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The ECB's Monetary Policy Stance in Perspective

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Abstract

In this paper, different assessments of the ECB's monetary policy stance are reviewed, beyond the mere observation of the sharp rise and subsequent decline of the policy rate. Overall, the monetary policy stance has been more moderate during the tightening cycle than what has been indicated by the policy rate increase. However, following the decline in energy prices, this past and relatively mild restrictive policy stance poses a risk to economic activity.

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

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CONTENTS

LIST OF ABBREVIATIONS

APP	Asset purchase programme
DFR	Deposit facility rate
ECB	European Central Bank
EP	European Parliament
EU	European Union
GFC	Global financial crisis
HICP	Harmonised index of consumer prices
HLW	Holston-Laubach-Williams
LTRO	Longer-term refinancing operations
PEPP	Pandemic emergency purchase programme
QE	Quantitative easing
QT	Quantitative tightening
€STR	Euro short-term rate
ZLB	Zero lower bound

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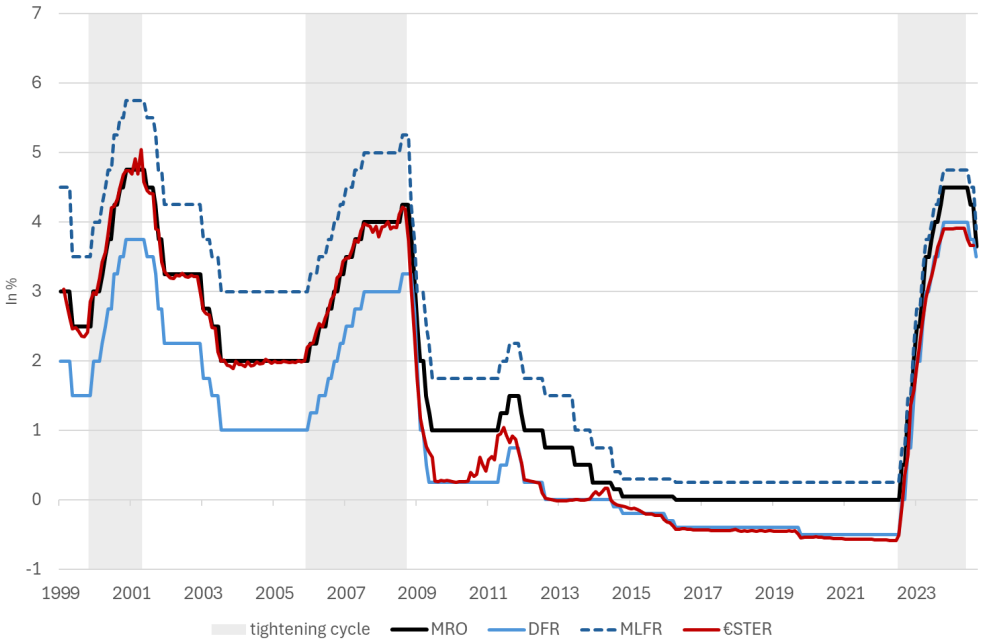
EXECUTIVE SUMMARY

- **Since July 2022, the ECB has raised its key policy rates ten consecutive times, by a total of 4.5 percentage points, making it the sharpest tightening cycle in the euro area since the introduction of the euro.** The stance of monetary policy does not boil down exclusively to the rise in the policy rates though because the ECB's toolkit has included balance sheet instruments**.** Moreover, the assessment of monetary policy stance should also account for the level of inflation and for the "equilibrium" or "neutral" interest rate.
- **The concept of "monetary policy stance" is often used by ECB officials to characterise the ongoing or future monetary policy decisions.** Looking at the ECB press conferences following monetary policy decisions since January 2021, in this paper a first insight on the monetary policy stance according to the ECB Governing Council is provided. The monetary policy started being interpreted as restrictive from February 2023. At that time, the deposit facility rate reached 2.5%. The sharp rise in the use of the term "restrictive" since December 2023 has certainly prepared financial market participants for the start of a loosening cycle that has started in June 2024.
- **The start of the tightening cycle in July 2022 coincided with an unprecedented rise of inflation and with the lowest *real* policy rate ever in the euro area.** Subtracting the inflation rate from the deposit facility rate, the real policy rate reached 2% at the end of the tightening cycle in spring 2024; close but below the peak of previous tightening cycles.
- **The stance of monetary policy also depends on the level of the "neutral" interest rate, which has decreased significantly since the Global Financial crisis.** The "neutral" interest rate is the short-term real interest rate that would prevail if the output were at potential and inflation were stable. In comparison with the "neutral" interest rate, the recent tightening cycle appears as the most restrictive stance of monetary policy in the euro era.
- **Comparing the short-run market interest rate (€STR) with the computed short-run interest rate stemming from theoretical monetary policy rules suggests that ECB policy decisions could have been tighter except if one accounts for recent estimates of the "neutral" rate.** If the neutral rate is found to be low, the ECB monetary policy would have been too much restrictive.
- **The definition of the monetary policy stance requires to clearly identify the combination of shifts in different sets of instruments, which in this paper is analysed with a proxy, an implicit or shadow policy rate.** We compute two measures of a proxy policy rate for the ECB. Without major changes in the size of the ECB balance sheet since targeted long-term liquidity operations have come to an end, it appears that the proxy rate is below the deposit facility rate: the monetary policy stance has been more moderate during the tightening cycle than what has been indicated by the deposit facility rate increase.
- **The link between monetary policy and inflation is not straightforward.** Recent inflation in the euro area has been influenced by various factors, with some driven by supply and others by demand. Attributing all the decline of inflation to the ECB monetary policy stance would assume a very strong effectiveness of monetary policy and would overlook the role played by the drop in energy prices.
- **The risk remains that euro area output growth may not recover rapidly.** It is worth mentioning that all of the previous tightening cycles have coincided with a decline in the output gap and thus recession.

