STUDY

Requested by the ECON Committee

Monetary Dialogue, September 2022

European Parliament

Assessment of the ECB's current monetary policy stance

Compilation of papers

Policy Department for Economic, Scientific and Quality of Life Policies
Directorate-General for Internal Policies
PE 733.983 - September 2022

EN

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

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Original: EN

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Manuscript completed: September 2022
Date of publication: September 2022

This document is available on the internet at:
http://www.europarl.europa.eu/supporting-analyses
https://www.europarl.europa.eu/committees/en/econ/econ-policies/monetary-dialogue

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For citation purposes, the publication should be referenced as: European Parliament, 2022, *Assessment of the ECB's current monetary policy stance*, publication for the Committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg.

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Soft or strong: the art of monetary tightening

Christophe BLOT, Jérôme CREEL

Abstract

The rise of inflation has sparked tightening measures by the ECB. The paper discusses the causes of this rise and the factors that impinge on the effectiveness of ECB policy at curbing inflation. Drawing on own assessment of the respective trends in these factors, we recommend a careful approach to monetary policy.

This paper was provided by the Policy Department for Economic, Scientific and Quality of Life Policies at the request of the Committee on Economic and Monetary Affairs (ECON) ahead of the Monetary Dialogue with the ECB President on 26 September 2022.

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LIST OF ABBREVIATIONS

CPI	Consumer price index
ECB	European Central Bank
EP	European Parliament
EU	European Union
GDP	Gross domestic product
HICP	Harmonised index of consumer prices
IMF	International Monetary Fund
QE	Quantitative Easing

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EXECUTIVE SUMMARY

- **One year ago, the rise of inflation was expected to be temporary. Yet inflation has turned to be higher than expected and more persistent**, leading the ECB to increase the policy rate in July 2022 and announcing "further normalisation". Despite heterogeneity across euro area countries, the minimum inflation rate – registered for France – reaches 6%. Will a monetary policy tightening be successful for curbing the inflation rate without side effects? It depends on the nature of the shock.
- **It is very unlikely that the current episode of inflation stems from the monetary expansion implemented from 2009 to 2021 and notably from the quantitative easing**.
- **The current inflation in the euro area is largely explained by a global supply shock**. The rise of energy prices contributes significantly to inflation. The post-COVID recovery has also triggered disruption in the supply chains. Firms clearly indicate that shortage of materials and/or equipment and recruitment difficulties limit their production capacities and may consequently put upward pressure on prices. Nonetheless, there are signs that inflation also comes from the demand side even if the role of demand factors is less important than in the United States.
- **Central banks face a trade-off when inflation is driven by supply shocks since the reduction of inflation comes with a risk of recession**. It may even be ineffective if it is an external energy shock unless the implementation of monetary policy in the euro area is coordinated with other central banks.
- **As long as the shock is long-lasting, a tightening might be warranted to avoid second-round effects**. Not reacting to the current level of inflation might damage the ECB credibility. Even if the ability of central banks to manage inflation expectations is limited, mistrust might be growing towards the ECB as this institution is in charge of ensuring price stability in the euro area.
- **The ECB may also avoid too much discrepancy vis-à-vis the level of interest rate in the United States if it wants to limit imported inflation through a euro depreciation**. All in all, the ECB must fulfil its mandate and a more restrictive monetary policy is not escapable but we recommend a soft and slow tightening to avoid triggering a recession that would add to social pain with only moderate effect on the inflation rate.

1. INTRODUCTION

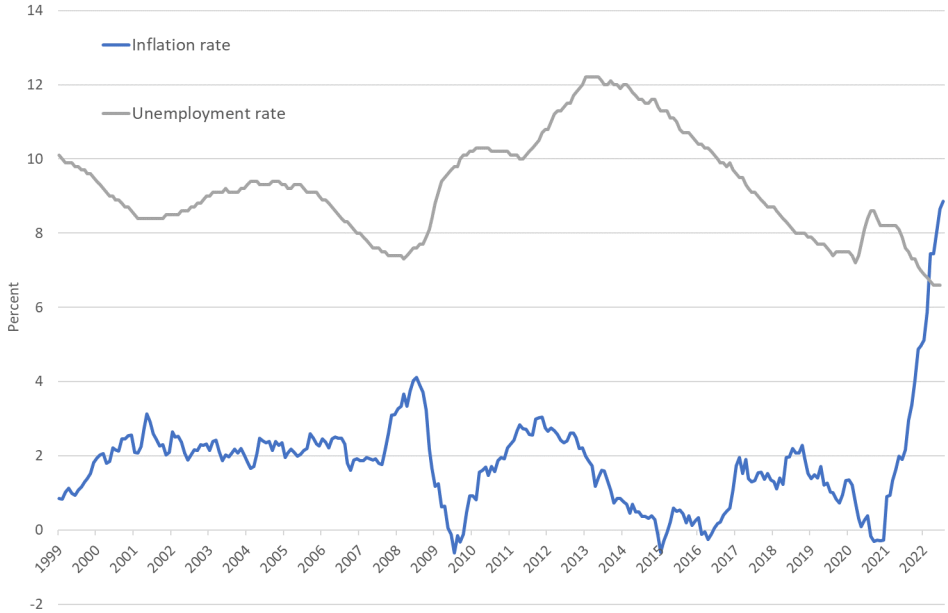
A few months ago, most central banks were still concerned about low inflation. The outbreak of the COVID-19 pandemic has been characterised by a reduction in the inflation rate. In 2020, the annual inflation rate has even reached a record low, at 0.2%, since the launch of the euro. Actually, the risk of deflation in the euro area and to a lesser extent in the United States remained pervasive since the global financial crisis in 2009. On average, the inflation rate stood at 1.2% between 2009 and 2020 in the euro area and 1.6% in the United States, far from the 2% inflation target of the European Central Bank (ECB) and the Federal Reserve. Inflation was seen as a distant memory and main thoughts focused on how to implement monetary policy in this low inflation environment. In its monetary policy strategy review, released in July 2021, the ECB claimed: "The experience gained since 2003 has reinforced the macroeconomic importance of an inflation buffer." Amid the background papers of this review, Koester et al. (2021) devoted their analysis on the low inflation period, claiming that some cyclical factors – persistent economic slack – and structural factors – such as globalisation, digitalisation and demographic factors – played a role. In 2017, despite the recovery – the GDP growth rate reached 2.8% - inflation did not exceed 1.5%.

Yet, this time is really different, and the 2021 economic rebound was accompanied by a surge of inflation to a record level not seen in most countries since the early 1980's (Figure 1). The shock was initially considered as temporary but it seems now that inflation has turned out to be higher than expected and more persistent.[1] According to Eurostat's flash estimate for August 2022, the inflation rate reached 9.1%, with the lowest rate observed in France (6.5%) and the highest observed in Estonia (25.2%). Meanwhile, the unemployment rate has continuously declined since August 2020 and stands now at 6.6%: a record low level since 1999, notably reflecting a rapid post-pandemic recovery. The annualised growth rate amounted to 3.9% in 2022-Q2.

Considering that the primary objective of the ECB's monetary policy is to maintain price stability and that "The Governing Council considers that price stability is best maintained by aiming for two per cent inflation over the medium term.", it may not be surprising that a first 0.5-point interest rate increase was decided in July. The Governing Council also clearly signalled that the normalisation would continue: "further normalisation of interest rates will be appropriate". This stance of monetary policy may at first sight be fully warranted. However, there are growing concerns about the economic climate. The war in Ukraine has amplified the rising trend of energy prices and triggered new uncertainties related to geopolitical risks. In its July update of the World Economic Outlook, the International Monetary Fund (IMF) expected a rapid slowdown of world growth as several negative shocks have materialised recently: uncertainty, energy prices and tighter financial conditions. In the euro area, annual growth would reach 2.6% in 2022 and 1.2% in 2023. Before the invasion of Ukraine by Russia, GDP was expected to increase by 3.9% in 2022 and 2.5% in 2023.

[1] This diagnosis was shared by Blot et al. (2021a) in the Monetary Dialogue.

Figure 1: Inflation and unemployment rate in the euro area since 1999



Source: Eurostat.

As the transmission of monetary policy strongly hinges on its impact on demand, a restrictive monetary policy might amplify the economic slowdown illustrating the trade-off faced by central banks in situations of high inflation and low growth. In June 2008, the ECB already faced a similar situation. Inflation was rising – with a peak slightly above 4% - and growth seemed to be solid despite growing financial turmoil. It was yet decided to increase the interest rate in July before being forced to back down a few weeks later. Undoubtedly the current situation is different as the nature of the shocks affecting the world economy is different. It is yet important to precisely assess the roots of the current inflation to set the appropriate stance for monetary policy. Should the ECB fear to backload the normalisation of monetary policy with the risk to let the inflation becoming uncontrollable or should it fear to be too much aggressive with the risk to break the recovery? The answer to this question will depend on a long list of features: the nature of the shocks: are there demand or supply shocks? Are those shocks transitory or long-lasting? Besides, even if interest rate hikes are necessary, should the ECB "normalise" its monetary policy, and should it become restrictive? What should the objective be for the policy rate in the coming months?

Before we come to these questions, we think it is worth recalling that former monetary policies like quantitative easing have only a limited responsibility in the current surge of inflation. We explain why in the next part and we also discuss other (and main) sources of current inflation rates in the euro area. Then we discuss the capacity of central banks, and the ECB in particular, to dampen inflation via tightening policies. Finally, we conclude with some recommendations regarding the future stance of ECB monetary policy.

2. WHAT DRIVES INFLATION?

2.1. A monetary phenomenon?

Some may ask whether the surge of world inflation is related to monetary expansion, hence to the decisions that central bankers have undertaken recently.

The advent of the global financial crisis in 2007-2009, the European sovereign debt crisis in 2011-2013 and the COVID-19 pandemic have all urged central bankers to resort to expansionary and unconventional measures like quantitative easing (QE). What is QE about, what are its (main) channels of transmission and how can it produce consumer inflation?

QE consists primarily in massive purchases of bonds (most importantly public bonds, otherwise low-risk private bonds) from private banks on secondary financial markets. QE is therefore mostly directed towards the management of financial portfolios. One prominent channel of transmission of QE is indeed the "portfolio channel". While banks withdraw their holdings of public bonds or "safe" private bonds, they substitute them with stocks or riskier private bonds. Consequently, QE is expected to increase the prices of stocks and bonds. The effect on domestic demand is then indirect and related to the easing of financing conditions.

The rise of financial prices has no direct and immediate link to consumer inflation, unless higher financial prices generate a large private wealth effect via households' consumption. In a survey of the literature, Paiella (2009) points to a "consensus view" that financial wealth effects exist, they are larger in the US and the UK than in continental Europe, and that the housing wealth effects are larger than the corresponding financial wealth effects. Paiella and Pistaferri (2017) confirm the latter point using Italian household-level data. Also with Italian data, Bottazzi et al. (2020) show that a fall of one euro in risky financial wealth resulted in cuts to annual total consumption of 9 cents. This cut was halved for non-durable goods consumption and was even smaller for food spending. With Swedish data, Di Maggio et al. (2020) show that the marginal propensity to consume unrealised capital gains is way higher for the bottom 50% of the wealth distribution than for the top 30% of the wealth distribution, but they acknowledge that the bottom 50% of the wealth distribution holds less than 7% of total stockholdings. All in all, it seems quite unreasonable to expect that a financial wealth effect in the euro area may trigger a rise in the inflation rate of non-durable goods. This wealth effect may yet add to the aggregate demand effect of monetary policy and inflation may arise if the aggregate domestic demand exceeds supply.

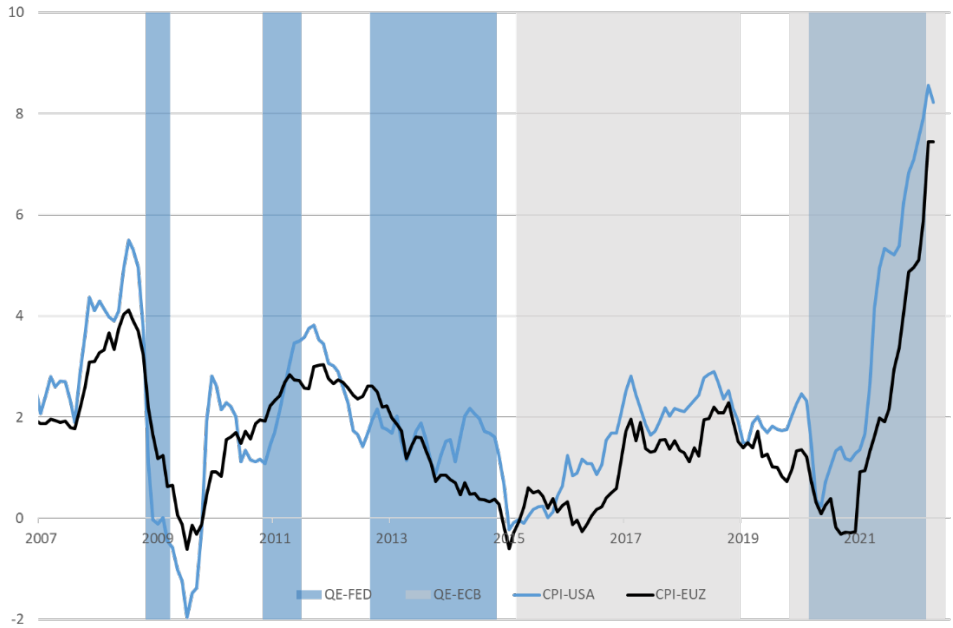
Under QE, it may well be that banks substitute their holdings of public bonds or "safe" private bonds with non-European public or private bonds. Consequently, QE would be expected to depreciate the currency and generate an exchange rate channel of monetary policy. The mere existence of this exchange rate channel in the euro area is open to debate. Dedola et al. (2021) show that a *relative* QE expansion between the ECB and the Federal Reserve would cause a depreciation of the euro: a rise of the ECB balance sheet by 20% of GDP, for a constant Fed balance sheet, would trigger a depreciation of 7% of the euro vis-à-vis the US dollar[2]. In contrast, Gürkaynak et al. (2021) find that monetary policy surprises have a very limited or a non-significant impact on the exchange rate, when either Fed or ECB surprises are used under an event-study approach. More importantly, they find many abnormal episodes during which a monetary contraction leads to a depreciation of the currency. It may be added that whatever the evolution of the exchange rate after ECB monetary policy changes, the exchange

[2] With all Fed QE announcements between 2008 and 2012 and most ECB QE announcements after 2014, *relative* QE expansion between both central banks have been frequent, except during the COVID-19 crisis.

rate pass-through to consumer inflation (via imported products) in the EU has been found to be lower than in the 1990s, as Ortega and Osbat (2020) report. Nevertheless, they also show that there are large heterogeneities across countries and sectors and that unconventional policy measures have tended to increase the exchange rate pass-through. All in all, QE measures may have weighed on consumer inflation via imported inflation, but if they did, they should have intervened a year or a year and a half after measures were announced or implemented. On that issue, it would be surprising that the recent depreciation of the euro would result from QE measures.

This latter point raises a timing issue. If QE measures had finally led to higher consumer inflation, this effect should have started being visible in 2009, then in 2013 in the US, and in 2016 in the euro area. This is clearly not the case in 2009 and 2013 in the US[3], and although inflation picked up a bit in 2017-2018 in the euro area, it was short-lived and occurred quite late after the start of QE in March 2015 (see Figure 2). Considering the surge of inflation in the US and Europe since 2021, attributing it to QE would require a very large financial wealth effect working primarily on the bottom of the wealth distribution for which the marginal propensity to consume is the highest. This is very unlikely. As for the exchange rate channel, it could not work during the pandemic because the ECB and the Federal Reserve were both expanding their balance sheets: the *relative* QE expansion was very limited. Finally, the 2009-2020 period was generally characterised by weak aggregate demand, explaining notably why inflation was muted during the period.

Figure 2: Consumer price index, all items (in variation from previous year, in %)



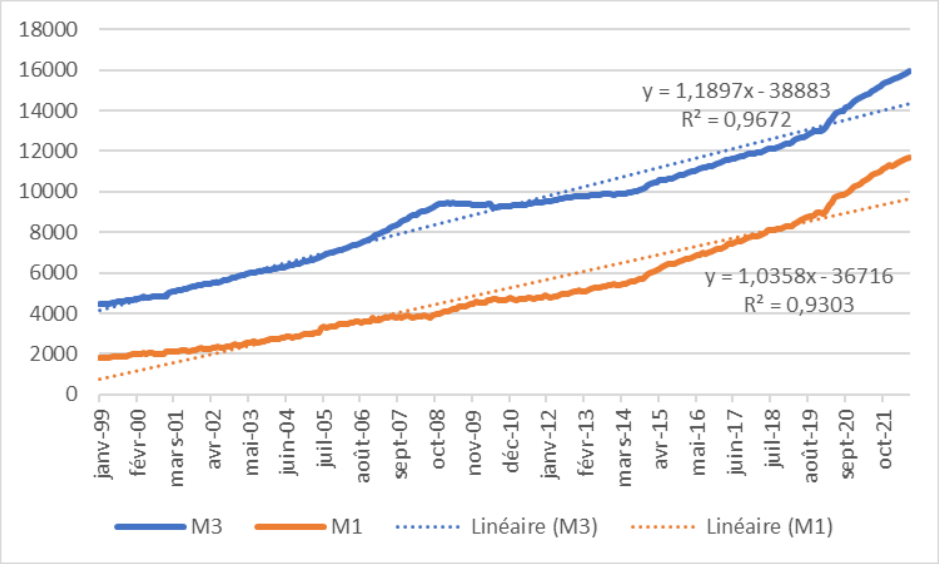
Sources: Eurostat, Bureau of Labor Statistics.

Beyond the portfolio and the exchange rate channels of monetary policy, there is another argument for a direct link between QE and consumer inflation: high liquidity from QE (via purchases of bonds hold by banks) transmitted to an increase in money that, following the quantity theory of money, would have raised prices (in the long run). Beyond the fact that this argument mixes (almost

[3] Under QE tightening after 2017, inflation has been decreasing actually.

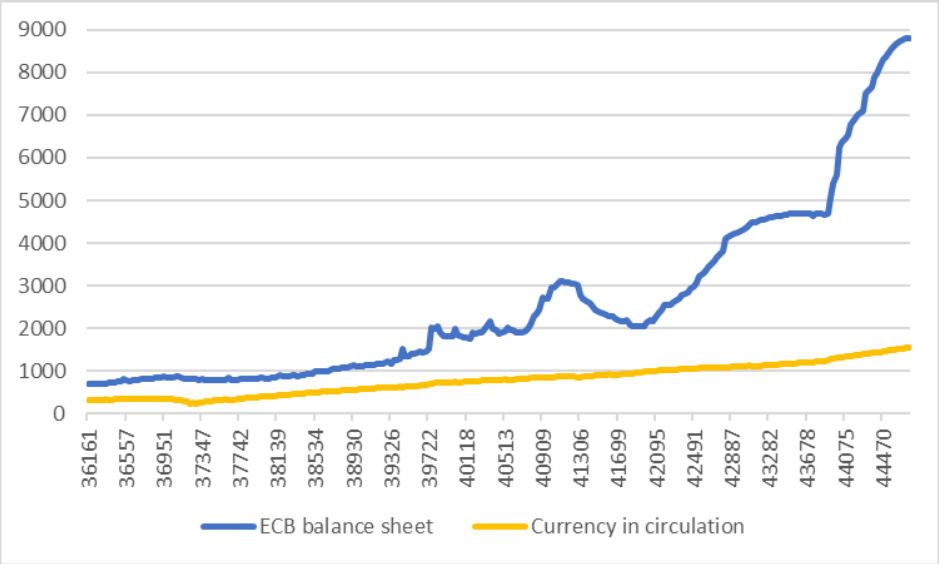
immediately) a financial transaction (savings' allocation) with a real transaction (consumption), it is not supported by the data. First and foremost, the rise in liquidity, as evidenced by monetary aggregates (M1 and M3, Figure 3), has been smoothed despite the hikes of QE measures. Stated differently, M1 and M3 did not accelerate during the implementation of QE. Last, money in circulation (M0) has become a smaller and smaller share of ECB liabilities over the years, as evidenced in Figure 4.

Figure 3: M1 and M3 in the euro area (in EUR billions)



Source: ECB.

Figure 4: ECB balance sheet (total liabilities) and money in circulation (in EUR billions)



Sources: Datastream and ECB.

2.2. Is current inflation related to supply or demand shocks?

It must first be stressed that the current surge of inflation is a global phenomenon which was notably fuelled by energy prices.[4] Oil prices increased rapidly from the low level observed during the lockdown in spring 2020. The rise in oil demand was stronger than the rise in oil production triggering a first increase from USD 27 in April 2020 to USD 86 before the invasion of Ukraine by Russia. Besides, not only did oil prices increase but also gas prices rose to unprecedented levels. On European spot gas markets, the average price in 2019-2020 was EUR 11.5 per megawatt hour. Since 2021-Q3, it stands above EUR 90 and in August 2022 the average price reached EUR 235 (data for Dutch TTF Natural Gas Futures uploaded from Datastream). For the euro area, the yearly increase of the index for energy prices exceeds 30% since February 2022, accounting for nearly half of total inflation rate in 2022-Q2 (Figure 5).

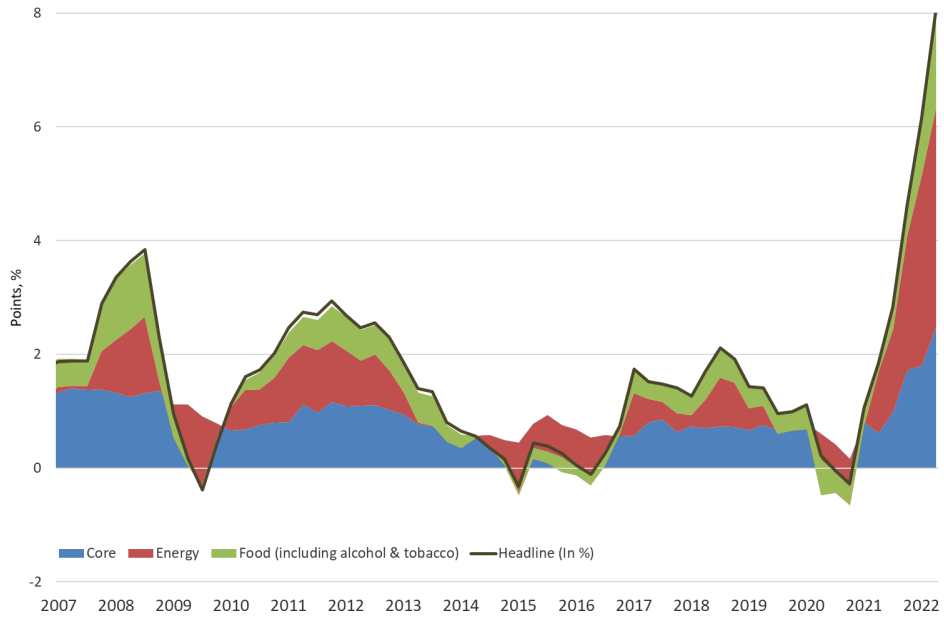
Climate conditions and the geopolitical situation also triggered a rise in the price of food, which contributed to inflation: 1.7 point in 2022-Q2. The contribution of energy and food prices amounts to 5.5 points for an inflation rate of 8% in 2022-Q2. The current inflation in the euro area is therefore explained by a global external shock.

It may yet be noticed that the contribution of core inflation – excluding energy, food & alcoholic beverage prices – has also increased suggesting that inflation is not only driven by an energy shock. In July 2022, core inflation has also reached a record level of 4%, whereas it was only 0.7% a year ago. It remains that core inflation remains lower in the euro area compared to the United States (Figure 6) suggesting some important differences between the two areas.

Beyond the role of energy prices, do other supply factors matter or is the rise in inflation related to demand? On the one hand, the consequences of the pandemic on the world economy have not come to an end. Even if strongest lockdown measures have been progressively phased out, some factories are still shut down (notably in Asia) triggering supply chain disruptions as most economies are interconnected. Labour force may also have been reduced due to stay-at-home orders in case of infection to COVID-19. Consequently, shipping costs have increased, and delivery times have been extended. Business surveys indicate that production is limited due to shortage of materials and/or equipment and firms also report difficulties to fill jobs (Figure 7). The current period clearly contrasts with the Great Recession in 2009 where, according to firms in the euro area, demand was the main factor limiting production.

[4] In the United States, inflation measured by the consumer price index amounted to 8.5% in July. It has exceeded 10% in the United Kingdom. Among industrial countries, inflation is slightly lower – but reaches yet high levels – in Canada (7.6%), South Korea (6%) except for Japan (2.6%). In Emerging countries, inflation stands at 10% for instance in Brazil, 6.7% in India, 8.2% in Mexico and nearly 80% in Turkey.

Figure 5: The contribution to inflation in the euro area

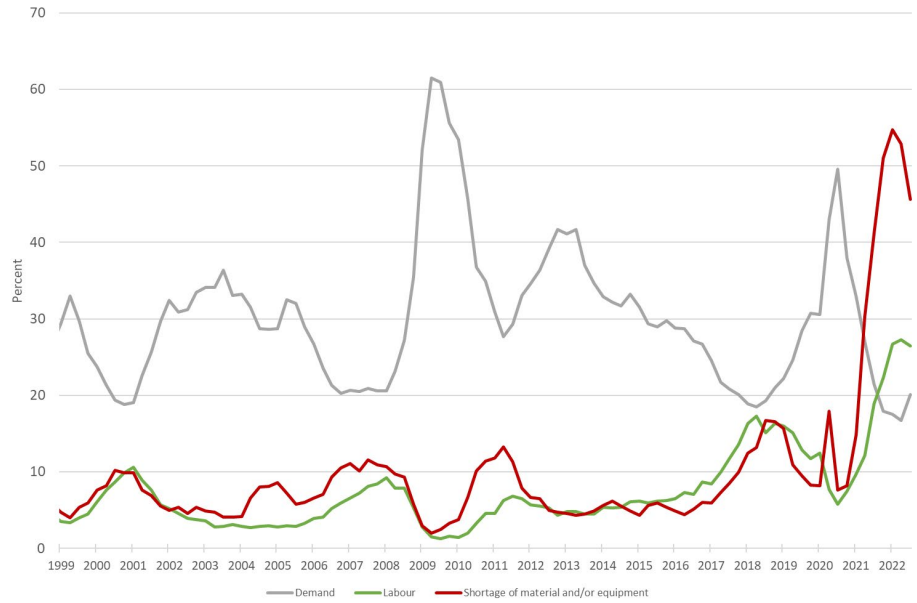


Source: Eurostat.

Figure 6: Core inflation in the euro area and in the United States

Sources: Eurostat, Bureau of Labor Statistics.

Figure 7: Factors limiting production in the euro area



Source: European Commission (Business survey).

On the other hand, activity was still undershooting in some services with more physical contacts. Households' consumption of goods has rapidly resumed in the US whereas expenditures for recreation or food services remained lower. Considering the size of the US economy, the switch toward the consumption of goods is not only a demand shock in the United States but may also trigger production constraints for the world economy as supply is partly soaked up by US demand. In 2022-Q2, the US consumption of goods is indeed 15% higher than in 2019-Q4 whereas it is only 0.9% higher for services.[5] In the euro area, households' losses in labour incomes have been compensated through the partial activity schemes and governments have also implemented stimulus measures for firms and to stimulate demand. These measures may have also boosted inflation in a context of supply chain disruptions.

However, it is hard to disentangle the role of supply and demand factors. In a recent analysis, Akinci et al. (2022) have assessed the extent to which supply factors help to explain the inflation rate for goods. To that end, they estimate the respective contributions of the global supply chain pressure index (GSCPI) computed by economists from the Federal Reserve and of oil prices on inflation.[6] They show that in the United States and the euro area, consumer price index (CPI) inflation on industrial goods is well captured by the role of these supply and external (energy) factors. However, it may be noticed that the price of goods of services have also increased whereas the role of international factors should be less important (Figure 8). In July, the inflation rate of services has reached a record at 3.7% suggesting that the contribution of demand factors should also be considered. For the United States, a model-based analysis carried out by di Giovanni (2022) suggests that the aggregate demand shock would account for 60% of inflation.[7] However, the euro area is not the United Stated and even if the fiscal

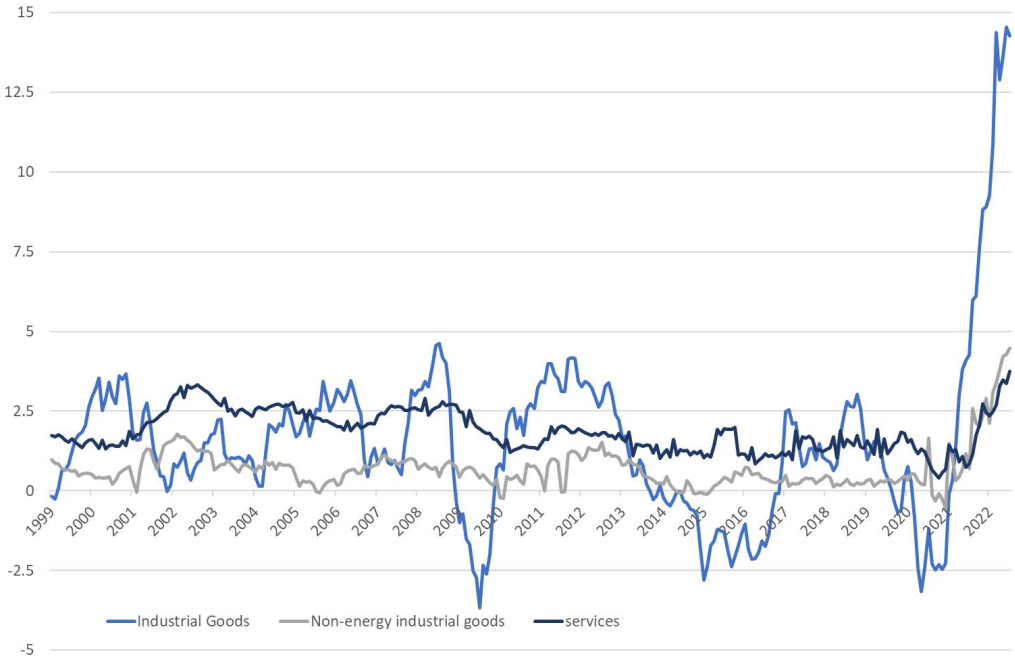
[5] For recreation services and food services, the level of households' consumption is respectively 11% and 9% lower than in the end of 2019. In Germany and France, consumption of goods in 2022-Q2 remains lower in 2022-Q2 than in 2019-Q4: respectively -2.2% and -2.6% lower.

[6] For assessing the role of oil prices, they disentangle the contribution of supply and demand factors on the oil market.

[7] In the United States, the debate on inflation ignited after the Biden's election and its proposal for the American Rescue Plan. Lawrence Summers and Olivier Blanchard notably warned that it would feed inflation.

stimulus played a crucial role for limiting losses of incomes, the total package of measures implemented in 2020 and 2021 was much lower than all the measures from which US households have benefited. [8]

Figure 8: Main indices of inflation in the euro area



Source: Eurostat.

All in all, one major contribution to the current surge of inflation in the euro area lies on the supply side, but it may be excessive to attribute all this surge to supply chain disruptions and oil and gas prices. There are signs that inflation comes from the demand side via e.g., the catch-up in activity of some services. The role of demand may however be less important than it is in the United States.

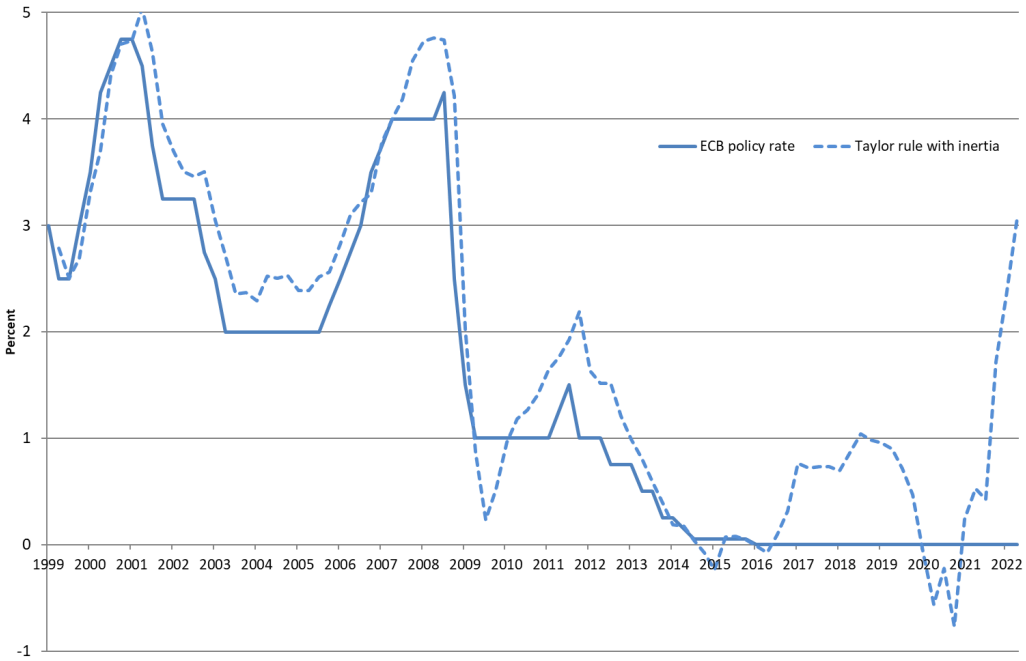
[8] See Blot and Plane (2021) for a comparison of fiscal plans implemented in 2020 and 2021 in the United States and main euro area countries. Measures in favour of households plus partial activity schemes have amounted to more than 9% of 2019-GDP in the United States whereas it did not exceed 3% in Germany, France, Italy and Spain.

