tatar and Wieland (2024). For an earlier analysis of the rules in the Fed's Report see Cochrane, Taylor and Wieland (2020).

supply-side effects of the pandemic.⁷ With respect to the equilibrium real interest rate, r^* , we consider a wide range between -1.5% and 0.5% based on estimates from the ECB (2024). However, in our view the upper value is more reasonable.

Box 2: Calculating policy rate prescriptions from simple rules

The well-known **Taylor (1993) rule** includes an equilibrium real interest rate r^* , the inflation rate π , the target π^* and the output gap — the deviation of the logarithm of GDP, q_t , from the logarithm of potential GDP, q_t^* :

$$(1) \quad i_t = r^* + \pi_t + 0.5(\pi_t - \pi^*) + 0.5(q_t - q_t^*)$$

The response coefficients on the gaps are 0.5. The original rule relied on the GNP deflator. We use the GDP deflator and the HICP core. We do not use headline HICP to avoid reacting to volatile energy prices. The output gap is calculated with the European Commission's estimate of potential GDP. For r^* we consider a wide range from -1.5% to 0.5%, which matches estimates reported by the ECB (ECB 2024). More recently, these estimates have been between -0.5% and 1% (ECB, 2025).

Uncertainty about r^* has a one-for-one impact on the Taylor rule prescriptions. By contrast, a first-difference rule would not require an estimate of r^* . Its prescriptions are not sensitive to the policymakers' view on the appropriate r^* . A mis-estimate of potential GDP of 1% changes the Taylor rule prescription by 50 basis points. In periods of elevated output gap uncertainty, the response coefficient could be dampened. Effectively, this is what our proposed adjustment does for the corona period.

The **first-difference rule from Orphanides and Wieland (2013)** (OW rule) has been found to fit past ECB decisions fairly well (Bletzinger and Wieland, 2017; Hartmann and Smets, 2019; Tatar, 2023). It relates the change of the interest rate to near-term forecasts of inflation (relative to the target) and output growth (relative to the European Commission's estimate of potential growth):

$$(2) \quad \Delta i_t = 0.5(\pi_{t+3|t} - \pi^*) + 0.5(q_{t+2|t} - q_{t+2|t}^*)$$

The forecasts taken from the ECB's Survey of Professional Forecasters (SPF) look one year ahead relative to the most recent data point. For HICP inflation, this means effectively three quarters ahead and for GDP growth two quarters ahead relative to the date t when forecasts become available to ECB policymakers. OW chose reaction coefficients of 0.5, which is close to econometric estimates (Bletzinger and Wieland, 2013). The OW rule does not require an estimate of the level of potential GDP. It uses the potential growth rate. As shown by Orphanides and Wieland (2013) revisions of the growth gap are smaller than revisions to the level gap. This also calls for including a first-difference rule as a benchmark.

The policy prescriptions from the Taylor rules already called for lifting the deposit rate into positive territory in summer 2021. Even with the very low r^* of -1.5 and the time lag resulting from the late availability of GDP deflator data, the rule called for policy tightening well ahead of the first ECB rate hike in July 2022. By the fourth quarter of 2021, Taylor rule prescriptions based on an equilibrium real interest

⁷ Consumers and workers concerned about contracting the virus reduced contact-intensive consumption and work hours. Employers shut down production and governments implemented lockdowns to reduce infections. Thus, demand and supply largely moved in lock-step and the relevant gap indicating disinflationary pressures was much smaller than the deviation from long-run potential. We employed the New-Keynesian macro-epi model of Eichenbaum et al. (2022) to simulate effects of the pandemic and proposed a factor of 1/8 to correct the gap.

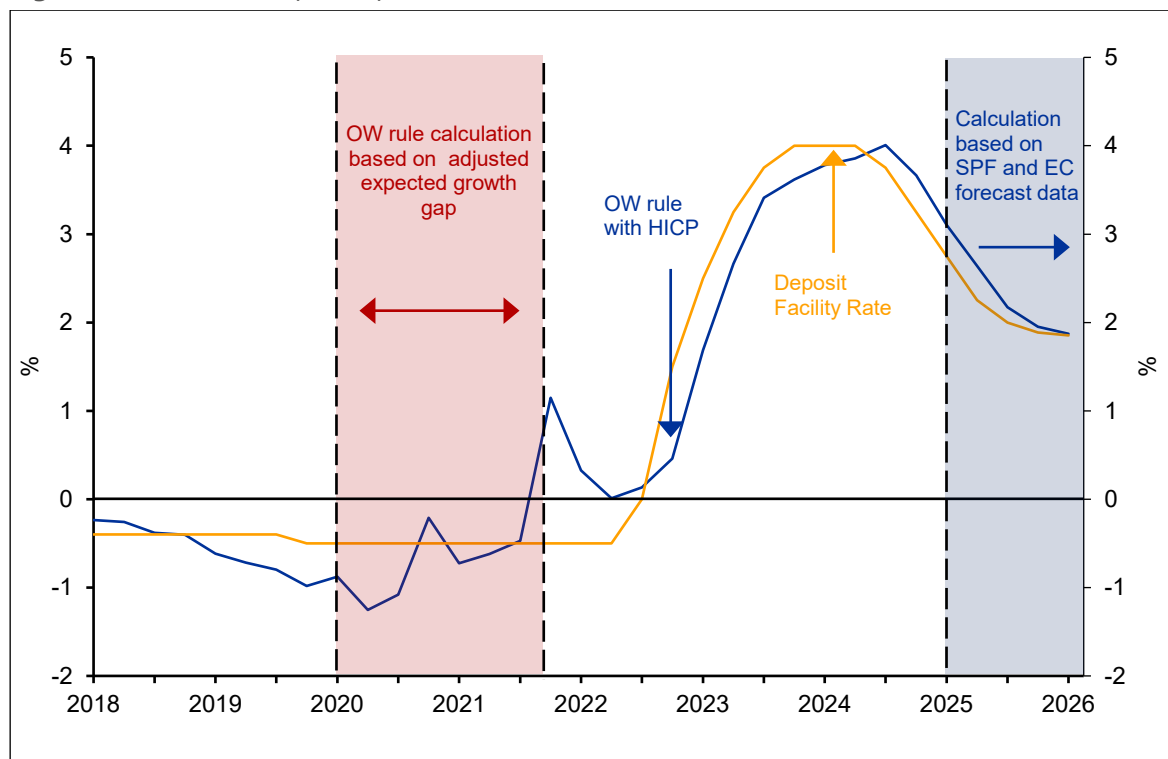
rate, r^* , of 0.5% stood at 2.7% (2.8%) using the HICP core (GDP deflator). Even with r^* equal -1.5%, the prescriptions stood at 0.7% (0.8%) at that time.

The tightening implied by these rules is not driven by a direct response to energy prices. If the ECB had responded earlier to the rise of inflation, it would have kept short-run inflation expectations, which moved up during 2021 and 2022, better in check. Furthermore, it could have spread the tightening over a longer period allowing banks more time to strengthen their capital and liquidity positions and account for potential losses due to asset price reversals. Throughout 2023, the policy prescriptions declined substantially. In 2024, they approached the level of the ECB's deposit facility rate from above and then moved down further along with policy easing. Thus, the policy easing implemented since summer 2024 is broadly in line with the prescriptions from a Taylor rule.

3.2. Forecast-based versus outcome-based rules

The OW rule implements the Taylor principle with regard to forecasts. Hence the timeliness of the policy reaction depends on forecast quality. Unfortunately, mean SPF forecasts largely failed to predict the inflation surge at the 1-year horizon, thus giving support to the ECB's view that no policy reaction was necessary. They remained below the 2% target in 2021 and only started to exceed it in 2022. The predicted inflation gap peaked at 2.76% in the 4th quarter of 2022. More detailed information regarding inflation and output gaps is provided in Tatar and Wieland (2024b). Interest rate prescriptions from the OW rule are shown in **Figure 11**.

Figure 11: Interest rate prescription from forecast-based OW rule



Source: Eurostat, ECB, European Commission, LSEG/Refinitiv, Wieland and Tatar (2024b) and authors' calculation.

Note: The adjusted output gaps are equal to one-eighth of the original gaps. The forecasted values are derived from the ECB SPF and the European Commission's forecasts. Forecasts for the ECB's DFR correspond to the 1-month Euro STR forward rates, which are based on Euro STR OIS rates as of January 31, 2025. These rates refer to the second month of each quarter.