1. INTRODUCTION

The return of inflation in 2021 beyond the 2% inflation target drove a substantial shift in the conduct of the European Central Bank (ECB) monetary policy. After 7 years of zero or negative policy rates, the ECB decided to increase its so-called "three key interest rates" in July 2022. This rise has been in sharp contrast with the former tightening cycles (see Figure 1 for the main refinancing operations (MRO) rate, which has been the key policy rate steering the monetary stance between 1999 and the Global financial crisis (GFC), the deposit facility rate (DFR) through which the Governing Council has been steering its monetary policy stance implicitly or explicitly since the GFC) and marginal lending facility rate (MLFR), which is an upper bound for the overnight market (€STR).[1] The policy rates increased substantially at an unprecedented pace. While the peak for the target rate (MRO) reached a peak at 4.25% in August 2008, the tightening cycle has been longer – from July 2022 until May 2024 – and the policy rate increases amounted to 2.225 points. During the recent tightening period, the key policy rate (DFR) has increased by 4.5 points – reaching a peak at 4% - on 23 months only (Table 1).

Figure 1: The 2022-2024 tightening cycle compared to previous ones



Source: ECB.

Note: Grey areas indicate periods of tightening cycles, when the ECB increased the policy rates.

The change in policy rates has long been the primary measure for defining the monetary policy stance of the ECB. At first glance, an increase indicates a more restrictive stance whereas a decrease suggests a more accommodative stance. The sharp increase in the interest rates was a response to the unprecedented rise of inflation and was used to achieve price stability, an objective which remains predominant for the ECB in accordance with the Treaty on the Functioning of the EU (TFEU).

[1] This switch from the MRO rate to the DFR stem from the implementation of non-standard measures. Liquidity operations and the assets purchase policy implied an excess supply of central bank reserves pushing down the overnight rate (€STR) to the DFR as illustrated in Figure 1, which has *de facto* become the target policy rate. See Blot et al. (2023) for details.

Table 1: ECB monetary tightening cycles in retrospect

	Length (months)	Total increase (points)	Average monthly increase (points)
Nov-1999 to April-2001	18	2.25	0.125
Dec-2005 to Sept-2008	34	2.25	0.07
July-2022 to May 2024	23	4.5	0.2

Sources: ECB and authors' own elaboration.

Given that the euro area inflation rate has returned to a level close to the target, it is tempting to attribute this achievement to the stance of monetary policy. However, the link between monetary policy and inflation is not straightforward. Recent inflation in the euro area has been influenced by various factors, with some driven by supply and others by demand (see, e.g. Blanchard and Bernanke, 2023; Blot and Geerolf, 2023). Yet, the contribution of monetary policy may be limited as it mainly helps to dampen inflation when the inflation shock originates on the demand side.[2] Monetary policy is indeed transmitted to financial conditions and then to private consumption, investment and external trade. Before we dig into the relationships between the sources of inflation and monetary policy, it is important to clearly identify the monetary policy stance implemented by the ECB. It does not boil down exclusively to the rise in the policy rates.

Since the global financial crisis, the ECB's toolkit has widened to account for the balance sheet instruments, such as quantitative easing (QE) measures. Depending on inflation projections, and the economic outlook the ECB can choose among its different instruments. The ECB can either restrict or expand it via, e.g. a decline or a rise in the policy rate and/or an increase or a decrease of its balance sheet. The ECB can also mix the use of its policy rates and its balance sheet by, for instance, raising the former while fully reinvesting the principal payments from maturing securities purchased under its different programmes, hence keeping QE on hold, which it did until November 2022. Conversely, it may also decide to reduce the outstanding amount of securities held for monetary policy purposes, which is the definition of employing quantitative tightening (QT), but keeping the policy rate unchanged. It also decides on the size of the shift to calibrate the policy to its main objective of price stability. Figure 2 shows that beyond the rise of interest rates, the ECB has also started to reduce the size of its balance sheet (QT) since November 2022. Such a reduction of the assets held by the ECB may also influence the financing conditions and thus impact the monetary policy stance.

According to the ECB, the monetary policy stance refers to the overall approach and set of measures adopted by the central bank to achieve its primary objective of maintaining price stability over the medium term. In its 2021 review strategy, the ECB made clear that "*each monetary policy decision by the Governing Council is based on an assessment of the monetary policy stance and the choice and design of instruments. The ECB's assessment of its monetary policy stance determines whether monetary policy is contributing to economic, financial and monetary developments in a way that maintains price stability over the medium term. The appropriate monetary policy stance is delivered via the choice, design and calibration of instruments, both individually and in combination*."

More recently, the ECB has narrowed the criteria on which the appropriateness of the monetary policy stance is assessed. There are now three criteria based on incoming data (the so-called "data-dependency" and "meeting-by-meeting" approach): the inflation outlook, the underlying inflation, and

[2] On the intertwining of supply and demand shocks and the difficulty to operate the appropriate monetary policy, see Fornaro and Wolf (2023).

the strength of the transmission of monetary policy. The ECB bases its assessment of the monetary policy stance on its effectiveness at combating inflation, including in the future as evidenced in the inflation projections, while focussing on core inflation which is netted out of the direct impact of oil and food products. As for the transmission, it mostly refers to financing conditions, either the cost (interest rate channel) or the volume of loans (bank lending channel).

Figure 2: The size of the ECB balance sheet

Sources: ECB.

The definition of the monetary policy stance requires to clearly identify the combination of shifts in different sets of instruments. In this respect, and since the inception of so-called (at the time) unconventional monetary tools like QE, there have been attempts to produce synthetic indicators – so-called shadow rates or proxy rates – of the monetary policy stance encompassing the use of conventional and unconventional instruments.[3] These proxies have been used to assess the monetary policy stance when the economy has hit the zero-lower bound (ZLB).[4] Once non-standard measures are withdrawn, shadow rates may also be a useful indicator assessing whether the monetary policy tightening is in place.

In the following section, we follow recent literature about central banks and compute proxy rates for the euro area and the United States (US) economy to encompass the conventional and less conventional monetary policy measures. We therefore identify the monetary policy stance, also after the end of the ZLB. We show that the monetary policy stance in the euro area has been more restrictive since mid-2022. Meanwhile, it has been less restrictive than what the increase in the policy rate would suggest. This is in contrast with the US monetary policy stance where the proxy funds rate has surpassed the Federal funds rate. We compare our estimate of the euro area proxy rate with different monetary policy rules and we conclude that the policy stance lies in a very moderate restrictive territory. It raises doubts on the effectiveness of monetary policy at substantially reducing inflation in the euro area.