3. WHAT CAN MONETARY POLICY DO TO DAMPEN INFLATION?

In the previous section, we have argued that it is difficult to blame ECB monetary policy for the recent surge of inflation. Not only has QE been largely connected with finance rather than with the real economy but the sources of inflation have largely come from the rise in energy prices, the costs of transportation and bottlenecks on which monetary policy has no direct responsibility.

However, euro area inflation rate is well above the ECB inflation target and according to the Treaty, the first task of monetary policy is to promote price stability. By the way, the simulation of a standard Taylor rule indicates that an interest rate increase is warranted (Figure 9). The Taylor rule assumes that the usual tool of central banks is the policy rate that they can raise to increase borrowing costs to firms and households and therefore dampen economic activity. Although the difference between the Taylor-rule-induced policy rate and the actual policy rate can be useful to provide a simple assessment of the stance of monetary policy, it is an imperfect guide to provide recommendation for central banks. It does notably not account for the sources of inflation although they may matter to understand the subsequent effect of a monetary policy tightening or easing on the economy. In other words, the question is whether raising the policy rate to 3% would lead to a reduction of the inflation rate in the euro area?

Figure 9: Policy rate in the euro area according to a standard Taylor rule



Sources: Eurostat, European Commission (AMECO) and authors calculations.

Note: The interest rate implied by the Taylor rule is computed according to the following equation: $i_t = 0.75 \times i_{t-1} + 0.25 \times [i^* + 1.5 \times (\pi_t - \bar{\pi}) + 0.5 \times (y_t - \bar{y_t})]$ with $i^* = 1.5$ and $\bar{\pi}$, the inflation target set at 2%. Finally, $y_t - \bar{y_t}$ is the output gap as measured by the European Commission (AMECO).

It depends on the several factors that determine how effective monetary policy may be at reducing inflation. These factors are listed below and most are well-known.

3.1. The nature of shocks

A macroeconomic shock may come from the domestic supply side of the economy, from the domestic demand side, or from both of them as the recent pandemic has shown. After a positive demand shock, like a fiscal stimulus, a rise in the policy rate is expected to slow down demand for credit and then slow down aggregate demand. In this setting, monetary policy will be stabilising. After a negative supply shock, like a drop in productivity, a rise in the policy rate will intensify the difficulties of firms via higher borrowing costs, will lead to lower demand for credit and to lower activity. In this setting, tighter monetary policy will be destabilising. Inflation might still be reduced through the effect of monetary policy on demand but at the cost of a potential recession. In that case, it does not address the sources of inflation, as inflation stems from a lack of production capacities. It may even amplify the supply constraint if the increase in the interest rate deters firms from investing in production capacities. Yet, it may be worth reminding that the mandate of the central bank does not disentangle demand-driven from supply-driven inflation. In the end, after a demand shock, monetary policy tightening is the optimal decision whereas after a supply shock, the same policy decision has inevitable negative side-effects.

3.2. The duration (or persistence) and size of shocks

Modifying the policy rate will shift economic behaviours and generate (transaction) costs to economic agents. The more stable the policy rate, the lower these costs. If a macroeconomic shock is assumed to be permanent or at least highly persistent, the policy reaction is expected to see its direct costs (modifying the policy rate) compensated by the benefits of macroeconomic stabilisation. In contrast, if the shock is perceived as temporary, the policy reaction may be sub-optimal: it is costly without accelerating macroeconomic stabilisation (that would have occurred anyway). This argument may notably be combined with the nature of the shock. For a temporary supply shock, it would not be optimal for central banks to tighten monetary policy as the rise of inflation will be short-lived. However, even temporary shocks may have long-lasting effects on inflation if they trigger second-round effects. In that case, monetary policy tightening may be an option. Besides, there may be some uncertainty regarding the duration of the shock. If the shock is perceived as temporary but turns to be persistent, the central bank may be constrained to tighten more severely when it realizes its initial diagnosis was wrong.

Finally, the size of shock also matters: the larger the shock, the larger the reaction to it and the higher the incurred (transaction) costs. Arguments about the advent of the Great Moderation of prices and high stability sometimes revolve around "good luck": between the mid-1980s and mid-2000s, the low variance of the shocks to the economy has played a role in the Great Moderation and has permitted central banks to use their policy rate smoothly and parsimoniously. This time will certainly be different.

3.3. The internal or external source of inflation

Monetary policy is expected to be more effective at dampening inflation if it is driven domestically than if it is imported. After a domestic shock, monetary policy has full weight on the economy to help it stabilise. After an external shock, an energy price shock for instance, monetary policy has a weight on the world economy that is proportionate to its size. After a rise in the price of oil – a supply shock -, the rise in the policy rate will reduce aggregate demand (not exactly stabilising in the short run as point 3.1 already discussed), that in turn will reduce global demand for oil in proportion to the size of the domestic economy. But even the largest economy makes a tiny share of global demand for oil. Hence, domestic monetary policy, even in a large country, will not make the price of oil fall on its own. Here again, monetary policy may fix the consequences – as inflation can be brought to the target insofar as

domestic demand is reduced – but not the *causes* of inflation. In that case, policy coordination may be the best option as it would help to reduce world demand. It is indeed better to provide a world soft tightening than a more aggressive domestic tightening.

3.4. The link between inflation, unemployment and output and the sacrifice ratio

According to the Phillips curve, there would be a negative empirical relationship between the inflation and unemployment rates, hence the possibility of a policy trade-off between them. According to Okun's law, there would be a negative relationship between the variation in the unemployment rate and the output. From these two relationships, it is therefore possible to compute a sacrifice ratio. This ratio measures the cost of reducing the inflation rate in terms of higher unemployment rate (or lower economic activity). The lower the sacrifice ratio, the lower the cost of disinflation in terms of unemployment and output and the lower the requested rise in the interest rate . In contrast, if the Phillips curve is flat, as it is sometimes claimed, the cost of disinflation in terms of unemployment and output will be much higher: the central bank will have to raise its policy rate steeply to achieve a lower inflation rate while having to tolerate a substantial cost to the real economy.

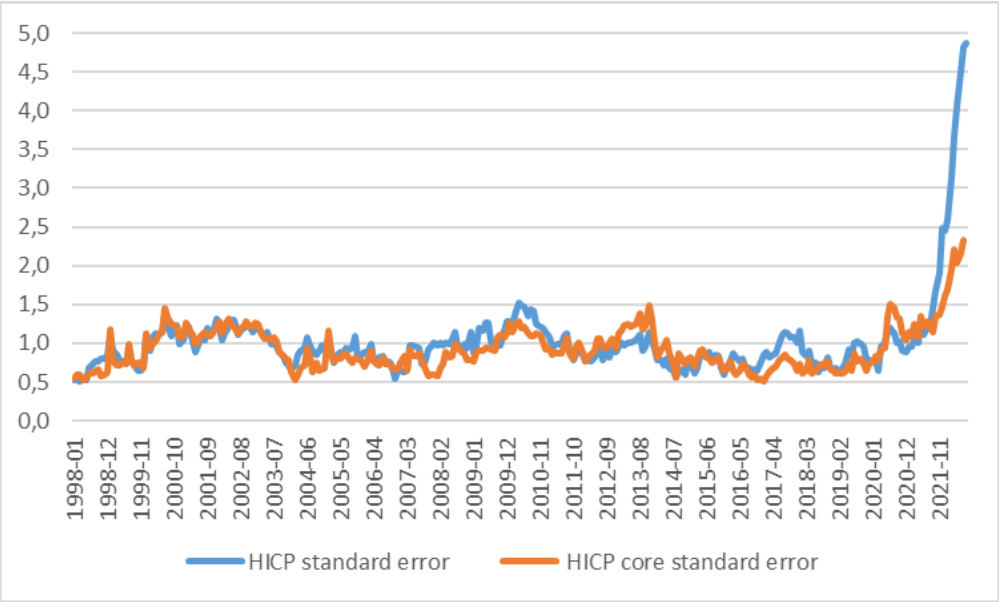
3.5. Internal heterogeneity

Monetary policy will be effective if it tends to reduce inflation uniformly across sectors and regions (or countries), otherwise it will produce biases like an incentive to produce in sectors where prices are the highest (where there are higher markups) or an incentive to produce in countries where prices are the lowest (where price competitiveness is higher). Hence, the lower internal heterogeneity, the more effective monetary policy for it produces fewer changes in private behaviours (like shifts in production across sectors or countries). Heterogeneity across sectors and/or across regions (or countries) that is being discussed here relates to the differences in the economic structure of sectors or countries: degrees of openness, price elasticities, share of imported energy in the energy mix, etc.

This kind of heterogeneity also bears on the effectiveness of monetary policy at limiting inflation through a different channel specific to a monetary union. High structural heterogeneity across sectors and/or regions may also reveal large differences in inflation across sectors and/or regions: imported inflation will be high in a large energy-importing country. In a monetary union like the euro area, though, the single monetary policy will act "on average": it will target an inflation rate which is the (weighted) average of all-sector and all-country inflation rates. If these inflation rates deviate across sectors and countries, targeting the average inflation rate will create dissatisfaction. Sectors and countries with large inflation will find that monetary policy reaction is too mild, whereas sectors and countries with low inflation will find it is too strong.

While it is very clear from the data that heterogeneity of inflation rates across euro area countries has increased recently, even for core inflation (hence excluding energy and food prices) (Figure 10), inflation is above 2% in *all* euro area countries. This latter fact calls for a monetary tightening.

Figure 10: Discrepancy in HICP inflation rates across Member States of the euro area



Sources: Datastream and Eurostat.

Notes: Discrepancy has been computed as the standard error of individual countries' monthly inflation rates, whether the headline HICP or the core HICP. The measure is corrected for the actual number of countries per year, hence following the sequential changes in euro area membership from 11 countries in 1999 to 19 since 2015. The measure is not weighted for the size of countries.

3.6. The anchoring of expectations or the credibility argument

Policy actions may be driven by the requirement to preserve credibility, as Schnabel (2022) has forcefully argued in August 2022 at the Jackson Hole meeting. If no policy action is taken or if central banks react too slowly to inflation, inflation may continue, and the people may blame the central bank for this situation. They may withdraw their trust in the ability of the central bank to achieve price stability and this may lead to an entrenchment of current inflation into higher inflation expectations. Higher inflation expectations would then produce "second-round effects" like rising (real) wages that would generate more costs and volatility in the economy. Consequently, monetary policy will be perceived as effective if it is able to anchor inflation expectations. Hence policy action along the Taylor principle: the policy rate should increase by more than the inflation rate to raise the real interest rate.

The lasting effect of the current episode of inflation may crucially depend on the anchoring of expectations. As reminded in Blot et al. (2022), inflation expectations may only be proxied with various indicators: market-based, survey from professional forecasters or from households and firms. In the euro area, these indicators point to an increase of expected inflation. The 1-year ahead inflation rate expectation from the ECB Survey of Professional Forecasters (SPF) is above 3.5% in 2022-Q3. However, at short horizons, it does not indicate that expectations are de-anchoring but more probably that professional forecasters expect that the current shock will drive inflation up in 2023.

Anchoring may be captured with the analysis of long-term expectations. There is evidence that these indicators have also increased but moderately when expectations are measured from professional forecasters. Market-based expectations suggest a rapid increase from a record low level at 1% in 2020-Q2 to 2.3% in 2022-Q3. This change may also be seen as a re-anchoring of expectations above but close to the 2% target. Empirical analyses generally consider that inflation expectations are anchored if they show little or no reaction to new information (shock anchoring) or if there is a weak relationship

between observed and expected inflation (level anchoring).[9] Following Ehrmann (2015), we assess anchoring properties of inflation expectations from professional forecasters in the euro area by accounting for potential non-linearities. To that end, we estimate the two following equations between 1999:Q1 and 2021:Q4:

$$(1)\ E_t(\pi_{t+k}) = \alpha + \beta_1.\pi_{t-1} + \beta_2.(\pi_{t-1})^2 + \gamma.\mu_t^M + \theta.Z_t + \epsilon_t$$

$$(2)\ E_t(\pi_{t+k}) = \alpha + \beta_1.\pi_{t-1} + \gamma_1.D^{high}.\pi_{t-1} + \gamma.\mu_t^M + \theta.Z_t + \eta_t$$

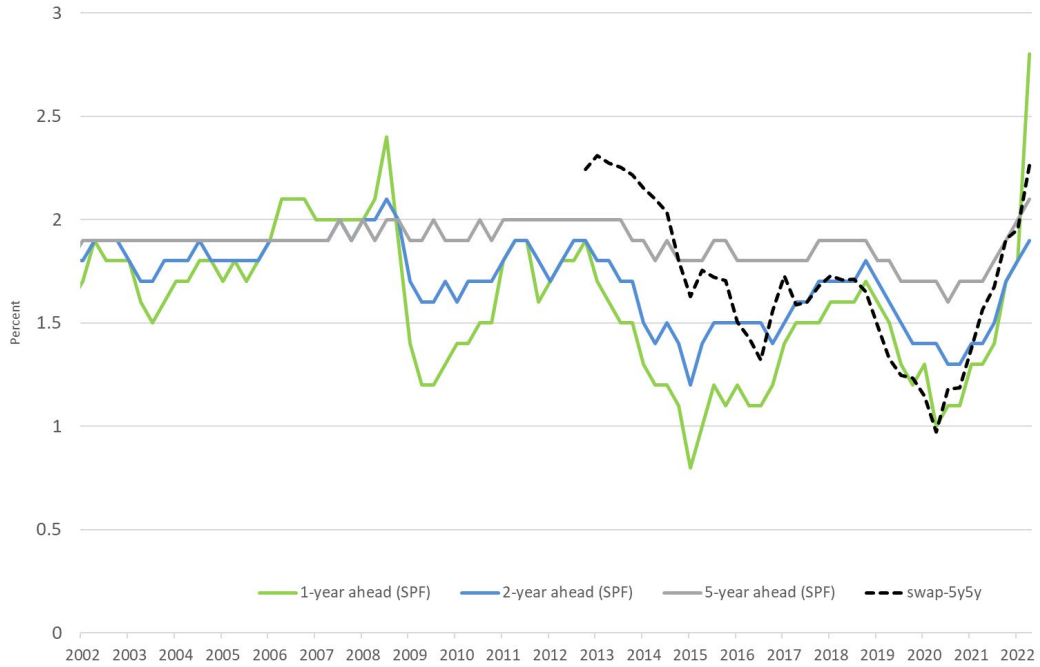
where $E_t(\pi_{t+k})$ stands for expected inflation k-year ahead and π_t is the inflation rate of the euro area at time (t). In equation [1], non-linearity is measured by square inflation and captured by β_2. In equation [2], we disentangle regimes of high-inflation and "not-high-inflation". D^{high} is a dummy variable equal to 1 when inflation is above 1.9% for at least three quarters.[10] The vector Z_t includes some control variables (growth of oil prices and the quarterly GDP growth rate) and μ_t^M is a monetary policy shock as measured in Altavilla et al. (2019). Thus, we may assess whether inflation expectations are level-anchored at the 1-year ahead, 2-year ahead and 5-year ahead horizons but also whether monetary policy influences expectations. This hypothesis is also crucial regarding the credibility argument. The monetary policy tightening may indeed be warranted if it helps central banks to reduce inflation expectations when they lie above their target.

The results of equation [1] and [2] are shown in Table 1. At short-term horizons (4-quarter and 8-quarter), realised inflation has a significant effect on expected inflation. The effect does however vanish at the 5-year ahead horizon but only for the estimation of equation [1]. As stressed above, in the short-term forecasters may consider that short-term shocks will still drive inflation in the year after. The effect of inflation is lower for the 8-quarter horizon certainly reflecting the view that the effect of short-term shocks will be attenuated. With specification [2], there are signs that expected inflation is not anchored as an increase of inflation may still be followed by a rise of expected inflation. Besides, proxies for non-linearities are not significant and this suggests that de-anchoring may not necessarily happen when the environment is characterised by "high-inflation". It may be noticed that over the period of estimation, inflation has never reached levels observed today so that we cannot exclude that non-linearities may be observed for higher levels of inflation.

[9] See Ball and Mazumder (2011).

[10] The threshold has been set to the median-level of inflation rate in the euro area. However, as we consider that a "high-inflation" regime is characterized by an inflation rate above the threshold for at least three quarters, we identify "high-inflation" regime for 37% of the sample.

Figure 11: Inflation expectations in the euro area



Sources: ECB (SPF), Refinitv Eikon Datastream.

Table 1: Inflation expectations anchoring in the euro area

	4-quarter ahead	4-quarter ahead	8-quarter ahead	8-quarter ahead	5-year ahead	5-year ahead
π_{t-1}	0.258*** [0.07]	0.295*** [0.04]	0.157*** [0.05]	0.167*** [0.03]	0.042 [0.03]	0.053*** [0.02]
$(\pi_{t-1})^2$	0.009 [0.02]		0.004 [0.01]		0.003 [0.01]	
$D^{high}.\pi_{t-1}$		0.00 [0.03]		0.004 [0.02]		-0.002 [0.01]
μ_t^M	0.002 [0.00]	0.002 [0.00]	-0.003 [0.00]	-0.003 [0.00]	-0.002 [0.00]	-0.003 [0.00]
Constant	1.100*** [0.04]	1.082*** [0.03]	1.417*** [0.05]	1.413*** [0.04]	1.797*** [0.03]	1.791*** [0.04]
Number of obs.	88	88	88	88	84	84

Source: Authors' estimations.

Note: Equations are estimated over the period 1999:Q1-2021:Q4 with the Newey-West estimator to account for a potential residuals auto-correlation. Standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Finally, our results suggest that monetary policy captured here by high-frequency shocks does not influence professional forecasters expectations.[11] A monetary policy tightening would therefore not help to reinforce the credibility of monetary policy. These results echo those of Coibion et al. (2020) who find that households' and firms' expectations do not respond much to monetary policy.

However, it may still be argued that it is the job of central banks to promote price stability and they would be blamed if they stay inactive when inflation strongly exceeds the target over a protracted period. Credibility is not only a matter of inflation expectations but is also related to trust in institutions in charge of a given objective.

3.7. Leading or follower player?

There are obviously interconnections between monetary policies in the world economy. Actually, shifts in the Fed's and ECB's monetary policies have spillover effects to the rest of the world. This works on macroeconomic (e.g. world GDP) and financial variables (e.g. global capital flows) (see Miranda-Agrippino and Nenova, 2022). A US monetary policy shock has also an impact on the exchange rate: it appreciates the US dollar (see Degasperi et al., 2021). The asynchronous stances of monetary policies between the Fed and the ECB (the Fed increased its policy rate earlier) may drive a depreciation of the euro that may in turn feed imported inflation and capital outflows. Under a mandate of price stability, the ECB may thus avoid too much discrepancy between its stance of monetary policy and the Federal Reserve's stance. Raising interest rates may be a way to limit imported inflation through a euro depreciation, to keep credibility (point 3.6) and limit capital volatility.

[11] Analysing shock anchoring of expectations with high-frequency data, Blot et al. (2022) also found that monetary policy shocks do not significantly affect inflation expectations for various horizons (see Table 1).

4. CONCLUSIONS AND CONSIDERATIONS ON WHAT THE ECB SHOULD DO

In this note, we have argued that monetary policy has not been responsible *directly* for the surge of inflation, though it might have had some *indirect* effects via demand. Nevertheless, the exchange rate channel and wealth effect channel have been of second-order. More than half of the current inflation surge in the euro area can be attributed to the rise in the prices of energy, food and transportation.

Having said that, it is obvious that the inflation rates in all euro area countries, whether headline or core inflation rates, are above the inflation target set by the ECB, that the institution confirmed in its recent review of the monetary strategy. It is therefore almost self-evident, within this institutional framework, that the ECB will keep on tightening [12].

While the naïve application of a Taylor rule (setting the policy rate according to deviations of the actual inflation rate *vis-à-vis* target and of the actual GDP from its potential) advocates a steep and fast rise in the ECB policy rate, there are reasons to believe that this strategy may not be sufficient to curb inflation. Hence, it questions whether the tightening of monetary policy is needed.

We have discussed seven factors that have an impact on the effectiveness of monetary policy at curbing inflation. Drawing on our own assessment of their respective current trends, we can summarise our findings on the recommended stance of monetary policy (see Table 2). First, while the inflation surge is mainly driven by supply factors, there are still some demand-driven factors that a monetary tightening might help curb, but only a *soft* tightening as a strong one risks undershooting the inflation target in the medium run. On that issue, it may be observed that the demand shock plays a more important role in the United States, justifying why the Federal Reserve chose to act more rapidly.

Second, whereas the shock was initially perceived to be temporary, it seems now that this diagnosis was wrong. The inflation rate exceeded 2% in 2021 and will still be above the target in 2022. According to most recent ECB forecasts, headline inflation will remain above the 2% target at least until 2024 (mid-2024 to be on-target), which calls for fast and strong (frontloading) monetary tightening. Uncertainty still prevails but it may be better for the ECB to increase interest rates moderately now than to be forced to increase them substantially later.

Third, with all Member States above the inflation target, the argument about internal heterogeneity is downsized: despite internal heterogeneity across Member States, all euro area countries need a decline in inflation that soft monetary tightening might help reach. Last, the conservative decisions that the Fed is about to take, despite the costs to households that Chair Powell has acknowledged at the Jackson Hole meeting, will make it hard for the ECB to postpone similar monetary decisions: asynchronous policy decisions across the Atlantic may fuel the depreciation of the euro. Yet we argued in section 2.1 that the exchange rate channel is rather limited.

Fourth, the rise of inflation is undoubtedly a world phenomenon driven by energy prices. A monetary policy tightening might prove to be ineffective to tame inflation except if it is coordinated. It will be more effective and less costly if all major central banks increase interest rates moderately than if only the ECB tightens its monetary policy.

Let us now turn to the reasons for a more careful approach by the ECB motivated by the risk that it may not be able to curb inflation in a context where we may also expect a slowdown of economic growth. The first reason are actually the incurred costs to households *and* firms of a monetary tightening. The

[12] This is not the place to discuss about the ECB institutional framework. On this, the interested reader may turn to Blot et al. (2020 and 2021b) and Lengwiler and Orphanides (2021).

fact that it is acknowledged *ex ante* by policymakers does not relieve the pain, and ever more so if the pain is not equally felt. The costs of monetary tightening might bear on liquidity-constrained households and firms, more reliant on credit than on financial markets, and may increase inequality. It cannot be excluded that those suffering from the high cost of living will also be more exposed to the risk of unemployment. If the ECB cannot curb inflation, these agents will suffer from a double pain. At the macroeconomic level, there are still debates on the sensitiveness of output to inflation deviations: is the Phillips curve flat, flattening, steep or steeping? While that may sound too academic, it has an impact on the ability of the central bank to dampen inflation. The flatter the Phillips curve, the more tightening is being required to achieve a given reduction in inflation. And the more tightening, the bigger the sacrifice ratio. Finally, the argument goes that monetary tightening, fast and strong, is required to limit the spillovers of actual inflation to inflation expectations on which households, financial and non-financial firms may base their future behaviours. Our preliminary assessment concludes that monetary policy decisions do not have a significant impact on inflation expectations, though. Credibility is certainly crucial but it is not clear that it can be achieved by a fast and strong tightening.

All in all, the ECB must fulfil its mandate and monetary tightening is not escapable. However, considering the sources of inflation in the current situation, the impact of monetary tightening on current inflation should not be over-stated. A soft monetary policy tightening may be needed to avoid a mistrust in the institution in charge of promoting price stability in the euro area. Whatever the time lags between decisions and implementation[13] – and the answer to the question whether the ECB should have done more before cannot be paralleled with the US where the fiscal expansion in 2020-2021 was much more substantial -, it is certainly important to communicate to the public at large that the ECB can only do a little to curb inflation, unless it tolerates a high sacrifice ratio, likely leading to a deep recession in the euro area.

[13] According to the empirical literature, it takes usually between 12 and 18 months before a monetary decision has an impact on the economy.

Table 2: Recommendations in the face of the current situation

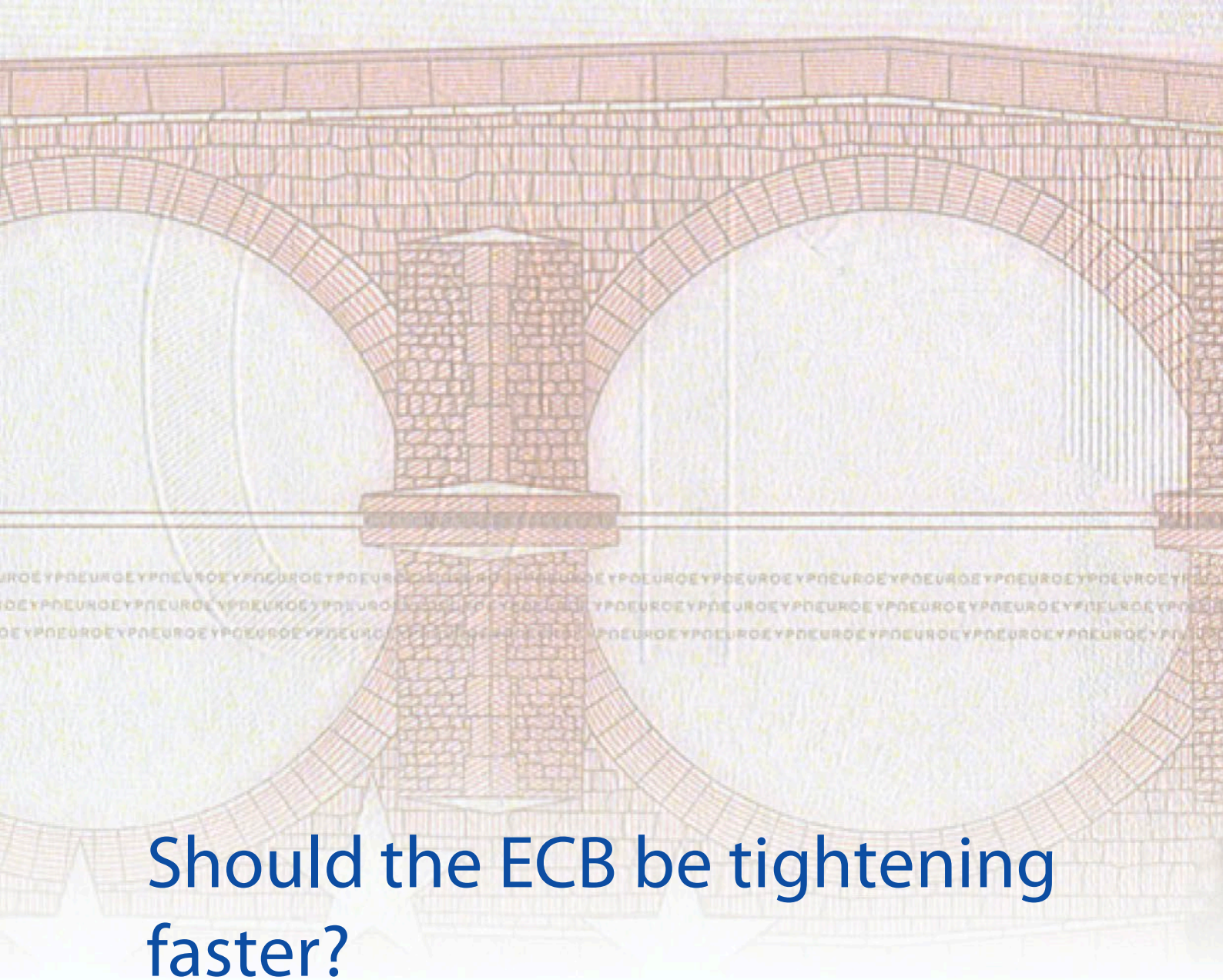
Factors with an impact on the effectiveness of monetary policy	Current trends in the factors (euro area)	Recommended tightening of ECB monetary policy
Nature of the shock	Supply shock but part of the shock is also on demand	Soft but fast
Duration & size of the shock	Persistent and large	Strong and fast
Internal or external source of inflation	External	Soft and coordinated
Sacrifice ratio	High (flat Phillips curve, less interest-sensitive economies, hence large side-effects)	Soft and slow
Internal heterogeneity	High but all countries are above the inflation target	Soft but fast
Credibility	At stake (inflation expectations on the rise, declining trust in institutions but elevating risk of social unrest (high sacrifice ratio, see above) and no (large) impact of monetary policy on expectations	Soft and slow
Leader or follower	Follower, but exchange-rate channel is limited	Soft

Source: Authors' own elaboration.

REFERENCES

- Altavilla, C., Brugnolini, L., Gürkaynak, R. S., Motto, R. and Ragusa, G., (2019). "Measuring euro area monetary policy". Journal of Monetary Economics 108: 162-179.
- Akinci, O., Benigno, G., Heymann, R-C., di Giovanni, J., Groen, J., Lin, L. and Noble, A. (2022). "The Global Supply Side of Inflationary Pressures". Federal Reserve Bank of New York, 28 January. https://libertystreeteconomics.newyorkfed.org/2022/01/the-global-supply-side-of-inflationary-pressures/#:~:text=U.S.%20inflation%20has%20surged%20as,not%20with%20the%20same%20intensity.
- Ball, L. M. and Mazumder, S. (2011). "Inflation dynamics and the great recession". Brookings Papers on Economic Activity, Spring: 337-381. https://www.brookings.edu/wp-content/uploads/2016/07/2011a_bpea_ball.pdf
- Blot, C., Bozou, C., and Creel, J. (2022). "Inflation expectations in the euro area: trends and policy considerations". Publication for the committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg. https://www.europarl.europa.eu/RegData/etudes/IDAN/2022/703341/IPOL_IDA(2022)703341_EN.pdf
- Blot, C., Bozou, C., and Creel, J. (2021a). "Rise in Inflation: Much Ado about Nothing?". Publication for the committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg, September. https://www.europarl.europa.eu/cmsdata/239424/1a_QA0121199ENN.pdf
- Blot, C., Bozou, C., and Creel, J. (2021b). "A Welcome Revision Rather Than a Revolution". Publication for the committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg, November. https://www.europarl.europa.eu/RegData/etudes/IDAN/2021/695475/IPOL_IDA(2021)695475_EN.pdf
- Blot, C., Creel, J., Faure, E. and Hubert, P. (2020). "Setting New Priorities for the ECB's Mandate". Publication for the committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg. https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/648812/IPOL_IDA(2020)648812_EN.pdf
- Blot, C., and Plane, M. (2021). "Relance aux États-Unis et en Europe: un océan les sépare". L'Economie politique, (3), 73-87.
- Bottazzi, R., Trucchi, S. and Wakefield, M. (2020). "Consumption Responses to a Large Shock to Financial Wealth: Evidence from Italy". Scandinavian Journal of Economics 122: 762-789.
- Coibion, O., Gorodnichenko, Y., Kumar, S., and Pedemonte, M. (2020). "Inflation expectations as a policy tool?". Journal of International Economics, 124, 103297.
- Dedola, L., Georgiadis, G., Gräb, J., and Mehl, A. (2021). "Does a big bazooka matter? Quantitative easing policies and exchange rates". Journal of Monetary Economics 117, 489-506.
- Degasperi, R., Hong, S., and Ricco, G. (2021). "The global transmission of US monetary policy". OFCE Working Paper 9.

