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The ECB in the age of turbulence

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The ECB in the age of turbulence

Abstract

This study discusses the ECB's response to the recent crises, detailing interventions, new tools, and strategy shifts. It evaluates the effects of such crises on inflation expectations and financial stability across major European economies, offering insights into the euro area's policy dynamics and challenges.

This document was provided by the Economic Governance and EMU Scrutiny Unit at the request of the Committee on Economic and Monetary Affairs (ECON) ahead of the Monetary Dialogue with the ECB President on February 15 2024.

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

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LIST OF ABBREVIATIONS

APP	Asset purchase programme
CSPP	Corporate sector purchase programme
EA	Euro area
ECB	European Central Bank
EU	European Union
GDP	Gross Domestic Product
HICP	Harmonised Index of Consumer Prices
OMTs	Outright Monetary Transactions
PELTROs	Pandemic Emergency Longer-Term Refinancing Operations
PEPP	Pandemic Emergency Purchase Programme
PSPP	Public Sector Purchase Programme
TLTRO	Targeted Longer-Term Refinancing Operations
TPI	Transmission Protection Instrument
ZLB	Zero lower bound

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EXECUTIVE SUMMARY

- The Great Moderation has been replaced by the **Age of Turbulence**, i.e. a challenging period marked by persistent disturbances and considerable global shifts, which policymakers need to face with adequate and viable institutional architectures.
- In the last act of this turbulence, the European Central Bank (ECB) adopted **unconventional and conventional monetary policies** to react successfully to the crisis that began with the pandemic in all its different complex stages.
- The new definition of price stability provided by the ECB in 2021 implies a **strict and symmetric 2% medium-term inflation target**.
- The ECB launched the **Transmission Policy Instrument (TPI)** in 2022. This instrument, along with the Outright Monetary Transactions (OMT), might provide credible protection against the **eurozone fragmentation risk**.
- The monetary policies implemented by the ECB after the pandemic have effectively reduced **medium-term inflation expectations**. However, the impact of monetary policy on European countries is **asymmetric** due to different private and public debt positions.
- The European Monetary System can only be constructed on one side of a triangle (**eurozone trilemma**) formed by adopting restrictive fiscal rules, no central fiscal capacity (fiscal independence), and the absence of fiscal dominance in monetary policy.
- The **current debate on fiscal rules and their relationship with monetary policy** will be pivotal for Europe's future and the actions of the ECB in upcoming crises. It must be approached with a long-term perspective, linking it to the changing world unfolding before us and the global change we intend to manage, including the green and digital transitions.

1. INTRODUCTION

The age of widespread economic stability, commonly known as the Great Moderation, has come to an end. It has been replaced by a period marked by persistent disturbances and considerable shifts to what is being called the Age of Turbulence. Economic systems in different regions are finding it difficult to adapt to shocks and consequently risk losing their positions in the global market. This risk is especially significant for the European Union (EU).

Over the past fifteen years, the euro area (EA) has navigated several challenges, prompting significant policy interventions by the European Central Bank (ECB) and national and EU authorities. The ECB implemented unconventional expansionary monetary policies, starting from the global financial crisis (2007-2008) and later addressing the interplay between sovereign debt and banking crises (2011-2012), both characterised by prolonged recessions. Finally, the COVID-19 pandemic in February 2020 triggered the Great Lockdown and the consequent global economic downturn. The pandemic-induced restrictions led to a rapid and widespread economic contraction, casting the EU into a recession.

During the Eurozone crisis between 2011 and 2012, the threat of the redenomination risk led Mario Draghi, then ECB President, to launch the Outright Monetary Transactions (OMTs). In July 2012, he promised to do "whatever it takes" to save the euro. Subsequent measures were aligned with the 2003 inflation target revision aimed to maintain the inflation rate below the 2% threshold and reduce the deflation risk. The Asset Purchase Programme (APP) introduced in 2014 pushed interest rates close to the zero lower bound (ZLB), resulting in negative yields for low-debt countries. The ECB managed to influence asset market values and ease capital constraints for the EA banking system by purchasing sovereign bonds through the Public Sector Purchase Programme (PSPP) and corporate bonds via the Corporate Sector Purchase Programme (CSPP).

The onset of the pandemic crisis in 2020 led the ECB to strengthen its existing purchase programmes and design new instruments. In this perspective, the ECB introduced the Pandemic Emergency Purchase Programme (PEPP) with a substantial budget of 1.850 billion euro, making it the most extensive ECB asset purchase programme. In 2021, the ECB Governing Council further redefined price stability, setting a strict symmetrical inflation target of 2% over the medium term.