[3] Shadow or proxy rates and implicit monetary policy rates that accounts for the use of non-standard measures. In the case of QE (QT), the implicit rate reflects that monetary policy easing (tightening) goes beyond the decrease (increase) of the policy rate.

[4] For instance, Eleftheriou and Kouretas (2023) have shown that the US shadow rate fits quite well in a Taylor rule: the US shadow rate reacts more than one-for-one to inflation, meaning that the real shadow rate increases after a positive shock to inflation, thus curbing demand and showing stabilising properties.

2. WHAT DO ECB OFFICIALS SAY ABOUT THE MONETARY POLICY STANCE IN THE EURO AREA?

The concept of "monetary policy stance" has long been used by ECB officials to characterise the ongoing or future monetary policies and the subsequent decisions. In January 2021, for instance, and before the rise of inflation in the euro area, the ECB President, Ms Lagarde, argued in the monetary policy statement and on behalf of the Governing Council that "*we decided to reconfirm our very accommodative monetary policy stance*". On this occasion, she also used the concept a second time and paired it with the term "*appropriate*". In July 2022, the "*monetary policy stance*" was mentioned seven times by President Lagarde, in her statement and her answers to journalists' questions. This time, she communicated mostly on the transmission of the monetary policy stance to financial conditions. Adopting the term "monetary policy stance" adds a flavour of technicality to a "data-dependent, meeting-by-meeting" approach to monetary policy, as exemplified by President Lagarde in almost all her press conferences since the inflationary spike.

The communication surrounding the monetary policy decisions of the ECB has changed on several occasions since the inflation episode, which started after COVID-19 pandemic and accelerated after the Russian invasion of Ukraine. Analysing the statements and the following Q&A after each monetary policy decisions since January 2021, we provide a first insight on the monetary policy stance in the euro area (according to the ECB members of the Governing Council). Let us first have a look at the number of joint occurrences of the term "monetary policy stance" with a number of adjectives, from "restrictive" to "expansionary", in the press conferences of the ECB, hence before and after the surge of inflation in the euro area. The joint terms have been mentioned only a few times, and always with a positive tone: the monetary policy stance was either "accommodative" or "appropriate". Since October 2022, the term "monetary policy stance" is no longer modified by an adjective: the "monetary policy stance" appears occasionally, mostly in answers to journalists.

Meanwhile, when one counts individually the occurrences of the different adjectives during the ECB press conferences, a more dramatic tone has been arising since mid-2022, when the ECB started to increase the policy rates.[5] First, journalists have questioned the calibration of policy decisions, hence the monetary policy stance, before and soon after the rise in policy rates (in June and September 2022). They raised questions about whether the policy decisions were heading towards the so-called natural or "neutral" interest rate.[6] President Lagarde's answer was that the policy decisions were "appropriate". Second, the decisions taken later were more and more labelled as "restrictive" (see Figure 3): according to President Lagarde, financing conditions and policy rates were kept "restrictive" or "sufficiently restrictive" to bring inflation back to the target. While being labelled "restrictive", the policy decisions taken by the ECB were also deemed "appropriate". We may notice that the ECB clearly signalled that monetary policy turned restrictive according to its own views from February 2023 and the use of the term "restrictive" reached a first peak in May 2023. During this period, the key policy rate (DFR) went from 2.5% to 3.25%.[7] Should we then consider that the "neutral" rate falls within that range according to the members of the Governing Council?

The sharp rise in the use of the term "restrictive" during the ECB press conferences since December 2023 has prepared financial market participants for the possibility of a decrease in key ECB interest rates in June 2024. The expected restrictive impact of these policy decisions on the inflation outlook, the underlying inflation, and the strength of the transmission of monetary policy was certainly under way, according to the ECB.

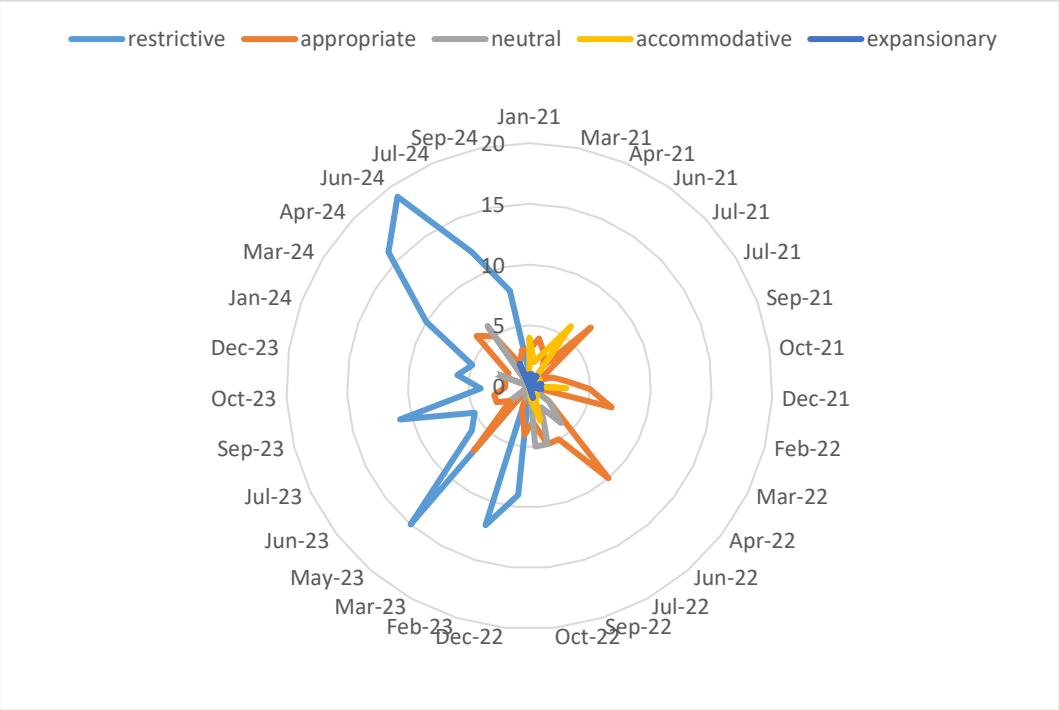
[5] Here we consider the period starting with the increase of the policy rates. The communication surrounding the accommodative, neutral or restrictive stance has yet been used before.

[6] The "neutral" interest rate is the short-term real interest rate that would prevail if the output were at potential and inflation were stable.