- Di Giovanni, J. (2022). "How Much Did Supply Constraints Boost U.S. Inflation?", Federal Reserve Bank of New York Liberty Street Economics, 24 August. https://libertystreeteconomics.newyorkfed.org/2022/08/how-much-did-supply-constraints-boost-u-s-inflation/#:~:text=Our%20analysis%20of%20the%20relative,impact%20of%20this%20higher%20demand.
- Di Maggio, M., Kermani, A., and Majlesi, K. (2020). "Stock market returns and consumption". The Journal of Finance 75(6), 3175-3219.
- Ehrmann, M. (2015). "Targeting inflation from below: how do inflation expectations behave?". International Journal of Central Banking 11(1):213-249.
- Gürkaynak, R. S., Kara, A. H., Kısacıkoğlu, B. and Lee, S. S. (2021). "Monetary policy surprises and exchange rate behavior". Journal of International Economics 130, 103443.
- Koester, G., Lis, E., Nickel, C., Osbat, C. and Smets, F. (2021). "Understanding low inflation in the euro area from 2013 to 2019: cyclical and structural drivers". ECB Occasional Paper, n°280. https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op280~697ef44c1e.en.pdf
- Lengwiler, Y. and Orphanides, A. (2021). "Options for the ECB's Monetary Policy Strategy Review". Publication for the committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg. https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652753/IPOL_STU(2020)652753_EN.pdf
- Miranda-Agrippino, S., and Nenova, T. (2022). "A tale of two global monetary policies". Journal of International Economics. 136: 103606.
- Ortega, E. and Osbat, C. (2020). "Exchange Rate Pass-through in the Euro Area and EU Countries". Banco de Espana Occasional Paper No. 2016, June. https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op241~c7c3080d60.en.pdf
- Paiella, M. (2009). "The stock market, housing and consumer depending: a survey of the evidence on wealth effects". Journal of Economic Surveys 23 (5), 947-973
- Paiella, Monica, and Luigi Pistaferri (2017). "Decomposing the wealth effect on consumption". Review of Economics and Statistics 99, 710–721.
- Schnabel, I. (2022). "Monetary policy and the Great Volatility". Speech at the Jackson Hole Economic Policy Symposium, 27 August. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220827~93f7d07535.en.html



Should the ECB be tightening faster?

Karl WHELAN

Abstract

This paper discusses how the ECB should respond to the current high inflation rate. Rather than implementing a large upfront tightening, a steady and gradual adjustment of policy is recommended, particularly considering the evidence that the global economy may be heading towards recession.

This paper was provided by the Policy Department for Economic, Scientific and Quality of Life Policies at the request of the Committee on Economic and Monetary Affairs (ECON) ahead of the Monetary Dialogue with the ECB President on 26 September 2022.

CONTENTS

LIST OF ABBREVIATIONS

APP	Asset purchase programme
ECB	European Central Bank
HICP	Harmonised index of consumer prices
MRO	Main refinancing operation

LIST OF FIGURES

EXECUTIVE SUMMARY

- **HICP inflation is currently about 9%, far above the ECB's preferred inflation rate of 2%.** This paper discusses how the ECB should respond to the current high inflation.
- **The rise in euro area inflation this year is largely due to the impact on food and energy prices of the war in Ukraine.** Much of the rise in core inflation also reflects rising input costs due to higher energy prices. Arguments that ECB policy over the last year are an important contributing factor to the current high inflation are largely incorrect.
- **Conventional macroeconomic thinking can be used to argue that current inflation and unemployment rates call for very high monetary policy interest rates.** The paper shows how a "Taylor rule" formula would point to interest rates as high as 12% but explains why this kind of rule over-states the level of interest rates likely needed to reduce inflation.
- **While policy rates should be increased, there are various reasons why they should be adjusted gradually rather than raised quickly to higher levels.** These include the uncertainty of the economic situation and the desire to maintain financial stability.
- **In deciding the speed at which interest rates should be increased, a number of factors should be considered.** These include whether the increase in inflation is leading the public to have higher expectations of future inflation and how developments in food and energy markets and the global economy will affect inflation.
- **Some measures of inflation expectations have increased this year.** This isn't surprising in light of the high inflation rate. However, increases in consumer surveys have been modest and financial market indicators of long-run expected inflation are also relatively stable.
- **There are a number of signs that the euro area and world economy are heading for recession.** This will reduce inflation.
- **Also, even if food and energy prices do not drop from their current high levels, these factors will also stop contributing to high inflation by next year.** Even without a monetary tightening, inflation in the euro area may fall by a lot in 2023.
- **Rather than implementing a large upfront tightening, a steady and gradual adjustment of policy is recommended, particularly considering the evidence that the global economy may be heading towards recession.**

1. INTRODUCTION

For the third time in its relatively short history, the European Central Bank (ECB) is facing a severe set of macroeconomic challenges. One difference, however, relative to the global financial crisis of 2008 or the euro crisis of 2010-12 is that the current situation represents a more substantial threat to the ECB's ability to deliver on its primary objective of price stability.

Harmonised index of consumer prices (HICP) inflation for the euro area is estimated to have been 9.1% in August (see Figure 1). The ECB's actions in previous crises meant periods of sustained deflation were avoided, so while inflation undershot the ECB's preferred inflation rate of 2%, the size of these shortfalls was limited to under 2 percentage points. In contrast, inflation is now running 7 percentage points above the ECB's target rate. Indeed, as seen in Figure 2, recent high inflation has completely reversed the previous cumulative undershooting of the price level relative to a trend increase of 2% per year going back to the foundation of the ECB in 1999. Despite these developments, the ECB has so far been more cautious than other central banks such as the Federal Reserve and the Bank of England in adjusting its monetary stance, leaving it open to criticisms that it has been too slow to act.

At this point, the ECB is in a very difficult position. Its current monetary policy stance is clearly inappropriate given the high rate of inflation. There is a clear risk of a prolonged period of failing to meet its primary objective of price stability, which may damage the ECB's reputation and credibility and make monetary policy formulation more difficult in the future.

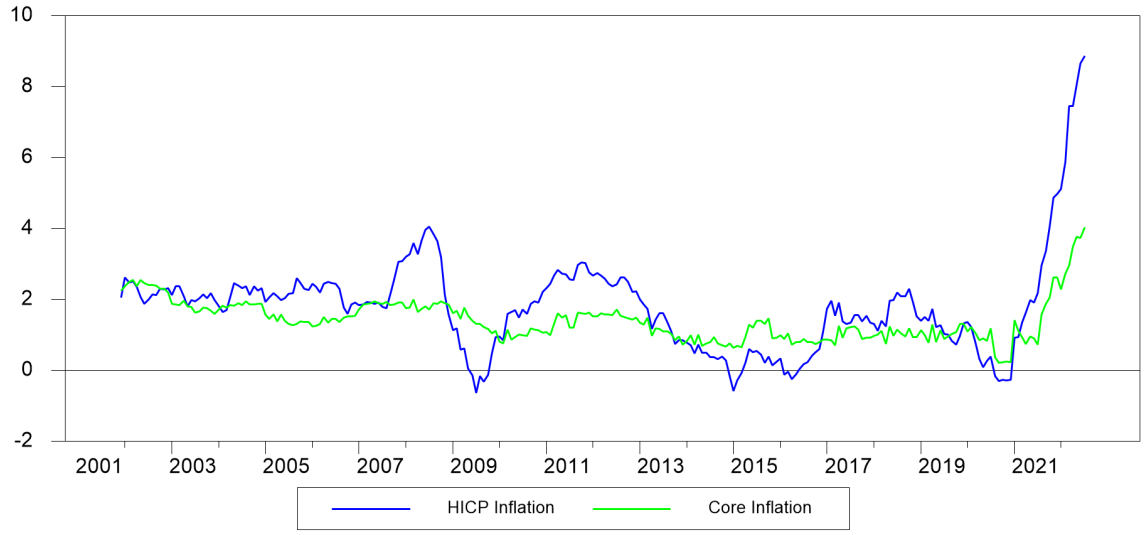
However, while the current inflation rate is clearly unacceptable, when deciding its policy strategy to restore price stability, the ECB needs to consider not only the existing data on inflation which is, by its nature, backward-looking but also to anticipate what is likely to happen with the euro area economy in the coming months. Recent data point to the euro area heading for recession. High energy prices this winter are going to weigh on non-energy consumer spending and business investment and disruptions to production from potential power blackouts will also damage the economy. A severe tightening of monetary policy could see the ECB exacerbating a recession just as stabilising energy prices and falling demand are already causing inflation to fall back to target levels. This approach could be damaging to the economy and a reversal of the policy tightening could also be damaging to the ECB's reputation.

Given the complexities of the current situation, it is understandable that there are disagreements within the ECB Governing Council members about how to proceed in the coming months. Some Governing Council members clearly favour larger interest rate increases in the coming months than had previously been expected. For example, at the recent Jackson Hole conference, ECB Executive Board member Isabel Schnabel (2022) laid out a case for being highly concerned about inflation remaining elevated for a long time. Schnabel pointed to the risk that inflation expectations could become "de-anchored" and the possibility that the Phillips curve relationship between inflation and unemployment had become "flatter", suggesting tighter policy and higher unemployment rates may be required to reduce inflation relative to previous periods where inflation declined. In contrast, in another recent speech, Executive Board member Philip Lane (2022) argued for a "*multi-step calibrated series rather than a smaller number of larger rate increases*", a so-called "meeting by meeting" approach.

The remainder of this paper will discuss the current situation and the options for ECB monetary policy as follows. Section 2 reviews how euro area inflation rose over the past year and whether the ECB has made mistakes in its monetary policy over this period. Section 3 discusses the arguments for jumping straight away to a much higher policy rate and the counterarguments that any increases in policy rates should be small and gradual rather than swift. Section 4 discusses the upside risks to inflation noted by

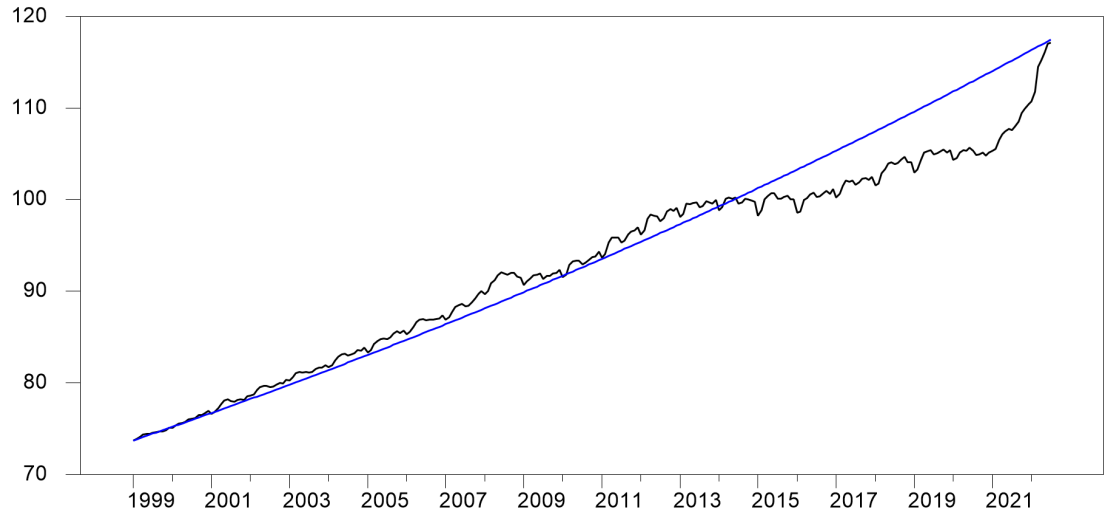
Schnabel (2022). I argue that evidence of de-anchoring of inflation expectations is limited so far, that secondary effects via wage bargaining have been weaker than might have been expected and that the looming recession is going to weigh on price pressures in 2023. Section 5 discusses communications issues relating to the peak interest rate the ECB expects to reach in this cycle.

Figure 1: Year-over-year total and core HICP inflation for the euro area



Source: Author's calculations based on data from Eurostat. Core inflation excludes energy, food, alcohol and tobacco.

Figure 2: The HICP level compared with a 2 percent inflationary trend since 1999



Source: Author's calculations based on data from Eurostat.

2. HOW DID WE GET HERE?

Macroeconomic policy plays an important role in determining inflation and it has certainly influenced the current high rates of inflation around the world. Ex post, one can see that the policies of central banks around to world to respond to the COVID pandemic with substantial monetary stimulus combined with fiscal stimulus to produce an excess of demand over supply once the economic effects of the pandemic began to recede. This doesn't mean these policies were mistaken. The pandemic involved potential "tail risks" of a prolonged global depression and deflation. A forceful macroeconomic policy response was appropriate, with the correct approach being to deal with any subsequent inflation by tightening policy.

In relation to the current surge in euro area inflation, I believe it would be unfair to assign too much blame to ECB policy over the past year. When I look back on my own opinions on macroeconomic events over the past year, I think my analysis probably broadly matched the opinions of the ECB Governing Council, so any criticism I could level would be based on hindsight.

In my September 2021 briefing paper (Whelan, 2021a), I noted that the rise in HICP inflation (to 3% in August 2021) largely reflected a temporary normalisation of food and energy prices, reversing the declines that had occurred at the start of the pandemic. I contrasted the euro area with the US in that the US had implemented a very large fiscal stimulus and so much of its inflation was being driven by excess demand, while this seemed not to be the case in Europe. I noted that euro area core inflation remained at 1.6% in August and optimistically argued that the period of slightly higher inflation could help to re-anchor inflation expectations back at the ECB's target 2% rate, after years of falling short of this target.

By November 2021, when I provided a briefing on inflation to an Irish parliamentary committee (Whelan, 2021b) I was more concerned. I pointed to some momentum in core inflation and, ironically, warned about Russia's willingness to supply gas to Europe as a potential risk factor. By January of this year, in my briefing paper on inflation expectations, I was worried (Whelan, 2022). Both actual and core inflation rates were increasing and I warned that little comfort could be taken from measures of inflation expectations staying low because they were unlikely to remain so if inflation kept coming in high.

I suspect this escalation in concern was roughly mirrored by most Governing Council members. Nevertheless, the ECB's position in January that the high inflation associated with post-pandemic disruptions and excess demand would fade over 2022 was a reasonable one. Russia's invasion of Ukraine changed the outlook completely. While the war has had a global economic impact on energy and food prices, Europe's dependence on Russian gas means the impact on European prices has been particularly large. Euro area energy prices, which ECB had hoped would fall from their high level in January, have surged upwards another 20% since January (see Figure 3) and food price inflation is now running at over 10%.

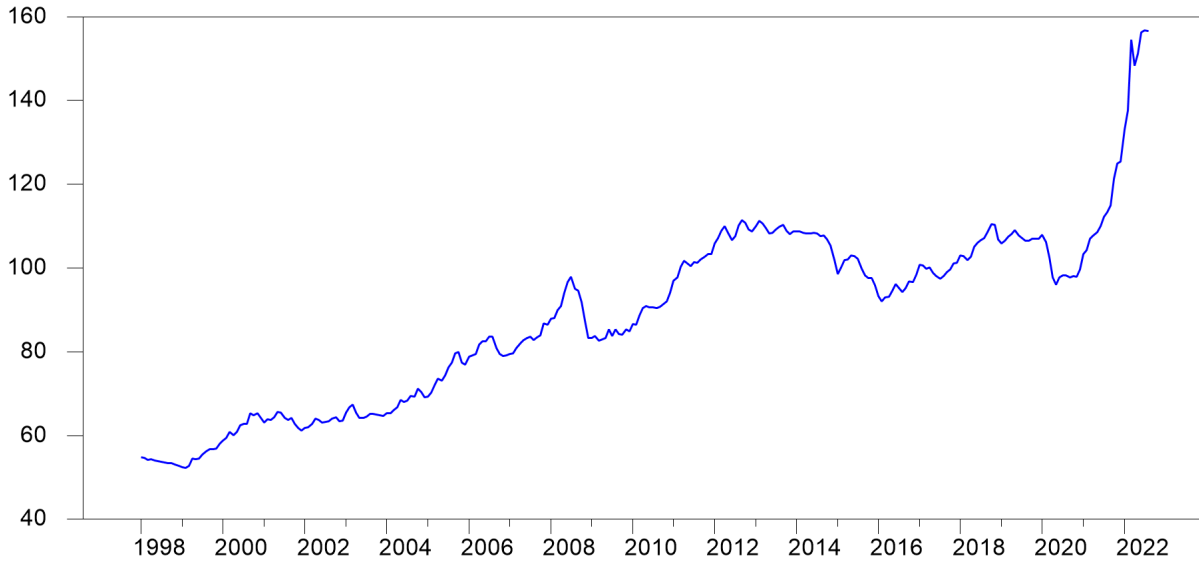
Despite the size of the impact of the war on euro area inflation, the ECB has been slower to react to rising inflation than other major central banks (see Figure 4, which includes the main refinancing rate (MRO) as its measure of the ECB's policy rate). One reason for that is the ECB was starting from a different place in terms of its monetary policy stance. In addition to having a zero MRO rate and a negative deposit rate, the ECB was still engaging in large-scale asset purchases when the war began. Thus, it was always likely that the ECB would implement a monetary policy tightening by first cutting the size of these purchases, then ending net purchases and then raising interest rates.

Some have argued that the ECB should perhaps not tighten policy in response to the supply shocks triggered by the war. The source of the current inflation is not a surge in aggregate demand and the ECB can do little to reduce energy prices, so it could be argued that it should just allow the shock to produce a temporary rise in inflation. It is not clear that this is a good argument in general but for the specific case of the ECB, it is a particularly bad argument.

The ECB's primary objective is maintaining price stability, not "maintaining price stability apart from times when supply shocks raise prices". It is true that, in the past, the ECB could view shocks to food and energy prices as temporary shocks to the level of prices, so that higher-than-target inflation would later be offset by lower-than-target inflation. Figure 1 illustrates that core HICP inflation has indeed been much less volatile than overall inflation. Some central banks, such as the Federal Reserve, have been explicit that they view core inflation as perhaps their key indicator of underlying inflationary trends. However, the current surge in energy and food prices is unlikely to be reversed anytime soon, so there is no reason to expect the effects of the war-related shocks on inflation will even out over time. In addition, energy is a hugely important input into so many goods and services which means core inflation is now also rising, reaching 4.3% in August.

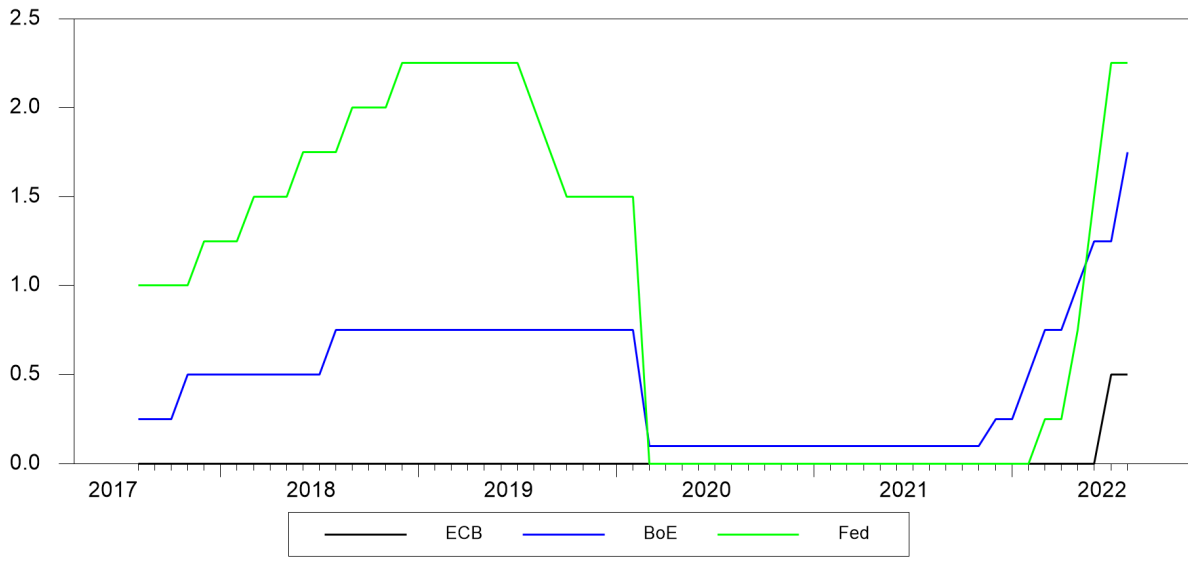
These considerations mean the ECB needs to act. It is possible that inflation may fall back to target even without policy tightening from the ECB. Indeed, I argue below that there are strong disinflationary forces on the way. But given the ECB's need to maintain the credibility of its commitment to price stability as its primary objective, this scenario is not certain enough for the ECB to decide to rely on it. And while the ECB cannot directly affect energy prices, it can use monetary policy to cool aggregate demand, tighten financial conditions and restrain asset prices.

Figure 3: HICP index for energy prices



Source: Eurostat.

Figure 4: Monetary policy rates for the ECB, Federal Reserve and Bank of England



Source: ECB Statistical Data Warehouse, Bank of England, St. Louis Fed FRED database.

3. DRASTIC ACTION VERSUS GRADUALISM

How high should the ECB set rates in response to the current inflation? I want to acknowledge here that a lot of relatively mainstream macroeconomic thinking would call for much higher policy rates than the ECB or financial markets are now considering.

A common benchmark for how to set monetary policy interest rates is the "Taylor rule", named after John Taylor's famous 1993 paper. Taylor proposed a rule to set interest rates with reference to three factors: (i) How far inflation is from its target rate, (ii) How far the economy is from its non-inflationary trend, and (iii) The "neutral interest rate" that would stabilise inflation. In Figure 5, I have compared the ECB's MRO rate with an example of a Taylor for ECB interest rates calculated as follows.

$$\text{Policy Rate} = \text{Neutral Interest Rate} + 1.5*(\text{Inflation Rate Minus 2\%}) + 0.5*(\text{Unemployment Rate Minus 6\%})$$

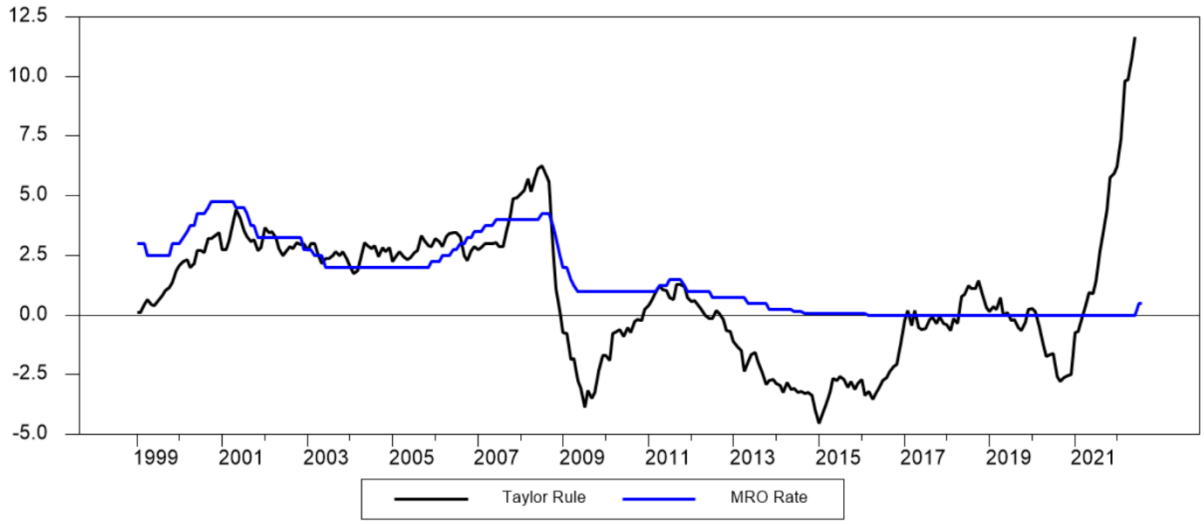
The coefficients on 1.5 and 0.5 here match Taylor's original paper. This formulation treats 6% unemployment as the "natural rate" for the euro area. In relation to the neutral interest rate, there is widespread agreement that this rate has declined since the global financial crisis, so I set this equal to 4% prior to September 2008 and 2% afterwards.

The figure shows during its first decade, the ECB's policy rate matched the recommendations of this rule quite well. During the years after the global financial crisis, the rule often recommended highly negative rates, which cannot be implemented easily in practice, though the ECB did end up setting a slightly negative deposit rate. As of now, even with the assumption of a low neutral rate, this Taylor rule prescribes that the current high inflation and low unemployment call for policy interest rate of almost 12%.

The logic of this recommendation is relatively simple. Taylor recommended that when inflation went up, central banks should raise their interest rates by a greater amount: This is why the coefficient on the deviation of inflation from its target was 1.5 in Taylor's formula. Economic theory predicts that real interest rates (i.e. interest rates adjusted for inflation) are what matters for the economy. For example, suppose the interest rate for a savings account is 5%. If inflation is 8%, then someone who saves money in that account will not benefit from having saved: After a year, their savings will purchase 3% fewer goods and services than could have been obtained from spending the money today.

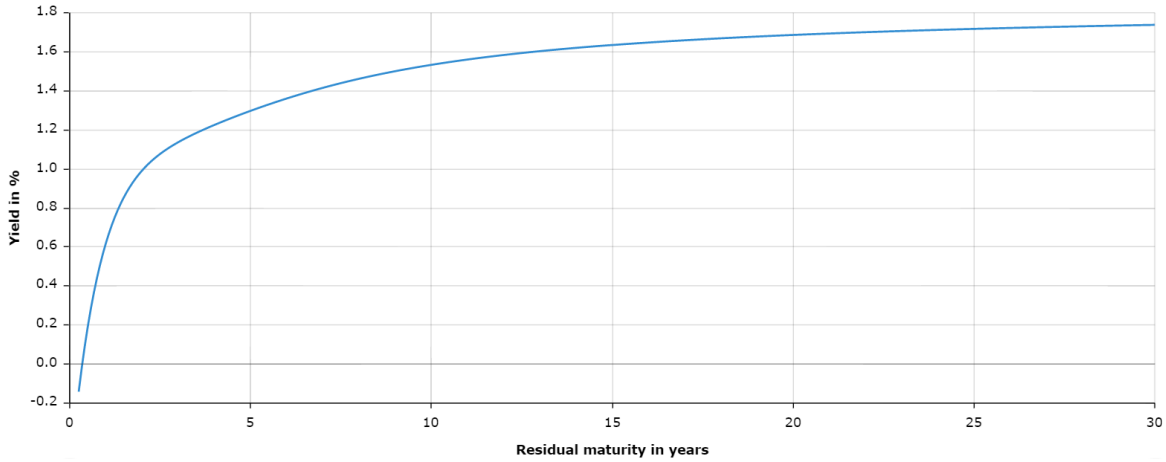
The academic literature on monetary policy rules, such as Clarida, Gali and Gertler (2000), has stressed that following the so-called "Taylor principle"—ensuring that real interest rates rise as inflation goes up—is important for maintaining macroeconomic stability. They and others argued that it was the failure to respect this principle that led to the macroeconomic instabilities of the 1970s.

Figure 5: The ECB's main refinancing operation (MRO) rate compared with a Taylor rule



Source: Author's calculations based on data from Eurostat.

Figure 6: The euro area yield curve for AAA-rated bonds



Source: ECB.

So should the ECB dramatically raise rates, as suggested by this formula? I don't think they should and nobody expects them to. Figure 6 shows the current euro area yield curve. It suggests markets see a modest increase in interest rates over the next couple of years with average interest rates settling down at about 1.8%.

There are a couple of reasons why the Taylor rule is likely sending the wrong signal for policy at the moment.

First, the real interest rate under consideration in the Taylor rule is not the one that matters for the economy. In this case, we are calculating the real interest rate the as the MRO rate minus inflation measured as the percentage change in the HICP over the preceding year. Neither of the elements of this calculation are the best ways to measure the real interest rates that influence the economy. Very few people borrow at the MRO rate. What matters more for the economy are the rates that people expect to pay when paying back debts over long periods of time. So long-term government bond yields and long-term mortgage rates are far more important than the MRO rate. And the correct theoretical inflation rate is not what has happened over the past year but the average inflation rate expected over the term of a contract. Given the behaviour of yield curve and the various ways to measure long-term inflation expectations (discussed more below), there is little evidence that people believe we are entering an era of deeply negative real interest rates that will fuel a boom.

Second, while modern central banks have often cut interest rates by large amounts in response to crises, they tend not to make large adjustments when implementing monetary policy to achieve their normal macroeconomic stabilisation goals of low inflation and stable output. There is a large research literature on the tendency of central banks to smooth out their adjustment paths for interest rates. Some of this smooth adjustment may reflect the underlying variables that affect policy also changing gradually over time but the evidence points to central banks having a preference for adjusting rates in a smooth fashion, independent of the underlying macroeconomic situation.[1]

There are various reasons why a central bank may choose to change interest rates gradually over time.[2] One is that uncertainty about the right policy tends to recommend smaller and gradual movements overly sharp large changes, a theme stressed in the academic literature by Brainard (1967) and Sack (1998). Central bankers are also concerned about the consequences of sudden changes in policy for financial stability. For example, many participants in financial markets in recent years have taken positions based on the assumption that interest rates will remain low for a long time. A gradual adjustment of interest rates gives participants time to adjust positions and to cope with the re-pricing of assets implied by higher rates. Also, as noted above, long-term interest rates have a key influence on the economy and a strategy of gradually adjusting rates in a clear signalled manner will reduce the volatility in these rates.

[1] Coibion and Gorodnichenko (2012).

[2] Bernanke (2004) provides a succinct summary.

4. UPSIDE AND DOWNSIDE RISKS FOR INFLATION

It is likely that all members of the Governing Council agree that the current monetary policy stance is too accommodative and that interest rates need to be increased. It is also likely that all members agree that a gradual approach should be taken. However, the difficult question is how fast this gradual approach should be. Should the ECB implement a series of small interest rate increases such as 25 basis points at each meeting? Or should they implement larger increases over the next few months, jumping closer to the level they expect to be the peak of this cycle? Which approach is appropriate likely depends on the assessment of upside or downside risks to inflation in the absence of ECB tightening.

In her recent Jackson Hole speech, ECB Executive Board member Isabel Schnabel laid out a number of concerning factors that pointed towards a "forceful policy response". Schnabel's case was well argued and contains a number of important points but in relation to two of her arguments, my assessment is more optimistic about the probability that a slower, more moderated tightening would be more appropriate.

4.1. Inflation expectations

Schnabel expressed concern about inflation expectations rising, leading to a "de-anchoring" which could then affect wage bargaining and price setting for the next few years. She noted that the median expected inflation rate three years from now reported by participants in the ECB's Survey of Consumer Expectations had risen to 3% after being steady at 2% in the survey's early years (see Figure 7).

While it would be preferable for these medium-term expectations to remain equal to the target inflation rate, I think this is actually a small increase given how high actual inflation has gone. Schnabel noted that the mean for expected inflation in three years had risen to close to 5% but the mean in these surveys is always high due to many participants expected unrealistically high rates of inflation. The recent values for this series are close to the values seen when the survey was launched in early 2020 (see Figure 7). Indeed, despite the rise in inflation throughout the year, survey participants continue to expect a significant step-down in inflation next year (see Figure 8). Given my prediction in January that continued high inflation this year would lead to a jump upwards in inflation expectations, the outcomes so far have been quite modest.

Financial markets also do not believe the ECB is going to lose control of inflation over the next decade, as can be seen from the low long-term interest rates illustrated in Figure 6. Breakeven inflation rates for inflation-indexed bonds have increased but not in a way that signals a failure to reach the 2% target in the future: The current breakeven inflation rate on the 10-year French government indexed bond is 2.5%. Since inflation is now well above 2%, this suggests a return to rates of inflation close to 2% over the rest of the coming decade.[3]

The other concern related to inflation expectations is that higher inflation fuels wage inflation which in turn keeps price inflation high. However, as President Lagarde admitted in her most recent press conference that wage growth "*remains contained overall*."[4]

This muted response of inflation expectations from surveys and financial markets suggests the ECB is retaining a significant amount of credibility and that people largely understand the current spurt in inflation as being a temporary phenomenon.