Interestingly, this rule called for a first hike in the policy rate in the 4th quarter of 2021. However, this recommendation was driven by the SPF forecast for GDP growth exceeding the European Commission's

forecast for potential growth during the recovery from the pandemic. Subsequently, the OW rule prescribed only modest interest rate increases in 2022 and 2023. Furthermore, the interest rate tightening implemented by the ECB from July 2022 onwards proceeded more quickly than the 1-year-ahead forecast-based OW rule would have suggested.

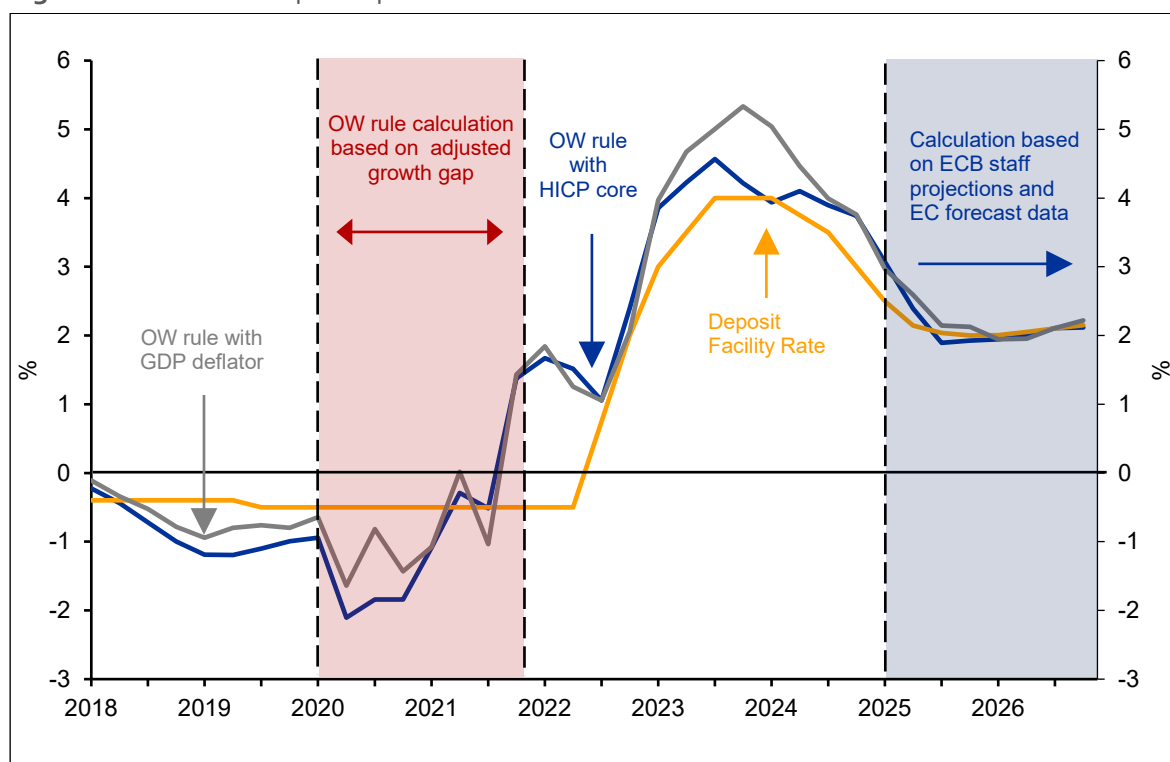
In this context, it is of interest, however, to consider another finding from the extensive model-based performance and robustness evaluation in Orphanides and Wieland (2013). In particular, they concluded:

"... a simple difference rule with coefficients of 1/2 on inflation and output growth deviations, just like the rule shown to be useful for interpreting ECB interest rate policy, is quite robust as long as it responds to current outcomes rather than forecasts."

While the OW rule with 1-year-ahead forecasts matched past ECB decisions quite well, it did not perform robustly in macroeconomic models. By contrast, outcome-based first-difference rules stabilised output and inflation more effectively, on average, across a range of euro area models.

The interest-rate prescriptions from such an outcome-based OW/first-difference rule are shown in **Figure 12**. We calculate two versions of the outcome-based first difference rule using the HICP core and the GDP deflator measures for inflation just like in the euro area applications of the Taylor (1993) rule. The two versions deliver fairly similar implications. The outcome-based rules called for raising policy rates well ahead of the rate hikes executed by the ECB starting in the second half of 2022. Interestingly, these rules maintained a hawkish tilt throughout 2023 and 2024.

Figure 12: Interest rate prescriptions from outcome-based OW rule



Source: Eurostat, ECB, European Commission, LSEG/Refinitiv, Wieland and Tatar (2024b) and authors' calculation.

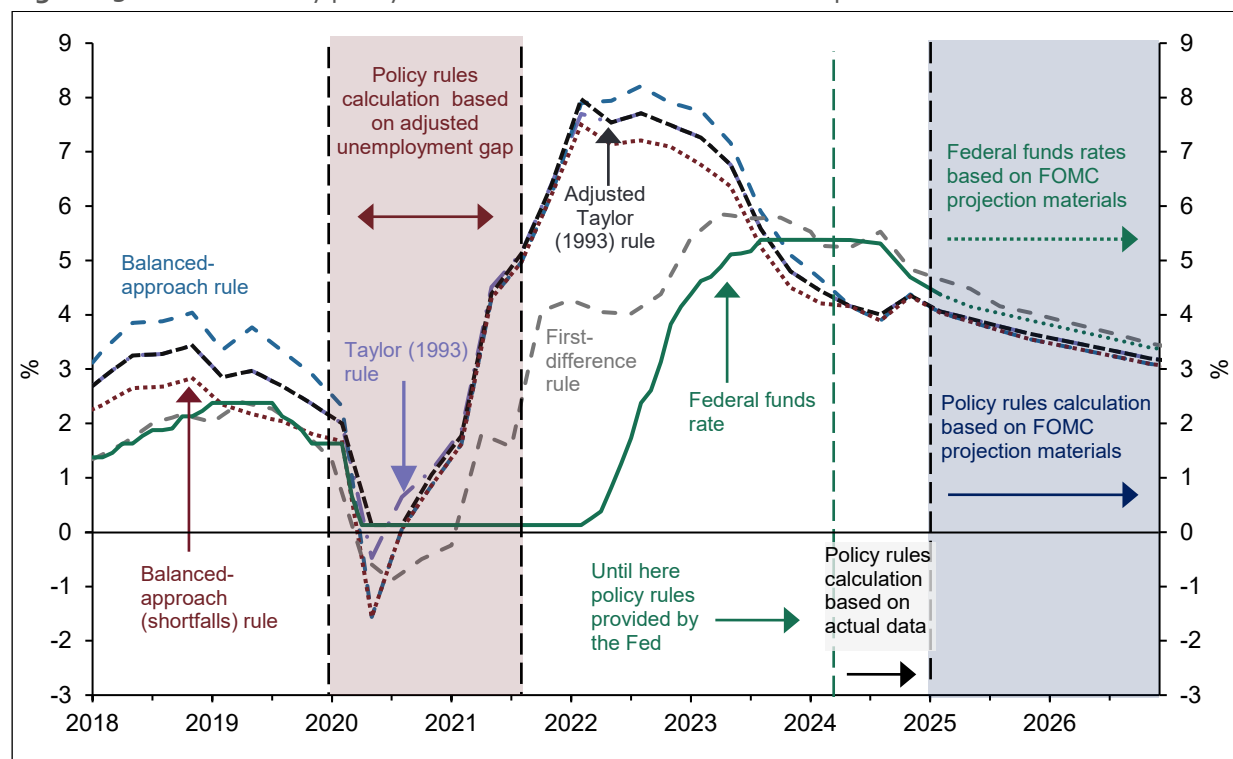
Note: The adjusted output gaps are equal to one-eighth of the original gaps. The forecasted values are based on the ECB's macroeconomic projections and the European Commission's forecasts. Since the deflator series are published with a delay of over two months, the GDP deflator series is lagged by one period for policy rule calculations. Forecasts for the ECB's Deposit Facility Rate correspond to the 1-month Euro STR forward rates, derived from Euro STR OIS rates as of March 7, 2025. These rates refer to the third month of each quarter.