[7] Considering the 2% inflation target, it would imply a real "neutral" rate between 0.5% and 1.25%.

While the indicators of inflation and credit volumes were clearly going in the direction of a deceleration or slowdown, and banks' interest rates were on the rise (see the ECB Economic Bulletin 5, 2024), it does not mean it was due to ECB's recent monetary policy decisions. Constructing a proxy of monetary policy decisions which encompasses the policy decisions on the basis of three key ECB interest rates and balance sheet instruments like QE/QT could highlight the feature of the monetary policy stance (restrictive, neutral, or expansionary) and should be a prerequisite to assessing the effectiveness of monetary policy at, e.g. combating inflation.

Figure 3: Tone changes at ECB Press Conferences



Sources: ECB Monetary Policy Statement Press Conferences, computations by the authors.

Notes: The graph reports the number of occurrences for each term during the press conferences of January 2021 to July 2024. The term may be either in the monetary policy statement of the ECB President or in the questions & answers with journalists. We believe that whoever uses the term (an ECB official or a journalist) during the press conference conveys information on its weight in real-time policy debate. It is noteworthy that we mix the terms "restriction" and "restrictive" since May 2023 when "restriction" was first used to define the "level and duration of restriction" of monetary policy.

3. INFLATION, OUTPUT AND THE MONETARY POLICY STANCE

When observing the rise of the policy rate or comparing tightening cycles across time, it is important to account for the level of inflation. In contrast with the US Federal Reserve which has a dual mandate of price stability and economic growth, the ECB has a hierarchical mandate where price stability is the main objective to pursue. The surge of inflation was the main factor behind the recent monetary tightening cycle, as inflation had exceeded the target persistently. Besides, according to the Taylor principle, central banks should increase interest rates by more than the rise of inflation in order to stabilise inflation.[8]

3.1. Real policy rate across tightening cycles

From July 2022 to June 2024, the deposit facility rate has been increased by a total of 4.5 percentage points, much more than during the tightening cycle that began in December 2005 and ended in September 2008. However, inflation was much higher at the beginning of the recent cycle: 8.9% in July 2022 – with a peak at 10.6% in October – compared to 2.3% in December 2005 so that the *real* policy rate (the overnight rate minus the current inflation rate) was way lower during the latest tightening cycle.[9] It is noticeable that the policy rate has not increased as much as inflation at the beginning of the episode. Central banks – including the ECB – respond gradually to inflation shocks and they take into account the sources of inflation.[10] As inflation was largely driven by temporary shocks to energy and food prices, it is not surprising that the policy response did not strictly respect the Taylor principle.

The aim of the policy tightening is to reduce inflation until central banks consider that inflation is at the target or if they are confident in its reduction toward the target after which they stop raising policy rates. Where did the euro area stand in May 2024 in this respect?

Not only had the policy rate increased but inflation had receded substantially so that the real policy rate had reached 1.9%, a higher level than at the end of the former 2006-2008 tightening cycle (see Figure 4). Drawing on the evolution of the real interest rate in retrospect, the monetary stance appears restrictive and has been tightened at a very fast pace.

Beyond the level of inflation, the stance of monetary policy also depends on the level of the "neutral" or "natural" interest rate (the so-called r-star), which is the short-term interest rate that would prevail if the output were at potential and inflation were stable.[11] The "neutral" interest rate is not an observable variable and may change over time according to some structural factors. Thus, a given level of the real policy rate may be expansionary – when the real policy rate is inferior to the "neutral" interest rate – or restrictive if the real policy rate is superior to the "neutral" interest rate. According to the Holston-Laubach-Williams estimations (HLW), the "neutral" interest rates have dropped since the global financial crisis so that the same level of the real policy rate would be more restrictive otherwise in 2022 than it was in 2008.[12]

Considering the real policy rate or the interest gap (i.e. the difference between the real policy rate and the "neutral" interest rate) gives a similar conclusion: the end of the recent tightening cycle has led to the most restrictive stance of monetary policy in the euro era. The peak of the interest rate gap is around

[8] John Taylor has shown that the US Federal Reserve raised its policy rate when inflation was exceeding the target, and more than one for one, so that the real interest rate (the policy rate minus the inflation rate) would increase and limit demand for goods and services. See Taylor (1999).

[9] To avoid switching from the MRO rate to the DFR, we have computed the real policy rate as the difference between the overnight market rate (€STR) and the inflation rate. The MRO or the DFR may indeed represent a target for the overnight interest rate.

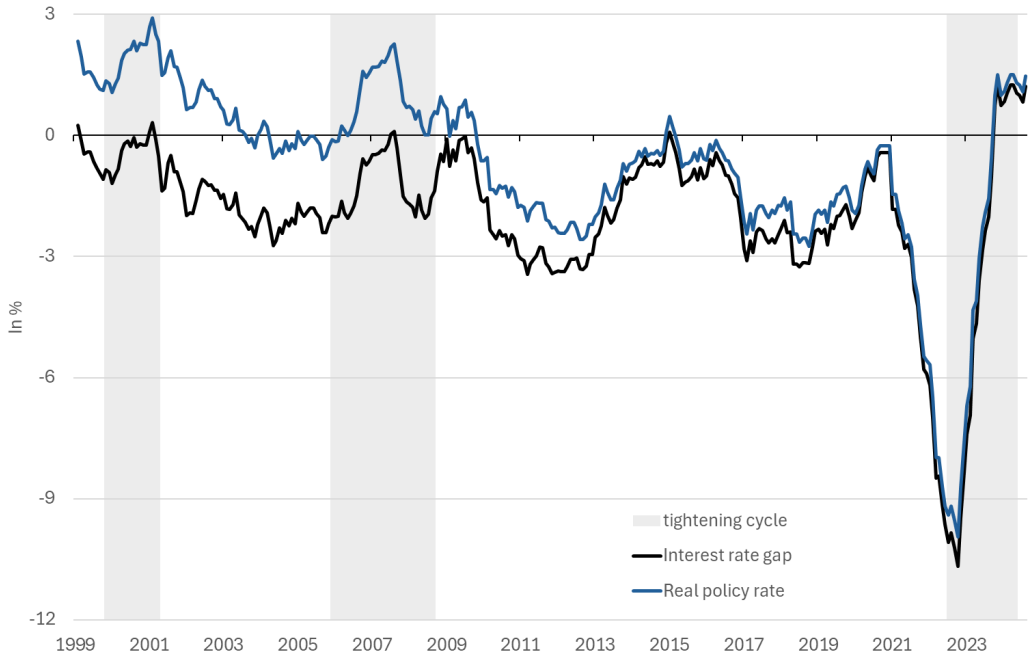
[10] A 10-point increase in the policy rate in August 2022 would have surely had dramatic effects on the economy.