In 2020 the European co-legislators adopted Next Generation EU (NGEU), a six-year initiative (2021-2026) with a budget of 750 billion euros, including 390 billion in grants and 360 billion in loans. However, post-pandemic bottlenecks in the global value chains and the subsequent war in Ukraine brought inflation well beyond the ECB's 2% target. Consequently, since July 2022 the ECB has implemented a series of hikes to the main policy rates. Concurrently, the ECB announced the Transmission Policy Instrument (TPI) to mitigate fragmentation risks within the EA. In such a context, the euro area faces the critical trade-off between persistent high inflation and a stagnating economy, implying social repercussions through a sustained transformation. It involves a pivotal shift in its extensive yet ageing production model, a notion underlined by Buti and Messori (2023). Such a transformation is essential to preserve the EU's prominence in global markets and prevent widening disparities among its member states.[1]

This paper explores the primary policy responses in the EA since the pandemic crisis. Section 2 evaluates the main fiscal policy and ECB's monetary responses during the pandemic and in the post-pandemic period. Section 3 presents evidence of the impact of crucial post-pandemic monetary policy announcements on long-term inflation expectations and financing conditions in key European countries. Section 4 discusses the ECB's 2021 inflation target revision and the Transmission Policy Instrument. Section 5 discusses the euro area's architecture from a broad viewpoint.

[1] See Canofari et al. (2023).

2. THE ECB'S SUPPORT FOR FISCAL POLICIES DURING THE COVID-19 CRISIS

The COVID-19 pandemic led to necessary global containment efforts. Its economic effects varied across the EA, creating significant yet uneven pressure on different economies and financial systems. In this context, the ECB faced the tasks of stabilising markets, ensuring the continuity of credit flow, and mitigating the negative impacts of the pandemic on inflation trends.

The ECB's action in response to the financial challenges posed by the pandemic in 2020 was twofold.

1. A comprehensive policy package was announced, which included a new €750-billion pandemic emergency purchase programme (PEPP) for private and public sector securities and an expansion of the existing APP by €120 billion. The eligibility criteria for assets in the CSPP were broadened. The ECB maintained its full allotment policy to support bank funding and introduced additional liquidity measures, including pandemic emergency longer-term refinancing operations (PELTROs).
2. Various supervisory measures were introduced to mitigate the economic impact of the pandemic. They included temporarily allowing financial institutions to operate below certain regulatory capital levels and utilising different capital tiers for regulatory requirements. This effectively freed up significant capital to support loans for the private sector. Additionally, the ECB directed banks to halt dividend payments and share buybacks to ensure this regulatory relief was used to increase capital buffers, anticipating a rise in non-performing loans. Macroprudential authorities also reduced capital buffer requirements, differentiating the pandemic's policy response from previous crises.

The ECB's emergency action took place within the measures of the entire economic-political system of the EA, particularly as a complement to national fiscal policies (Borgioli et al., 2020). On 20 March 2020, the European Commission increased flexibility in State aid rules. Subsequently, on 23 April the European Council agreed on three new financial safety nets ("financial backstops"), totalling €540 billion. They included pandemic-crises support credit lines through a new ESM facility without macroeconomic conditionality, support for unemployment risks (SURE) due to pandemic-related job losses, and the European Investment Bank's guarantee fund to back loans provided by national banks. These measures aimed to supplement national fiscal strategies, address financial fragmentation and support the economy during the pandemic.