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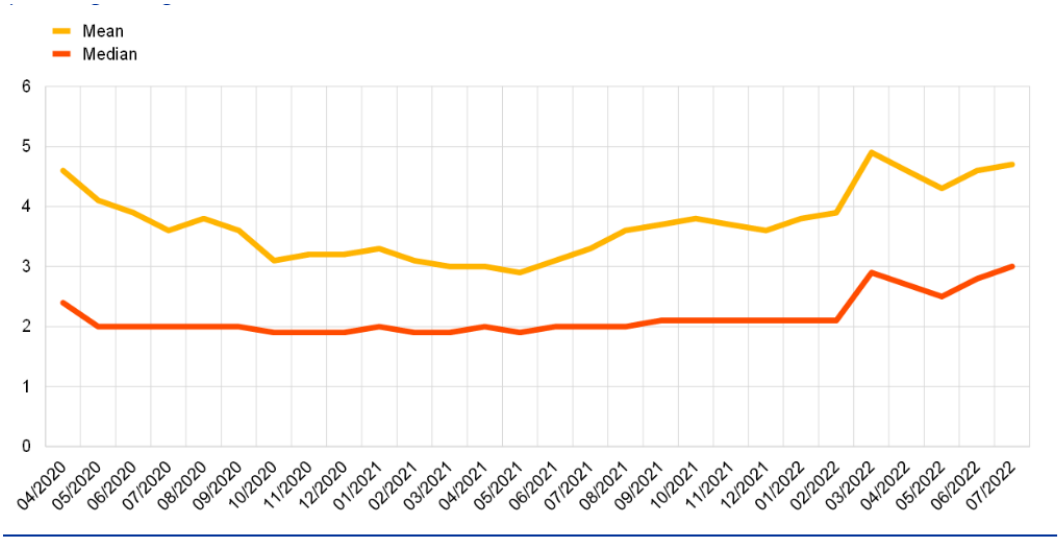
[3] Data available from https://www.aft.gouv.fr/en/oatis-key-figures

[4] See Lagarde, C., Monetary Policy Statement, press conference, 21 July 2022. https://www.ecb.europa.eu/press/pressconf/2022/html/ecb.is220721~51ef267c68.en.html

Schnabel's speech also noted uncertainty about the persistence of inflation as a risk factor, arguing it is better to over-estimate persistence than to under-estimate it and then experience a longer period of high inflation. I'm not sure this really is a separate risk to the risk of inflation expectations becoming de-anchored because the principal source of persistence in inflation is the public's inflation expectations following the realised values.

Figure 7: Expected inflation three years from now from the ECB's Consumer Expectations Survey



Source: ECB.

Figure 8: Recent data on inflation expectations from the ECB's Consumer Expectations Survey

Variable		May 2022	June 2022	July 2022
Inflation perceptions over the previous 12 months	Mean	8.2	8.6	9.5
Inflation perceptions over the previous 12 months	Median	6.6	7.2	7.9
Inflation expectations 12 months ahead	Mean	6.3	6.6	7.1
Inflation expectations 12 months ahead	Median	4.9	5	5
Inflation expectations three years ahead	Mean	4.3	4.6	4.7

Source: ECB.

4.2. Sacrifice ratios and global conditions

Schnabel's Jackson Hole speech also argued that it may require higher interest rates and higher unemployment to reduce inflation than it did in the past, i.e. that the so-called "sacrifice ratio" has increased. I will highlight three of these arguments.

First, Schnabel noted that firms with business models based on intangible capital are less likely to rely on external debt finance and the growing importance of these firms in the economy may make it less

sensitive to changes in interest rates.[5] However, it is not clear that one can link the first claim (intangible firms being less reliant on debt finance) with the second (lower economy-wide insensitivity). While they do not carry as much debt, intangible-based firms rely more on equity finance and higher interest rates reduce share prices and thus discourage investment financed by venture capital or share issuance. And despite the rise of firms reliant on intangible capital and some increase in the share of non-bank funding in recent years, data from the ECB's sectoral accounts show that euro area nonfinancial corporate businesses remain far more reliant on banks for external funding than their US counterparts. An increase in the cost of bank loans will have a negative impact on this sector.

There may also be countervailing factors that have perhaps made modern economies more sensitive to interest rates. The widespread "financialisation" of modern economies has meant that households have built up very large holdings of financial and non-financial assets whose prices are sensitive to interest rates. Governments are also carrying a lot more debt than in previous years, making fiscal positions more sensitive to changes in sovereign yields.

Second, Schnabel notes that the Phillips curve relationship between inflation and unemployment seemed to weaken in recent decades, i.e. that the Phillips curve became "flatter". If this was the case, then it may take a larger increase in unemployment than in the past to generate a decline in inflation.

I am not convinced that the underlying structural determinants of inflation completely changed in recent decades. I wrote about this in a recent paper (Whelan, 2021c) written prior to the pickup in inflation. In that paper, I argued that while Phillips curve relationships were too simplistic to summarise the determinants of inflation, its underlying determinants had probably not changed. I wrote "*There is a strong body of empirical evidence telling us that macroeconomic policy can influence aggregate demand and there is little reason to doubt that stimulating aggregate demand sufficiently can raise inflation.*" The low inflation of recent years occurred because aggregate demand consistently fell short of aggregate supply and the high inflation we are currently experiencing is occurring because the opposite pattern is in place.

Third, Schnabel noted that one of the factors undermining the Phillips curve relationship is that globalisation has meant that the correct measure of economic "slack" that influences inflation is the spare capacity in the global economy rather than national or regional measures. She argues that this means the ECB will need to cool the euro area economy by more than in the past to get a reduction in inflation because it has less influence on global aggregate demand.

The argument that global factors now have a large influence on inflation is certainly correct but, looking forward, there are several reasons to fear that the global economy is heading for recession and that this will lead to a fall in inflation.

High energy and food prices are particularly damaging for less developed countries where essential goods and services represent a largely fraction of household consumption. A slowdown and possible recession is underway in China due to a collapsing property market and restrictions due to the zero-COVID policy. Most importantly, Chinese imports—which have fuelled global aggregate demand for a long time—have flattened out. The US economy still appears to be in robust condition but the Federal Reserve is likely to continue tightening as long as inflation is high and this may also tip the US into recession next year.

Finally, there is the possibility that the euro area is already heading towards recession. Euro area Purchasing Managers Indices have also weakened in recent months to levels that have previously

[5] Schnabel cited theoretical and empirical research by Caggese and Pérez-Orived (2022) and Robin Döttling, Lev Ratnovski (2020) to support this position.

signalled recession. As noted above, high energy prices will weigh on household and business spending in the euro area in the coming months. The possibility of power blackouts could also directly reduce output. Indeed, many firms are now claiming they will have to stop operating rather than remain open with sky-high energy costs. One possibility is that we will see a return of furlough schemes where the state helps firms that are fully or partially shut down to pay their workers.

Even if energy and food prices did not come down from their current historical highs, the impact of food and energy prices on inflation would start to fade by early next year when calculating year-over-year inflation. Even without an ECB tightening, this could combine with a global recession to produce a big fall in inflation next year.

5. COMMUNICATIONS WHILE TIGHTENING

The arguments just put forward mean I agree with ECB chief economist Philip Lane's argument that rather than implement a small number of big interest rate increases in the coming months, the Governing Council should adopt a "*meeting-by-meeting*" approach in which policy is tightened via "*a multi-step calibrated series rather than a smaller number of larger rate increases*." This approach would allow the ECB to continue the required tightening that the current circumstances call for while allowing them to continue assessing whether global conditions are going to reduce inflation faster than is currently expected.

One aspect of Lane's speech that I am less sure about is his recommended communications strategy. The speech argues that the ECB should set interest rate policy by deciding at each meeting on the "terminal rate" that they expect, meaning the peak interest rate they will reach before keeping rates steady or cutting them again. Once this terminal rate is decided, they can then decide on the speed at which they will gradually get to that terminal rate.

The terminal rate plays an important role in Lane's speech: It is mentioned 21 times. However, Lane does not recommend that the ECB tell the public about its expected terminal rate after each meeting. He states:

> "*it is debatable whether more quantitative signalling of the meeting-by-meeting assessment of the prevailing terminal rate is necessary or helpful …. While, in principle, communicating the most likely path for future rate hikes could be an effective monetary policy tool, the potential downside is that it adds to the complexity of communications, especially if there are material revisions to the expected policy path from one meeting to the next.*"

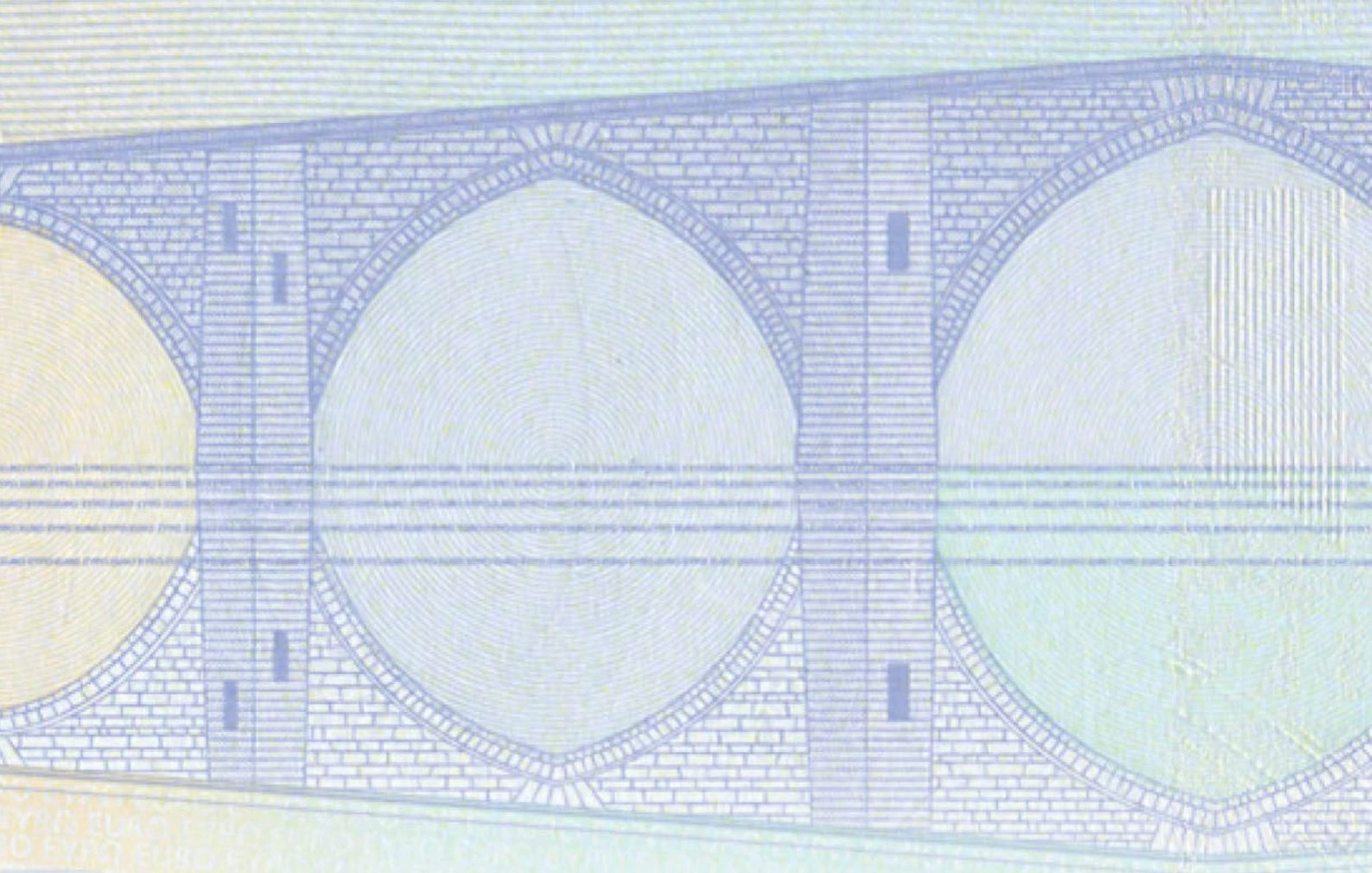
I'm inclined to disagree with this position. Relative to many of the issues the ECB has been communicating about in recent years (its forward guidance on ending the negative interest rate policy, its announcements about the sequencing of its asset purchase programmes, its various policies to counter financial fragmentation) communicating the peak interest rate the ECB expect to reach is a relatively simple matter that most people can understand.

One possible reason for not communicating about the terminal rate could be that Governing Council members would disagree about the correct figure. In this case, the Governing Council could follow the Federal Reserve and release regular surveys in which Council members provide their own forecasts for economic variables and policy rates. The evolving beliefs of the Federal Open Market Committee about the "long run" interest rate that it expects have been communicated efficiently over the past decade through this method. In some cases, the survey has revealed some disagreement among the committee members but this has not detracted from its usefulness in indicating the likely long-run path for interest rates.

In the absence of specific guidance, markets will in any case make their judgements on how far ECB are going to go. But if the Governing Council thinks, for example, that markets have under-estimated the terminal rate and financial conditions should be tightening faster, why not just announce what they think that rate will be? A clear and steady path towards and a signalled destination seems like the best approach to restore price stability without too much volatility along the way.

REFERENCES

- Bernanke, Ben (2004). Gradualism. Speech available at https://www.federalreserve.gov/boarddocs/speeches/2004/200405202/default.htm
- Brainard, William (1967). "Uncertainty and the effectiveness of policy, *American Economic Review*, Volume 57, pages 411–425.
- Caggese, Andrea and Ander Pérez-Orived (2022). "How stimulative are low real interest rates for intangible capital?" European Economic Review, Volume 142. https://www.sciencedirect.com/science/article/pii/S001429212100266X
- Clarida, Richard, Jordi Gali and Mark Gertler (2000). "Monetary policy rules and macroeconomic stability: Evidence and some theory". *Quarterly Journal of Economics*, Volume 115, pages 147-180.
- Coibion, Olivier and Yuriy Godnorichenko (2012). "Why are target interest rates changes so persistent?" *American Economic Journal: Macroeconomics*, Volume 4, pages 126-162.
- Döttling, Robin and Lev Ratnovski (2020). Monetary policy and intangible investment, ECB working paper No. 2444. https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2444~5686a79697.en.pdf
- Lane, Philip (2022). Monetary policy in the euro area: the next phase, speech available at https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220829~b9fac50217.en.html
- Sack, Brian (1998). Uncertainty, learning, and gradual monetary policy, FEDS Working Paper Series no. 98-34, Board of Governors of the Federal Reserve System. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=121439
- Schnabel, Isabel (2022). Monetary policy and the Great Volatility, speech available at https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220827~93f7d07535.en.html
- Taylor, John (1993). "Discretion versus Policy Rules in Practice". *Carnegie-Rochester Series on Public Policy*, Volume 39, pages 195-214.
- Whelan. Karl (2021a). Should the ECB be worried about inflation? Publication for the Committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament https://www.europarl.europa.eu/cmsdata/239441/1c_QA0121201ENN.pdf
- Whelan, Karl (2021b). Briefing on Inflation for Oireachtas Select Committee on Budgetary Oversight. https://www.karlwhelan.com/Presentations/OireachtasBriefingNov2021.pdf
- Whelan, Karl (2021c). "Central banks and inflation: Where do we stand and how did we get here?" *European Journal of Economics and Economic Policies*, 2021. Volume 18, pages 310-300. Link to accepted version https://www.karlwhelan.com/Papers/CBsAndInflation2021.pdf
- Whelan, Karl (2022). Should rising inflation expectations concern the ECB? Publication for the Committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, https://www.europarl.europa.eu/cmsdata/244619/5_WHELAN.pdf



Dancing on the edge of stagflation

Paolo CANOFARI, Giovanni DI BARTOLOMEO, Marcello MESSORI

Abstract

The European Central Bank (ECB) is facing a dangerous trade-off between the control of supply-led inflation and the need to avoid a further recession in the euro area. The paper argues that an effective ECB monetary strategy to handle this trade-off would have been to anticipate the increase in the policy interest rates and to postpone the end of the asset net purchase programmes. The ECB did not follow this sequence, which is why its current monetary policy, bound in a difficult balance, risks favouring a euro-area stagflation and financial market fragmentation. The new anti-fragmentation instrument (TPI) introduced by the ECB appears ineffective and subject to excessive discretion. The ECB should instead pursue a compelling combination of its rules-based monetary policy with EU centralised and national fiscal policies.

This paper was provided by the Policy Department for Economic, Scientific, and Quality of Life Policies at the request of the Committee on Economic and Monetary Affairs (ECON) ahead of the Monetary Dialogue with the ECB President on 26 September 2022.

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LIST OF ABBREVIATIONS

APP	Asset purchase programme
CPI	Consumers Price Index
ECB	European Central Bank
ELB	Effective Lower Bound
ESM	European Stability Mechanism
EU	European Union
Fed	Federal Reserve
GDP	Gross domestic product
HICP	Harmonised index of consumer prices
LTRO	Longer-term refinancing operations
NGEU	Next generation – EU
PELTRO	Pandemic emergency longer-term refinancing operations
PEPP	Pandemic emergency purchase programme
RRF	Recovery and resilience facility
SURE	Temporary support to mitigate unemployment risks in an emergency
TLTRO	Targeted longer-term refinancing operations
TPI	Transmission Protection Instrument
US	United States of America
ZLB	Zero-lower bound

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EXECUTIVE SUMMARY

- **In the current scenario, the ECB faces a difficult trade-off between the control of supply-led inflation and the need to avoid a further recession in the euro area**. This paper argues that the ECB had the possibility to implement a monetary strategy able to reduce this stagflation risk: to anticipate the increase in the policy interest rates in the second half of 2021 and the first half of 2022, and to postpone the end of the asset net purchase programmes.
- The proposed sequencing would have allowed for the mimicking, in a different economic phase, of the effective combination between monetary policy, national fiscal policies, and a new centralised fiscal policy (policy mix) activated in the euro area as a response to the pandemic shock.
- The ECB decided to adopt a different sequencing by ending its asset net purchase programmes (PEPP and APP) in March and June 2022, respectively, and by increasing its policy rates since July 2022. This sequence, which will determine binding constraints in the fiscal capacity of the most fragile Member States, is increasing the risk of stagflation in the euro area and is triggering fragmentation in its financial market.
- **In this situation, the ECB's current monetary policy is bound in a difficult balance**. Its restrictive stance should be gradual to avoid that the persistence of the pandemic supply-side shocks and the dramatic economic consequences of the Russian invasion of Ukraine impede the EU's medium-term development generated by Next Generation – EU. Conversely, the same stance should be sufficiently severe to weaken the inflationary process that, being supply-driven, cannot be easily handled by means of monetary tools.
- **The ECB's compromise, currently pursued by the Governing Council, risks favouring stagflation.** To avoid at least that the increasing risk of stagflation is coupled with financial fragmentation, the ECB recently launched an anti-fragmentation instrument: the TPI.
- **The TPI is characterised by many drawbacks**. Differently from LTRO, OMT, TLTRO, APP, and PEPP, the TPI can be activated by the ECB in a largely discretionary way. Hence, besides representing a decisive step towards the ECB's abandonment of any forward guidance, it widens the ex-ante unregulated power of a central bank and – in the meantime – it appears unable to design effective incentives for financial investors.
- **Consequently, an unsolved trilemma emerges in the euro area**. It appears impossible to conceive a central bank that can act in an ex-ante discretionary way, that maintains its full independence, and that remains accountable thanks to ex-post controls by a third party.
- **Our suggestion is to exit from the above trilemma by abandoning the ECB's ex-ante and ineffective discretionary strategy and re-establishing ex-ante rules, independently decided and announced by the ECB and compliant with its mandate**. In this perspective, the TPI should remain in the background and never be implemented. Moreover, it would become possible again to design a combination of the ECB's monetary policy and EU centralised and national fiscal policies that is an effective response to stagflation.

1. INTRODUCTION

High inflation has emerged as an existential worldwide challenge. In the United States (US), from March to July 2022, the Federal Reserve (Fed) augmented the target federal funds range by 225 basis points (two increases of 75 bps each just in June and July). After the last hike, Chair Jerome Powell held that a similar move could be repeated in the following months if the US price dynamics did not slowdown.[1] Last June, the Bank of England fixed the bank rate at 1.25%. The "Old Lady of Threadneedle Street" forecasted that the United Kingdom's inflation, as measured by the Consumer Price Index (CPI), will reach a peak slightly above 11% next October mainly due to rising global energy prices. Similarly, last March, the European Central Bank (ECB) recognised that inflation in the euro area was not a temporary phenomenon and started the closure of its unconventional programmes of net asset purchases; and, last June, it completed the end of these programmes and the specific conditions of its unconventional Targeted Longer-Term Refinancing Operations (T-LTROIII) in favour of the European banks. Then, in July, the ECB increased its policy interest rates by 50 basis points (bps), although only 25 bps were previously announced. Interest rates were further increased in September, by 75 bps.

An inflation rate largely above the usual central banks' target of 2% was absent for a long time, but it is currently a widespread phenomenon, including in the US and Europe. However, this does not justify *per se* a uniform monetary policy response. The main drivers of an excessive inflation can be, and indeed are, different in different areas. In the US, the price dynamics have been determined by an overheating of the "real" economy due to expansive and pro-cyclical fiscal policies that started before the pandemic shock and accompanied the subsequent rebound. US inflation has thus been determined by an excess of demand that triggered a price–wage spiral. The origins of the euro area's inflation are different. The high dependence on international trade made the European economy vulnerable to the breaks in the global value chains triggered by the pandemic shock and its persistence;[2] and Russia's invasion of Ukraine dramatically worsened price dynamics and extended the sectors involved (e.g., foods). The 2021 rebound and the related increase in aggregate demand, stimulated by the substantial public support of incomes in many Member States, has just generalised the euro area inflation to the whole economy.

The current inflation processes in the US and the euro area are so strong that restrictive monetary policies cannot be avoided. However, the different inflation drivers imply that the two areas face different situations. Despite the likelihood of a recession,[3] the Fed can pursue an effective monetary policy restriction as the determinants of the US inflation process are traditional and the economy can overcome a negative phase without suffering significant long-term disequilibria. On the contrary, the ECB is facing a supply-led inflation that cannot be efficiently managed by monetary policy without causing a serious recession; and the euro area economies already registered – at least – three or four deeply negative economic phases since 2008, therefore they would be severely affected by a new one. Hence, the ECB is faced with a difficult compromise: how to manage the inflation pressure without causing a new deep recession in the euro area?

Our considerations suggest that the Fed is currently more likely to curb the excess inflation in the medium term than the ECB. In fact, the ECB must adopt a more gradual restrictive stance to reduce the

[1] The most recent data on the US inflation rate, published in July and August 2022, indicate that the general index started decreasing, even if the core inflation remains high and largely above the Fed's target. In any case, in his recent speech at Jackson Hole (26 August 2022), Mr. Powell reaffirmed that Fed should continue its restrictive monetary policy.

[2] These international breaks also affected significant parts of the US economy; however, in that case, they strengthened an inflationary phenomenon already in place.

[3] The provisional macroeconomic data show that there was a decrease in the US gross domestic product (GDP) in the first two quarters of 2022. However, to formally state that the US economy registered a "technical" recession in the first semester of the current year, it is necessary to wait for the certification of these data and their interpretation.

probability of a new economic recession; and, in so doing, it risks becoming unable to put under control price dynamics triggered by variables (such as energy prices) that cannot be directly influenced by monetary policy. It follows that the euro area economy could be characterised by a longer and deeper period of stagflation starting in the third or last quarter of 2022. Potentially, it would have been possible to mitigate this negative perspective if the ECB had adopted different monetary strategies from the second half of 2021 to July 2022: earlier increases in policy interest rates without suspending the Asset Purchase Programme (APP) and the Pandemic Emergency Purchase Programme (PEPP). This sequencing would have provided a signal to fight inflation without compromising the policy mix launched during the pandemic. However, in the current scenario, the ECB's monetary policy does not have alternatives compared to the stance currently implemented: a gradual increase in policy interest rates and reinvestments of redemptions from APP and PEPP.

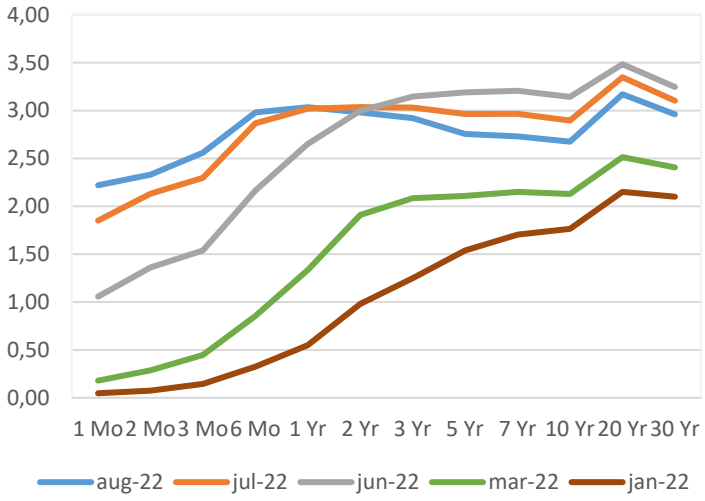
The rest of the paper is organised as follows. Section 2 compares the monetary policy adopted by the Fed and the ECB. Section 3 discusses a possible alternative sequence for the ECB's restrictive decisions. Section 4 backs the current scenario emphasising that, at this moment, the ECB's monetary policy stance does not have many alternatives to follow. Section 5 analyses the possible effectiveness of the Transmission Protection Instrument (TPI) announced by the ECB last July. Section 6 provides our main conclusion: the ECB should recognise the specific constraints and the related limits of its current monetary policy and should pursue stronger cooperation with a centralised, even if temporary, European Union (EU) fiscal policy.

2. A COMPARISON BETWEEN THE FED'S AND THE ECB'S RECENT DECISIONS

The current stance of the ECB's monetary policy has been deeply influenced by the Fed's decisions since mid-December 2021. In November of that year, the Fed recognised that the inflation dynamic in the US was not a temporary phenomenon only due to the late consequences of the pandemic shock and to the related bottlenecks on the supply side. It implicitly acknowledged that the US inflationary process was mainly due to an excess demand fed by overly expansionary and pro-cyclical fiscal policies: the distortionary cuts in taxation implemented by the Trump administration before the pandemic, during an already overheated cyclical phase; and the vast programme of public spending in infrastructure and social protection launched by the Biden administration during the strong economic rebound in the US in the second half of 2020 and in 2021. Hence, in December 2021, the Federal Open Market Committee (FOMC) announced a dramatic change in the US monetary policy to be started in March 2022. In the weeks following the December meeting, the Fed Chair and other members of the FOMC reiterated the announced decisions. The new restrictive stance materialised in a sequence of increases in policy interest rates and reductions in the liquidity made available to the economic system. In the period March 2022 – July 2022, the Fed augmented the target federal funds range from 0.00-0.25 to 2.25-2.50 through the first increase of 25 bps in March, a further increase of 50 bps in April, and two increases of 75 bps each in June and July.

Apparently, the Fed's strategy was successful in guiding investors' expectations. As shown in Figure 1, the curve of the US market structure of interest rates registered a significant and uniform upward shift until June 2022, and then became flatter. Together with the provisional negative data on the gross domestic product (GDP) dynamics in the first and second quarters of 2022, these shifts in the curve indicate that the economy was so adversely affected by the monetary policy restrictions that there was a possible technical recession in the first half of 2022. However, as signalled by the flattening of the July and August curves of the US market structure of interest rates, most economic agents expect that monetary policy will be able to reabsorb the excessive inflationary pressure in the medium term. Hence, in a reasonable time horizon, the Fed will have room to support US macroeconomic growth through new decreases in policy interest rates and increases in the supply of liquidity. The medium-long term perspective is, thus, the return to a stable and positive economic phase.

Figure 1: Treasury US par yield curve rates



Source: US Department of the Treasury.

In mid-December 2021, on the other side of the Atlantic Ocean, the ECB confirmed its view that monetary policy tools were not very effective in contrasting an inflation in the euro area which was mainly due to supply-side bottlenecks prolonged by an unexpected but soon weakening persistence of the pandemic impact. Moreover, the vulnerability of many EU "core" countries (such as Germany) to these bottlenecks in the international value chains suggested that monetary support was still needed. At the same time, the ECB was not in the condition to neglect the Fed's announced initiatives. A complete lack of restrictive reactions would have condemned the ECB to remain "behind the curve" of interest rates in the euro area's financial markets, thus undermining the effectiveness of future initiatives in monetary policy and determining an unmanaged depreciation of the euro. Hence, at the beginning of 2022, the ECB realised that it was between a rock and a hard place. This difficult situation was worsened by the outbreak of Russia's invasion of Ukraine (end of February) and the severe implementation of the Fed's announcements (March). The EU and the euro area were deeply impacted by the war at their eastern borders and by their vulnerability towards the consequent energy crisis. Hence, they faced parallel increases in the probabilities to enter an economic recession and to remain unprotected from the inflationary process and the impact of the Fed's monetary initiatives.

The above-described scenario explains the contradictory signals issued by the ECB's Governing Council in the meetings between February and July 2022.

First, the ECB announced that the net purchase of government and private bonds based on the pandemic programme (PEPP) would have ended on the expected date (March 2022); however, it specified that this restrictive move would have been partially compensated by the temporary strengthening of the previous asset purchase programme (APP) without a rise in the policy interest rates. Then, the ECB admitted that the APP would have ended in the summer of 2022 and would have been followed – sooner or later in the same year – by an increase in policy interest rates. As a further step, the ECB decided to terminate the APP by the end of June and to increase policy interest rates by 25 bps in July. In the meantime, to counterbalance this new restrictive stance of its monetary policy, the ECB repeated that the reinvestments of the proceeds of the APP and PEPP's programmes deriving from assets at maturity and their relative rates of return would be continued for years;[4] and it confirmed that PEPP reinvestments would have concentrated on the public assets of the most fragile Member States without meeting the ECB's capital key.[5] In June, the ECB announced the launch of a new tool aimed at avoiding national fragmentations in the European financial markets (as stated above, the TPI). Finally, last July, the actual rise in the three policy interest rates amounted to 50 bps and the definition of the new tool did not clarify the crucial details (see Section 5 below) despite the previous extraordinary meeting devoted to this matter.

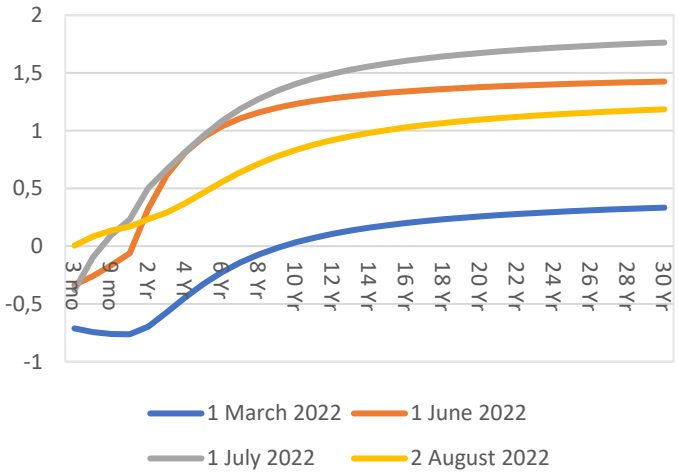
Our sketchy reconstruction of the monetary policy stance in the euro area from the end of 2021 to mid-2022 emphasises the coming and going of the ECB's strategy. These contradictory decisions had an impact on the term structure of market interest rates in the euro area. As shown in Figure 2, despite the different trends in the US, last July, the investors' prevailing expectations were that the ECB would have been unable to reabsorb the excessive inflationary pressure in the medium term. The euro area market interest rates curve continued to shift upward, and its slope did not become flatter. Moreover, the downward shift of the curve observed in August was accompanied by a steeper slope in the portion relating to medium-long term market interest rates; and this is a signal that investors are sceptical of the ECB's ability to put long-term price dynamics under control. Hence, even if the ECB is implementing a more gradual restrictive stance in its monetary policy than that of the Fed, the impact on the euro

[4] The reinvestments in the PEPP programme will last until the end of 2024; the time extension of the reinvestments in the APP programme is still indeterminate.

[5] This flexibility can be effective in the short time. However, it is sufficient to compare the amount of the previous net purchase programmes and the maximum amount of the reinvestments to verify that the latter cannot compensate the former.

area disequilibria is more severe. The ECB's compromise of adopting moderate policy initiatives to reduce the inflation rate without causing a new economic recession risk leading to a long stagflation in the euro area.

Figure 2: Interest rate term structure for the euro area



Source: ECB.
Notes: In the yield curves, only AAA rated bonds are considered.

Our considerations imply that, during the second quarter of 2022, the ECB abandoned its forward guidance to strengthen its discretionary power in pursuing an ambiguous and possibly ineffective compromise. As it will become clearer in Section 5, this choice reached its highest level in the TPI's design. Therefore, as we will stress in the "Conclusion" part, one of the main questions of the euro area monetary policy becomes: can a technocratic body, such as a central bank, keep its full independence and – at the same time – act in a discretionary way with only ex-post controls and without an ex-ante declared and reasonable strategy?