3.3. Rules from the Fed's report

As shown in **Figure 13**, the policy rules published in the Fed's Monetary Policy Report also signalled the need for a lift-off of the federal funds rate at the start of 2021. These rules and associated calculations are discussed in detail in Tatar and Wieland (2024a). They proved their usefulness as a guidepost for monetary policy. If the Fed had responded to the rise of inflation earlier than it did, it could have moved more slowly by spreading the tightening over a longer period. This would have made it easier for the financial sector to adjust to higher interest rates, for example, by allowing banks more time to strengthen their capital and liquidity positions and to account for potential losses due to asset price reversals. Thus, the financial sector would have been in a better position to weather the turbulences following the Silicon Valley Bank collapse in spring 2023. Also, the Fed and the US Treasury might not have had to resort to such massive support measures for the banking sector as they did.

Throughout 2022, the federal funds rate prescriptions were stabilising at a high level. In 2023, they have come down quite a bit owing to the slowdown of inflation. By the fourth quarter of 2023, the prescriptions from several of the rules published by the Fed had fallen somewhat below the actual federal funds rate target of 5 ¼ to 5 ½ percent at that time. By 2024 the policy easing caught up with the prescriptions from these rules.

Figure 13: U.S.: Monetary policy rules from the Federal Reserve's Report



Source: Federal Reserve Bank of Philadelphia, Wolters Kluwer, Blue Chip Economic Indicators, Federal Reserve Board staff estimates, FRED, Board of Governors of the Federal Reserve System, Wieland and Tatar (2024a) and authors' calculations.

Note: The rules use historical values of core personal consumption expenditures inflation, the unemployment rate, and, where applicable, the historical midpoint of the target range for the federal funds rate. Quarterly projections of longer-run values for the federal funds rate and the unemployment rate, used in computing the rules' prescriptions, are derived through interpolations of biannual projections from Blue Chip Economic Indicators. The longer-run inflation value is set at 2%. The rules' prescriptions are provided on a quarterly basis, while the federal funds rate data represent the monthly average of the daily midpoint of its target range. From 2018:Q1 to 2024:Q1, policy rule prescriptions and federal funds rate data are sourced from the Monetary Policy Report of the Board of Governors of the Federal Reserve System (July 2024). For 2024:Q2 to 2024:Q4, the original data from this report was extended by the authors using

available data as of February 2025. From 2025:Q1 onward, the calculation of policy rule prescriptions is based on the Federal Open Market Committee's (FOMC) economic projections, as published in the Projection Materials accompanying the FOMC meeting held on December 17–18, 2024. Quarterly values were interpolated from the median values corresponding to the fourth quarter of the indicated year or the long run.

If the Fed had taken the rules it publishes in its report more seriously, it would have started raising policy rates in 2021. However, the rules published in the Fed's report actually use an unemployment gap relative to a long-run natural rate. The gaps used by the Fed did not account for the supply-side effects of the pandemic. As a consequence, the economy seemed to be characterised by a huge unemployment gap. Thus, one might have been led to think that this gap would cause substantial deflation. The Fed's Report suggested that the deep gaps served to justify the extensive unconventional monetary policy measures implemented at that time, including large-scale asset purchases and the previously cited forward guidance.

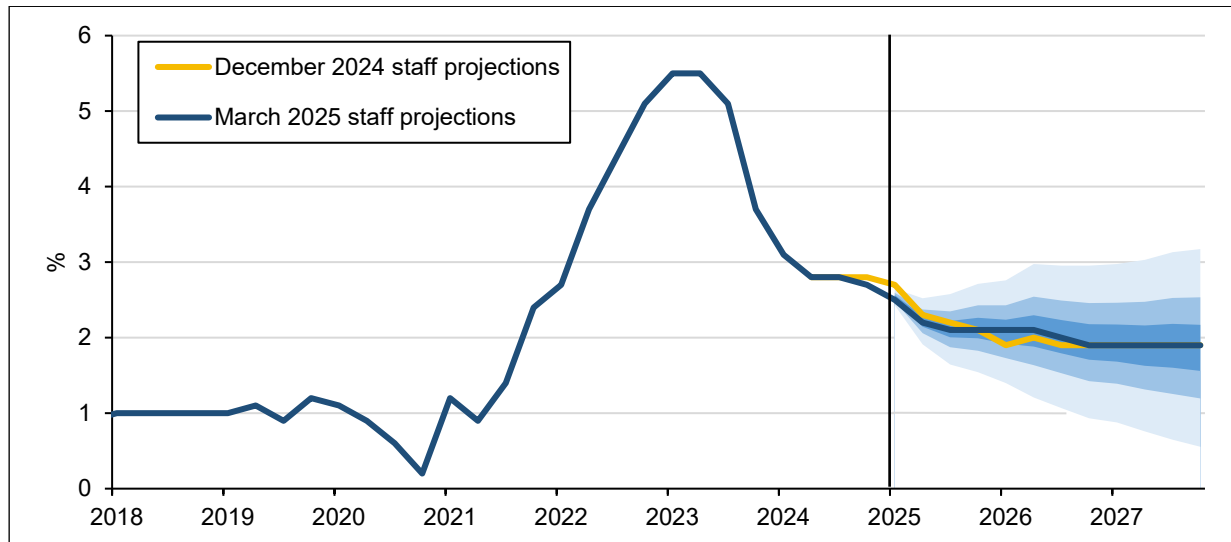
Of course, those pressures did not exist and inflation did not decline much at all. Macro-epidemic models that were available at the time indicated that the gap was much smaller, because most of the decline of GDP in the second quarter of 2020 was affecting aggregate demand and aggregate supply in the same way. These issues and appropriate model-based adjustments to the unemployment or output gaps are discussed in detail in Tatar and Wieland (2024a). The adjustments proposed in that paper are applied to all rules presented in this section. Even without the adjustments, the policy rules from the Fed's report signalled the need for higher policy rates in 2021. However, the large unemployment gap in the first half of 2020 may have helped create the impression that the Fed could adopt a wait and see approach with regard to policy rates. One lesson is that careful analysis is needed in considering the unobservable inputs to the rules. These are, in particular, the equilibrium real interest rate and the level of potential output, and in case of the Fed, which looks at unemployment instead of output gaps, the natural rate of unemployment.

4. RISKS TO THE OUTLOOK

4.1. Current forecasts and lessons from past forecast performance

At this point, the outlook with regards to price stability presented by the ECB is fairly benign. The most recent ECB staff projection has core inflation decline towards target quite quickly in the first half of 2025 and remain there as shown in **Figure 14**. GDP growth, however, remains on the low side. It is recovering a bit, but settling below 0.5% per year.

Figure 14: ECB staff projection of core HICP inflation (6 March 2025)