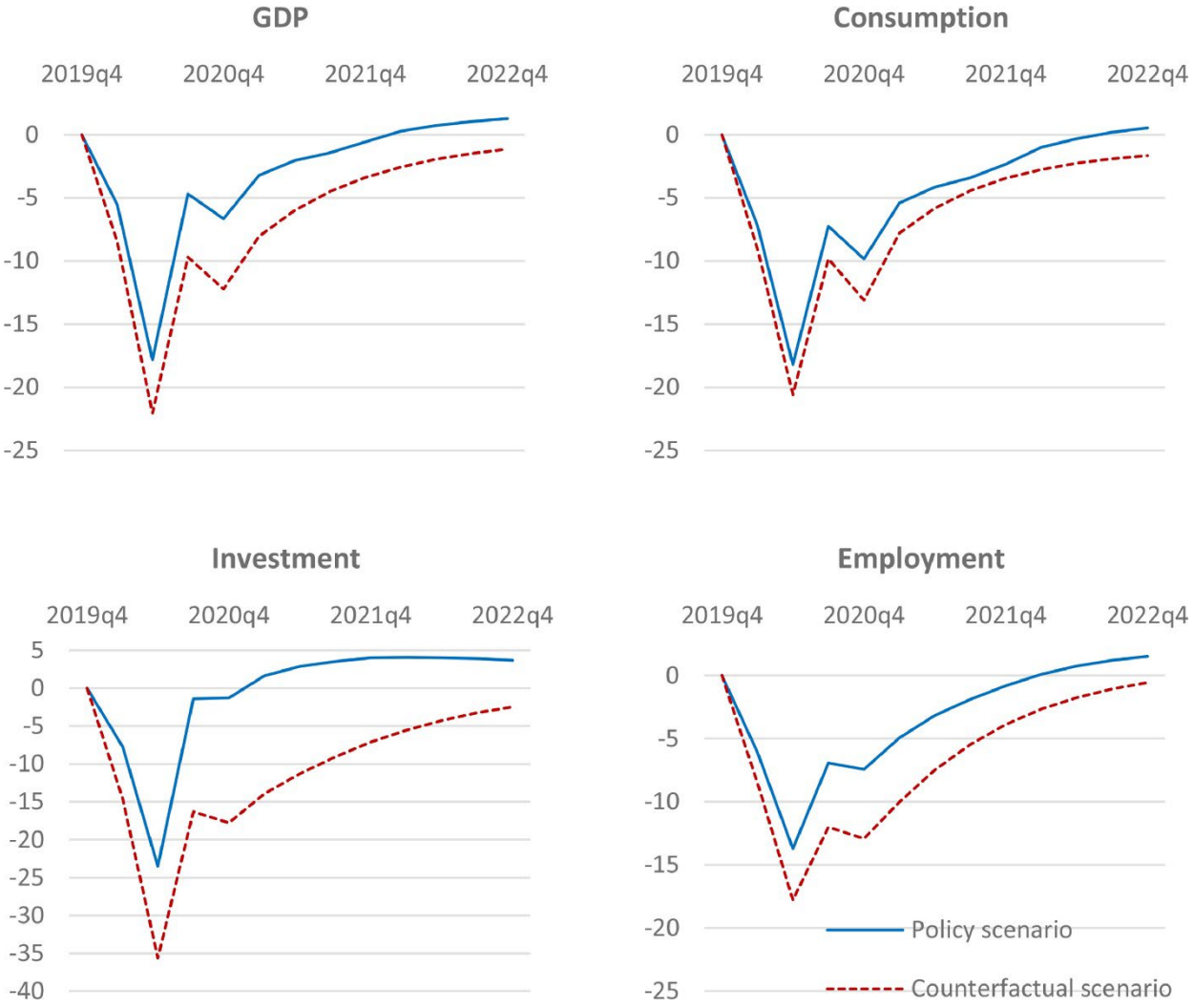
The convergence of these monetary policy actions, supervisory measures, and the subsequent development of a supranational fiscal response distinguish the policy approach to the pandemic from the strategies employed during the previous two crises. The ECB's action, combined with domestic fiscal policies, prevented the collapse of the European economy.

The Italian case is emblematic of the success of the above-described policy orientation. Italy was the first country to be affected by the pandemic and to the greatest extent. The EBC's stance made it possible to provide substantial fiscal support for sustainable businesses and households, mitigating the impact of containment measures. The Italian government implemented significant economic policies to mitigate the impacts of the COVID-19 pandemic, allocating approximately €175 billion from 2020 to 2022. The fiscal response amounted to 6.4% of GDP in 2020 and decreased to 1.7% and 1.9% in 2021 and 2022, respectively. These measures, encompassing income and labour support, business aid, and other public expenditures, were progressively implemented to maintain liquidity and prevent a generalised financial crisis.

Di Bartolomeo et al. (2022) analysed the impact of fiscal measures on Italy as a case study. Their main results are summarised in Figure 1. It shows the observed quarterly dynamics (solid blue lines), which

incorporate the Italian government's fiscal interventions, and a counterfactual (red-dotted lines), which illustrates the potential effects on the economy if the extraordinary measures had not been implemented.

Figure 1. Anti-COVID fiscal measures' impact on selected macroeconomic variables in Italy.