Before addressing this question on a sound basis many qualifications are needed. First, we should discuss if the ECB had been in the condition to avoid its current policy constraints. In the following Section, we offer a positive answer by maintaining that, in the last quarter of 2021, it would have been effective to implement an alternative monetary policy in the euro area: instead of postponing the implementation of the so-called "appropriate sequence," – that is, the end of the unconventional net purchase programmes, first, and increases in the policy interest rates only later – the ECB could have started with increases in policy interest rates to control inflation in the euro area. The ECB did not follow this alternative sequence. Our discussion is thus counterfactual and, as such, not conclusive. As illustrated in Section 4, it remains that the implementation of the appropriate sequence in 2022 has left the ECB without efficient alternatives to the current compromise. Apparently, the introduction of TPI could weaken the ECB's constraints. However, in Section 5, we maintain that this is not the case due to the poor incentive design and the other drawbacks characterising this new tool.

3. IS THE ECB'S SEQUENCE APPROPRIATE?

It is well known that, differently from the Fed, the ECB has fixed negative policy interest rates. This choice came largely before the pandemic shock and even before the adoption of unconventional monetary policies. In fact, in June 2014, the ECB decreased the interest rate on the main refinancing operations to 0.15% and that on the deposit facility to – 0.10%; instead, the implementation of the first TLTROs and the launch of quantitative easing can be dated, respectively, to September and October of the same year in parallel with a further reduction of the interest rates on the main refinancing operations to 0.05% and on the deposit facility to – 0.30%. Then, the ECB's decision to extend the quantitative easing to the purchase of government bonds (mid-January 2015) paved the way for a new combination of a strengthened APP and an innovative TLTRO. In spring 2016, the ECB reached the zero-lower bound (ZLB) for the standard refinancing operations (interest rate equal to 0.00%) and fixed the rate on deposit facility to –0.40%; mainly, it decided to refinance the most virtuous banks in terms of past and future lending policy at a negative interest rate equal to that on deposit facility (that is, – 0.40%). Before the pandemic shock, a final reduction of 10 bps in the interest rate on the deposit facility and, therefore, on the refinancing cost for the most virtuous banks was introduced at the unexpected restart of the APP's programme in fall 2019.[6]

The ECB's negative interest rate policy was maintained during the pandemic. In the two meetings of March 2020, there was a one-time expansion of the APP and the launch of the PEPP. Moreover, in the first meeting, the ECB decided to strengthen the TLTROIII starting in June 2020 by offering, for a limited period, refinancing to banks at interest rates of – 0.25%, reduced to – 0.75% for the most virtuous banks; and, to fill the gap from March to June, the ECB restarted a temporary Longer-Term Refinancing Operations (LTRO) with full allotment at a fixed interest rate of – 0.50%.[7] Then, at the end April, the conditions of the TLTROIII's specific refinancing were further eased in the sense that interest rates were lowered, respectively, to – 0.50% and to – 1.00%; moreover, the ECB decided to launch a new programme of Pandemic Emergency Longer-Term Refinancing Operations (PELTRO) fixing interest rates at – 0.25%. Finally, in December 2020, the ECB strengthened its ultra-expansionary monetary policy by reaching a peak in the PEPP's envelope; moreover, it extended the period covered by the TLTROIII's specific refinancing conditions and by the PELTRO.

The monetary strategy which the ECB followed from mid-2014 to the end of 2020 stresses that negative interest rates were a crucial component in the set of tools put in place to support the "real" economy of the euro area.[8] The negative interest rates on deposit facilities aimed at disincentivising banks to hoard the liquidity offered by the ECB through the banking channel in banking reserves instead of transmitting it to the economic system. This "incentive design" was improved when the negative interest rates on deposit facilities were coupled with the negative interest rates on banks' refinancing using the TLTROIII, the new LTRO and the PELTRO. Moreover, the negative interest rates efficiently interacted with other unconventional monetary policy tools (specifically, APPs and PEPP) because the best response to the pandemic shock was a policy mix aimed at avoiding the bankruptcy of firms and financial intermediaries with liquidity problems but structurally solid and at sustaining the aggregate demand through income transfers in favour of workers and self-employees temporarily at the margin of the labour market and households on the brink of poverty. Besides launching a fiscal capacity at the European level (e.g. the temporary Support to mitigate Unemployment Risks in an Emergency:

[6] It must be recalled that a part of the excess deposits held by banks at the ECB was exempted from the negative interest rate on the basis of a two-tier system.

[7] This temporary programme reproduced the initiative taken by the ECB at the end of 2011 – beginning of 2012.

[8] Note that the ECB's monetary policy was continued substantially unchanged from December 2020 to September 2021.

SURE), this policy mix required monetary policy to lower the probability of a credit crunch and allowed for expansionary national fiscal policies even in Member States otherwise without fiscal capacity.

Since the late summer of 2021, the strengthening of a temporary central fiscal capacity thanks to the actual start of the Next Generation – EU (NGEU) and its main programme (the Recovery and Resilience Facility: RRF) made the design of the EU's efficient policy mix more complex. In the medium-long term, the successful implementation of the RRF will strongly support the EU's development by improving the potential output of the Member States thanks to national reforms and public and private investments in the "green" transition, digital innovation, and human resources. However, although substantial, the amount of the European funds cannot fully finance this set of reforms and investments; significant support from national resources is also needed. Hence, the success of the RRF requires that even the most fragile euro area countries be able to reproduce a national expansionary fiscal policy in a medium-long term horizon; and it is well known that this possibility depends on an adequate size of the ECB's public sector net asset purchase programmes. On the other hand, in the short term, the implementation of the RRF stimulates the aggregate demand but implies a restructuring in the national production processes with a temporary negative impact on aggregate supply. Hence, there is a high risk that the NGEU will trigger short-term excessive price dynamics that should be put under control by a prudent monetary policy.

These considerations highlight that the evolution of the policy mix, efficiently designed by the European institutions in response to the pandemic shock and based on a central fiscal capacity, determines *per se* a trade-off in monetary policy. The ECB is challenged to harmonise a short-term prudent monetary policy with a medium-long term expansionary monetary policy aimed at supporting expansionary national fiscal policies. This difficult trade-off was anticipated by the unexpected persistence of the negative impact of the pandemic on the breaks in the international value chains and on the consequent supply-side bottlenecks. Hence, it is not surprising that the euro area and the EU have suffered inflationary pressure since the second half of 2021. Moreover, at the beginning of 2022, this negative inflationary pressure was dramatically strengthened by Russia's invasion of Ukraine and the related crisis in the energy, raw materials, and food sectors. Moreover, in our perspective, the risk remains that the progress in RRF investments and the related production restructuring will shortly even contribute to high inflation rates.

The monetary strategy pursued in the euro area since the fall of 2021 stresses that the ECB has not been fully aware of the trade-off imposed by the continuation of an efficient policy mix in the EU. Confronted with growing inflationary pressure, some of the ECB Governing Council members began to recognise that it could have been appropriate to adjust the monetary policy stance, even if euro area inflation was still deemed as transitionary. However, as confirmed by President Lagarde in the press conference of mid-December 2021, there was a consensus in maintaining that the "appropriate sequence" would have been the end of PEPP's net purchases, first, the closure of APP's net purchases, as a second step, and the increase in policy interest rates as a final step. As clarified by Lane (2022), the ECB has followed a precise sequencing since September 2019: "the end date for net asset purchases is naturally earlier than the date at which it would be appropriate to raise the key policy interest rates." And Lagarde (2022) restated: "a rate hike will not occur before our net asset purchases finish."

In light of the examined trade-off, this sequence is far from appropriate because it impedes the harmonisation of a short-term prudent monetary policy with the medium-term support of national fiscal policies. The reversal of this sequence could have been more promising. In the last quarter of 2021 and the first quarter of 2022, the ECB should have pursued increases in policy interest rates to overcome their negative values. Maybe this would have been a sufficient signal to put the growing inflation pressure under control, despite the following and unexpected shock of the war in Ukraine. If this had

been the case, it would have been possible to continue the PEPP and the APP or, at least, to compensate the end of the PEPP with a substantial and long-lasting strengthening of the APP in spring 2022. Thus, the stance of the ECB's monetary policy would have been compatible with an efficient policy mix aimed at controlling inflation pressure and improving the probability of the RRF's successful implementation also through the support of national fiscal policies.

As already stressed, this hypothetically reversed sequence is counterfactual. Hence, we cannot reach conclusive implications. However, it is helpful to address two specific points:

1. a critical assessment of the reasons that the members of the Governing Council offered to justify the sequence followed by the ECB;
2. the possible drawbacks of the reversed sequence suggested here.

As affirmed by Lane (2022), the ECB's sequencing is efficient due to the constraints put by the presence of an effective lower bound (ELB) in the euro area: "if the economy is not in the shadow of the effective lower bound […], the set of policy interest rates is sufficient to deliver the inflation target"; otherwise, it is appropriate to employ "asset purchases and longer-term refinancing operations." However, Lane's affirmation applies to the case in which a decrease in policy interest rates would be required, whereas it becomes paradoxical in the opposite and currently relevant case. Analogous observations can be addressed to the analysis proposed by Schnabel (2022a). In February 2022, she maintained that the ECB's sequencing "reduces the uncertainty about how our actions will affect financing conditions and the broader economy," because the euro area price dynamics did not imply a "significant risk of inflation markedly above target over the medium term," and hence it did not require "bringing policy rates well into positive territory." However, this assessment still conceives inflation as a temporary phenomenon; and, as clarified above, it turned out to be contradicted by the ECB's own policy decisions of July 2022 and by the commitment to implement further increases in policy interest rates.[9]

The above observations do not exclude that the reversed sequencing suggested here can be subject to two severe objections. First, as recognised, the continuation in the short-medium term of the government bonds' net purchases is aimed at allowing expansionary fiscal policies to support the national implementation of the RRF. However, despite the possible beneficial impact of the increases in policy interest rates on euro area price pressure, the related policy mix appears incompatible with an inflationary scenario. Second, in this same inflationary scenario, it is still harder to justify an expansionary fiscal policy in countries with high public debt/GDP ratio that, without the support of the ECB's asset purchase programmes, would not have a positive fiscal capacity; the related policy mix appears to be subject to a moral hazard problem. The answer to these two objections cannot be, and should not be, addressed by monetary policy. In our perspective, the trade-off characterising the ECB's decisions in the euro area's current situation requires tight cooperation between monetary and fiscal policies. Hence, the ECB's net asset purchase programmes should have a medium-term limited horizon fixed by gradually replacing the expansionary national fiscal policies with a more substantial central fiscal capacity.

[9] In her recent speech at Jackson Hole (end of last August), Ms. Schnabel strengthened this commitment by affirming thar the ECB's monetary policy should increase policy interest rates to equalise aggregate demand to the decreased aggregate supply.

4. AN ASSESSMENT OF THE ECB'S CURRENT POLICY

Unlike what we recommended in the previous section, the ECB postponed any change in its monetary policy stance until March 2022; moreover, it first stopped its unconventional programmes of net asset purchases and then increased the policy interest rates. Given the adopted sequence, currently the ECB cannot do much differently from what it is doing: pursuing a risky compromise between fighting inflation and safeguarding the EU's medium-term growth, which is threatened by external shocks but is potentially fuelled by an effective utilisation of the RRF.

An in-depth and refined quantitative analysis of the euro area's current inflation process and the related ECB's monetary policy goes beyond the scope of the present paper. Here, we refer to a few descriptive indicators that offer preliminary insights supporting our claims. The following narrative is based on two steps.

Our starting step is recognising that the euro area inflation process cannot be interpreted as a temporary phenomenon only due to the contingent and decreasing bottlenecks in the global value chains triggered by a declining pandemic shock.[10] At least four points support our view. First: even if the euro area's inflation rates reached peaks (August 2022) that were unknown in most of the Member States since the 1980s (see Figure 3), the price dynamics could further increase in the next months. Second: as shown by the various components of the Harmonised Index of Consumer Prices (HICP), in the last months of 2021 and the first quarter of 2022, the euro area's price pressure was not limited to energy, but it gradually involved a large part of the economy; and this generalisation was enormously accelerated by the impact of the Russian invasion of Ukraine (see Table 1). Third, during the last twelve months, the perceived probability of registering excessive inflation rates in the next five years after five years strongly increased in the EU as well as in the US (see Figure 4);[11] moreover, the probabilities were higher (lower) in the EU than in the US concerning future inflation rates over 5% (over 4%). Fourth, as shown by the euro area and US inflation-linked swap rate dynamics (see Figure 5), long-term market-based inflation expectations accelerated their increase in 2021 and peaked in the first months of 2022.

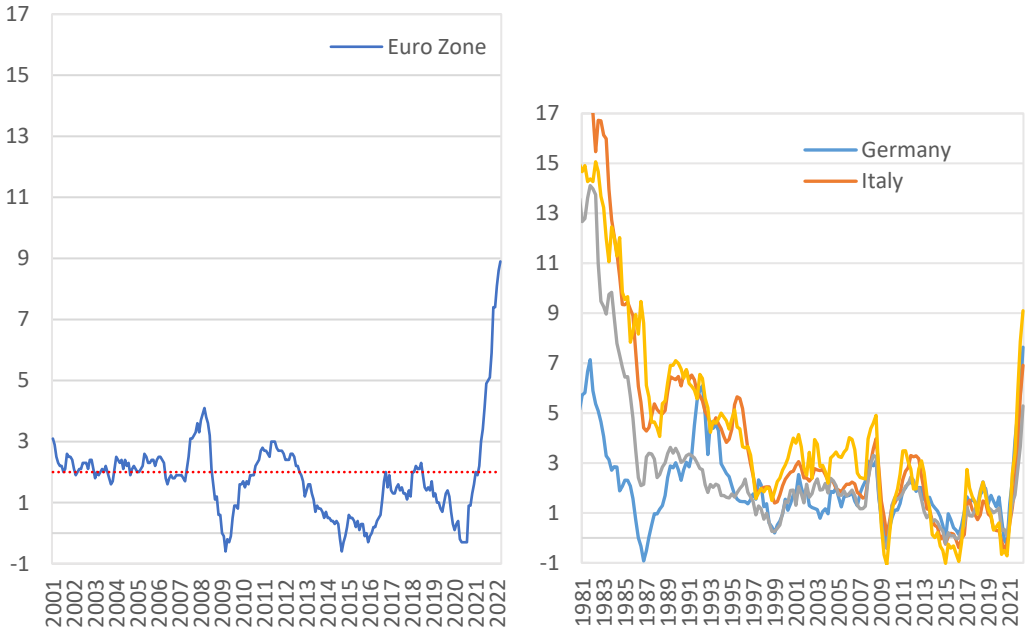
The second step of our narrative is that the non-temporary nature of the euro area's inflation dynamics would risk being accompanied by a new recession, especially if the ECB's monetary policy was unable to find a practical compromise between controlling the inflation pressure and the support for a successful implementation of the RRF. Based on the confidence indexes for the euro area's economic perspectives, the most recent surveys mirror a shared perception among the main actors that this risk is dramatically increasing.[12] In July 2022, the economic sentiment indicator (ESI) of the euro area declined for the fifth consecutive month (with a monthly decrease of 4.5 points), reaching the lowest value since February 2022 (see Figure 6). This value, comparable to that registered by the euro area in the phase of expected deflationary recession (mid-2014), hit 99 points, a value slightly below the threshold separating expansionary from recessionary forecasts. It must be added that other national surveys report a worsening in the economic sentiment of German and French households.

[10] We emphasise this point because, as already mentioned, many members of the ECB Executive Board have maintained that the excessive inflation rates in the euro area were a temporary problem still in fall 2021 and at the beginning of 2022 (see Lagarde, 2021, 2022; Lane, 2022; and Schnabel, 2021, 2022a).

[11] The probabilities are computed by Ricardo Reis. For details, see Hilscher *et al*. (2022).

[12] The ESI is a composite indicator produced by the European Commission (DG ECFIN) which tracks GDP growth. This indicator is a weighted average of the balances of replies to selected questions addressed to firms and consumers. The ESI is seasonally adjusted and scaled to a long-term mean of 100 and a standard deviation of 10. Values above 100 indicate above-average economic sentiment, and vice versa.

Figure 3: Inflation rates in the euro area and selected countries



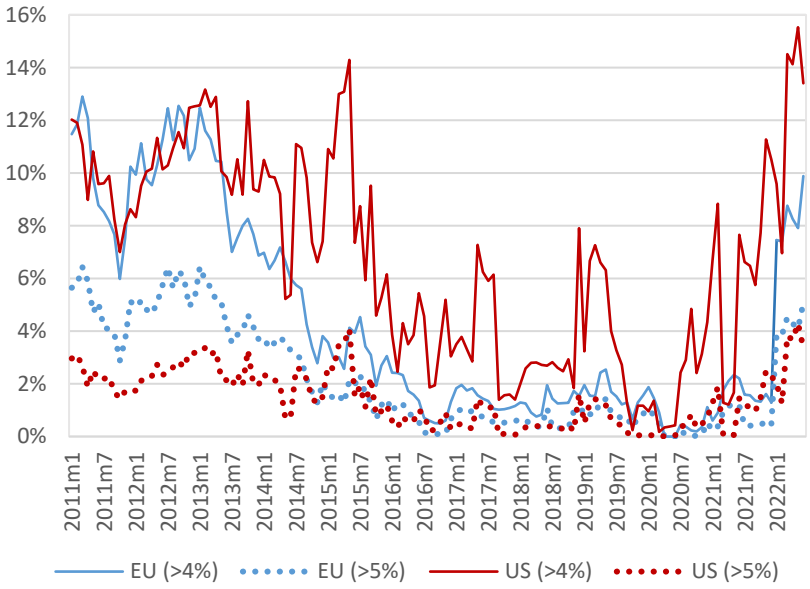
Source: Inflation for the eurozone has been obtained from ECB. Data on inflation for the four countries included in the right panel are those from OECD, which have been retrieved from FRED.

Table 1: Inflation by components (monthly averages by quarters)

Quarter	Energy	Food	Others
2021 Q1	-0.5	0.8	1.1
2021 Q2	12.0	0.0	0.9
2021 Q3	15.8	1.7	1.4
2021 Q4	25.7	2.5	2.4
2022 Q1	25.7	2.5	2.4
2022 Q2	39.5	9.1	3.7
2022 July	39.7	11.8	4.0

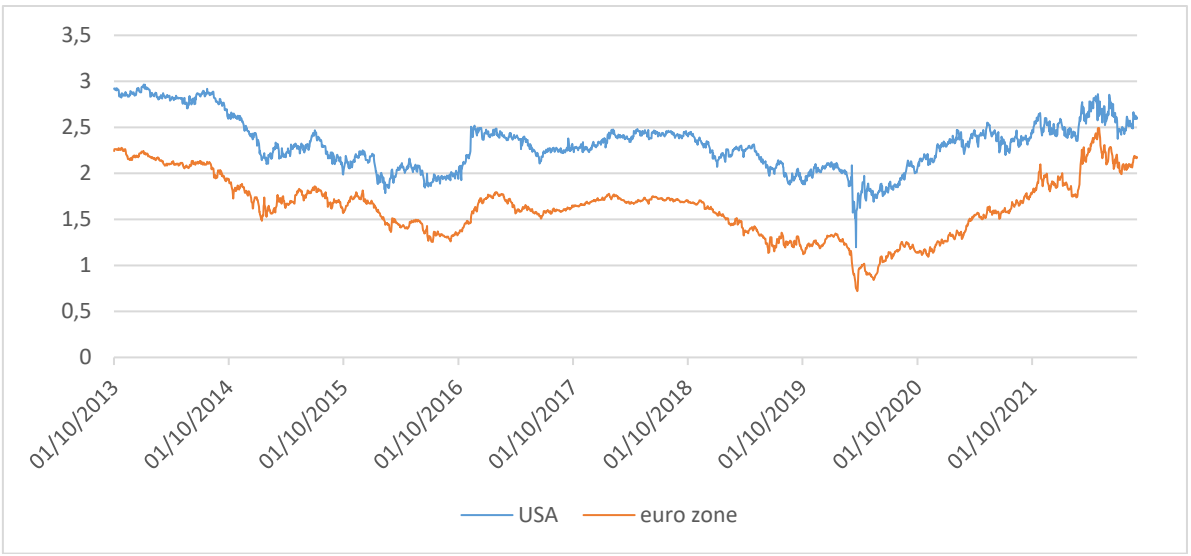
Source: Inflation by each sector for the euro zone has been obtained from ECB.

Figure 4: Probabilities of expected high long-term inflation (euro area, US)



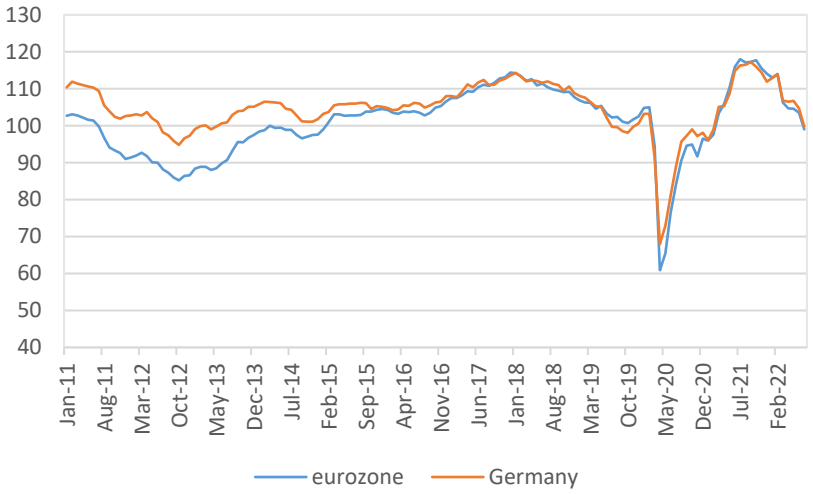
Source: Updated from Hilscher *et al*. (2022), https://personal.lse.ac.uk/reisr/disasters.html

Figure 5: Forward inflation expectation rates (5yF5y)



Source: Datastream.
Note: Inflation linked swap rates.

Figure 6: Economic Sentiment Indicator (ESI)



Source: European Commission.
Notes: Seasonally adjusted data.

Our interpretation of the previous narrative is that the current high risk of stagflation does not leave many alternatives for the ECB's monetary policy. We have stressed that, differently from the Fed, which can pursue a severe and effective monetary policy restriction, the ECB is facing a supply-led – even if generalised – inflation process that cannot be managed by monetary policy without causing a severe recession. It is also worth noting that the euro area already recorded three or four deeply negative economic phases since 2008, therefore they would be seriously affected by a new one.[13] Hence, the ECB's aim must be that of managing the inflation pressure without causing a new deep recession in the euro area. The ECB is thus constrained to follow a gradual increase in the policy interest rates and, in the meantime, to indirectly support the RRF's implementation by means of the short-term and weak tool offered by the reinvestment of redemptions from unconventional asset purchase programmes. In particular, the ECB can exploit the flexibility allowed by reinvesting the PEPP's redemptions.

[13] The US economy was instead characterised by a long expansion from the second half of 2009 to the end of 2019, interrupted by a deep but short depression in the first half of 2020 and complemented by a quick rebound. Hence, as confirmed by the low unemployment rate in the labour market, the US economy can overcome a recessionary phase without suffering serious long-term disequilibria.

5. THE ECB'S ANTI-FRAGMENTATION INSTRUMENTS

The provisional conclusions reached at the end of the previous section apparently neglect the initiative the ECB took in its July meeting: the launch of the TPI. This initiative paralleled the increase in policy interest rates. The ECB's new tool explicitly aimed at reacting to the possible consequences of the fragmentation of the euro area financial market that can derive from the end of the net asset purchase programmes in June.

It is a common view that recurrent levels of financial fragmentation have characterised the euro area since the global financial crisis and the consequent European sovereign debt and banking sector crises. Fragmentation should be measured by the dynamics of the "excessive" spread between the interest rates of two representative public or private assets with the same maturity and with other similar fundamental features. Regarding the sovereign debt crisis in the euro area, spreads typically refer to the differences between the average rate of return of the ten-year government bonds issued by a given Member State and the average rate of return of the corresponding bonds issued by the safest Member State (i.e. Germany). These differences could be fully explained by the different riskiness of the two compared bonds. In these cases, the spreads could be labelled as "normal" (as opposite to excessive) because – in principle – they would be compatible with the perfect functioning of a unified and competitive financial market. Thus, the variability of the deviations of the actual spreads from the "normal" spreads offers a theoretical definition of "excessive" spreads and a possible measure of financial market fragmentation.

The problem is that this measure is weakly operational because it is difficult to empirically compare the relative riskiness of two different assets without referring to their relative interest rates.[14] Hence, the euro area financial market fragmentation can be identified by employing a different definition: market fragmentation arises when spreads become so significant that they hinder the efficient transmission of the centralised monetary policy in the different Member States. The ECB explicitly adopts this definition. In the press conference of June 2022, President Lagarde stated that the "critical point" of market fragmentation is not determined by "specific level of yields increase or lending rates or bond spreads" but by the impediment of "monetary policy transmission […] throughout the entire euro area" (see also: Schnabel 2022b). For instance, during 2011 and 2012, the spreads between the Italian and German government bonds exceeded 500 bps. These circumstances led to a financial market fragmentation in the euro area because a unique monetary policy would have been adequate to the Italian (German) economic situation only at the cost of being too expansionary (too restrictive) towards Germany (Italy).

In a previous paper prepared for the European Parliament's Committee on Economic and Monetary Affairs (ECON), we adopted the same approach to state that the ECB's policy decisions since March 2022 have increased fragmentation in the euro area financial market (Benigno et al., 2022). Moreover, Sections 2 and 3 of the current paper have offered further support to this statement. Our argument is based on the evidence that the ECB's current monetary policy and, specifically, its "appropriate" sequence are causing asymmetrically severe binding constraints to the Member States with high public debt. Conversely, the ECB maintains that the new stance of its monetary policy does not unavoidably determine this asymmetry and the consequent market fragmentation. In the already mentioned press conference of June 2022, President Lagarde stated: "the principle is that we will not tolerate fragmentation that would impair monetary policy transmission, and we will determine based on circumstances, of countries, how and when that risk is likely to materialise, and we will prevent it." In

[14] It is obvious that interest rates cannot play, in the meantime, the role of explanatory and that of dependent variable without causing a logical failure in the analysis.

this respect, the approval of the TPI and the interaction of this new instrument with other tools already available are crucial. Hence, in the following of this section, we assess the TPI's effectiveness and its possible combination with the PEPP reinvestment, and the Outright Monetary Transactions (OMT) approved by the ECB in the summer of 2012 but never activated.

The ECB Governing Council discussed the risk of financial market fragmentation and the possible response since its announcement of the upcoming end of the PEPP's net purchases at the meeting in mid-December 2021. In presenting the ECB's "Monetary Policy Decisions", Mme Lagarde affirmed that to prevent "risks of market fragmentation, […] PEPP reinvestments can be adjusted flexibly across time, asset classes and jurisdictions at any time." This affirmation with the exact wording was repeated in the three following ECB meetings.[15] However, during the press conference of the last of these meetings (April 2022), President Lagarde added that the ECB could overcome the risk of market fragmentation by complementing the PEPP's flexible reinvestments extended until 2024 with the design of "whatever additional instrument is appropriate in order to deliver the flexibility that we believe is useful. […] We can deploy new instruments to secure monetary transmission as we move along the path of policy normalisation." Then, in the ECB's *ad hoc* but inconclusive meeting of mid-June and in the press conferences of last July, the ordering of the old and new anti-fragmentation instruments was clarified: first, the PEPP's "flexible reinvestment" allowing, for instance, the utilisation of German bond redemptions to purchase Italian government bonds; then, the new tool (TPI) created "to counter unwarranted, disorderly market dynamics"; and finally, the OMT "to deal with unwarranted impairment to transmission that are caused by redenomination risks and that are country-specific."

Preliminary descriptive evidence shows that, since last June, the ECB has utilised the flexibility of PEPP reinvestments to concentrate its aggregate gross purchases of Italian public bonds at the expense of the replacement of French and German bonds reaching maturity. At first glance, this initiative was successful because the average spreads between the Italian and German public bonds did not follow an increasing trend despite the worsening of the macroeconomic framework (energy prices) and the dramatic rise in Italy's political and institutional uncertainty due to the unexpected anticipation of the general elections at the end of September. However, this evidence is insufficient to offer an empirical check; the comparison between the size of the ECB's net purchase programmes and the rotating amount of the gross purchases of PEPP reinvestments highlights the quantitative inadequacy of the latter to handle financial instability and severe fragmentation. Moreover, as we already stated (Benigno et al., 2022), the OMT is effective as a deterrence against the redenomination risk in the euro area. However, its actual utilisation is puzzling given that the requiring country must previously undergo strong conditionality.[16] The activation of the OMT can appeal only to countries on the brink of bankruptcy. This implies that, in the current situation, the ECB's most crucial anti-fragmentation tool is the TPI.

The TPI focuses on purchasing public bonds with a residual maturity ranging from 1 to 10 years,[17] and it can be activated at the discretion of the ECB if the potential beneficiary country satisfies a few conditions. Moreover, the amount purchased is not limited by an ex-ante defined quantitative threshold but should not impact the current monetary policy. In its meeting last July, the ECB Governing Council did not offer a detailed specification of these features. However, we can elaborate

[15] In April 2022, Mme Lagarde also stated that part of "the birth certificate of PEPP was antifragmentation" and that PEPP "has proven very efficient" for this purpose.

[16] A necessary condition to have access to the OMT is that the country applying to this tool must already be enrolled in an aid programme handled by the European Stability Mechanism (ESM); and the latter will authorise the entry into that programme, only if the country commits itself to meet severe macro- and micro-economic constraints.

[17] The TPI also allows the purchase of private bonds, but this aspect can be neglected in the current analysis. Moreover, the TPI's large maturity range does not perfectly fit the purpose of easing the monetary transmission mechanism. In this respect, it is sufficient to recall that the OMT's purchases are limited to a residual maturity between 1 and 3 years to allow the efficient functioning of monetary channels.

on three fundamental aspects: the determinants of TPI's activation, its required conditionalities, and its impact on monetary policy.

The first aspect implies that the TPI's potential beneficiaries should be characterised by spreads exceeding their structural weaknesses. It means that the TPI's activation is based on those concepts of "normal" and "excessive" spreads that we disregarded above as too ambiguous. The second aspect refers to conditionalities that can be reduced to three points: each TPI beneficiary should not be subject to a EU procedure; it should be compliant with the commitments undertaken with the Recovery and Resilience Facility (RRF) and, therefore, with the European Semester (see Buti and Messori, 2020); and it should pass the scrutiny of European and international institutions on the sustainability of its public debt. Finally, the third aspect requires that the activation of the TPI does not lead to any increase in the ECB's balance sheet size.

At first glance, these three aspects bring the TPI close to the OMT (see Bini Smaghi, 2022). The mechanism and the incentive designs of these two instruments are instead different, if not opposite. The ECB is free to implement and suspend both programmes. However, the OMT can be activated by the ECB only if a country makes a formal preventive request to utilise this tool and is already enrolled in a European aid programme. Conversely, the ECB autonomously activates the TPI through a double discretionary decision: first, the poor-founded assessment that the spreads affecting the potential beneficiary countries exceed their structural riskiness; second, the sharing of other European institutions' scrutiny on the sustainability of the potential beneficiaries' public debt. The latter decision is also constrained by the compliance with the EU procedures and the RRF's commitments. However, for obvious reasons, these additional conditions will become binding only at the end of 2023 and 2024, respectively, whereas the upcoming risk of stagflation requires that the TPI be immediately operative.

The invariance in the size of the ECB's balance sheet justifies why the analysed weaknesses of the TPI's mechanism undermine its effectiveness. As in the case of the OMT, the TPI's cogency depends on its ability to credibly present the threat that the ECB is ready to surprise markets investors. However, the OMT's threat is credible as it is based on clear rules not influenceable by the market and is, thus, compatible with the ECB's "forward guidance"; instead, the TPI's threat is based on the ECB's discretion and its consequent abandonment of any "forward guidance." Moreover, unlike the OMT, the TPI's incentive design cannot be based on an unlimited purchase of public bonds. As we already stressed, TPI does not only require a sterilisation of purchases in terms of the monetary policy stance, but it should leave the ECB's balance sheet unchanged. This means that any purchase of public bonds must be compensated by a corresponding sale of other assets already held by the ECB. Private investors are aware that the amount of these last assets is limited and that the saleable portion of some of them is constrained. Hence, whereas the OMT makes any "short position" based on the redenomination risk a losing bet, the TPI can incentivise the financial investment aimed at widening fragmentation in the euro area financial market.

6. CONCLUSION

Our analysis has shown that the challenge currently faced by the ECB is hard to handle: the euro area monetary policy should be able to put supply-led inflation pressure under control without triggering a recessionary trend fed by the combination of various adverse exogenous shocks. Our proposed thesis is that a possible way to achieve this difficult result, thus avoiding the incoming stagflation in the euro area, would have been to increase policy interest rates in the second half of 2021 and the first half of 2022 and to postpone the end of the net asset purchase programmes. This sequence would have allowed for the reproduction, in a different economic phase and with a consequent different combination of the policy tools, of that policy mix that was so effective in responding to the pandemic shock: a well-balanced combination of monetary policy and national and centralised fiscal policies.