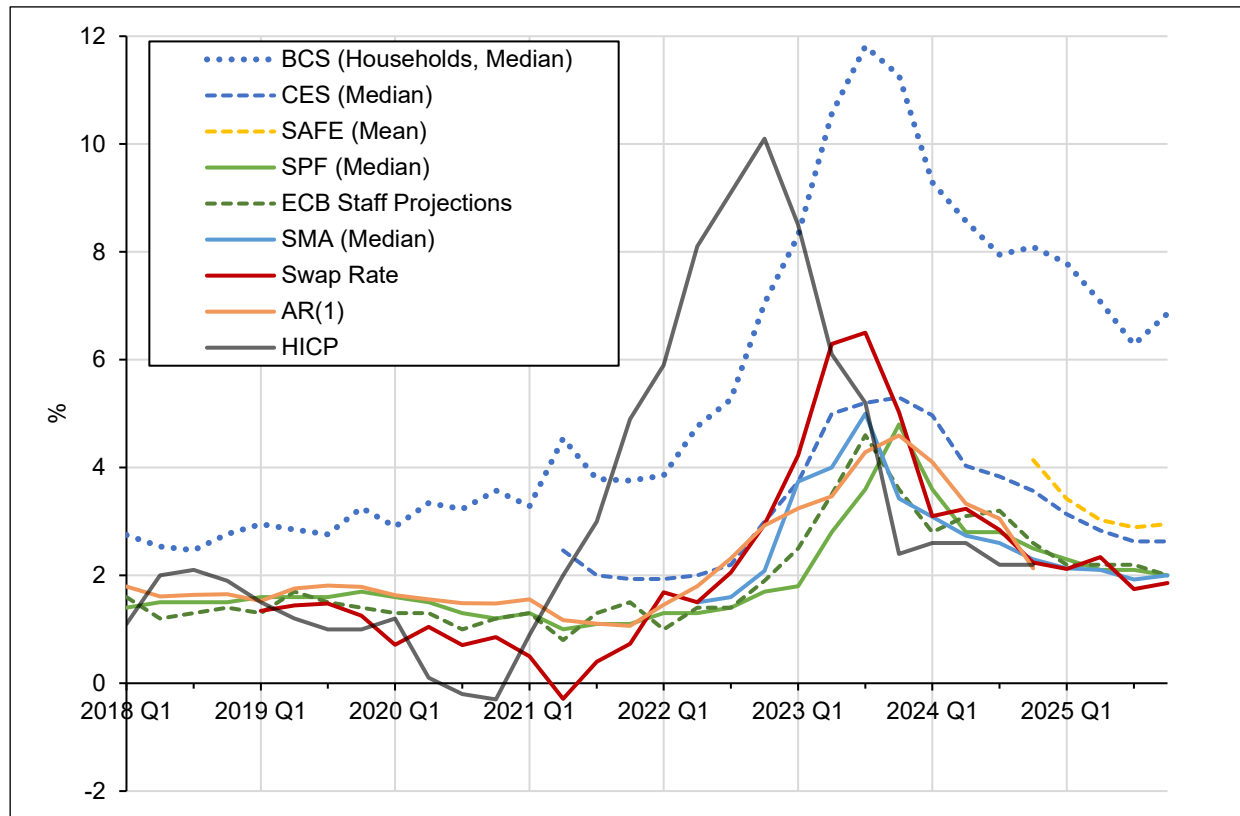
Source: ECB staff macroeconomic projections (March 6, 2025).

How good are these forecasts? Should policy be based exclusively on those forecasts? What are the risks going forward? Should we worry about stagnation or recession? Will deflation return? Or will inflation rise again, rather than approach the target as presumed in the ECB staff projection? Interestingly, the Fed appears rather reticent about easing policy while inflation in the US has remained at fairly similar levels above target as in the euro area.

Generally, forecasting inflation and real GDP growth is a difficult business (see, for example, Wieland and Wolters, 2011, 2013). It is possible to forecast such measures somewhat successfully in a stable regime with moderate disturbances. In those times, forecasts based on past dynamics predict a return to the mean, whenever inflation or growth has moved away from the mean. Whenever larger disturbances or structural changes are afoot, however, forecasting a return to the mean can be spectacularly wrong. Partly this has to do with the fact that human behaviour itself is driven by expectations. If the outlook changes, behaviour also changes right away. Hence, the onset of recessions or crises is almost impossible to predict, while the speed of a recovery, once it has started, is easier to forecast (Wieland and Wolters, 2013).

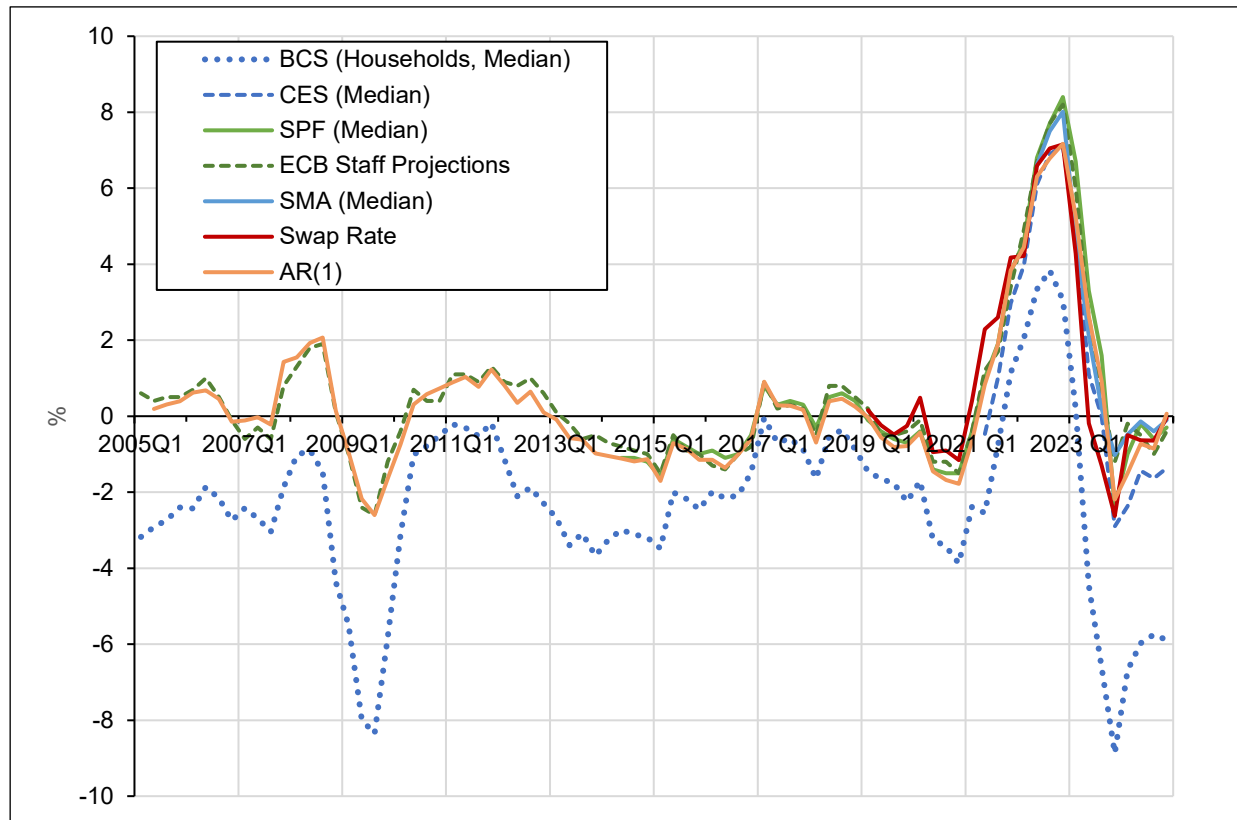
Regarding the surge of inflation in 2021 to 2023, forecasts by central banks and professionals as well as those extracted from market-traded derivatives performed quite badly. **Figure 15** depicts HICP inflation together with 1-year-ahead forecasts from different sources. The forecasts are shifted such that they are aligned with the period to be forecasted. The ECB staff and many professional forecasters remained systematically too optimistic, even after revising their forecasts upwards. The 1-year-ahead forecasts only moved up sufficiently to predict actual inflation reasonably well, once it was on the way down again in 2023. Households surveyed by the European Commission did better with regard to the rise of inflation but failed to predict the decline of inflation afterwards. **Figure 16** depicts the resulting forecast errors.

Figure 15: Actual inflation and inflation expectations and forecasts (one-year-ahead)



Source: Eurostat, European Commission business and consumer survey (BCS), ECB Survey on the access to finance of enterprises (SAFE), ECB Consumer Expectations Survey (CES), ECB Survey of Professional Forecasters (SPF), ECB Staff Macroeconomic Projections, ECB Survey of Monetary Analysts (SMA), LSEG/Refinitiv and own calculations.

Note: Inflation forecasts and expectations are adjusted to align with the forecasted period. BCS and CES reflect household inflation expectations, SAFE represents firm expectations, SPF captures expert expectations from financial and non-financial institutions, SMA denotes market participants' expectations, and the "Swap Rate" indicates the one-year inflation-linked euro swap rate. The ECB CES initially covered six euro area countries, expanding to 11 from April 2022, subject to data availability. AR(1) represents the inflation forecast based on an autoregressive process with mean reversion: $\pi_t = \pi^* + \varphi(\pi_{t-1} - \pi^*) + \varepsilon_t$, where π_t is the inflation rate, π^* is the inflation target (assumed to be 1.8% until Q2 2021 and 2% thereafter), the coefficient φ is set to 0.9 (for monthly forecasts).