Source: Di Bartolomeo et al. (2022)

Similar studies investigated the effects of policy interventions in the euro area to assess the mitigating influence of economic policy responses. Pfeiffer et al. (2020) pinpoint firm liquidity issues as critical factors in the spread and intensification of the shock. They also evaluate the impact of short-term work allowances and liquidity guarantees, pivotal policy approaches within the European Union. They found that these strategies diminish the output reduction resulting from COVID-19 and the consequent lockdowns by roughly 25%. Nonetheless, they cannot avert a steep, albeit brief, downturn in production.[2]

Analyses such as those described above are based on the underlying assumption that the ECB's interventions have guaranteed the sustainability of fiscal policy. Despite their significant growth, they do not consider the potential impacts on government debt spreads. This foundational assumption is grounded in the actions taken by the monetary authority in response to the pandemic crisis.

[2] See also Cardani et al. (2022, 2023).

Specifically, it is based on acquiring private and public sector assets through the APP and the PEPP and the effects of ECB policy announcements (Benigno et al., 2022).

According to Altavilla et al. (2020a, 2020b), lending to businesses in the EA would have been 3 p.p. lower from 2020 to 2022 without the third round of targeted longer-term refinancing operations (TLTRO III). Simultaneously, micro- and macro-prudential measures facilitated a loan growth of approximately 2.2 p.p.. Thus, it is plausible that a part of the impact we have identified through the Italian government's liquidity-support measures might be attributable to the synergy between monetary and fiscal policies.

The effects of the COVID-19 pandemic on the economy and job market swiftly became clear, prompting the Commission to start discussions on the Next Generation EU (NGEU) initiative. This plan, endorsed in July 2020, encompasses the Recovery and Resilience Facility, backed by EU-issued debt and a boost in the EU's resources. The plan is naturally not sustainable without fiscal and monetary coordination.[3]

However, a new crisis phase emerged at the end of 2021. The economy slowly recovered, but inflation began to rise, posing new challenges for policymakers. The significant increase in energy prices starting in the summer of 2021, coupled with a consistent rise in food costs and prices for energy-dependent services like transportation, resulted in a significant economic shock in the EA. This terms-of-trade shock negatively impacted real income, particularly affecting consumption and investment, and disproportionately impacted energy-intensive sectors, many of which were already struggling with ongoing bottlenecks. The prolonged period of increasing inflation sparked concerns regarding the medium-term inflation trends and the risk of destabilising inflation expectations.

The Russian invasion of Ukraine on 24 February 2022 marked a significant turning point for Europe and the world. The initial effect of the invasion was a disturbance in the financial markets, which somewhat recovered quickly. However, as the war prolonged, its economic impacts began to emerge. Sanctions were imposed on Russia and new bottlenecks arose due to the EU's dependence on Russian rare earths, raw materials, and crucial supplies from Ukraine. The restrictions on importing Russian fossil fuels heightened the impact on energy.

A variety of monetary actions were then undertaken. These included establishing a crisis management framework, increasing understanding of sanctions, broadening the analysis of potential direct and secondary impacts, evaluating the banking sector's vulnerability to the Russo-Ukrainian War, and adjusting the medium-term supervisory approach and strategy.

Specifically, after consistently hiking interest rates since July 2022, the ECB's Governing Council maintained official interest rates at their current level during its October 2023 and December 2023 meetings. The central bank contends that keeping these rates steady for a sufficiently prolonged period will significantly help to steer inflation back to the medium-term goal of 2%. The impact of high interest rates continues to persist in the economy. The tightening of financing conditions is moderating demand, thereby contributing to the reduction of inflation. The ECB will persist in adopting a data-driven strategy to ascertain the appropriate extent and duration of the monetary tightening policy. In this context, decisions regarding interest rates will be made by considering inflation forecasts, the trend of core inflation, and the effectiveness of monetary policy transmission.[4]

The ECB is gradually reducing the reinvestment of maturing securities under the PEPP for both public and private sectors, aiming to cease these reinvestments by the end of the 2024. The Eurosystem's total

[3] See Bańkowski et al. (2021), Di Bartolomeo and D'Imperio (2022) and Pfeiffer et al. (2022, 2023).

[4] It is worth noting that after the inflation data release in late November 2023 and the ECB's December 2023 meeting, expectations for a cut in benchmark rates, indicated by €STR swap contracts, grew more assertive. Markets are predicting a fast pace of benchmark rate reductions, with the first 25-basis-point cut expected in April 2024 and an overall reduction of about 150 basis points by the end of 2024, setting the central bank's deposit rate at around 2.5 per cent in December 2024. In contrast, the ECB's Survey of Monetary Analysts (SMA) participants anticipate the first rate cut in July 2024, with the deposit rate decreasing by 75 basis points to 3.25 per cent by year-end.

assets under the APP have decreased to 3.026 trillion euro as of December 2023. For the PEPP, the ECB will maintain full reinvestment of maturing securities until mid-2024, then reduce the PEPP portfolio by 7.5 billion euro monthly in the latter half, ending reinvestments by year's end. The total value of TLTRO III loans in the Eurosystem is 392 billion euro.