[11] As emphasized by Obstfeld (2023), there may be minor differences between the "natural" and the "neutral" interest rate but both concepts are very close.

[12] See Holston, Laubach and Williams (2017) for the methodology.

1.7% on average since January 2024, suggesting that monetary policy has never been that restrictive since 1999. The peak for the previous tightening cycles was negative in July 2008 and close to zero in March 2001.[13]

Figure 4: The real policy rate and the interest rate gap across tightening cycles



Sources: ECB, Eurostat, Holston-Laubach-Williams, computations by the authors.

Note: the real policy rate is the difference between the overnight interest rate (€STR) and the current inflation rate. The interest gap is the difference between the real policy rate and "neutral" interest rate estimated by HLW.

3.2. Monetary policy stance through monetary policy rules

The "neutral" rate provides a first benchmark to assess the policy stance, but it is imperfect since it does not relate directly to the inflation level and the economic situation. The "neutral" rate is a construction based on assumptions related to what should be the steady state of the economy. It is therefore just a reference value when inflation is at the target and when the output is at its potential.

The persistent increase in inflation, whatever the value of the "neutral" rate, motivated the reaction of the ECB. Although inflation is the main objective of monetary policy in the euro area, the ECB also takes the economic situation into consideration before setting its instruments. It may react when the output is below – as it was the case after the financial crisis – or above its potential. Since the seminal contribution of Taylor (1993), monetary policy rules have become a metric to determine the adequate level of the policy rate. These rules generally indicate what should be the level of the interest rate according to the inflation gap – the difference between inflation (or expected inflation) and the target – and the output gap – the difference between the actual output and the potential output – or the unemployment gap. According to the original rule the policy rate should be fixed as follows:

$$r_t = r^* + 0.5(\pi_t - \pi^*) + 0.5(y_t - \bar{y})$$

[13] The estimates of the "neutral" interest rate are subject to high level of uncertainty which makes it difficult to steer monetary policy decisions, and it is argued that it has recently increased (see Benigno et al., 2024; Brand, Lisack and Mazelis, 2024). Brand et al. (2024) survey different approaches to compute *r-star* and report that the median estimate would have increased by 0.3 point since 2019. However, changing the diagnosis that monetary policy stance in the euro area would not have turned negative would imply that r-star is still 1.75 point higher than the HLW estimation.

with $r_t = i_t - \pi_t$, the real interest rate defined here as the difference between the policy rate and the inflation rate, π_t the inflation rate and y_t the actual output. π^* and $\bar{y}$ are respectively the inflation target and the potential output.

If one applies this rule mechanically to the euro area, the policy rate should have been set above 15% in 2022Q3 when the ECB started to tighten monetary policy. At that time, inflation reached 9.3% on average and the 2022 output gap – estimated by the European Commission – was positive (0.9%).[14] Here again, such an increase would have represented a major monetary policy shock triggering a dramatic drag on the economy. It is thus not a surprise that the ECB did not follow this recommendation. Still, according to the same rule, the DFR should have been 4.5% in 2024Q2, which is very close to the peak level of the DFR.

The standard Taylor rule provides insightful information, but it may not be expected to be strictly implemented by the policymakers, and ever more so when the economy hits the ZLB as the rule may indicate a negative interest rate.[15] In practice, central banks have always claimed that monetary policy cannot be set according to some automatic application of a monetary policy rule. As stressed above, the strict application of the Taylor rule might trigger large swings in the policy rate and therefore destabilising monetary policy shocks. Some alternative rules account for some inertia of central banks responses to inflation: they assume a more gradual shift to the stabilising level. The hypothesis regarding the level of the "neutral" rate may also be changed. Other simple monetary rules that we computed consider core inflation instead of headline inflation: core inflation is less volatile and thus reduce the variability of the policy rate.[16] In Figure 5, we represent the range of policy rates according to 10 different rules.[17] All rules are based either on the headline or on the core inflation rate, and on the output gap as calculated by the European Commission.[18] At the end of the sample – 2024Q2 – the average policy rate stemming from these 10 different rules would be 4.7%. Therefore, taking into account the current level of inflation and the output gap, the policy rate set by the ECB – and measured here by the overnight €STR rate – is less restrictive than what is suggested by the mean value of the different rules. There are yet some policy rules indicating that ECB monetary policy is too much restrictive. This is notably the case when the "neutral" rate is measured by the HLW estimate.[19] The hypothesis regarding the measure of this "neutral" rate is thus crucial for assessing whether monetary policy stance in the euro area is "too much" restrictive or expansionary.

[14] This calculation supposes that the "neutral" interest rate is at 2%, far above the HLW estimation.

[15] The possibility of a negative policy rate also highlights the need to account for non-standard policy measures as proxied by the shadow rate (see page 19).