Figure 16: Inflation expectations and forecasts error (one-year-ahead)

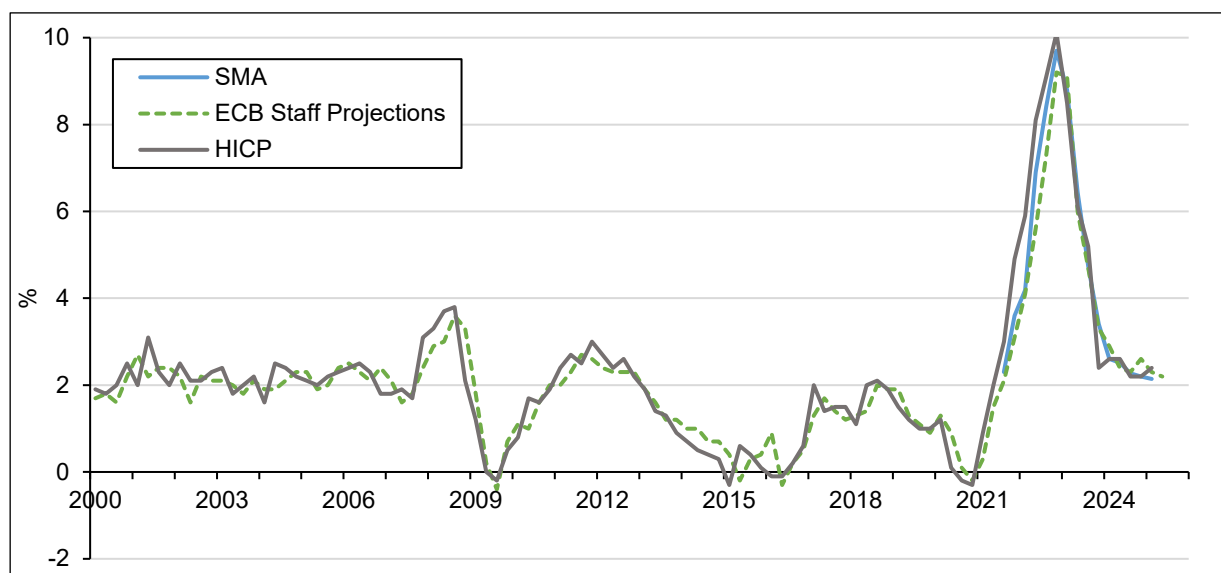
Source: Eurostat, European Commission business and consumer survey (BCS), ECB Consumer Expectations Survey (CES), ECB Survey of Professional Forecasters (SPF), ECB Staff Macroeconomic Projections, ECB Survey of Monetary Analysts (SMA), LSEG/Refinitiv and own calculations.

Note: The inflation expectation error and inflation forecast error are defined as the difference between the actual inflation rate in a given quarter and the expected or forecasted inflation rate for the same quarter. The underlying data correspond to those in Figure 15.

In 2022, inflation forecast errors reached 7 to 8.5 percentage points. A simple AR(1) time series model with mean reversion performed comparably to professional forecasts. Over a one-year horizon, it offers little additional information beyond past inflation for predicting future inflation. However, professional forecasts captured the decline in inflation a bit more accurately in the end of 2023.

By contrast, near term forecasts by the ECB staff and monetary analysts, that is forecasts of about 1-quarter-ahead shown in **Figure 17** essentially followed the inflation rate on its way up in 2021 and 2022.⁸

⁸ Hence, ex-ante (1-quarter-ahead) real policy rates declined almost as much as the ex-post real rates previously shown in **Figure 9**.

Figure 17: Actual inflation and inflation forecasts (one-quarter-ahead)

Source: Eurostat, ECB Staff Macroeconomic Projections, ECB Survey of Monetary Analysts (SMA).

What are possible reasons for the forecast failure at the 1-year-ahead-horizon? Some indications can be obtained from a comparison with the ex-post analysis of the sources of inflation discussed in Box 1. Clearly, at the start of 2021, very few people would have expected that Vladimir Putin would decide to attack Ukraine in February 2022 and cause an energy crisis, pushing up energy prices.

At the start of 2021, however, there was already a lot of information available regarding the extensive fiscal stimulus measures undertaken by the US and EU Member State governments. Furthermore, the easy monetary policy stance with near zero or negative policy rates and a pre-commitment to substantial additional asset purchases was known to forecasters. Also, information on the extent of pandemic-related supply constraints and shortages was widely discussed and analysed. Hence, relative to the ex-post-VAR based analysis of the drivers of the surge of inflation in Box 1, ex-ante forecasts from early 2021 apparently underestimated the effect of expansionary fiscal and monetary policies as well as other demand-side impulses on inflation. Furthermore, they may have underestimated the duration of the supply-side constraints caused by the pandemic (see also Buiter & Rahbari, 2024 and Koch & Noureldin, 2023 in this regard). Econometric forecasting models that rely primarily on lags of inflation, growth and import prices and past averages of those variables would have underestimated the rise of inflation throughout 2021 essentially by default.⁹

Discussions of monetary policy during 2021 were still influenced by the fear that the forces that held inflation below target between 2013 and 2019 would continue to prevail.¹⁰ This may have provided the support for the commitment to stick to the very expansionary policy stance for much longer as expressed in the forward guidance of the Fed as well as the ECB. However, in light of the rise of inflation starting in 2021 and the large-scale fiscal expansion there would have been room for a more cautionary risk-management approach to central bank communication.¹¹

⁹ In this regard, see the investigation of econometric inflation-forecasting models and resulting forecast errors in the [GCEE Economic Outlook of March 2022](#), Box 4.

¹⁰ Earlier research had also suggested that in a period of deflation it may be better to keep interest rates lower for longer even once inflation has returned. See for example, Orphanides and Wieland (2000) and Evans et al (2015).

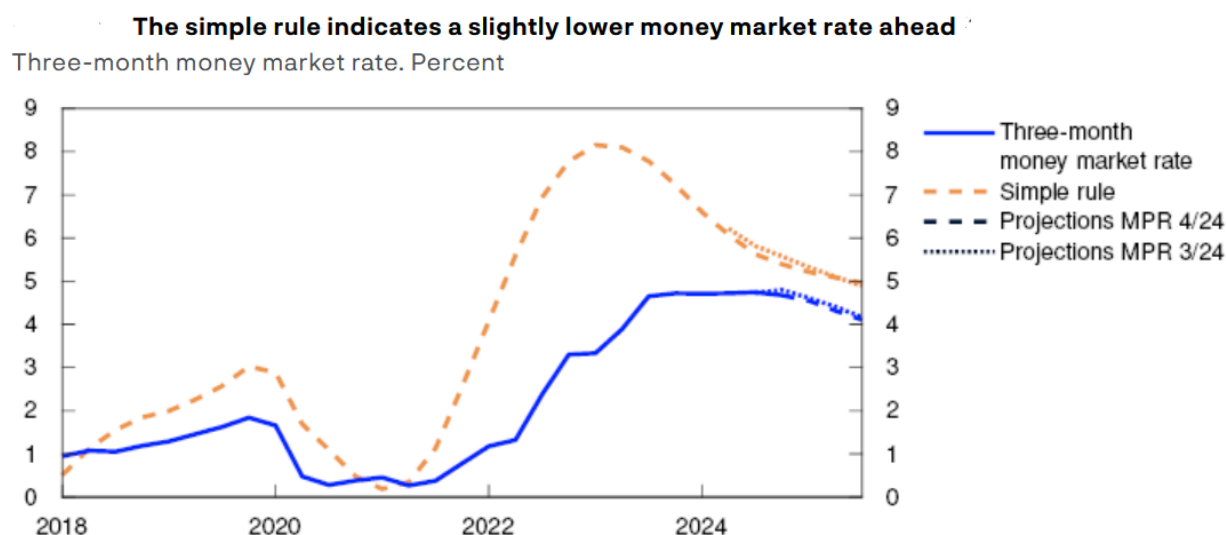
¹¹ For example, see the inflation risk assessment of the [GCEE Economic Outlook of March 2021](#), page 21, which stated “Given the expansionary fiscal policies being pursued by the United States in particular and the savings that households have accumulated during the pandemic, there

There are lessons to be drawn from this experience for the ECB's monetary policy strategy. It is advisable to rely less on medium-term and longer-term inflation forecasts. Instead, a greater focus on near-term developments in core inflation and domestic inflation should play a greater role in determining the monetary policy stance. First introduced in April 2024, the shift in the ECB's communication highlighting a "data-dependent meeting-by-meeting approach" might be an indication that the ECB's approach to policy has shifted at least temporarily in that direction.