As a result of the monetary policy actions, the inflation dynamics are now following a downward trend. According to a flash estimate from Eurostat, in January 2024, euro area annual headline inflation is expected to be 2.8%, down from 2.9% in December. Core inflation (i.e. excluding energy and food prices) also continued on its downward trend.[5] Eurosystem forecasts suggest that disinflation will persist into 2024.[6]

[5] Food, alcohol and tobacco price component is expected to have the highest annual rate in January (5.7%, compared with 6.1% in December), followed by services (4.0%, stable compared with December), non-energy industrial goods (2.0%, compared with 2.5% in December) and energy (-6.3%, compared with -6.7% in December).

[6] A detailed analysis of the underlying inflationary pressure indicates that in recent months there has been a decrease extending to categories that initially experienced slower price increases. Food inflation also declined, driven by a drop in the processed food segment, which outweighed the seasonal price hikes of fresh products. Disinflation has spread across all basket components, with the proportion of items experiencing annual price changes above 4% standing around 40% in December 2023, marking a decrease from the peak of approximately 70% in the first half of 2023. However, the stagnation trend persisted into the final quarter of 2023, with the evident sluggishness in the manufacturing and construction industries also increasingly influencing the services sector. The process of disinflation is impacting every major category within the economic basket.

3. THE ECB IN ACTION

3.1. Inflation expectations in the euro area

This section analyses the impact of the monetary policy stance on the long-term inflation expectations in the euro area. We describe how these expectations align with the ECB's 2% target. Figure 2 illustrates the trend of long-term inflation expectations in the eurozone, using the 5-year, 5-year (5y5y) forward inflation rate based on a swap designed to hedge the inflation risk.[7] The vertical grey-dashed lines highlight significant events. Understanding the dynamics of long-term inflation expectations is crucial for evaluating the ECB's effectiveness in achieving the 2% inflation target.

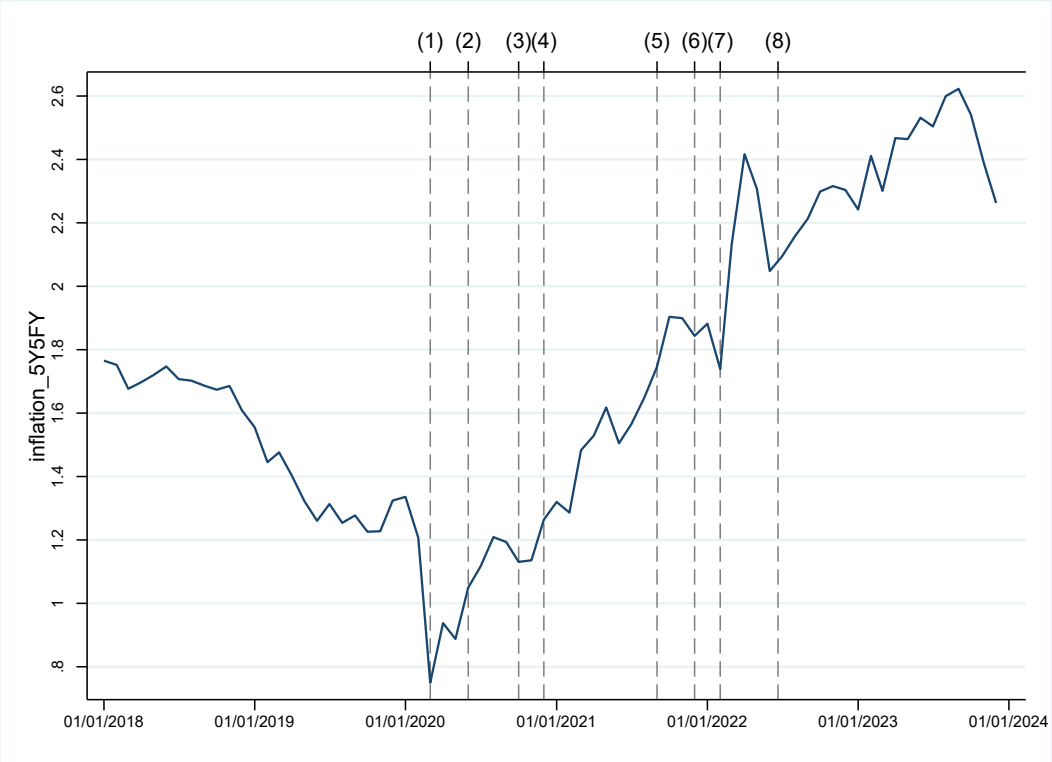
The introduction of the PEPP in March 2020 marked a notable shift in long-term expectations, with robust monetary support pushing the rate up by over 0.5 p.p. Subsequent reinforcements of the programme in 2020 seemed to contribute further to the realignment of inflation expectations with the 2% target.