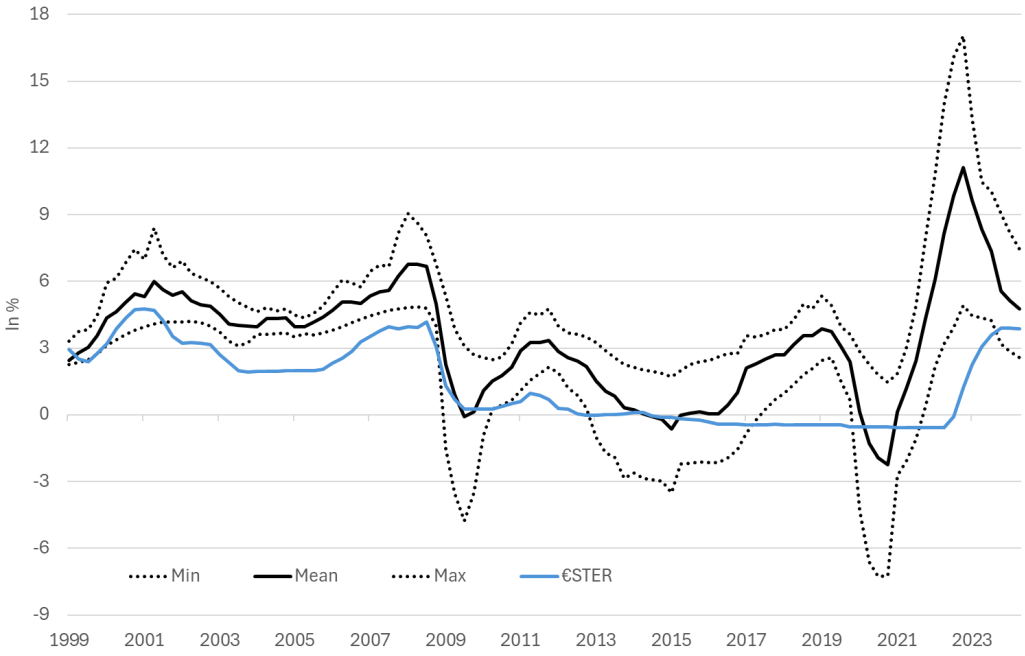
[16] See Knotek et al. (2016) for instance for a list of simple monetary policy rules.

[17] See the appendix for a description of these rules.

[18] There is yet an exception for two rules computed with the expected inflation instead of current inflation.

[19] Rules 2 and 4 in the appendix.

Figure 5: Policy rate in the euro area according to simple monetary policy rules



Sources: ECB, European Commission, Eurostat, Holston-Laubach-Williams, computations by the authors.

4. QUANTITATIVE TIGHTENING AND THE MONETARY POLICY STANCE

The introduction of non-standard policy instruments – asset purchases, liquidity operations and forward guidance announcements – after the GFC entails that the policy rate is not the only variable that matters for identifying the monetary policy stance. Several approaches have been proposed to provide an indicator of monetary policy stance encompassing those measures, the so-called shadow or proxy rates. During the ZLB, the shadow rate has generally been negative as central banks implemented additional expansionary measures, beyond the decrease of the policy rate, which amplified monetary policy easing. Among the most popular estimates of shadow rates figures the one computed by Wu and Xia (2016). There are many different estimates of the shadow rate, in the US, in Japan and in the euro area, but it is noteworthy that estimates of shadow rates have not been systematically updated. Jing Cynthia Wu has reported the following sentence on her website dedicated to the shadow rates: "*we are not currently updating the shadow rate and will continue updating it when ZLB returns. You can splice the shadow rate with the policy rate for your analysis.*" One understands that the monetary policy stance when the economy is no longer at the ZLB is interpreted via the shifts in the policy rates in the euro area or the Fed funds rate in the US, without the involvement of shifts in balance sheet instruments.

However, once non-standard measures are withdrawn, we may suspect that this withdrawal strengthens the tightening of monetary policy as central banks reduce their holdings of securities held for monetary policy purpose and end exceptional liquidity operations. The shadow rate may incorporate this extra effect of monetary policy on long-term interest rates and may thus remain a useful indicator of the monetary policy stance beyond shifts in the policy rates.

For the US, Doh and Choi (2016) proposed a simple approach to assess what they call a proxy funds rate instead of a shadow rate. They updated their model to account for the effect of quantitative tightening and showed that the proxy funds rate for the US was higher than the target rate announced by the FED from the end of 2021 until August 2024.[20]

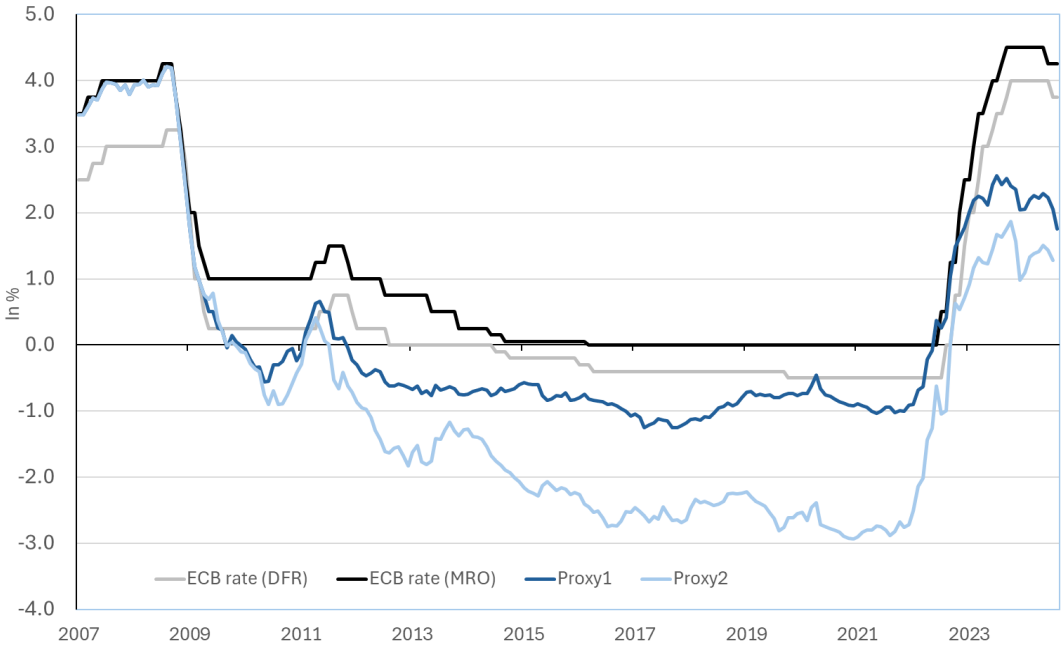
Using the same approach, we compute two measures of a proxy policy rate for the ECB (See Box 1). While in the US, the proxy funds rate has been above the target set by the FED, the proxy rate in the euro area is below the DFR rate (Figure 6). The reduction in the size of the balance sheet does not seem to entail an amplification in the ECB monetary policy tightening. Total assets of the ECB have been reduced by EUR 2,375 billion since peaking in June 2022, hence by 27%. However, the bulk of the reduction stems from the liquidity operations that have come to an end: EUR -2,100 billion (-96%) since June 2022, contributing for 24 points to the 27% reduction in total in the size of the balance sheet (Figure 7). The liquidity needs of the banking system have weakened so that this reduction has less impact on financing conditions and on the variables included in the computation of the proxy rate (mainly based on sovereign yields and spreads, corporate rate and spread, mortgage rate and spread and retail banking interest rates). By comparison, assets held for monetary policy purpose have only decreased by 11% (EUR 525 billion) and contributed for only 6 points to the reduction in the total assets held by the Eurosystem. There has been less QT in the euro than in the US, which may explain the difference between the proxy rate estimated for the FED and the proxy rate for the ECB.[21]

While the proxy rate in the euro area remains below the policy rate, it is noteworthy that its increase is also slightly less important than that of the policy rate: 2.8 points between May 2021 – its COVID-19 pandemic trough – and August 2024.