As it is well known, the ECB followed a different sequencing: it ended the net asset purchase programmes between March and June 2022, and it started to increase its policy rates in July 2022. Not surprisingly, from our point of view, this sequencing has increased the risk of euro area financial market fragmentation as a signal of the rising risk of stagflation. In reacting to this trend, the ECB Governing Council decided to launch an anti-fragmentation tool: the TPI. However, we have shown that this new tool can lead to counter-productive results.

Here it would be useless to further discuss the TPI's future effectiveness. We should first wait for its implementation and its consequent actual results. Unfortunately, the incoming euro area stagflation will urge the TPI's activation in the near future. This stagflation will likely cause fragmentation in the financial market, which, in turn, will hinder an efficient transmission of the ECB's monetary policy through the usual channels. In that situation, it will become easy to check the strength or the weakness of the TPI's incentive designs. To conclude this paper, it is instead important to point out that, independently of the future assessment of the TPI's implementation, this mechanism could have a negative implication in terms of the ECB's accountability.

If our analysis is well-founded, the TPI represents a decisive step toward the ECB abandoning any forward guidance to maximise its ex-ante discretionary power. This implication would mark a break in the ECB's governance. The approval of the LTRO, the launch of the OMT, the recourse to the various forms of TLTRO and to the net asset purchase programmes were compliant with an ex-ante transparent set of rules. The LTRO was determined by a refinancing supply curve with an infinite elasticity at a given policy interest rate. The possible activation of the OMT in favour of a given Member State was subordinated to its preventive enrolment in a European aid programme. The TLTRO's refinancing conditions changed through time but were unambiguously anchored to banks' lending activities; and APP and PEPP were constrained to specific envelopes and predetermined allocations. Thus, a third party entitled to the ex-post control of the ECB's compliance to its commitments and mandate (as specified by the European Treaties) can utilise these ex-ante rules as an objective term of reference for its verification process. Conversely, the TPI's activation would depend on a decision taken by the ECB in a discretionary way. Hence, a third party would lose any objective term of reference and should base its ex-post control on arbitrary judgments. Thus, the effectiveness of this control would be dramatically weakened.

This consideration implies the return to a fundamental question. Can a technocratic body, such as a central bank, maintain its independence and – at the same time – act in an ex-ante discretionary way with only ex-post controls? If we are right in maintaining that, in the case of the TPI's activation, the ex-post controls would be deprived of any objective reference, it will not be easy to answer this question. The point can be illustrated by referring to the series of "Monetary Dialogue papers" requested by the ECON Committee in preparation for the regular hearings of the ECB's President at the European

Parliament. In the case of the TPI, this procedure would lose a large part of its interest because the consequent hearings would risk being reduced to a confrontation of convergent or divergent subjective assessments on some discretionary action already achieved.

This example allows for a more general observation. Let us assume that most of the members of the European Parliament in charge of ex-post control of the ECB's actions have a dissenting position towards the monetary policy strategy implemented through the TPI. Given the lack of any objective term of reference to assess the roots of this dissenting position, it would become highly controversial to impose an ex-post drastic revision of the ECB's strategy and the cancellation of the TPI's impact. Given the impossibility to check if the related TPI intervention deviated from an ECB's ex-ante commitment, the solution of this case would very likely lead to a lose-lose equilibrium: by stating the predominance of the European Parliament's position, the ECB's independence would be compromised; conversely, by stating the predominance of the ECB's position, the central bank's independence would be equivalent to a lack of accountability.

Our analysis leads to an unsolved trilemma. It shows that, in the euro area, it seems impossible to design an independent central bank which can act in an ex-ante discretionary way thanks to a given policy tool, and which is thus accountable only thanks to ex-post controls. Our previous analysis stresses that a more effective exit from this unsolvable trilemma is to abandon the ECB's ex-ante discretion strategy and re-establish ex-ante rules, independently decided and announced by the ECB but compliant with the central bank's mandate as specified by the Treaties. The implication is that the TPI should be conceived as an unfortunate bump in the ECB's road, to be confined to the background and never implemented. Instead, the ex-ante new rules should be founded on an effective combination of the stance of the ECB's monetary policy and those EU centralised and national fiscal policies needed to respond to the stagflation.

REFERENCES

- Benigno, P.P., Canofari, P., Di Bartolomeo, G., and Messori, M. (2022), "Stagflation and fragmentation: the euro area at the crossroads", Publication for the committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg, June. https://www.europarl.europa.eu/cmsdata/249489/LUISS_CN.pdf
- Bini Smaghi, L. (2022), "Scudo anti-spread e politica monetaria", SEP Policy Brief, August, n. 18. https://sep.luiss.it/wp-content/uploads/2022/08/PB18.22-Scudo-anti-spread-e-politica-monetaria..pdf
- Buti, M., and Messori, M. (2020), "Next Generation – EU': An interpretative guide", *SEP Policy Brief*, June, n. 29. https://iris.luiss.it/retrieve/handle/11385/200512/108119/Next%20Generation%20EU%20-%20English.pdf
- Hilscher, J., Raviv, A., and Reis, R. (2022). "How Likely is an Inflation Disaster?" *CEPR discussion paper*, No. 17244, April. Data updates at: https://personal.lse.ac.uk/reisr/disasters.html.
- Lagarde, C. (2021), "Commitment and Persistence: Monetary Policy in the Economic Recovery", in *From Recovery to Strength*, 31st Frankfurt European Banking Congress, Frankfurt am Main, 19 November. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp211119~3749d3556c.en.html
- Lagarde, C. (2022), "Introductory Statement," *Hearing of the Committee on Economic and Monetary Affairs of the European Parliament*, Frankfurt am Main, 7 February. https://www.europarl.europa.eu/cmsdata/245081/1249437-2_EN.pdf
- Lane, P.R. (2022), "The Monetary Policy Strategy of the ECB: The Playbook for Monetary Policy decisions", speech at the Hertie School, Berlin, 2 March. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220302~8031458eab.en.html
- Schnabel, I. (2021), "Reflation, not Stagflation", Event organised by Goldman Sachs, Frankfurt am Main, 17 November. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp211117~78f0a1f435.en.html
- Schnabel, I. (2022a), "Finding the Right Sequence", Speech at the First Annual Bank of England Agenda for Research (BEAR), Frankfurt am Main, 24 February. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220224~232cb567cd.en.html
- Schnabel, I. (2022b), "United in diversity – Challenges for monetary policy in a currency union", Commencement speech to the graduates of the Master Program in Money, Banking, Finance and Insurance, Panthéon-Sorbonne University, Paris, 14 June. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220614~67eda62c44.en.html

The ECB's monetary tightening: a belated start under uncertainty

Zsolt DARVAS, Catarina MARTINS

Abstract

This paper contrasts macroeconomic developments and monetary policy measures of the European Central Bank with the Federal Reserve, Bank of England, and Bank of Japan, assesses the ECB policy errors that occurred in the last year, and the appropriateness of the current monetary policy stance of the ECB.

This paper was provided by the Policy Department for Economic, Scientific and Quality of Life Policies at the request of the Committee on Economic and Monetary Affairs (ECON) ahead of the Monetary Dialogue with the ECB President on 26 September 2022.

CONTENTS

LIST OF ABBREVIATIONS

APP	Asset purchase programme
CPI	Consumer price index
ECB	European Central Bank
GDP	Gross domestic product
HICP	Harmonised index of consumer prices
PCE	Private consumption expenditures
PEPP	Pandemic emergency purchase programme
TLTRO	Targeted longer-term refinancing operations
TPI	Transmission protection instrument
UK	United Kingdom
US	United States

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EXECUTIVE SUMMARY

- **Inflation pressures emerged in the United States (US) and the United Kingdom (UK) earlier than in the euro area**, while there is hardly any pressure in Japan. Inflation in the euro area mainly results from supply shocks, while in the US and UK there is a strong demand component. The European Central Bank (ECB) raised interest rates some months after the Bank of England and Federal Reserve, which is in line with the macroeconomic differences. Nevertheless, **all three central banks have tightened belatedly**.
- Even if inflation is primarily supply-driven in the euro area, it might result in persistent medium-term inflation. **A central bank with a price stability mandate should end its expansionary monetary policy when inflation moves significantly above target.** The question is the ultimate value of the central bank interest rate.
- No forecasters predicted a strong and long-lasting increase in euro area inflation in late 2021, nor the energy supply problems resulting from Russia's invasion of Ukraine. **It would be unfair to blame the ECB for not raising rates already in 2021**. However, our analysis suggests **the ECB made mistakes** at its December 2021 monetary policy meeting, which have been corrected only slowly:
    - The **claim that monetary accommodation was still needed** when inflation was well above target and rising, the growth outlook was strong, and risks were balanced, **was not well justified** in our view.
    - **The forward guidance on the level of interest rates was data-dependent, but another condition for an interest rate increase was the termination of asset purchase programme (APP) net purchases, which was date-dependent.** Forward guidance on asset purchases should have been data-dependent as well.
    - The **forward guidance on APP net purchases was extended beyond October 2022** at a time of high and rising inflation and strong growth.
    - Interest rate forward guidance put **too much emphasis on ECB staff forecasts**, even though staff forecasts had a poor track record in the 5-year period prior to the COVID-19 pandemic, when no major shock hit the economy.
    - Even though the July 2021 monetary policy strategy review underlined the importance of **owner-occupied housing cost inflation**, this was not taken into account in the inflation forecast. Including it could have brought the December 2021 inflation forecast above 2% in 2023 and 2024.
    - Following the planned end of pandemic emergency purchase programme (**PEPP**) net purchases in March 2022, **APP** net purchases were to increase from April, suggesting a kind of **compensation**, even though the two instruments had different goals.
    - **Fears of market fragmentation** might have partially motivated the extension of APP asset purchases; instead, it would have been preferable to introduce earlier a transmission protection instrument.
- Looking ahead, many factors suggest slowing economic activity, and a recession is likely in case of an eventual complete stop in Russian gas supply. We **recommend a gradual pace of interest rate hikes** until the economic fallout from the war becomes observable.

- We recommend the ECB to ease the adverse inflationary impact of energy-supply bottlenecks at a time of monetary tightening by designing a **special longer-term refinancing operation** aimed at providing favourable conditions for investments in **energy** efficiency improvements and clean energy generation.

1. INTRODUCTION

Euro area inflation reached 9.1% in August 2022, well above the European Central Bank's (ECB's) 2% target. Inflation is similarly high in the United Kingdom (UK) and United States (US), but much lower in Japan. Inflation rates well above the target raises two important questions. First, have the ECB, the Bank of England and the Federal Reserve made mistakes allowing inflation to accelerate so much, for instance by reacting belatedly and insufficiently so far? Even if one concludes, with the benefit of hindsight, that central banks acted belatedly, should they compensate by increasing interest rates fast or would a more gradual approach be preferable?

Monetary conditions were very expansionary during the pandemic and the current 0.75% ECB deposit facility interest rate is still expansionary. A central bank with a price stability mandate should end an expansionary monetary policy when inflation moves significantly above target, even if inflation is primarily supply-driven and monetary policy can best address demand shocks and influences the economy with a time lag. The issues to consider are, then, the level to which the policy rates should be raised, its timeframe, as well as the modalities of the reduction of ECB balance sheet. But a mix of factors complicated the ECB's task to take decisions to address inflation:

- the recovery of euro area private demand from the COVID-19 pandemic has been incomplete and inferior to the US and the UK;
- wage growth has hardly picked up in the euro area, in contrast to the US and the UK;
- core inflation (which does not include energy and food) reached 4.3% in August 2022, suggesting a broad-based inflation pressure, yet core inflation increased to a higher level in the US and the UK than in the euro area;
- the economic consequences of the Russian invasion of Ukraine have already started to weaken the euro area economy;
- the energy price shock (which is a supply shock) is much stronger in the euro area than in the US and the UK;
- energy supply shortages (in case of a complete stop in Russian gas supply) might generate a recession in the euro area, while the US and the UK would not face such shortages;
- financial markets and professional forecasters expect 2.1% euro area inflation in 2024 and around 2% inflation in later years. But this is possibly because these forecasters expect the ECB to take appropriate measures to control inflation, or they expect the current inflation shock to be temporary, or they believe high inflation without accelerated wage growth will depress demand;
- 3-year ahead inflation expectations by consumers increased, on average, from 3% in early 2021 to 4.7% in July 2022, thus these expectations are back to where they were in April 2020;
- Bottlenecks in the supply of various materials, components and food resulting from the war might persist and intensify.

The goal of this paper is to compare economic environments and monetary policy decisions over the past year in the euro area, the United States, the United Kingdom and Japan, to assess if the ECB made policy errors in the last year, and to make recommendations for the conduct of ECB monetary policy.

2. MONETARY POLICY AND MACROECONOMIC DEVELOPMENTS

2.1. Differences in monetary tightening by four major central banks

The four main advanced economies' central banks adopted different strategies for their monetary policy (Table 1). The Bank of England was the first to start raising rates, followed by the Federal Reserve, and both of these central banks raised rates a few times now. In contrast, the ECB's first rate increase was in July 2022 which brought the deposit facility interest rate from negative to zero, followed by an increase to 0.75% in September. The Bank of Japan has not yet started to raise rates.

On the balance sheet side, the three central banks that raised policy rates so far have previously stopped net asset purchases. The ECB is following a full reinvestment policy, which means that it will reinvest maturing asset holdings at least until the end of 2024 in the case of the pandemic emergency purchase programme (PEPP) and for "*an extended period of time past the date when it starts raising the key ECB interest rates*" in the case of the asset purchase programme (APP). The Bank of England and Federal Reserve, instead, announced that they will gradually reduce their monetary policy holdings.

Table 1: Monetary policy choices after the COVID-19 pandemic up to 8 September 2022

	Bank of England	Federal Reserve	European Central Bank	Bank of Japan
Main interest rate	Since 16 Dec 2022: Bank rate was raised 6 times from 0.1% to 1.75%	Since 16 March 2022: Fed funds target range was raised 4 times from 0%-0.25% to 2.25%-2.5%	27 July 2022: Deposit Facility Rate raised from -0.5% to 0% 8 September 2022: deposit rate raised to 0.75%	The Policy-Rate Balance remains at a -0.1%.
Asset purchases	Net asset purchases stopped in November 2020. Reduction of holdings from February 2022.	End of net asset purchases in early March 2022. Reduction of Fed holdings from beginning June 2022.	End of net asset purchases by 1 July 2022 (end of PEPP in end March 2022). Still keeping size of balance sheet with full reinvestment policy.	Reduction in commercial paper and corporate bond purchases (from April 2022), while continue buying other securities.
Other measures			The special conditions applicable under TLTRO III ended on 23 June 2022	

Source: ECB, Bank of England, Federal Reserve and Bank of Japan official websites.

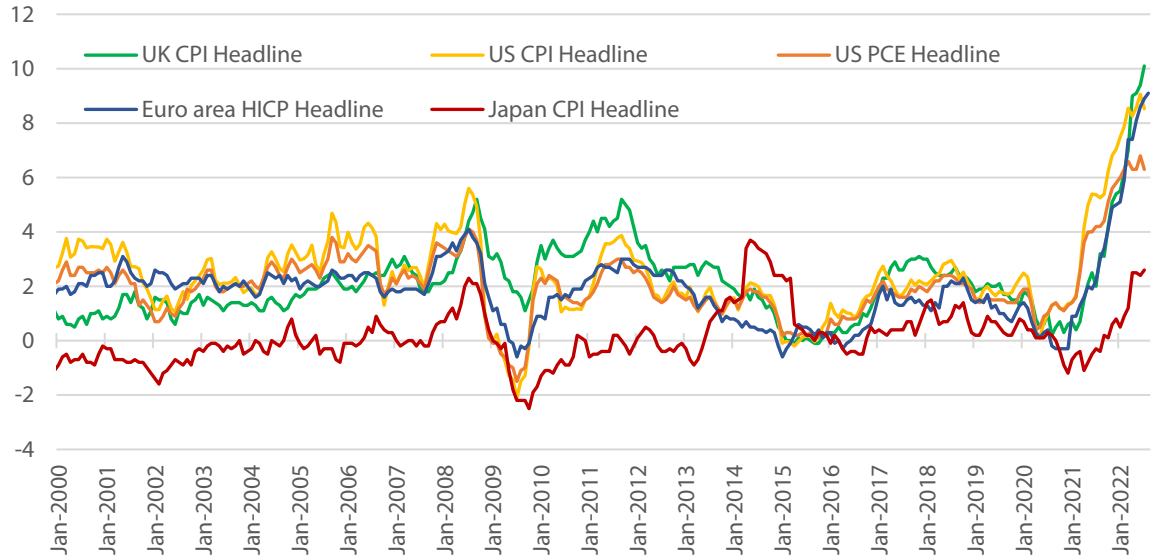
2.2. Inflation dynamics

Before the global rise in inflation since 2021, the main narrative concerning inflation and interest rates was "low for long", arguing for the influence of structural reasons that keep real interest rates and inflation low. The situation has dramatically changed during 2021. Among advanced countries, inflation pressures emerged first in the United States in spring 2021, related to the recovery of the US economy and the massive fiscal stimulus that first President Trump and then President Biden

implemented, while supply disruptions due to the COVID-19 pandemic resulted in shortages of key inputs.

Along with the global recovery from the COVID-19 pandemic, there was an increase in demand not matched by the supply in certain markets. This resulted in an increase in commodity prices in 2021. As the Russia's threat to invade Ukraine intensified during 2021, and especially after the invasion in February 2022, the increase of energy prices accelerated. Headline consumer price inflation reached 9-10% in the US, UK and euro area, though the increase of US private consumption deflator was slightly less (Figure 1)[1]. In Japan, the acceleration of inflation started even later, and the latest (July 2022) inflation rate was at a much lower level, 2.4%.

Figure 1: All items consumer price inflation (percent change compared to the same month of the previous year)



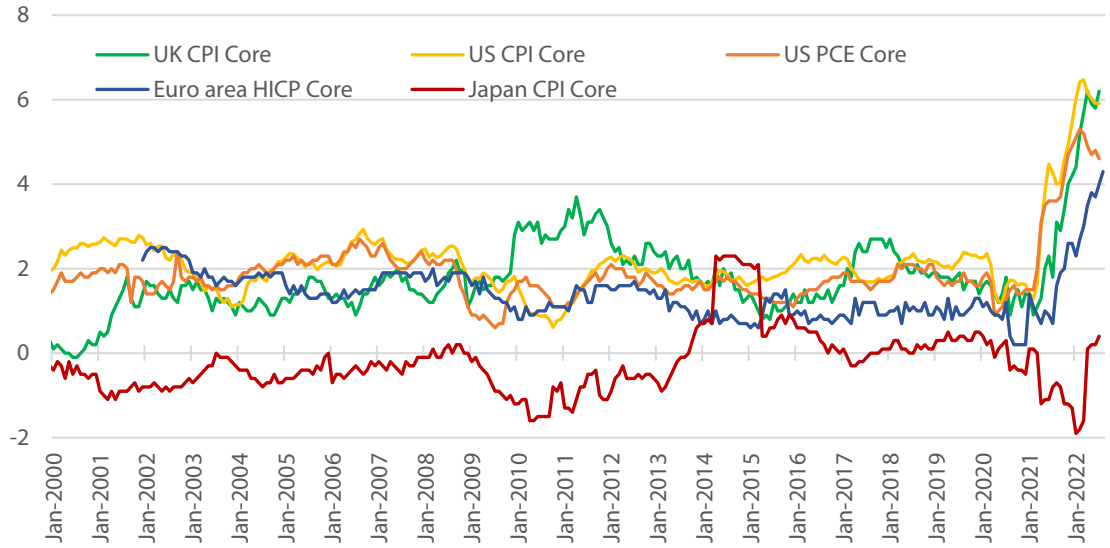
Source: FRED and OECD (US), Eurostat (euro area), ONS (UK), e-Stat (Japan).

Notes: CPI: consumer price index; HICP: harmonised index of consumer prices; PCE: price index of private consumption expenditures. The last observation is August 2022 for the euro area and July 2022 for the three countries.

The differences in inflation dynamics are even more visible in core inflation, which is the inflation rate excluding the volatile energy and food price inflation. The US core consumer price inflation started to increase in spring 2021 and reached 6% (5% for PCE). In the UK, core inflation started to rise a few months later than in the US and has similarity reached 6%. In the euro area, core inflation picked up even later and surpassed 2% only in November 2021. Still, by August 2022, it reached 4.3%. In Japan, core inflation just turned to positive in summer 2022.

[1] The Federal Reserve inflation target indicator is the price deflator of private consumption expenditures (PCE), not the consumer price index (CPI). There is a persistent gap between these two price indicators (Darvas and Martins, 2022). We report both PCE and CPI in Figure 1 and Figure 2, because CPI is more comparable with euro area, UK and Japanese data, but it is also essential to show the index targeted by the Federal Reserve.

Figure 2: Core consumer price inflation (percent change compared to the same month of the previous year)

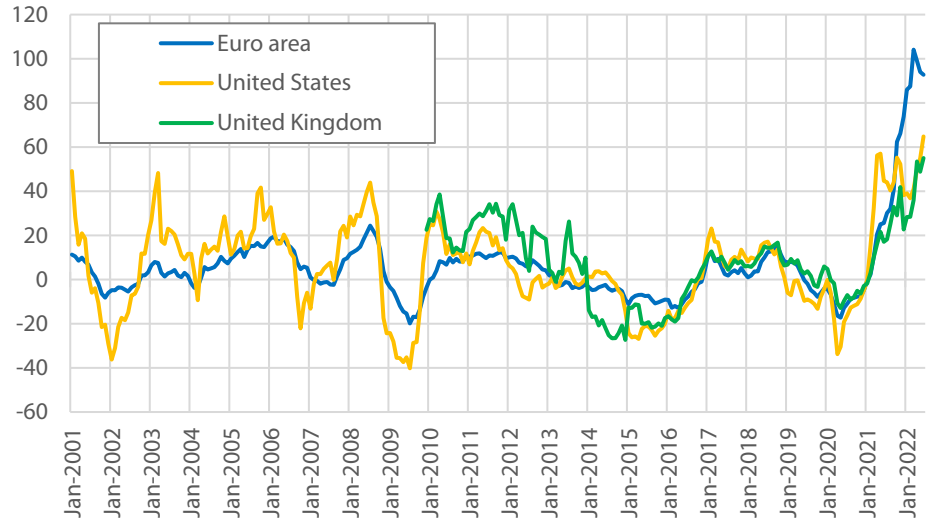


Source: FRED and OECD (US), Eurostat (EA), ONS (UK), e-Stat (JP).

Notes: CPI: consumer price index; HICP: harmonised index of consumer prices; PCE: price index of private consumption expenditures. The last observation is August 2022 for the euro area and July 2022 for the three countries.

Consumer price developments were influenced by the size of the energy price shock, which differed across the four economic areas. Figure 3 reports energy producers' price inflation, which reflects the energy price changes the companies faced. In the past, euro area and US energy producer price inflation tended to move in the same direction, reflecting common global movements in energy prices, even though US inflation was more volatile. In 2022, energy producer prices jumped to much higher levels in the euro area than in the US and the UK. The updated estimates of Venditti and Veronese (2020), presented by Lane (2022), show that the increase in oil prices in 2022 is almost entirely driven by the supply side, while the decline in oil prices was predominantly driven by demand after February 2020, when the spread of COVID-19 virus was declared a global pandemic.

Figure 3: Energy producer price inflation (percent change compared to the same month of the previous year)



Source: OECD Producer Prices dataset.

Notes: The OECD dataset does not include Japan.

Thus, inflation increased earlier and core inflation increased to a higher level in the United States and the United Kingdom than in the euro area, while the 2022 energy price shock (a supply shock) is the highest in the euro area. Japan has the lowest inflation pressure among the four economic areas. The different timing and magnitude of central bank monetary tightening is in line with these differences.

2.3. Inflation forecasts and expectations

The magnitude of inflation increase was unexpected by international organisations, professional forecasters and financial markets. The IMF's October 2021 World Economic Outlook argued that "*for the most part, price pressures are expected to subside in 2022*" and predicted a deceleration of consumer price inflation in 2022 in the United States and the euro area and a small acceleration in the United Kingdom in 2022, with a deceleration in 2023 (Table 2). A month later, the November 2021 European Commission forecast predicted similar tendencies with slightly higher, 2.2%, euro area inflation in 2022. In December 2021, the Economic Outlook of the OECD foresaw 2.7% inflation in the euro area, to be followed by less than 2% inflation in 2023.

Table 2: Inflation forecasts by three institutions made between October-December 2021 (percent per year)

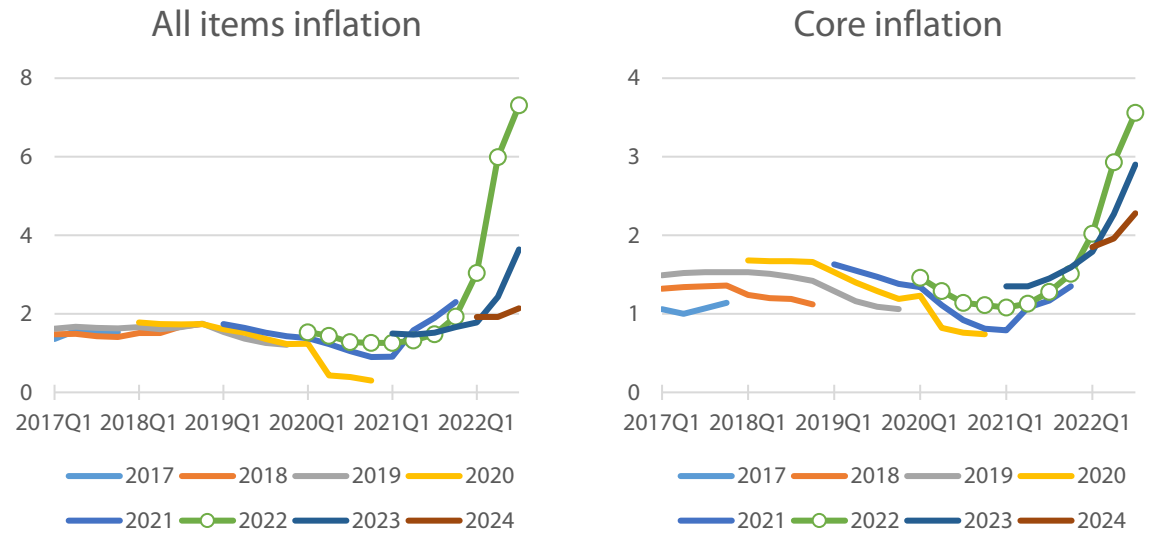
	IMF (October 2021 estimate)			European Commission (November 2021 estimate)			OECD (December 2021 estimate)		
	2021	**2022**	**2023**	**2021**	**2022**	**2023**	**2021**	**2022**	**2023**
United States	4.3	3.5	2.7	4.3	3.3	2.2	3.9	4.4	2.5
United Kingdom	2.2	2.6	2.0	2.4	3.2	2.2	2.4	4.4	2.4
Euro area	2.2	1.7	1.4	2.4	2.2	1.4	2.4	2.7	1.8
Japan	-0.2	0.5	0.7	-0.5	0.2	0.4	-0.2	0.8	0.8

Source: IMF World Economic Outlook October 2021, European Commission's European Economic Forecast Autumn 2022 (published in November 2021), OECD Economic Outlook December 2021.

Private professional forecasters did no better in predicting the 2022 huge inflation surge. In the beginning of October 2021 (2021Q4 round of the survey), on average, over 50 professional forecasters predicted 1.9% all items inflation for 2022 in the euro area (left panel of Figure 4). In 2022Q1, the forecast for 2022 was raised to 3.0%, which was subsequently revised to over 7% by 2022Q3. Core inflation predictions reflect similar tendencies, even though, naturally, at lower levels (right panel of Figure 4).

Looking ahead, it is also notable that professional forecasters expect a significant deceleration of both all items and core inflation over the next two year, falling to 2.1% in 2024, which is almost equal the ECB's 2% inflation target.

Figure 4: Inflation expectations by professional forecasters (percent)



Source: ECB Survey of Professional Forecasters.

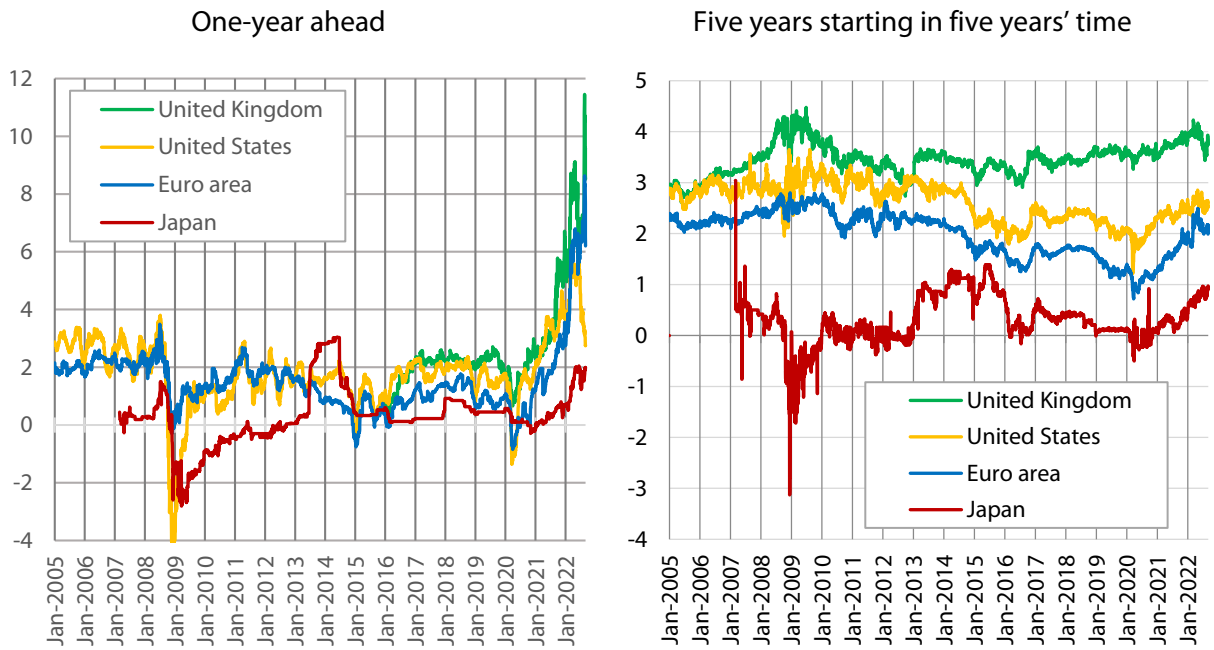
Notes: The Survey of Professional Forecasters is conducted regularly around beginning of January, April, July and October, respectively, for the Q1, Q2, Q3 and Q4 results, that are published towards the end of each of the months when the survey is conducted.

Market-based expectations show similar patterns to the forecasts of professional forecasters (left panel of Figure 5). For the euro area, one-year ahead inflation expectations were below 3% up to mid-December 2021. Such expectations increased to about 3.5% by mid-February 2022, and there was a more significant jump after the start of the Russian invasion of Ukraine from late February 2022. By mid-March, the one-year ahead inflation expectations in the euro area exceeded 6%.

The left panel of Figure 5 also shows that the one-year ahead expectations started to rise earlier in the United States and the United Kingdom when compared to the euro area, while for Japan, such expectations increased much later and to a lower level. These developments are in line with the different inflation pressures the four economies faced, as analysed in the previous section.

Longer-term expectations (five-year average inflation starting in five years' time) in the euro area are very close to the ECB's 2% target: after reaching a peak of 2.5% in late April/early May 2022, they fell back and fluctuated around 2.1% from late May to September 2022 (right panel of Figure 5). Such expectations for the United States were around 2.5%, 3.7% for the United Kingdom and 0.9% for Japan in early September 2022.