Conversely, the announcement of the deceleration in PEPP's purchases in September 2021 dampened these expectations, as Figure 2 shows, bringing the inflation rate to around 1.9%. Nonetheless, following the unforeseen invasion of Ukraine and the temporary energy supply constraints to Europe, inflation expectations surged, significantly surpassing the ECB's target.

Despite the ECB adopting a more restrictive monetary policy stance on 7 July 2022, with a 50-basis point hike in nominal interest rates, inflation expectations rose, peaking at 2.6% in early 2023. Throughout 2023, declining energy prices, consistent hikes in EA policy rates, and a gradual reduction in inflation expectations nudged the actual rate closer to the target. However, the expected inflation rate is still deviating from the 2% mark, suggesting the necessity of maintaining high interest rates to gradually converge long-term inflation expectations to the target.

[7] A 5y5y inflation swap is a good measure of the market's expectation of five-year average inflation, starting in five years. This provides a proxy of market perception of the inflation outlook over the medium to long term.

Figure 2. 5-Year, 5-Year Forward Inflation Expectation Rate in the euro area



Source: Datastream Eikon (Thomson Reuters)

Note: This graph shows the 5-year, 5-year forward inflation rate in the euro area from 2018 to 2024 at monthly frequency. The dashed vertical lines refer to the following events: (1) March 2020, the announced PEPP; (2) June 2020, the ECB expanded the PEPP total envelope to €1.350 billion; (3) October 2020, the ECB announced that its monetary policy instruments will be recalibrated to support economic recovery; (4) December 2020, the ECB expanded the PEPP total envelope to €1.850 billion; (5) September 2021, the ECB decided to implement a moderately lower pace of asset purchases under the PEPP; (6) Dember 2021, the ECB announced the end of net purchases under PEPP at the foreseen date of March 2022; (7) February 2022, Russia's invasion of Ukraine (8) July 2022, the ECB announced the first interest rate hike.

3.2. Interest rates and lending conditions

This section analyses the heterogeneity of monetary policy transmission at the country level. We examine the trends in financing conditions prevailing in the euro area and the impact of monetary policy decisions starting from the announcement of PEPP. To clarify the results, we have considered both sovereign and corporate financing rates for the four major European economies: Germany, France, Italy, and Spain. Specifically, first, we concentrate on the long-term government bond yields; second, we focus on the trajectory of financing costs incurred by businesses operating in the four reference countries. Finally, we describe the dynamics of corporate debt in the non-financial sector.

We gathered data on long-term interest rates from the ECB to examine how monetary policy actions influence interest rates. As depicted in Figure 3, these rates reflect each country's monthly average rates for long-term government bonds.

The introduction and subsequent strengthening of the PEPP have notably influenced the 10-year interest rates across major European economies. This effect has been particularly pronounced in Italy and Spain. Compared to Germany and France, these countries have a higher debt burden, thus experiencing a marked reduction in government bond yields.