[20] See https://www.frbsf.org/research-and-insights/data-and-indicators/proxy-funds-rate/ for regular updates of the US proxy funds rate.

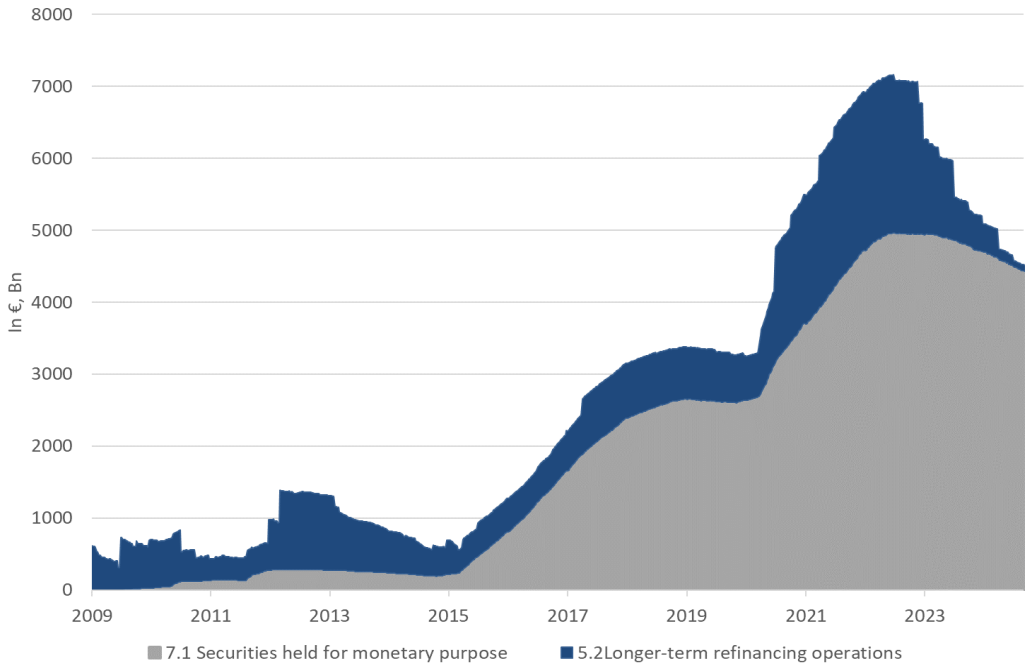
[21] Securities held by the Federal Reserve have decreased by $ 1800 bn, thus explaining the reduction in the size of the balance sheet, which has been shrunk by 21% since April 2022.

Figure 6: A proxy policy rate for the euro area



Sources: ECB, Refinitiv Eikon Datastream, computations by the authors.

Figure 7: Longer-term refinancing operations and assets held for monetary policy purpose



Source: ECB.

Box 1: Methodology for the estimation of a proxy policy rate

The estimation of a proxy rate is meaningful to account for the impact of non-standard monetary policy decisions. These measures exert some effect on the monetary policy stance beyond their effect on the policy rate. To assess a proxy policy rate for the euro area, we need to find a list of proxy variables influenced by monetary policy decisions which are not constrained by the ZLB and may also react to QT. For the euro area we consider the German sovereign yield over the 2-year, 5-year, 7-year, 10-year and 30-year maturities. We also add the interest rate on corporate bonds, the interest rate on Pfandbriefe* and three spreads: the spread between the 10-year and the 2-year interest rates, the spread between the interest rate on corporate bonds and the 10-year sovereign yield and the spread between the interest rate on Pfandbriefe and the 10-year sovereign yield.

The first step consists in extracting common factors from this list of variables. Here, we consider 3 factors. This step aims at synthetising the information contained in these 10 variables.

The second step consists in estimating the relationship between these factors and the policy rate (measured by the overnight rate €STR) during the pre-ZLB period.

Assuming that the relation between the factors and the policy rate is stable overtime, the linear combination of the three factors provides the estimate of the proxy rate during the ZLB period and the QT period.

The second measure of the proxy rate (Proxy2 in Figure 6) enlarges the list of variables of the first step. It accounts for the fact that the sovereign market does not boil down to the German market and that monetary policy decisions may also aim at reducing other sovereign yields and spreads. We have thus included the French, Italian and the Spanish sovereign yields plus the spreads between those interest rates and the German sovereign yield. We also included several retail banking interest rates: the interest rate on consumption loans (at the 1-year maturity), the interest rate on housing loans (with remained maturity between 5 and 10 years), the interest rate on loans to non-financial corporations (NFC) for loans below EUR 1 million and for loans above EUR 1 million at the 5-year maturity. From these variables, we also calculate a list of three spreads: difference between the interest rate on housing loans and the German 5-year sovereign yield, difference between the interest rates applied to NFC and the German 5-year sovereign yield.

b: Pfandbriefe are a type of covered bonds issued by German mortgage banks that are collateralised by long-term assets. They are considered here as a market proxy rate of mortgages.*

Source: Author's own elaboration.

5. CONCLUSION: A RISK OF ECONOMIC SLOWDOWN?

Inflation has been decreasing. ECB officials seem to attribute this result to their decisions. In the latest press release of the Governing Council of 12 September 2024, President Lagarde argues that "*based on (the ECB) updated assessment of the inflation outlook, the dynamics of underlying inflation and the strength of monetary policy transmission, it is now appropriate to take another step in moderating the degree of monetary policy restriction.*" Implicitly, the former restrictive monetary policy stance is linked to the better inflation outcome, and, in a more explicit manner, the latter outcome now allows to moderate the restrictive stance further.