Figure 5: Market-based inflation expectations (inflation swaps, percent per year)



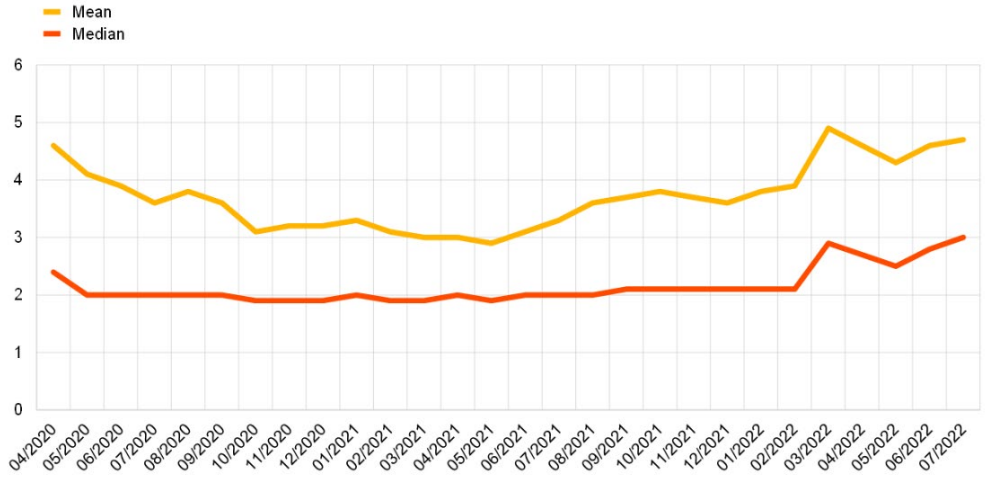
Source: Bloomberg.

On the other hand, the average medium-term inflation perceptions of consumers, as measured by the ECB's Consumer Expectations Survey, has increased to 4.7% by July from values close to 3% in summer 2021 (Figure 6). Thus, these medium-term consumer expectations are back to where they were in April 2020, when the first lockdowns had just started and there were shortages of some items in the supermarkets. The median value of consumer expectations increased from close to 2% in May 2020 – February 2022 to 3% by July 2022. The gap between the mean and the median suggests that consumers expecting a higher than the median inflation foresee a bigger positive gap to the median than the negative gap by those who expect a lower than the median expectations.

Nevertheless, by comparing consumers' perception of inflation over the past 12 months (9.5% on average), with expectations over the next 12 month (7.1%) and the 12-month starting in two years'

time (4.7%), indicates that consumers expect a deceleration of inflation. The same tendency applies for median perceptions and expectations, which are 7.9%, 5.0% and 3.0%, respectively.

Figure 6: Consumer expectations survey: expected one-year inflation from two to three years from now (percent per year)



Source: ECB's Consumer Expectations Survey, https://www.ecb.europa.eu/stats/ecb_surveys/consumer_exp_survey/html/index.en.html

Notes: The question asked: "By about what percentage do you expect prices in general in the country you currently live in to increase/decrease over the 12-month period between two years from now and three years from now?"

Thus, neither the IMF, the European Commission, OECD, nor professional market forecasters, nor investors trading with inflation swaps foresaw the huge inflation spike of 2022. Forecasts and expectations suggested the strongest inflation pressure in the United States and the United Kingdom in 2021 and the weakest in Japan, with which the different sequencing of central bank actions is consistent. The market expectation of the return to the ECB's 2% inflation target by 2024 is consistent with the temporary nature of the current inflation spike, and/or with the belief that high inflation without accelerated wage growth would depress demand and prices, and/or with the expectation that the ECB will implement proper measures to bring inflation back to target. Long-term inflation expectations by professional forecasters and markets remained anchored at the ECB's 2% target so far, but consumer expectations increased since the middle of last year.

2.4. Macro developments

The stronger inflationary pressure in the US and UK than in the euro area and Japan is in line with aggregate macroeconomic indicators: estimated output gaps and private consumption and investment developments.

Output gap estimates are inherently uncertain, as we have also argued before (Darvas, 2019). Supply bottlenecks that arose with the COVID-19 pandemic and with the Russian war make the estimation of output gap even more difficult. Nevertheless, the cross-country differences of estimates made by a particular institution can reveal differences in the cyclical situation. Table 3 shows that the IMF estimated positive output gaps for the US and UK for 2022, but negative for the euro area and Japan. The European Commission estimated a positive gap for the US, almost zero for the UK, and negative for the euro area (no estimation is made for Japan). The OECD estimated negative output gaps for all

four economic areas, yet estimates for the euro area and Japan were considerably lower than estimates for the US and UK. Thus, the estimates of all three main institutions regularly estimating output gaps suggest (a) more favourable cyclical positions in the US and UK than in the euro area and Japan, and (b) a negative output gap for the euro area.

A negative output gap *reduces* inflation, thus, if the sign of these estimates is correct, demand conditions cannot be the driver of current high inflation in the euro area.

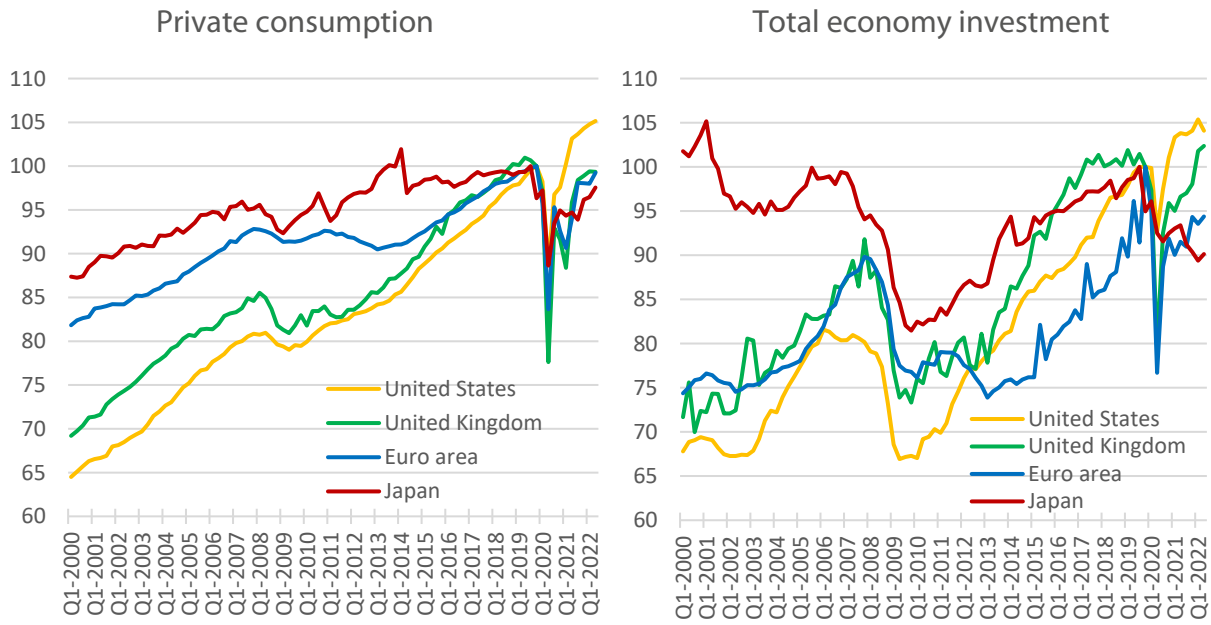
Table 3: Output gap estimates for 2022 (percent of potential output)

	IMF (April 2022 estimate)	European Commission (May 2022 estimate)	OECD (June 2022 estimate)
United States	1.6	0.8	-0.9
United Kingdom	1.4	-0.1	-0.9
Euro area	-1.0	-0.6	-2.3
Japan	-1.7	n.a.	-1.8

Source: IMF World Economic Outlook April 2022, European Commission's European Economic Forecast Spring 2022 (published in May 2022), OECD Economic Outlook June 2022.

The recovery of demand after the COVID-19 pandemic shock also differs across the four economies (Figure 6). In the US, private consumption already reached its pre-pandemic level by 2021Q1 and increased dynamically further, nearing its pre-pandemic trendline already from 2021Q2. Total US investment is not far from the pre-pandemic trendline. Private consumption in the UK, euro area and Japan has not yet reached its pre-pandemic level. The recovery of total investment was stronger in the UK than in the euro area and Japan.

Figure 7: Private consumption and total economy investment (2019Q4=100, chain-linked volumes)



Source: Bruegel based on OECD's and Eurostat's Quarterly National Accounts dataset.

Notes: Seasonally adjusted data. 2019Q3=100 for Japan. Investment: Gross fixed capital formation. The last observation is 2022Q2. Quarterly data on private investment is not available for the euro area and thus we report total economy investment for all four economies.

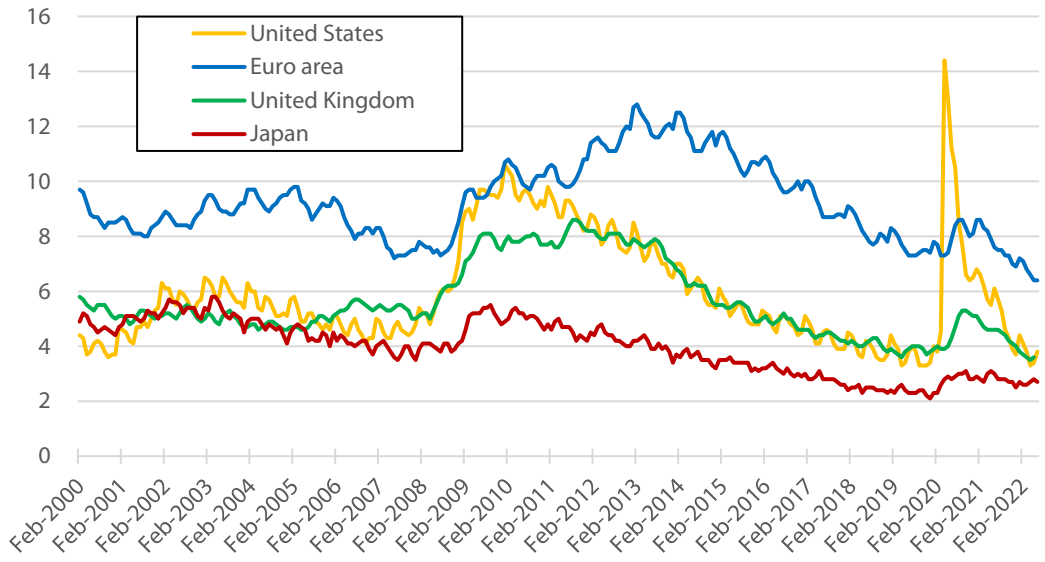
Therefore, main macroeconomic indicators suggest the strongest rebound of demand in the US, followed by the UK, while the recovery has been weaker and incomplete in the euro area and Japan[2].

2.5. Labour markets

In June 2022, the unemployment rate in the euro area fell to 6.4%, its lowest value since the creation of the euro (Figure 8). It is difficult to assess whether labour markets became tight in the euro area and thus whether the likelihood of a wage-price spiral has increased, because structural changes in the labour market, especially with the COVID-19 pandemic, make the estimation of any equilibrium rate of unemployment, such as the natural rate of unemployment or the non-acceleration wage (or inflation) rate of unemployment (NAWRU/NAIRU), uncertain. Nevertheless, wage growth in the euro area has hardly accelerated (Figure 9), in contrast to the UK and US, and the euro area unemployment rate is still well above the rate in the UK and US (Figure 8). Both wage growth and the rate of unemployment are the lowest in Japan among the four main economies.

[2] By analysing US data, Shapiro (2022) concludes that supply factors explain about half of the increase in US inflation, demand factors are responsible for about one-third, with the remainder resulting from ambiguous factors.

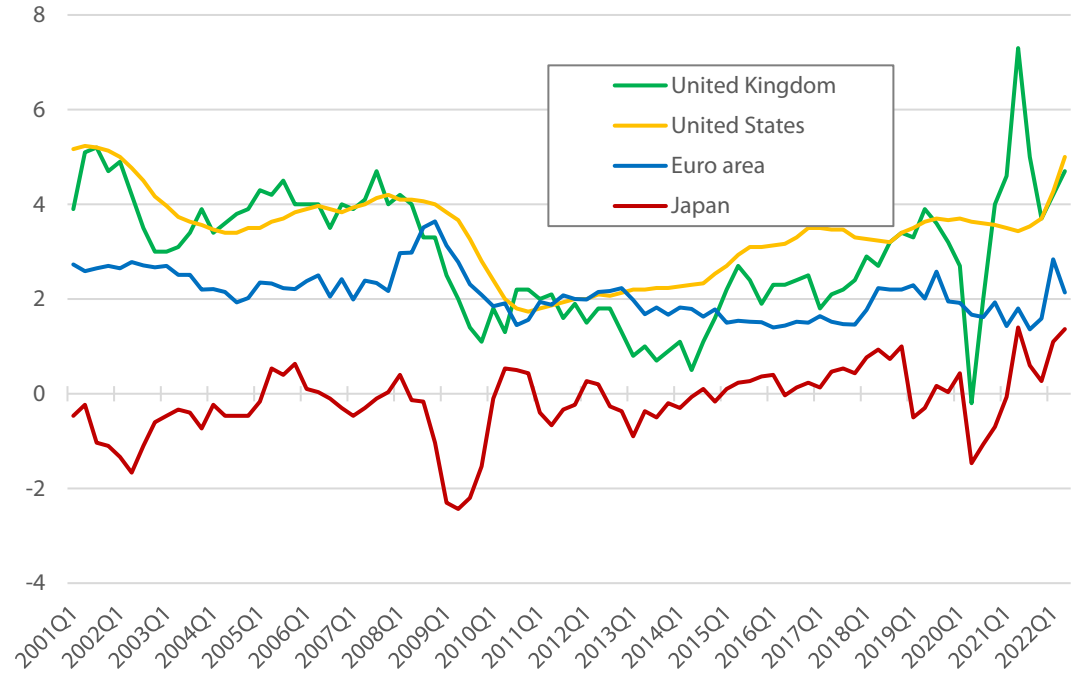
Figure 8: Unemployment rate (percent of labour force)



Source: Bruegel based on OECD's Short-Term Labour Market Statistics dataset.

Notes: Seasonally unadjusted data.

Figure 9: Nominal wage growth (percent annual change)

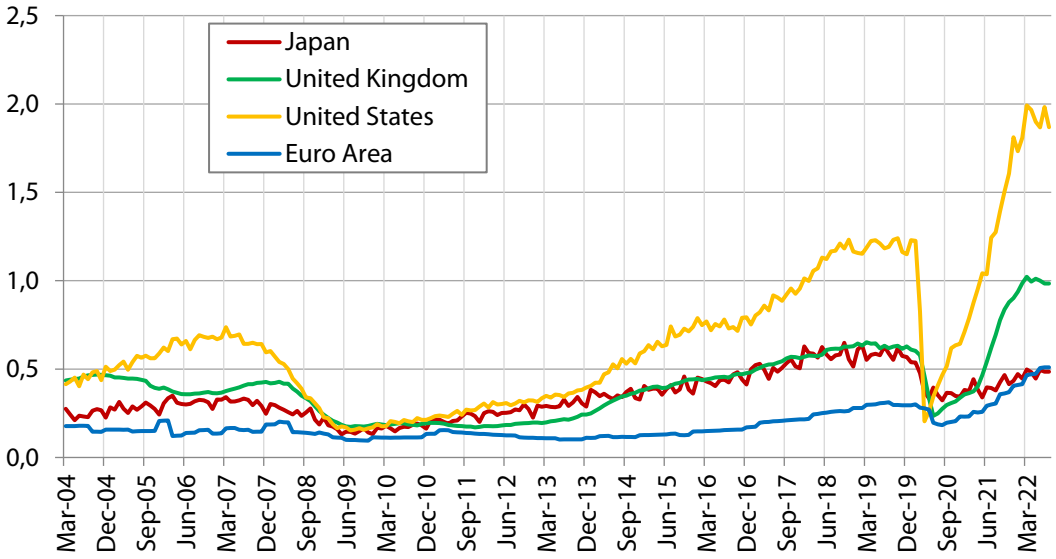


Source: Bruegel based on Eurostat, ONS, the Atlanta Fed and the Japanese ministry of health, labour and welfare.

Notes: Contractual wages for the euro area, UK and Japan. For the US, the data reflect 12-month moving averages of monthly median wage growth. Data definitions have specificities and thus the four lines are not fully comparable.

In the euro area and Japan, the ratio of the number of vacancies to the number of unemployed is about half, implying that there are two unemployed for a single vacancy (Figure 10). In the UK, the ratio is one, while in the US the ratio is two. While there are differences in the competences and skill sets of the unemployed and the vacancies, the ratio is indicative of the tightness of the labour market and suggest much tighter markets in the US and UK than in the euro area and Japan.

Figure 10: Ratio of the number of vacancies to the number of unemployed



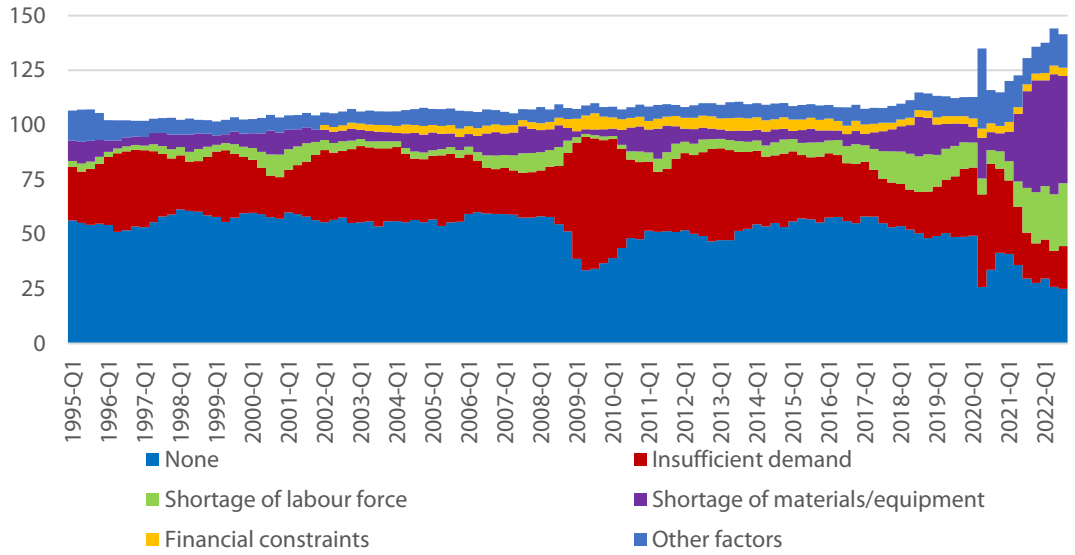
Source: Bruegel based on Bloomberg.

Notes: For the euro area, the number of vacancies was derived from the rate, using the following formula indicated on Eurostat: job vacancy rate = number of job vacancies * 100 / (number of occupied posts + number of job vacancies).

2.6. Factors limiting production

Finally, Figure 11 shows that the share of companies reporting no factor limiting production decreased from about one-half in 2019 to one-quarter in 2020Q2 with the outbreak of the COVID-19 crisis. There was some recovery by 2021Q2, but a fall since then. The biggest impeding factor became the shortage of materials and equipment (49% of companies in 2022Q3), followed by labour shortage (29%). Lack of demand is a constraint for 20% companies. Input and labour shortages point toward price pressures, while limited demand is disinflationary.

Figure 11: Factors limiting the production of euro area firms (percent)



Source: Bruegel based on European Commission's Joint Harmonised EU Industry Survey.

To sum up, inflation pressures emerged earlier in the United States and the United Kingdom than in the euro area, while there is hardly any pressure in Japan.

- Inflation increased earlier and core inflation increased to a higher level in the US and UK than in the euro area;
- the energy price shock is much higher in the euro area than in the US and the UK;
- estimates suggest negative output gap in the euro area, but positive in the US and UK;
- the recovery of euro area private consumption and investment from the COVID-19 pandemic has been incomplete and inferior to the US and the UK;
- wage growth has hardly picked up in the euro area, in contrast to the US and the UK;
- there are twice as many unemployed in the euro area then vacancies, but the opposite holds for the US;
- long-term expectations are well anchored in the euro area, but markets expect somewhat higher inflation in the US and UK;
- the shortages of materials and equipment supply is the main factor that limits production in the euro area.

Thus, inflation mainly results from supply shocks in the euro area, while there is a strong demand component in the US and UK.

3. EVALUATION OF ECB MONETARY POLICY STANCE

Overall, our data analysis in the previous chapter suggests that the Federal Reserve and the Bank of England had to tighten monetary policy earlier than the ECB, while there is no clear reason for tightening in the case of Japan so far. Thus, the ECB raising interest rates some months later than the UK and US central banks is in line with the macroeconomic differences. Nevertheless, all three central banks might have tightened belatedly, as suggested by Reis (2022). To assess whether this was the case with the ECB, we first summarise the ECB's monetary policy decision statements, then give an overview of the criticism formulated for ECB monetary policy over the past year. We then offer our thoughts.

3.1. The ECB's shift from dove to hawk

Following a lengthy period of too low inflation and systematically upward biased inflation forecasts (Darvas, 2018), the ECB adopted a very expansionary monetary policy in the years prior to the COVID-19 pandemic, with little impact on inflation. The economic fallout from the pandemic triggered renewed monetary accommodation and rightly made the ECB cautious. In the first half of 2021, when inflation pressures emerged in the United States but there were no signs of such pressures in the euro area, the ECB's policy remained very accommodative, supported by forward guidance about the likely evolution of key interest rates, asset purchases, and long-term refinancing operations (see the Annex for a chronology of the evolving tone of ECB monetary policy statements since early 2021). In particular, to support the economy during the pandemic crisis, the ECB launched the pandemic emergency purchase programme (PEPP) with a total envelope of EUR 750 billion, then increased twice to a total of EUR 1,850 billion. The pace of purchases under the PEPP was higher in the second and third quarters of 2021 than during the first months of the year, since the Governing Council deemed it necessary to support the economic recovery. Forward guidance stated that interest rates would be increased shortly after net purchases under the asset purchase programme (APP) would end. Initially, no termination date of APP net asset purchases was specified, instead the guidance said it would be in place "*as long as necessary*".

The conclusions from the ECB's monetary strategy review in July 2021 was still influenced by the problem of too-low inflation. Actual headline inflation was 2.2% in July 2021, while core inflation fell to 0.7%. Beyond adjusting the forward guidance on the level of policy rates (a natural consequence of inflation target adjustment of the strategy review), the monetary policy stance remained unchanged until September 2021, when a moderate reduction in PEPP purchases was announced. The October 2021 meeting did not result in any change in policy, even though headline inflation had increased to 4.1% and core inflation to 2% by that time. The ECB's revised strategy said that the medium-term orientation might "*imply a transitory period in which inflation is moderately above target*" and it was concluded that actual inflation satisfied this clause.

The December 2021 meeting, by when the November 4.9% headline and 2.6% core inflation data were known, concluded that "*monetary accommodation is still needed for inflation to stabilise at the 2% inflation target over the medium term*". Still, the pace of asset purchases was reduced and a clear end date (March 2022) of PEPP net purchases was announced. For the APP, monthly purchase amounts for the year 2022 were announced, indicating an increase in purchases in the second and third quarter of 2022 and a return to the monthly pace of EUR 20 billion "*from October 2022 onwards […] for as long as necessary to reinforce the accommodative impact of our policy rates*", which implied that the APP would continue after October 2022.

The February 2022 meeting, by when the January 5.1% headline and 2.3% core inflation data were known, did not result in any change in policy. About two weeks after Russia's invasion of Ukraine, which

created major uncertainties, the March meeting (when the February 5.9% headline and 2.7% core inflation data were known) reduced the pace of asset purchases under the APP but kept interest rate forward guidance unchanged.

In April 2022, when the March 7.4% headline and 3% core inflation data were known, the termination of APP purchases in the third quarter was announced, but the wording on interest rates had not changed. The wording of the statement put a clear emphasis on the data-driven character of decisions made by the ECB Governing Council, while also strengthening the 'flexibility clause' stating that the ECB could adjust any of its instruments if necessary.

The statement of the June 2022 meeting (when the May 8.1% headline and 3.8% core inflation data were known) announced the ending of APP purchases as of 1 July 2022 and expressed the intention to raise ECB interest rates by 25 basis points in the July meeting, indicating that larger increases might follow from September. In turn, rates were raised by 50 basis points in July and 75 basis points in September, and the prospect of further rate increases was highlighted. Forward guidance for the full reinvestments of APP and PEPP was maintained. Data dependence and meeting-by-meeting approach for rate setting was reinforced. In a speech at the Jackson Hole Economic Policy Symposium in late August, the ECB Executive Board member Isabel Schnabel argued to act forcefully against inflation (Schnabel, 2022).

3.2. Criticism of ECB monetary policy

Over the past year, with the increase in inflation from previous low levels, various views arose regarding what the ECB policy should be doing to tackle inflation and when, both internally – among the most hawkish members – and externally.

3.2.1. Internal divisions

Internally, it has long been known that there are more hawkish and more dovish views in the ECB Governing Council. While a broad agreement was reached early on in the pandemic in order to deploy policy aimed at supporting the economy, as the pandemic effects started to fade and inflation started to rise, some dissenting voices started to speak up, indicating a preference to tackle the rise in prices in the euro area.

By the end of September, when headline inflation increased to 3.4% and core inflation to 1.9%, President Lagarde (2021) stressed that the ECB should keep focusing policy on the medium-term and not react to temporary inflationary pressures linked to the reopening of the economy. Also, Villeroy de Galhau, the French governor, shortly after stated that he believed the inflation increase was temporary and that it would go below 2% by the end of 2022, seeing no reason to raise policy rates (Arnold, 2021a). The ECB's monetary policy accounts of the December 2021 Governing Council meeting indicated that there were some concerns arising regarding the possibility that inflation could be "higher for longer". This would be due to high energy prices and supply and demand mismatches. Still, bottleneck effects were expected to fade by the end of 2022. At the beginning of 2022, some of the members hinted at raises in the ECB policy rates still in 2022 – Dutch, German and Belgian governors – and at the March meeting, by when the February 5.9% headline and 2.7% core inflation rates were known, the views in the Governing Council were quite split on how to address high levels of inflation, especially in view of the recent events related with Russia's invasion of Ukraine (Arnold, 2022a).

3.2.2. External views

External opinions have been split, while some seem to support the ECB's monetary policy decisions, others have adopted a more critical view about the ECB policy choices (or lack of them). During the last

quarter of 2021, as inflation was going beyond the 2% inflation target, critiques started to pop-up calling the ECB to tighten monetary policy. This was more prominent among German media and entities, where inflation was escalating more than in other euro area countries (Arnold, 2021b; Reuters, 2021). On the other side, in December 2021, the Financial Times Editorial Board, highlighted that the core inflation was much higher for the UK and US, justifying the earlier moves of these central banks in contrast with the ECB (FT Editorial Board, 2021). Around the same time, also Melvyn B. Krauss, Professor Emeritus of Economics at New York University, came forward with the same view that the ECB should be going at a different pace than other central banks, adding that an additional factor for the ECB to consider when making decisions was the fragmentation risk (Krauss, 2021). If support was lifted too quickly and interest rates increased too fast, this would push up Member States' borrowing costs at a time when debt levels were high and the recovery from the pandemic on-going. Even though not directly commenting on the ECB's policy stance or future action, in November 2021 Cadamuro and Papadia (2021) highlighted the possible difficulty to control inflation if there would be more negative events resulting in higher inflation volatility, while keeping money growth high.

Around February 2022, views among experts seemed quite split. For instance, Mohamed El-Erian, President of Queens' College, Cambridge University, claimed that the ECB was being too slow to react to the high inflation levels, which in his view were clearly not transitory. Additionally, he argued that this would increase the risk of second-round effects, such as wage increases and higher inflation expectations (El-Erian, 2022). On the other side, Stefan Gerlach, Chief Economist of the EFG Bank (Switzerland), and Megan Greene, senior fellow at Harvard Kennedy School and chief economist at Kroll, highlighted that inflation rather seemed to be transitory due to the soaring energy prices and supply bottlenecks. The fact that monetary policy acts with a lag could mean that the effects of tighter policy kick-in when these short-term shocks have dissipated, and inflation would be back at a level around the 2% target. This would mean that policy decisions would be effective when inflation no longer needed such a break. Also, the ECB implemented an unfortunate monetary policy tightening in April and July 2011, which turned out to be "too early" and was reversed from November of the same year. Tightening when the economic recovery was still incomplete could risk being a repetition of past mistakes (Gerlach, 2022a; Greene, 2022).

One of the most critical voices of the ECB has been Otmar Issing, former ECB Chief Economist. In April 2022, in an interview with the Financial Times, Issing affirmed that the ECB was late to react, and that the normalisation process should have started way before, given the good results on growth and inflation recovery after the initial pandemic shock together with positive labour market developments. The risk of stagflation seemed ahead, and it would be hard for the ECB to deal with it (Arnold, 2022b). In June 2022, Dabrowski (2022) argued that excessive monetary and fiscal expansion in advanced economies are the main drivers of the rise in inflation and that the ECB should have started tightening its monetary policy earlier. Still, he did not explain what the transmission channels were in the euro area, where consumption and investment have not yet returned to pre-pandemic levels and wage growth has not accelerated. In June 2022, in a paper reflecting on the historical record of economic forecasts and uncertainty, Grzegorczyk and Papadia (2022) arrive at the conclusion that the shock created by the Russian war was "*more inflationary than recessionary, justifying monetary tightening*."

By July 2022, with data showing inflation beyond 8%, the pressure for the ECB to follow its peers – US Federal Reserve and the Bank of England – and to tighten its monetary policy was high, and the ECB raised its policy rate by 50 basis points. Even so, just before this announcement, there were still supporters of the ECB's delay in acting. Martin Sandbu, European Economics Commentator at the Financial Times, argued that it would be a mistake to try to reduce demand, by putting forward several arguments (Sandbu, 2022). One of the reasons for the global surge in inflation, which came earlier than

the energy price shock, was the strong rebound in US consumer goods demand, leading to a global scarcity of goods, with spill-over effects on the rest of the world. Central banks have limited ability to tackle supply-side shocks, but instead can depress demand. This happens with a time lag, so, in the meantime, the reduction of consumption due to high prices and withdrawal of pandemic programs would have done the contractionary work. Additionally, the author highlights that the current energy crisis makes the need to expand clean energy supply and electrification of energy use evident, which requires massive investments. Increases in policy rates could have the unintended consequence of increasing costs for those planning to invest in energy. He also noted that job creation at a time of high inflation reflects favourable structural changes in the economy and that the best cure to avoid a wage-price spiral is to allow job creation to continue. Following the hawkish central banker speeches at the August 2022 Jackson Hole Economic Policy Symposium, Gerlach (2022b) expressed his concerns about the time lag of monetary policy impacts and what seems to be now a "competitive race to raise interest rates".

3.3. An assessment

3.3.1. Possible mistakes over the past year

With hindsight, it is easy to say that the ECB should have acted earlier. We found it hard, however, to detect good analyses that urged interest rate increases in the second half of 2021, when inflation pressure gradually built up in the euro area and the odds of Russia's invasion of Ukraine were slim.

In December 2021, no inflation forecast, nor expectation indicated that the inflation pressures would persist and reach levels as those seen now. Nevertheless, in view of the increase in inflation (the November 4.9% headline and 2.6% core inflation were known), and the positive growth outlook that the ECB staff forecasted – "*growth to rebound strongly over the course of 2022*" and expected 4.2% growth in 2022 and 2.9% in 2023 –, the ECB could have made choices which would allow for greater flexibility and an earlier start of monetary tightening. The December 2021 monetary decisions were maintained without any alteration in February 2022. Subsequently, monetary decisions were revised rather slowly, and the first interest rate increase was made when inflation was almost 9%. We try to abstract from knowing what happened in 2022 and highlight the following issues with the December 2021 monetary policy decisions and statement, based only on information that was available by then.

First, the December 2021 monetary policy statement claimed that "*monetary accommodation is still needed – including net purchases under the APP and our forward guidance on interest rates – for inflation to stabilise at our two per cent inflation target over the medium term*", but the text did not give a clear answer on why this was the case. Inflation was way above the target and it was accelerating (including core inflation), robust growth forecasts were presented, risks to the economic outlook were assessed as broadly balanced, and financing conditions for the economy were assessed to be favourable. Only the 1.8% staff inflation forecasts for 2023-2024 suggested that inflation might marginally undershoot the 2% target. Yet the reliability of staff forecast was questionable – see our comments on staff forecasts in points 4 and 5 below.

Second, while forward guidance on interest rates rise was data-dependent, another condition for interest rates increases was the termination of APP net purchases, which was date-dependent. The interest rate forward guidance said: "*the Governing Council expects the key ECB interest rates to remain at their present or lower levels until it sees inflation reaching 2% well ahead of the end of its projection horizon and durably for the rest of the projection horizon, and it judges that realised progress in underlying inflation is sufficiently advanced to be consistent with inflation stabilising at 2% over the medium term*". For net APP purchase, the statement specified the monthly purchase volumes from October 2022 onwards without

any data dependency. The statement also said: "*The Governing Council expects net purchases to end shortly before it starts raising the key ECB interest rates.*" Thus, there was a potential conflict, which has indeed materialised: the data-dependent interest rate guidance was reached ahead of the date until which APP net purchases were promised. Forward guidance on asset purchases should have been data-dependent as well.