The simple outcome-based rules discussed in the preceding section can provide useful guidance for the stance of monetary policy in this regard. At the same time, the ECB need not give up on the basic idea of forward guidance. This idea is not to try and manipulate expectations formation by financial market participants, business and households in a direction that they might regret afterwards. Rather, the idea is to conduct monetary policy in a way that makes it predictable and credible. Several factors are helpful to this and have guided ECB's thinking on policy strategy since the start. First, this includes the numerical inflation objective which defines a long-run focal point for inflation expectations. Second, this includes the announcement of an explicit policy strategy. Third, this includes the regular publication of staff forecasts. All these elements have been in place since the ECB started operations.

Going forward, regular publication of monetary policy rules can play a useful role in guiding policy and in guiding expectations. In fact, the rules themselves — if taken seriously in policy discussions — can serve as a tool for state-dependent forward guidance. Market participants can feed their own inflation and growth forecasts or those from professional forecasters or other institutions into the rules and simulate them forward to obtain a possible prediction of the interest rate path. Interestingly, other central banks such as those of Sweden and Norway, publish their own interest rate forecasts. These forecasts are not forms of fixed forward guidance. They are adjusted with every meeting to prevailing economic conditions and the economic outlook. In fact, the Central Bank of Norway regularly publishes both, its forecast of the policy rate and a forecast of the prescriptions from a simple policy rule as shown in **Figure 18** and discusses the differences in its monetary policy report.

is a further risk of an unexpectedly sharp rise in either inflation or inflation expectations. A sudden surge in aggregate demand in parallel with the emergence of supply-side restrictions while the economic recovery is under way could create considerable price pressure.... " See also related commentary at the time concerning the risk of persistent above-target inflation in 2021 and subsequent years by one of the authors of this study, Volker Wieland in [Wirtschaftswoche, March 12, 2021](#) and [Frankfurter Allgemeine Zeitung, February 25, 2021](#). This commentary was included together with a statement by President Lagarde in a 2021 treatment of Bundesbank household surveys on inflation for a study of central bank communication published later by Dräger, Lamla and Pfajfar (2024) in the Journal of Monetary Economics.

Figure 18: Policy rate and simple rule forecasts published by Norges Bank

Source: Norges Bank Monetary policy report 4/2024, Chart 4.4.

Alternatively, it would be helpful if the ECB would publish a survey of inflation, growth and interest rate projections of the members of the Governing Council similar to the FOMC projections published by the Fed. This would help ECB watchers assess a reasonable range of forecasts held by ECB decision makers and could serve to improve the forecasting processes at central banks and among market participants.

4.2. Potential risks going forward

The ECB's recent statements and meeting minutes have emphasised a number of risks to the outlook. Accordingly, risks to economic growth remain tilted to the downside, in particular, because of greater friction in global trade, lower confidence, geopolitical risk with disruptions of energy supply and lagged effects of monetary policy tightening. However, growth could surprise on the upside if falling inflation and easier financing conditions boost domestic consumption and investment more than expected. Increased defence and infrastructure spending could also support growth.

With regard to inflation, the ECB sees some upside risks because wages or profits may increase by more than expected, increased defence and infrastructure spending could fuel aggregate demand, heightened geopolitical tensions could push energy prices and freight costs higher, and the climate crisis could drive up food prices. However, it also highlights downside risks such as geopolitical events preventing consumption and investment from recovering, the economic environment in the rest of the world worsening unexpectedly, and greater friction in global trade making the euro area inflation outlook more uncertain.

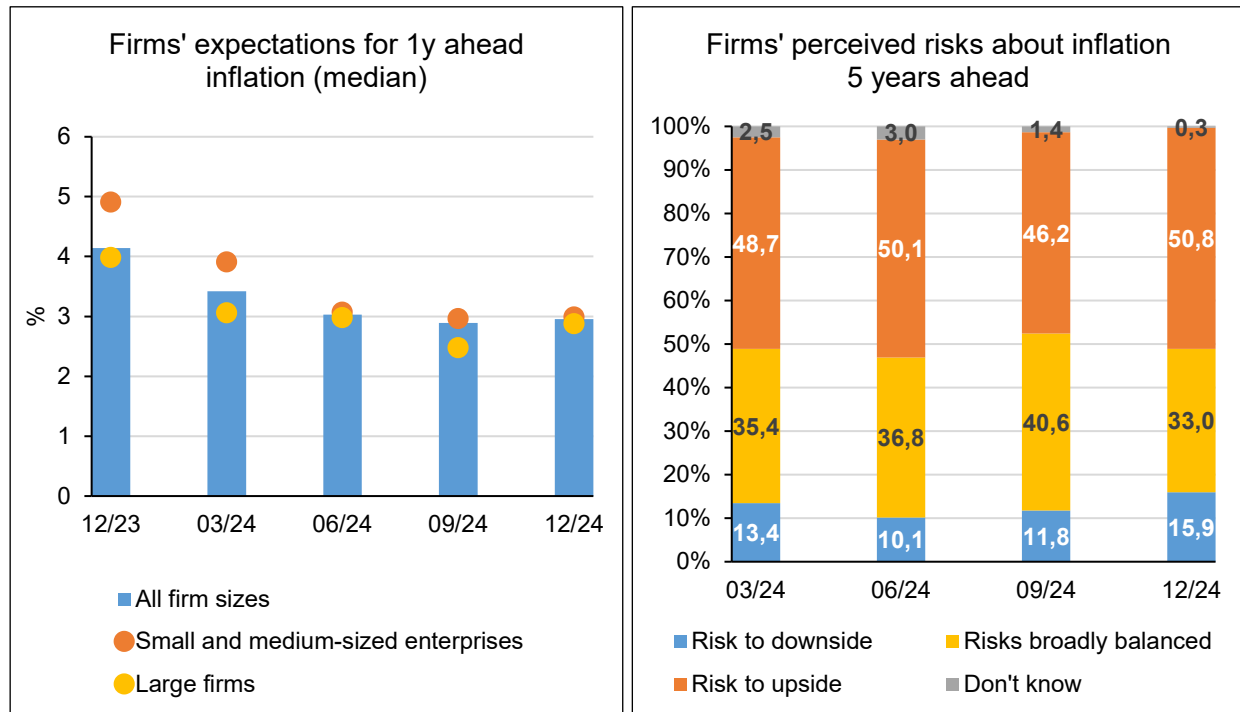
Also, recent surveys highlight certain risks. For example, according to the Monetary Analysts survey (SMA), downside risks to the economic outlook for 2025 and 2026 have increased significantly since September 2024.¹² At the same time, upside risks to inflation have risen for 2025. This suggests a risk of stagflation. Weak economic prospects may have contributed to tighter credit standards indicated by the

¹² The share of SMA respondents who primarily perceive downside risks to the euro area growth outlook for 2025 increased from 38% in the September 2024 survey to 73% in the March 2025 survey. Similarly, for 2026, the share increased from 17% in September 2024 to 43% in March 2025.

Bank Lending Survey (BLS) of the ECB. At the same time, the BLS survey suggests that the general impact of interest rates on loan demand is no longer restrictive.¹³

The ECB's survey on the access to finance of enterprises (SAFE) suggests that firms expect price increases of around 3% over the next 12 months as shown in **Figure 19** and many more of them see inflation risks to the upside than to the downside.