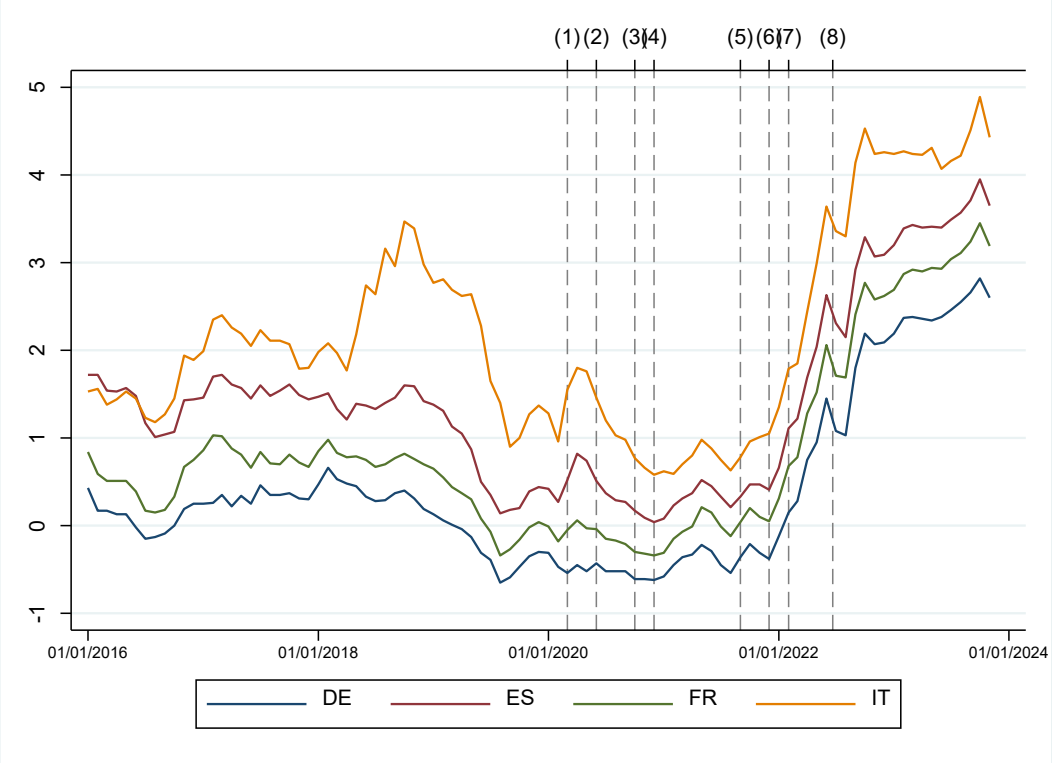
Announcements at the end of 2021 about reducing the pace of the PEPP have affected the risk perceptions of European countries, especially in the scenario of Europe still reeling from the deep post-pandemic recession. This fact is evident from the rising trend in the 10-year government bond yields.

Nevertheless, as indicated in Figure 3, the most evident increase can largely be ascribed to Russia's invasion of Ukraine. This event has raised concerns about the geopolitical stability of the European Union, substantially elevating risk levels for all Member States. Specifically, several challenges that emerged in the latter half of 2021 have become more pronounced and severe. These include a surge in energy and food prices, new supply chain disruptions, difficulties in obtaining critical raw materials, and increased financial market volatility.

The marked inflation in Europe has led the ECB to increase policy rates by 50 basis points for the first time in nearly a decade. Given the persistent inflation, the ECB has adopted a restrictive monetary stance, rising the interest rate on the deposit facility o 4% (a sharp increase from -0.5% before July 2022).[8]

The long-term interest rate in Figure 3 shows the significant response to the interest rate hike since July 2022: the increase seems symmetric across the four considered countries.

Figure 3. Long-term interest rates (%)



Source: Authors' elaboration based on ECB data on Harmonised long-term interest rates for convergence assessment purposes

Note: This graph shows the monthly long-term interest rate (%) in the euro area from 2018 to 2024. The dashed vertical lines refer to the following events: (1) March 2020, the announced the PEPP; (2) June 2020, the ECB expanded the PEPP total envelope to €1.350 billion; (3) October 2020, the ECB announced that its monetary policy instruments will be recalibrated to support economic recovery; (4) December 2020, the ECB expanded the PEPP total envelope to €1.850 billion; (5) September 2021, the ECB decided to implement a moderately lower pace of asset purchases under the PEPP; (6) December 2021, the ECB announced the end of net purchases under PEPP at the foreseen date of March 2022; (7) February 2022, Russia's invasion of Ukraine; (8) July 2022, the ECB announced the first interest rate hike.