Third, the forward guidance on APP net purchases was extended for a rather long time ahead, beyond October 2022. Providing forward guidance for such a distant point in time when inflation was going up, the growth outlook was strong, and there were some sources of uncertainty – including rising geopolitical tensions with Russia – seems too stretched. Had the ECB kept the pace of net purchases under the APP and provided a data-dependent guidance, or at least a date-dependent guidance for a shorter time span, it would have had much more flexibility to terminate net purchases earlier while abiding by the guidance provided.

Fourth, interest rate forward guidance put too much emphasis on ECB staff forecasts. However, these forecasts had a poor track record. In the 5-year period prior to the pandemic, when no major shock hit the economy and output and employment grew nicely[3], ECB forecasts systematically overpredicted inflation, underpredicted growth, and overpredicted unemployment (see Darvas, 2018). Growth underprediction and unemployment overprediction would have been consistent with inflation overprediction (i.e. better than predicted growth and lower than predicted unemployment should have resulted in higher than predicted inflation), but the opposite happened. This suggests that some of the behavioural relationships in ECB forecasting models are mis-specified and thus staff forecasts should have been assessed cautiously. The December 2021 staff forecast suggested inflation falling to 1.8% both in 2023 and 2024, below the ECB's 2% target. Core inflation forecasts were almost the same: 1.7% in 2023 and 1.8% in 2024. Especially at a time when inflation was well above the target and rising, and various shocks hit the economy, forward guidance, and consequently monetary policy decisions, should have been formed with a more cautious reliance on inflation forecasts.

Fifth, a further issue with ECB staff inflation forecasts is that owner-occupied housing costs inflation was not taken into account, even though the monetary policy strategy review, which was concluded in July 2021, underlined its importance. The incorporation of owner-occupied housing cost inflation could have brought the December 2021 headline and core inflation forecasts above 2% in 2023 and 2024.

Sixth, as described in section 3.1, the December 2021 Governing Council meeting decided that net purchases under the PEPP would end in March 2022, but that there would be an increase in the net APP purchases from April 2022, in what looked like a form of compensation. As President Lagarde stressed various times, the PEPP was a specific programme targeted at supporting the economy from the impacts of the COVID-19 pandemic. The APP, on the other side, was a programme that was already in place more than five years before the introduction of PEPP with the aim of steering inflation rates towards the ECB target. It is puzzling why an instrument aimed at increasing inflation has been boosted when inflation was high and going up, the growth outlook was strong, and the discredited staff forecast – without considering owner occupied housing costs – suggested just a minimal undershooting of the 2% target in 2023-2024.

And seventh, the December 2021 statement emphasised the possibility of "*renewed market fragmentation*". We cannot exclude the hypothesis that fears of market fragmentation have played a role in the extension of asset purchases (duration of net APP purchases and increase in its volume from

[3] Nobody forecasted the pandemic and the war, and thus we do not form a view on ECB forecast errors following these larger external shocks.

April 2022) at the December 2021 meeting. Instead of extending APP, which had the goal of boosting inflation, it would have been preferable to introduce the transmission protection instrument (TPI) earlier, which was introduced only later in July 2022.

As we turned to 2022, the pressures for the ECB to start tightening monetary policy increased: a) the acceleration of inflation continued, b) some members of the Governing Council indicated preferences to start tightening, c) the Bank of England and the Federal Reserve had already taken steps to normalise their monetary policies (Table 1), and d) the voice of external critics became louder.

Part of the reason for not acting earlier can be related to constraints by forward guidance and the belief that acting against earlier promises might undermine the credibility of the ECB. Additionally, the 2011 episode of the ECB's premature monetary tightening might have contributed to a more cautious attitude this time[4].

Still, some commitments under the forward guidance were not followed:

- The December 2021 meeting announced the monthly amount of net APP purchases for October 2022 and onwards (confirmed by the February 2022 meeting, by when the January 5.1% headline inflation data was known), yet the net APP purchases were stopped by 1 July 2022.
- Since interest rate increases were tied to the end of net APP asset purchases, the promise for continuation APP throughout 2022 implied no interest rate increase in 2022. Yet, interest rates were raised in July 2022.
- The June 2022 monetary policy statement indicated that "*the Governing Council intends to raise the key ECB interest rates by 25 basis points at its July monetary policy meeting*", but the increase turned out to be 50 basis points.

The deviations from the initial forward guidance may reflect the pressure from the worsened energy and supply crisis triggered by the Russian invasion of Ukraine in February 2022. Also, the – at some point unavoidable – evidence that inflation would keep deviating further from the ECB inflation target, was calling for an urgent revision of the monetary policy stance.

Therefore, fundamental aspects of the forward guidance seem to have been a clear source of constraint for the ECB, in particular: a) that inflation forecasts need to show sustained convergence to the 2% target based on forecasts, b) the sequence of net asset purchase ending first and only then increase of policy rates, and c) promising net asset purchases a year ahead when inflation was well above target and rising rapidly. Nevertheless, since the ECB broke some of its earlier promises, it could have gone further and start the tightening cycle earlier.

A key question is what difference an earlier start would have made. Since monetary policy measures influence inflation with a time lag, and the main drivers of inflation were supply shocks in the euro area, inflation rates in 2022 might have not been much different. But acting belatedly might undermine the credibility of the ECB. Consumers might lose their trust in the ECB when they witness rapidly growing prices, earn zero interest on their bank deposits, and the ECB does not do anything. Investors might conclude that fears from fragmentation (including the increase in the government bond yields of fiscally vulnerable euro area countries) prevent the ECB from addressing inflationary shocks.

The full reinvestment policies for the maturing PEPP and APP holdings were not changed in the July and September 2022 monetary policy meetings. We believe this was a good choice. While policy rate

[4] The ECB raised interest rates by 25 basis points in April and July 2011, but had to reverse and cut rates from November 2021.

changes speedily influence short-term yields and also influence long-term yields via expectations, the transmission mechanism of changes in the size of the balance sheet is more complex. Moreover, the impacts of simultaneously raising interest rates and reducing central bank balance sheets is not yet well understood. Given the uncertainty regarding future developments, decisions on the reduction of the balance sheet should be delayed to when there is more clarity on the inflation trajectory.

We also find two possible mistakes studied by Reis (2022) relevant for the ECB:

- An over-reliance on the credibility earned in the past, creating an illusion of too much room to focus on the recovery of real activity and underpredicting the resulting inflation.
- A revision of strategy that made central banks tolerant to higher inflation because of the falling trend in the return on government bonds, even though the return on private capital stayed high.

3.3.2. The ECB's current monetary policy stance

The current monetary policy stance is still accommodative. A 0.75% deposit rate is accommodative when headline inflation is 9.1%, the long-term expectations of professional forecasters and financial markets are slightly over 2%, and consumer expectations are close to 5%. The crucial question is the extent of monetary tightening, not whether interest rates are increased in steps of 25 or 100 basis points.

The updated Holston, Laubach, and Williams (2017) estimates for the euro area natural rate of interest – the real short-term interest rate that would prevail absent transitory disturbances – were around 0.5% in 2013-2020, but further updates of the estimates were suspended due to the extraordinary volatility in GDP related to the COVID-19 pandemic[5]. Assuming this model can provide a reliable estimate and that the 0.5% value has not changed with the pandemic, a 2% medium term inflation is consistent with a 2.5% ECB deposit rate. Bringing inflation down might require a period when the interest rate is higher than the natural rate.

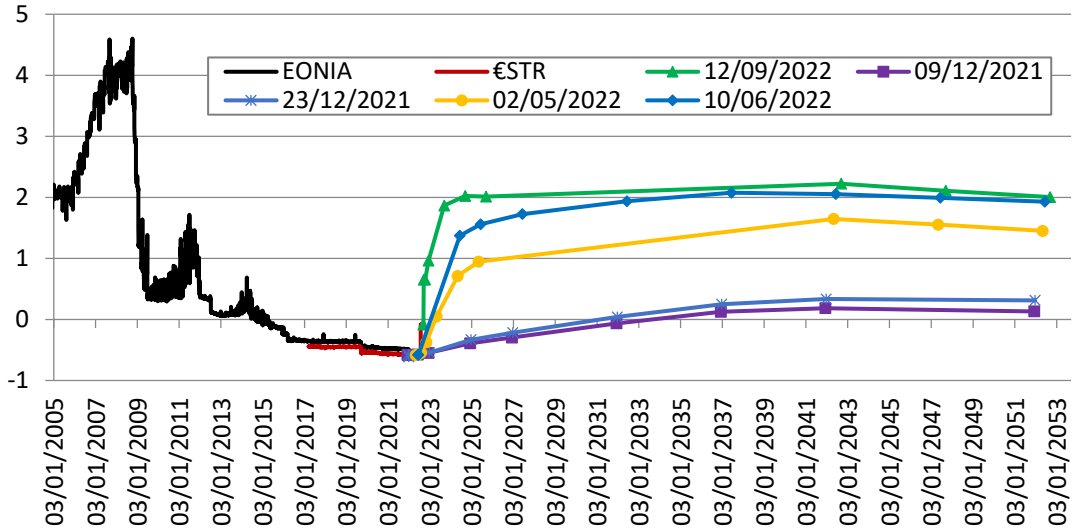
The 8 September 2022 ECB monetary policy decision statement did not provide any clue about expected total magnitude of rate increases, though it pictured the implemented 75 basis points increase as frontloaded: "*This major step frontloads the transition from the prevailing highly accommodative level of policy rates towards levels that will ensure the timely return of inflation to the ECB's 2% medium-term target.*" At the press conference following the September 2022 decision, there were repeated questions about the "*terminal interest rate*", but President Lagarde did not indicate any value or method to determine that. Yet in one of her answers, she provided some hints: "*We are frontloading and we will continue to increase rates meeting-by-meeting on the basis of data, because we believe that we are far away from the rate at which we hope and we'll see inflation return to the 2% medium-term target. This is the goal that we have. I'm not scratching my head around the neutral rate versus the terminal rate versus the r* and so on and so forth. What we know is that we want to get to that 2% medium-term target, and we will take the necessary steps along the way in order to get there. We think that it will take several meetings. Some people will say, "How many is several?" Well, it's probably more than two, including this one, but it's probably also going to be less than five. Now, I leave it to you to decide whether it's going to be two, three or four. You have at least a ballpark idea of how long it will take.*"[6] If a 75 basis points increase is a frontloading, then probably some later increases might have a lower value, and if there will be less than five increases, then the total currently envisioned increase could be around 2-3%. Market-based

[5] Estimates for the euro area, Canada, UK and US are available at: https://www.newyorkfed.org/research/policy/rstar

[6] https://www.ecb.europa.eu/press/pressconf/2022/html/ecb.is220908~cd8363c58e.en.html

expectations on the future path of short-term interest rates indicate a stabilisation around 2%, according to the most recent data (Figure 12).

Figure 12: Euro area short-term interest rates and expected evolution at selected dates (percent per year)

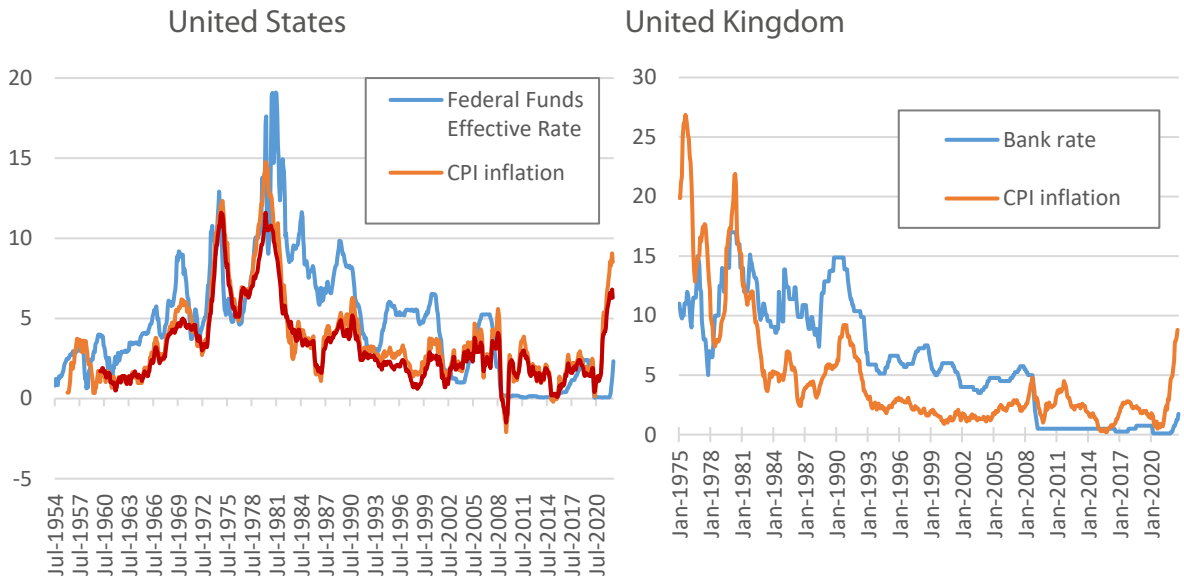


Source: Bruegel based on Bloomberg.

Notes: The €STR line reflects pre-€STR values from 15 March 2017 to 30 September 2019 and €STR values since 1 October 2019, when the ECB started publishing it. EONIA was discontinued on as of 3 January 2022. The lines with dates reflect interest-rate expectations via interest rate swaps.

Such a tightening is dwarfed by the interest rate policy implemented by the Federal Reserve and the Bank of England in the 1980s after the oil price shocks of the 1970s, when the central bank main interest rate was above actual inflation (Figure 13). Even if the natural rate and the real interest rate on government bonds declined (though not for corporate investments, as Reis [2022] argues), the extent of expected tightening by the ECB is several factors smaller than what was implemented after the oil price shocks of the 1970s. The Holston, Laubach, and Williams (2017) estimates suggest an approximately 2 percentage points decline in the natural rate. Further research should elaborate the differences in the historical context and circumstances to understand whether a much smaller monetary tightening this time than in the 1980s could be able reach the 2% inflation target rapidly and with smaller costs now than in the 1980s.

Figure 13: US and UK inflation and main central bank interest rates (percent)

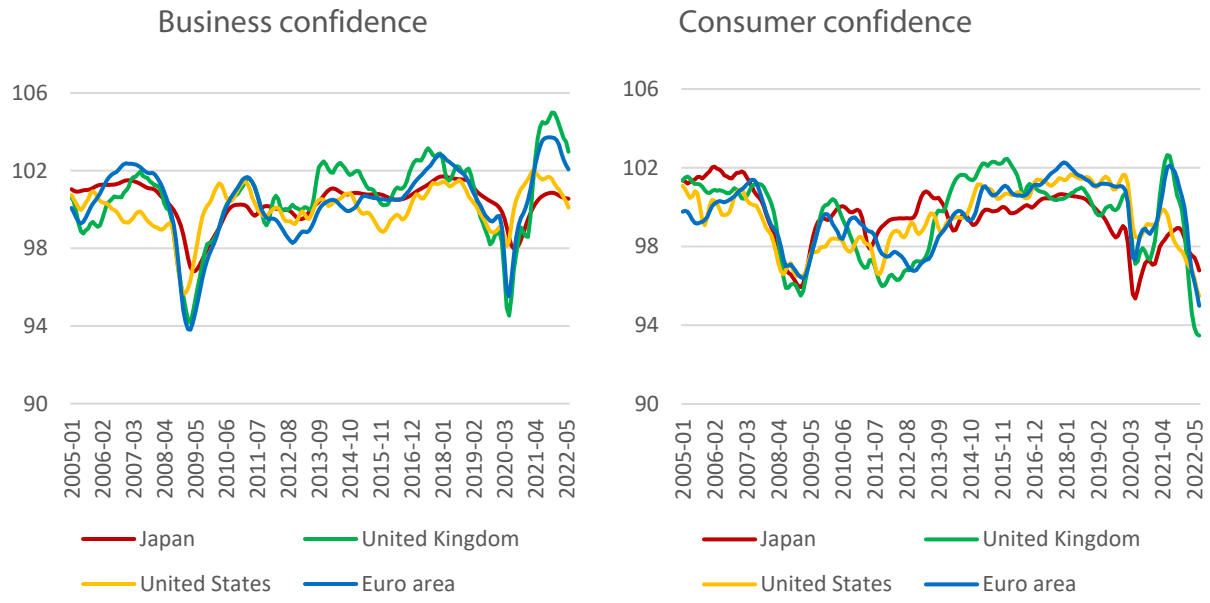


Source: FRED - Federal Reserve Economic Data, Bank of England, Office of National Statistics.

Notes: Federal Funds Effective Rate (FEDFUNDS): Percent, Monthly, Not Seasonally Adjusted, Bank of England Official Bank rate history.

As regards the pace of future interest rate hikes, the main arguments calling for a cautious approach are that tightening would reduce demand and economic activity in one or two years from now. By then, the currently mostly supply-driven inflation could decline due to the ceasing impact of the current energy price shock and the weaker economic activity (or even potentially a recession). The economic fallout from the war, as well as lower demand resulting from lower real wages could depress euro area output and inflation. Leading indicators reflecting business and consumer confidence towards future developments in the euro area show a reversal in confidence since March 2022 and August 2021, respectively (Figure 14). The drop is particularly steep for consumers, which are now more pessimistic than anytime during the past twenty years, including the global financial crisis, the subsequent euro crisis and the COVID-19 pandemic.

Figure 14: OECD leading business and consumer confidence indices



Source: OECD.

Notes: Figures above 100 suggest an increased confidence towards the future business performance/economic situation, and numbers below 100 indicate pessimism towards future performance/developments in the economy, respectively, for the business and consumer indices.

In this regard, a particularly important risk is an eventual complete stop in Russian gas supply to the EU this winter, which would lead to a recession in the downside risk scenario presented by President Lagarde at the 8 September 2022 press conference. In such a case, energy prices might increase further, pushing inflation higher, but private demand would decline, lowering inflation. At that press conference, President Lagarde did not give an answer to questions on what monetary policy would be followed in such a case, yet the situation might justify a stop in the tightening process or even some monetary accommodation. Given that the next rate setting meeting will be in late October, by when some information will likely be available on the possible gas supply disruptions, and the subsequent meeting will be in the middle of December, by when eventual gas supply shortages will materialise or not, the ECB will have the chance of slowing down, halting, or even reversing interest rate hikes.

The main arguments for forceful monetary tightening, as emphasised by Schnabel (2022), are that inflation might remain persistent irrespective of whether it is caused by supply or demand shocks. High inflation without forceful action might undermine the credibility of the central bank, and the costs of acting too late might be large.

Taking all factors into account, we recommend a cautious approach by increasing rates slowly until the economic fallout from the war, including an eventual complete stop in Russian gas supply, will become observable. In the absence of a winter gas supply disruption, more speedy interest rate increases could return and rates might be increased above the best estimate of the natural rate of interest. But in case of a winter gas supply disruption and a consequent recession, rate increases might be halted.

Irrespective of the course of interest rate developments, we recommend designing a special longer-term refinancing operation aimed at providing favourable conditions for investments in energy efficiency improvements (e.g. house insulation) and clean energy generation. While in general ECB policies should not be sector-specific, the supply-induced energy price increase is the main driver of

current euro area inflation and might be a driver in the years to come. As Sandbu (2022) highlighted, increases in policy rates could discourage energy investments and thereby aggravate the inflation outlook. By incentivising the flow of credit to projects aimed at improving energy efficiency and clean energy generation via a special longer-term refinancing operation, the ECB would be contributing to address the main supply-side driver of inflation.

REFERENCES

- Arnold, M. (2021a). "French central bank forecasts easing inflation next year, ruling out rate rise". *Financial Times* News.
- Arnold, M. (2021b). "Deutsche Bank boss calls on ECB to tighten monetary policy as inflation surges". *Financial Times* News.
- Arnold, M. (2022a). "ECB inflation split deepens after hawks call for rate rises this summer". *Financial Times* News.
- Arnold, M. (2022b). "'Living in a fantasy': euro's founding father rebukes ECB over inflation response". *Financial Times* News.
- Cadamuro, L. and Papadia, F. (2021). "Does money growth tell us anything about inflation?". *Bruegel* Working Paper 11/2021. https://www.bruegel.org/working-paper/does-money-growth-tell-us-anything-about-inflation
- Dabrowski, M. (2022). "Demand- and supply-side factors behind the higher inflation". *Center for Social and Economic Research (CASE)* paper. https://www.case-research.eu/en/demand-and-supply-side-factors-behind-the-higher-inflation-102107
- Darvas, Z. (2018). "Forecast errors and monetary policy normalisation in the euro area". *Bruegel* Policy Contribution 2018/24. https://www.bruegel.org/policy-brief/forecast-errors-and-monetary-policy-normalisation-euro-area
- Darvas, Z. (2019). "Uncertainty over output gap and structural-balance estimates remains elevated". *Bruegel* blog, https://www.bruegel.org/blog-post/uncertainty-over-output-gap-and-structural-balance-estimates-remains-elevated
- Darvas, Z. and Martins, C. (2021). "The new euro area inflation indicator and target: the right reset?". Publication for the Committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament. https://www.europarl.europa.eu/cmsdata/241735/02_QA0721053ENN.pdf
- El-Erian, M. (2022). "Fed and ECB still behind the inflation curve". *Financial Times* Opinion. https://www.ft.com/content/79de1ec9-2249-4757-a744-10cea1afe5e5
- FT Editorial Board (2021). "A divide in responses to the inflation threat". *Financial Times* The FT View.
- Gerlach, S. (2022a). "Central banks are circumspect on inflation for a reason". *Financial Times* Letter.
- Gerlach, S. (2022b). "Why chest-beating central bankers have me worried". *Financial Times* Letter.
- Greene, M. (2022). "The ECB must move slowly on interest rates". *Financial Times* Opinion.
- Grzegorczyk, M. and Papadia, F. (2022). "Measuring macroeconomic uncertainty during the euro's lifetime". *Bruegel* Working Paper 10/2022. https://www.bruegel.org/working-paper/measuring-macroeconomic-uncertainty-during-euros-lifetime
- Holston, K., Laubach, T. and Williams, J.C. (2017). "Measuring the natural rate of interest: International trends and determinants," *Journal of International Economics* 108, supplement 1, S39–S75. https://doi.org/10.1016/j.jinteco.2017.01.004
- Krauss, M. (2021). "The ECB's Savvy Gradualism". *Project Syndicate* Big Picture. https://www.project-syndicate.org/onpoint/inflation-remedies?utm_source=facebook&utm_medium=organic-social&utm_campaign=page-posts-january22&utm_post-type=link&utm_format=16%3A9&utm_creative=image&utm_post-date=2022-01-20
- Lagarde, C. (2021). "Beyond the pandemic: the future of monetary policy". Speech at the ECB Forum on Central Banking, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210928~4cc57f558d.en.html
- Lane, P. (2022). "Inflation and monetary policy in the euro area". Speech at the Society of Professional Economists Annual Dinner, London.

https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220620_1~2f075cc2f5.en.pdf?429f9195875c0061d1d51ffb74922fb8

- Reis, R. (2022). "The Burst of High Inflation in 2021–22: how and why we did get there?". Manuscript. https://personal.lse.ac.uk/reisr/papers/22-whypi.pdf
- Reuters (2021). "German tabloid attacks ECB chief Lagarde as 'Madam Inflation'". *Reuters*. https://www.reuters.com/world/europe/german-tabloid-attacks-ecb-chief-lagarde-madam-inflation-2021-10-30/
- Sandbu, M. (2022). "Reasons to think differently about inflation". *Financial Times* Opinion.
- Shapiro, A.H. (2022). "How Much Do Supply and Demand Drive Inflation?" *FRBSF* Economic letter 2022-15. https://www.frbsf.org/economic-research/publications/economic-letter/2022/june/how-much-do-supply-and-demand-drive-inflation/
- Schnabel, I. (2022). "Monetary policy and the Great Volatility". Speech at the Jackson Hole Economic Policy Symposium organised by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220827~93f7d07535.en.html
- Venditti, F. and Veronese, G. (2020). "Global financial markets and oil price shocks in real time". *ECB* Working Paper Series No 2472. https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2472~611f104931.en.pdf

ANNEX: CHRONOLOGY OF THE TONE OF ECB MONETARY POLICY STATEMENTS SINCE EARLY 2021

This annex provides a chronological overview of the changing tone of the ECB monetary policy statements[7] since the beginning of 2021, highlighting the changes in monetary policy with a special focus on the evolution of the forward guidance.

21 January 2021: The ECB kept its interest rates unchanged, including the -0.5% deposit facility rate, and noted that "*The Governing Council expects the key ECB interest rates to remain at their present or lower levels until it has seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2% within its projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics.*"

For the pandemic emergency purchase programme (PEPP), it was announced that "*The Governing Council will conduct net asset purchases under the PEPP until at least the end of March 2022 and, in any case, until it judges that the coronavirus crisis phase is over*" and the "*Governing Council will continue to reinvest the principal payments from maturing securities purchased under the PEPP until at least the end of 2023.*"

The statement said that the asset purchase programme (APP) "*will continue at a monthly pace of €20 billion. The Governing Council continues to expect monthly net asset purchases under the APP to run for as long as necessary to reinforce the accommodative impact of its policy rates, and to end shortly before it starts raising the key ECB interest rates. The Governing Council also intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.*"

The third series of targeted longer-term refinancing operations (TLTRO III) was expected to be continued: "*the Governing Council will continue to provide ample liquidity through its refinancing operations*", without hinting at its termination date.

The statement also expressed that the "*Governing Council continues to stand ready to adjust all of its instruments, as appropriate, to ensure that inflation moves towards its aim in a sustained manner, in line with its commitment to symmetry.*" that we'll call the 'flexibility clause'. It was included in all later statements in a practically unchanged form till October 2021, and with some changes from December 2021.

11 March 2021: the statement started with the PEPP and reinforced monetary accommodation by saying: "*Based on a joint assessment of financing conditions and the inflation outlook, the Governing Council expects purchases under the PEPP over the next quarter to be conducted at a significantly higher pace than during the first months of this year.*" The wording has not changed for other modalities of PEPP, nor for APP and interest rates.

22 April 2021 and **10 June 2021**: no change compared to the 11 March 2021 meeting.

22 July 2021: the ECB announced the conclusions from its monetary strategy review, which resulted in a change in the inflation target: "*a symmetric inflation target of two per cent over the medium term*"[8]. The forward guidance regarding interest rates has changed accordingly: "*In support of its symmetric two*

[7] Source: ECB monetary policy press releases https://www.ecb.europa.eu/press/govcdec/mopo/html/index.en.html

[8] See Darvas and Martins (2021) for an assessment of the change in the ECB's inflation objective.

per cent inflation target and in line with its monetary policy strategy, the Governing Council expects the key ECB interest rates to remain at their present or lower levels until it sees inflation reaching two per cent well ahead of the end of its projection horizon and durably for the rest of the projection horizon, and it judges 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." The level of interest rates, the modalities of PEPP and APP and their reinvestment policies, and TLTRO, remained unchanged.

9 September 2021: the extent of monetary accommodation was slightly reduced with a "*moderately lower pace of net asset purchases under the pandemic emergency purchase programme (PEPP) than in the previous two quarters*". The level of the ECB interest rates, forward guidance on their likely future evolution, purchases under the asset purchase programme (APP), reinvestment policies, and longer-term refinancing operations remained unchanged.

28 October 2021: no change.

16 December 2021: moderate reduction in asset purchases. The statement said "*The Governing Council judges that the progress on economic recovery and towards its medium-term inflation target permits a step-by-step reduction in the pace of its asset purchases over the coming quarters. But monetary accommodation is still needed for inflation to stabilise at the 2% inflation target over the medium term.*"

For the PEPP, net asset purchases to be conducted at "*a lower pace than in the previous quarter*" and the "*at least the end of March 2022*" indication was turned to a clear terminal date: "*It will discontinue net asset purchases under the PEPP at the end of March 2022.*" On the other hand, the full reinvestment period of maturing PEPP holdings was extended from "*until at least the end of 2023*" to "*until at least the end of 2024*". Another novelty of the statement was to emphasise flexibility in reinvestments: "*in the event of renewed market fragmentation related to the pandemic, PEPP reinvestments can be adjusted flexibly across time, asset classes and jurisdictions at any time*".

For the APP, the statement noted that "*the Governing Council decided on a monthly net purchase pace of €40 billion in the second quarter and €30 billion in the third quarter under the APP. From October 2022 onwards, the Governing Council will maintain net asset purchases under the APP at a monthly pace of €20 billion for as long as necessary to reinforce the accommodative impact of its policy rates*". The second and third quarter referred to 2022 and implied an increase compared to the €20 billion monthly purchases in 2021.

Interest rates, along with the forward guidance on their likely future evolution, remained unchanged.

For the TLTRO, an explicit end date was announced: "*the special conditions applicable under TLTRO III to end in June next year*".

The flexibility clause was also amended with the qualification of "*in either direction*", that is: "*The Governing Council stands ready to adjust all of its instruments, as appropriate and in either direction, to ensure that inflation stabilises at its 2% target over the medium term.*"

3 February 2022: The Governing Council confirmed the December 2021 decisions.

10 March 2022: The Governing Council revised the purchase schedule for APP: "*Monthly net purchases under the APP will amount to €40 billion in April, €30 billion in May and €20 billion in June. The calibration of net purchases for the third quarter will be data-dependent and reflect its evolving assessment of the outlook. If the incoming data support the expectation that the medium-term inflation outlook will not weaken even after the end of its net asset purchases, the Governing Council will conclude net purchases under the APP in the third quarter.*"

The key ECB interest rates and the forward guidance on their likely future evolution remained unchanged. Additionally, the statement said: "*Any adjustments to the key ECB interest rates will take place some time after the end of the Governing Council's net purchases under the APP and will be gradual.*"

The modalities of PEPP and TLTRO III have not changed.

14 April 2022: The Governing Council confirmed to terminate net APP asset purchases in the third quarter of 2022, along with "*The calibration of net purchases for the third quarter will be data-dependent and reflect the Governing Council's evolving assessment of the outlook.*"

The wording on interest rates and PEPP has not changed compared to the March 2022 meeting.

The flexibility clause was strengthened by explicitly incorporating *the word "flexibility*" and by extending it with two additional sentences, that is: "*The Governing Council stands ready to adjust all of its instruments within its mandate, incorporating flexibility if warranted, to ensure that inflation stabilises at its 2% target over the medium term. The pandemic has shown that, under stressed conditions, flexibility in the design and conduct of asset purchases has helped to counter the impaired transmission of monetary policy and made the Governing Council's efforts to achieve its goal more effective. Within the Governing Council's mandate, under stressed conditions, flexibility will remain an element of monetary policy whenever threats to monetary policy transmission jeopardise the attainment of price stability.*"

9 June 2022: The Governing Council decided to end net asset purchases under APP as of 1 July 2022. The modalities of APP and PEPP reinvestments have not changed, nor the end date of TLTRO III.

Interest rates were kept unchanged, but it was announced that "*the Governing Council intends to raise the key ECB interest rates by 25 basis points at its July monetary policy meeting*" and "*the Governing Council expects to raise the key ECB interest rates again in September. The calibration of this rate increase will depend on the updated medium-term inflation outlook. If the medium-term inflation outlook persists or deteriorates, a larger increment will be appropriate at the September meeting. Beyond September, based on its current assessment, the Governing Council anticipates that a gradual but sustained path of further increases in interest rates will be appropriate.*"

The flexibility clause remained unchanged.

21 July 2022: Key ECB interest rates were raised by 50 basis points because "*The Governing Council judged that it is appropriate to take a larger first step on its policy rate normalisation path than signalled at its previous meeting.*" For further normalisation of interest rates, "*a transition to a meeting-by-meeting approach to interest rate decisions*" was announced, in which "*The Governing Council's future policy rate path will continue to be data-dependent and will help to deliver on its 2% inflation target over the medium term.*"

Reinvestment policies for APP and PEPP remained unchanged.

A new instrument called Transmission Protection Instrument (TPI) was introduced with the aim "*to support the effective transmission of monetary policy*".

The flexibility clause was shortened and simplified to one sentence: "*The Governing Council stands ready to adjust all of its instruments within its mandate to ensure that inflation stabilises at its 2% target over the medium term.*"

8 September 2022: Key ECB interest rates were raised by 75 basis points, while data-dependency and a meeting-by-meeting approach was confirmed.

PE 733.983
IP/A/ECON/2022-48

Print ISBN 978-92-846-9768-7 | doi: 10.2861/54825 | QA-03-22-020-EN-C
PDF ISBN 978-92-846-9767-0 | doi: 10.2861/592888 | QA-03-22-020-EN-N