What we discussed in this contribution is the difficulty in identifying the monetary policy stance. The mere rise or decline in the policy rate does not embed full information about the monetary policy stance in an environment of still relatively high amounts of liquidity. Taking for granted that the monetary policy stance rests on the fully-fledged implementation of all ECB instruments, thus including balance sheet instruments, we concluded that the ECB monetary policy stance has been only mildly restrictive so far. As a side conclusion, attributing the decline of inflation to ECB monetary stance would assume a very strong effectiveness of monetary policy. Romer and Romer (2023) argue that it takes two years before a monetary contraction actually has an impact on the US inflation rate; it reduces it by 1.5 percentage point in comparison with a no-policy baseline. Two years have now passed since the start of the tightening cycle in July 2022 and the euro area inflation rate has declined by almost 8 percentage points from its peak in October 2022. It is difficult to conceive that such a large impact on inflation could have stemmed from a very mild monetary contraction.

Yet, it is not clear what the exact contribution of restrictive monetary policy is. The decline in the inflation rate also (mainly) comes from the decrease of energy prices. The key issue now is whether the monetary policy tightening, though mild it may be, will drag down output growth. Over the recent period, the output gap decreased at the beginning of the tightening period, which cannot be attributed to monetary policy because of the lags in transmission. The risk is yet that output growth may not recover rapidly. It may be noticed that GDP growth is expected to reach 1.3% in 2025 against 0.8% in 2024 according to the September 2024 projections of the ECB staff. However, the effect if monetary policy must be considered relative to a scenario with a less stringent tightening. A more moderate pace of interest rate increases might have led to the same reduction of inflation but to higher growth. This is consistent with Romer and Romer (2023) appraisal of the ongoing monetary contraction in the US that they commented upon in January 2023, so before the reversal in the monetary policy stance: "*because of the lags involved, policymakers will face a difficult decision about when to stop rate increases or reverse course. If policymakers keep tightening until inflation falls as much as they want, they will likely have gone too far—because the effects of tight policy will continue for many months after they stop raising rates. Now, how much higher rates need to go and how long they need to stay elevated is hard to say. (…) But policymakers are going to need to dial back monetary contraction before the inflation problem is completely solved, if they want to get inflation down without causing more pain than necessary.*"

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ANNEX: ALTERNATIVE MONETARY POLICY RULES

We compute the nominal policy rate (i_t) according to the following monetary policy rules. The inflation objective (π^*) is always set at 2% since it is the current objective of the ECB.[22]

Rule 1. Standard Taylor rule

$$i_t = \pi_t + r^* + 0.5 \times (\pi_t - \pi^*) + 0.5 \times (y_t - \bar{y})$$

With $r^* = 2\%$

Rule 2. Standard Taylor rule with a time-varying r-star

$$i_t = \pi_t + r_t^* + 0.5 \times (\pi_t - \pi^*) + 0.5 \times (y_t - \bar{y})$$

With r_t^* *given by HLW estimates.*

Rule 3. Standard rule with core inflation

$$i_t = \pi_t^{core} + r^* + 0.5 \times (\pi_t^{core} - \pi^*) + 0.5 \times (y_t - \bar{y})$$

With $r^* = 2\%$ *and* π_t^{core} *the core inflation : inflation excluding energy, food and tobacco prices.*

Rule 4. Standard rule with core inflation and a time-varying r-star

$$i_t = \pi_t^{core} + r_t^* + 0.5 \times (\pi_t^{core} - \pi^*) + 0.5 \times (y_t - \bar{y})$$

With r_t^* *given by HLW estimates.*

Rule 5. Taylor rule with inertia

$$i_t = \rho . i_{t-1} + (1 - \rho) . [\pi_t + r^* + 0.5 \times (\pi_t - \pi^*) + 0.5 \times (y_t - \bar{y})]$$

With $\rho = 0.8$.

Rule 6. Standard rule with inertia and core inflation

$$i_t = \rho . i_{t-1} + (1 - \rho) . [\pi_t^{core} + r^* + 0.5 \times (\pi_t^{core} - \pi^*) + 0.5 \times (y_t - \bar{y})]$$

With $\rho = 0.8$.

Rule 7. Standard rule with inertia, core inflation and a time-varying r-star

$$i_t = \rho . i_{t-1} + (1 - \rho) . [\pi_t^{core} + r_t^* + 0.5 \times (\pi_t^{core} - \pi^*) + 0.5 \times (y_t - \bar{y})]$$

With r_t^* *given by HLW estimates and* $\rho = 0.8$.

Rule 8. Forward-looking rule

$$i_t = \mathbb{E}_t(\pi_{t+1}) + r^* + 0.5 \times (\mathbb{E}_t(\pi_{t+1}) - \pi^*) + 0.5 \times (y_t - \bar{y})$$

With $\mathbb{E}_t(\pi_{t+1})$*, representing one-year ahead expected inflation as give by the ECB Survey of professional forecasters.*

Rule 9. Forward-looking rule 2

$$i_t = \mathbb{E}_t(\pi_{t+2}) + r^* + 0.5 \times (\mathbb{E}_t(\pi_{t+2}) - \pi^*) + 0.5 \times (y_t - \bar{y})$$

With $\mathbb{E}_t(\pi_{t+2})$*, representing two-year ahead expected inflation as give by the ECB Survey of professional forecasters.*

Rule 10. Low weight rule[23]

$$i_t = \rho_2 . i_{t-1} + (1 - \rho_2) . [\pi^* + r^* + \omega_\pi \times (\mathbb{E}_t(\pi_{t+1}) - \pi^*) + \omega_y \times (y_t - \bar{y})]$$

With $\rho_2 = 0.91$, $\omega_\pi = 1.58$ *and* $\omega_y = 0.41$.

[22] We do not account for the changes in the target since 1999.

[23] The calibration of the parameters follows Knotek et al. (2016).

In this paper, different assessments of the ECB's monetary policy stance are reviewed, beyond the mere observation of the sharp rise and subsequent decline of the policy rate. Overall, the monetary policy stance has been more moderate during the tightening cycle than what has been indicated by the policy rate increase. However, following the decline in energy prices, this past and relatively mild restrictive policy stance poses a risk to economic activity.

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