Figure 19: Firms' inflation expectations

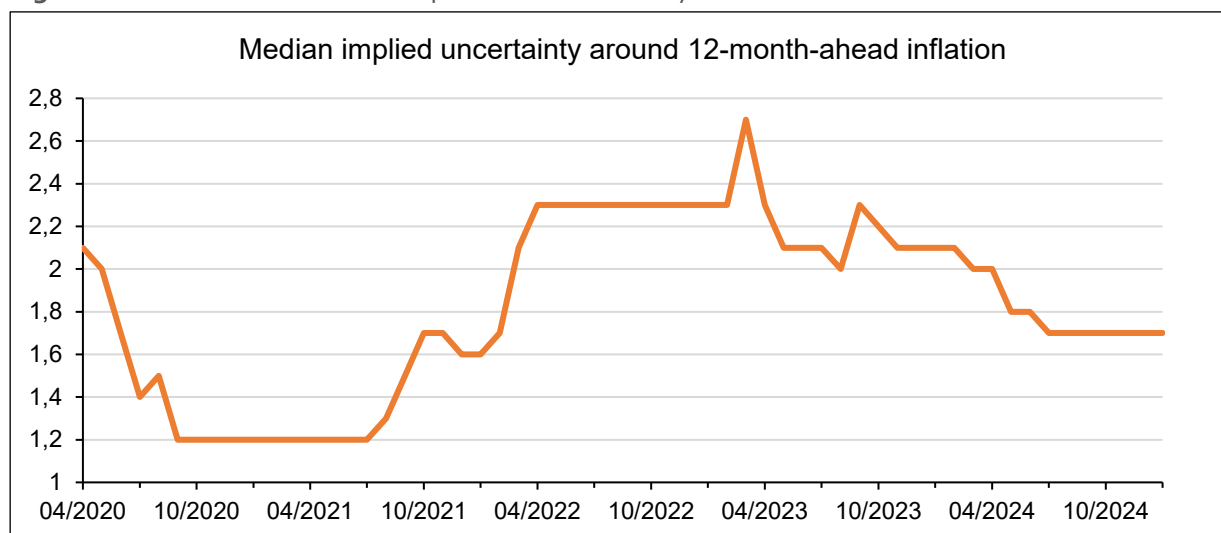


Source: ECB Survey on the access to finance of enterprises (SAFE).

Note: The data represents the results from the respective ECB SAFE publications, with each bar labelled by a date corresponding to the release of the respective results.

The ECB's Consumer Expenditures Survey (CES) indicates that households' median inflation expectations for the next 12 months remain at 2.6%, while the mode expectation is 4%. Uncertainty around inflation expectations remains above pre-inflation surge levels as shown in **Figure 20**.

¹³ While in the Q2 2023 BLS, 42% of respondents indicated that the loan demand impact of the general level of interest rates was 'strongly negative' or 'negative,' this figure dropped to just 2% in the Q1 2025 survey.

Figure 20: Households' inflation expectation uncertainty

Source: ECB Consumer Expectations Survey (CES).

In the last few months, Federal Reserve and ECB policy have decoupled to some extent. The ECB started easing monetary policy before the Fed and has continuously lowered the key policy to a level of now 2.5% which roughly corresponds to core inflation. By contrast, the Fed has eased policy less and so far the federal funds rate remains well above core inflation in the US.

In the last 25 years, euro area policy rates have often moved in tandem with monetary conditions in the US. There are a number of possible reasons. First of all, they may have responded to similar shocks. But there may also be important spillovers. For example, a demand-led boom in the US may force the Fed to raise interest rates and, because of positive spillovers into the euro area economies also lead to policy tightening by the ECB. Also, US policy affects the balance sheets of global banks, influencing lending conditions in foreign countries. Higher US yields tend to raise long-term yields in the euro area (see, for example, Curcuru et al., 2018). Furthermore, the reliance of multinational firms on US dollar-denominated financing makes credit conditions in the euro area more sensitive to US monetary shifts. Going forward, however, a continued decoupling might look increasingly unlikely. In fact, the outlook for euro area short-term interest rates embodied in future overnight index swaps for the euro area short-term rate €STR has already risen since the end of January by 30 to 50 basis points at horizons of 5 to 10 years in the future.

Perhaps, the most important risk going forward has just been triggered by the Trump Administration's treatment of Ukraine as well as its European NATO allies. As a consequence, there is a major shift under way to quickly and massively increase defensive capabilities in Europe, most prominently in Germany. Ahead of more detailed coalition negotiations, the two parties that will likely form the next German government, the CDU and the SPD (Christian and Social Democrats, respectively), have announced major changes to fiscal policy. They have agreed to change the fiscal rules embedded in the national constitution in order to facilitate additional debt financing for defence and infrastructure spending on the scale of 20% to 30% of GDP over the next 10 years. This plan to change the fiscal rules still needs support from other political parties to garner the 2/3 majority needed to change the constitution. Yet, it is quite possible that it will be passed in the national parliament already before the end of March.

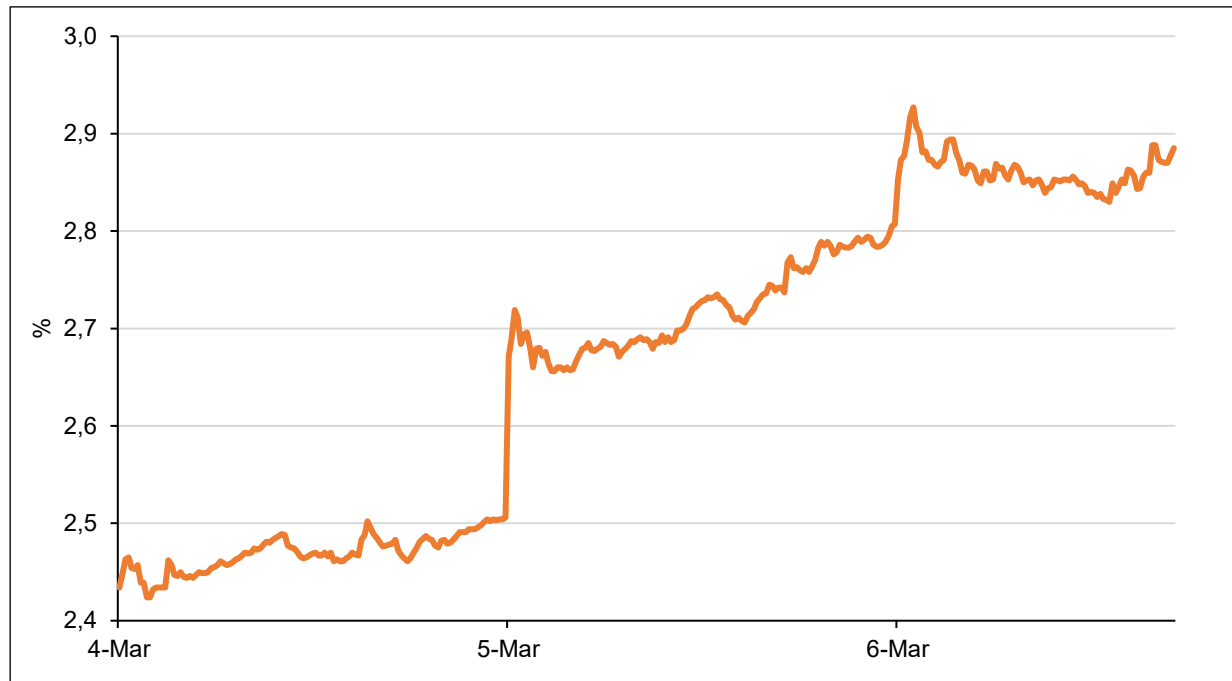
The overall scale of the debt finance is unprecedented and, as a result, the debt-to-GDP ratio may well rise from about 63% today to close to 80% or more over the course of the next decade. Interestingly, the mere announcement of the debt-financed plan for increasing defence and infrastructure spending by

the leaders of negotiating parties already triggered an unprecedented upward shift in long-term government bond yields. They rose from about 2.5% to 2.9% as shown in **Figure 21**. At the same time, the ECB lowered its policy rate by 25 basis points. Clearly, perceptions of likely future fiscal developments are already having major effects on financial markets today.

In addition to the reactions observed in financial markets, such substantial debt-financed public spending will have broader macroeconomic implications. It boosts aggregate demand and can raise production, for example, in the defense, industry and construction sectors. The rise in debt will drive up real interest rates, which raises saving and reduces consumption. This is well known is the crowding-effect, aggregate demand and GDP rise but government spending crowds out private spending. Furthermore, this could lead to considerable inflation pressures. One channel to inflation results from aggregate demand exceeding aggregate supply. Another channel results from the increase in government debt being financed only partly by future tax increases and spending cuts, but also partly by inflation (see, for example, Barro and Bianchi 2024).

A historical example for a major government spending in Germany is given by the period following Germany reunification from 1989 onwards. The spending was focused primarily on the build-up of infrastructure in the east of Germany as well as direct and indirect transfers to the citizens in the east of Germany. Government spending had the typical Keynesian effects on aggregate demand and production.

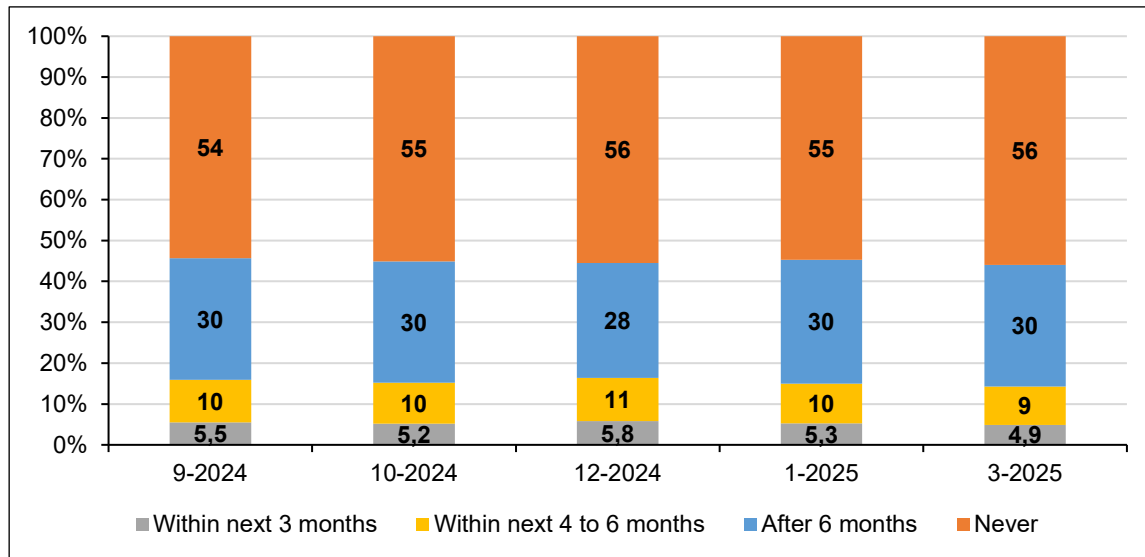
Government debt doubled between 1989 and 1995. The debt-to-GDP ratio rose by 15 points from 40% to 55%. The boost to GDP was accompanied by a rise of inflation. Monetary expansion at reunification also played a role. Inflation rates increased to about 6% by 1992, as measured by the GDP deflator or the consumer price index. By then, the Bundesbank had tightened monetary policy aggressively and raised its discount rate to close to 9%. As a consequence, inflation declined again. Yet, the high level of interest rates could not be sustained by other countries in the so-called European Monetary System (EMS). As a result, the EMS crisis broke out and this system of fixed-but-adjustable exchange rates broke apart. In the long run, the debt-financed spending boom did not lead to a strong economy with lastingly high potential growth. Instead, the German economy ended up in a long slump in the first half of the 2000s, which it was only able to exit with the help of extensive labour market and tax reform.

Figure 21: 10-year German government bond yields (5-minute resolution data)

Source: LSEG/Refinitiv.

As German bond yields moved up, yields on other euro area sovereign bonds have also risen. The expansion of debt finance for defence spending will likely occur throughout Europe. Additionally, there will be further defence spending financed on the EU level. If the German debt-to-GDP ratio increases quickly as a result of these plans being realised, its role as a fiscal anchor of the European Monetary Union will be diminished. This may well raise the probability of the ECB being forced to deploy its so-called Transmission Protection Instrument (TPI) for large-scale country-specific sovereign debt purchases. Importantly, the SMA survey already indicated a significant share of analysts expecting this instrument to be used within a six-month period well before the news about this potentially very large debt expansion transpired, as shown in **Figure 22**.

Figure 22: Average probability distribution of TPI activation expectations



Source: ECB Survey of Monetary Analysts.

Note: The data represents the results from the respective ECB SMA publications, with each bar labelled by a date corresponding to the release of the respective results. The survey for the March 2023 publication was conducted from February 17 to 19, 2025.

5. CONCLUSIONS AND RECOMMENDATIONS

Expansionary monetary and fiscal policies and other demand-side forces contributed to the unprecedented rise of inflation in 2021 and 2022 in a number of currency jurisdictions including the United States and the euro area. The energy crisis following the Russian attack on Ukraine in February 2022 served as accelerant. Even so, the Fed and the ECB kept rates on hold well into 2022. As a consequence, real policy rates declined as inflation rose and this contributed to the rise of inflation. Reasons for the late response included the explicit commitment (forward guidance) to let inflation rise above target for some time together with forecasting failures.

Simple, textbook style monetary policy rules that respond to recent data on inflation and output gaps prescribed higher policy rates well in advance of the interest rate hikes implemented by the Fed and the ECB. The decline of inflation since 2023 has been accompanied by a decline of the interest rate prescriptions from these policy rules. The policy easing implemented by the ECB since summer 2024 appears quite in line with the prescriptions from such rules. The ECB's outlook for inflation is rather benign. There are, however, a number of upside risks to inflation. We draw the following conclusions and recommendations from this analysis.

- It is advisable that monetary policy in the euro area relies less on medium-term and longer-term inflation forecasts. Instead, a greater focus on near-term developments in core inflation and domestic inflation should play a greater role in determining the monetary policy stance. The simple outcome-based rules presented in this paper can provide useful guidance for the stance of monetary policy in this regard. The shift in the ECB's communication highlighting a "data-dependent meeting-by-meeting approach" might be an indication that the ECB's approach to policy has shifted in that direction.
- The current monetary policy stance seems fairly appropriate. Yet, with policy rate having been reduced below core inflation, the ECB may be well advised to wait with further rate cuts until core inflation and domestic inflation have converged more closely to the inflation target. U.S. interest rates have not declined as much. Yet, this de-coupling may not continue for much longer. A number of surveys indicate upside risk to inflation in the euro area. Furthermore, there is a major shift towards debt-financed increases in government spending on defence and infrastructure under way in large parts of the area. This adds further upside risks to inflation.
- The use of explicit, fixed forward guidance played a key role in the excessively late response of monetary policy to the surge of inflation in 2021 and 2022. It meant that the ECB deviated from past practice. It is not advisable to use forward guidance in this manner again. By contrast, ECB policy from 1999 to 2020 was characterised by the so-called Taylor principle. Inflation above target coincided with higher/positive real policy interest rates, inflation below target with negative real rates. Policy was more successfully in keeping inflation close to target in those periods. Hence, the Taylor principle should play a more important role in policy deliberations.
- At the same time, the ECB need not give up on the basic idea of forward guidance. This idea is not to try and manipulate expectations formation by financial market participants, business and households in a direction that they might regret afterwards. Rather, the idea is to conduct monetary policy in a way that makes it predictable and credible. The ECB's numerical inflation target, the publication of its policy strategy and the publication of staff forecasts contribute to making policy more predictable and credible. Similar to the Fed, the ECB should publish the prescriptions from a set of simple monetary policy rules that it considers useful benchmarks for monetary policy. The implications of these rules should then be considered regularly in policy deliberations.

- These rules can then also serve as a tool for state-dependent forward guidance. Market participants can feed their own inflation and growth forecasts or those from professional forecasters or other institutions into the rules and simulate them forward to obtain a possible prediction of the interest rate path.
- The ECB should consider publishing its own interest rate forecasts similar to other central banks such as those of Sweden and Norway. These forecasts do not constitute fixed forward guidance. They are adjusted with every meeting to prevailing economic conditions and the economic outlook. The Central Bank of Norway regularly publishes both its forecast of the policy rate and a forecast of the prescriptions from a simple policy rule.
- Alternatively or additionally, it would be helpful if the ECB would publish a survey of inflation, growth and interest rate projections by the members of the Governing Council similar to the FOMC projections published by the Federal Reserve. This would help ECB watchers assess a reasonable range of forecasts held by ECB decision makers and could serve to improve the forecasting processes at central banks and among market participants.

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The euro area experienced an unprecedented surge of inflation in 2021 and 2022 followed by a decline in 2023 and 2024. The ECB raise policy rates too late. Simple rules would have prescribed an earlier response. The recent policy easing, however, is quite in line with such rules. This experience provides a number of lessons that could lead to improvements in the policy strategy that is currently under review. The current level of policy rates appears appropriate. However, there are some important upside risks to inflation.

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