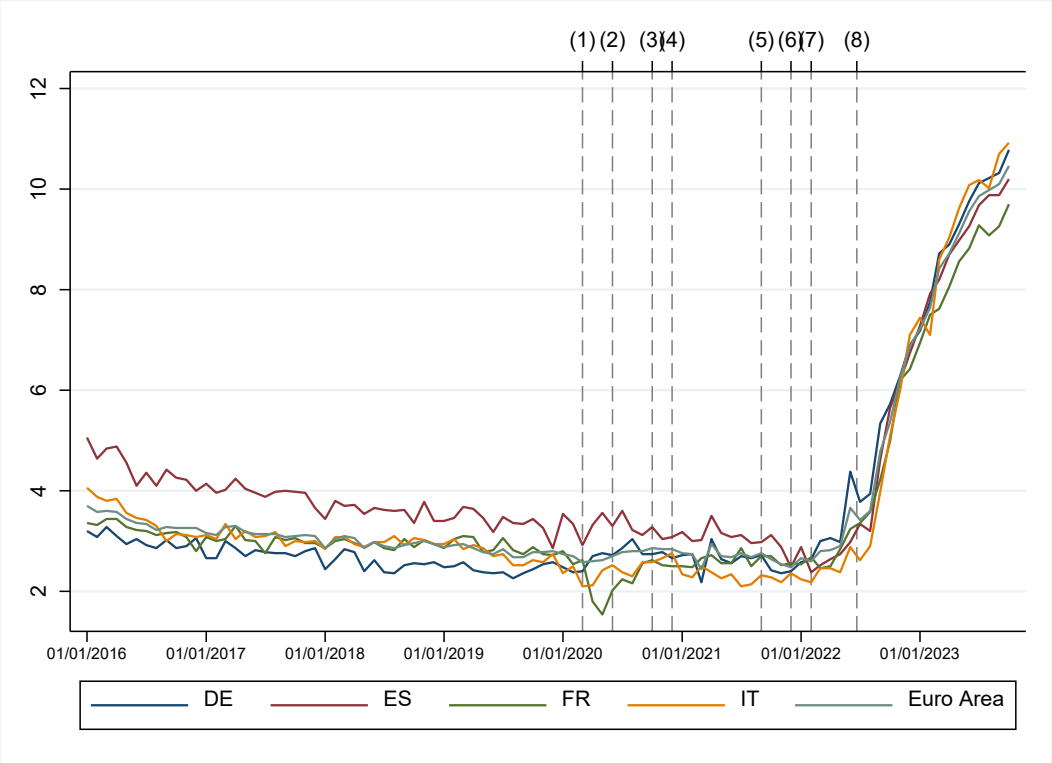
Now, we look at the firms' cost of borrowing. Since the beginning of the monetary policy normalisation, credit growth has sharply declined, turning negative, such as in the periods following the global financial crisis and the sovereign debt crisis. The downturn has been more pronounced than historically anticipated (Lane, 2023). Looking at euro area firms' financing conditions, Figure 4 shows the monthly

[8] For detailed information on the ECB's key interest rates see the ECB webpage: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html.

average financing rates for Germany, France, Italy, Spain and the euro area average rate. The loose monetary policy of the central bank has decreased financing rates for households and businesses in the eurozone.

Figure 4 illustrates the decreasing trend in the cost of borrowing for the largest euro area countries: since the activation of the ECB's quantitative easing, interest rates continued to decrease, remaining in the 2-3% range until the pre-COVID-19 period.

Figure 4. Firms' cost of borrowing for the four largest euro area members (%)



Source: Authors' elaboration on data provided by ECB Statistical Data Warehouse.

Note: This graph shows the firms' cost of borrowing for the four largest euro area members (%) from 2016 to 2024 at monthly frequency. The dashed vertical lines refer to the following events: (1) March 2020, the announced the PEPP; (2) June 2020, the ECB expanded the PEPP total envelope to €1.350 billion; (3) October 2020, the ECB announced that its monetary policy instruments will be recalibrated to support economic recovery; (4) December 2020, the ECB expanded the PEPP total envelope to €1.850 billion; (5) September 2021, the ECB decided to implement a moderately lower pace of asset purchases under the PEPP; (6) December 2021, the ECB announced the end of net purchases under PEPP at the foreseen date of March 2022; (7) February 2022, Russia's invasion of Ukraine; (8) July 2022, the ECB announced the first interest rate hike.

The ECB's massive intervention to support the economy during the pandemic has continued to exert downward pressure on interest rates. A brief assessment of the effectiveness of these measures in countering the recession caused by various lockdowns could argue that monetary interventions have kept the credit channel accessible, enabling businesses to finance themselves at pre-crisis cost levels.

Notably, the post-pandemic measures adopted by the ECB have pushed the average financing rates of businesses in major euro area countries toward a common convergence level. This trend is particularly evident at the end of 2021, when the ECB announced a slowdown and the end of the pandemic purchase programme.

With Russia's invasion of Ukraine and the subsequent monetary tightening, average financing rates for businesses have experienced an exponential increase, drastically reducing the amount of loans granted to the economic system.

The recent hikes in official rates have persistently impacted the cost of financing for businesses and household home purchases. The influence of monetary policy changes on financing conditions is manifesting more robustly than historically anticipated and is partly ascribable to the elevated risk perceived by financial intermediaries (Bottero and Conti, 2023). Moreover, the systematic reduction of the Eurosystem's balance sheet and the subsequent reduction in bank reserves amplify the constraining effect of the increase in policy rates on borrowing costs.

Finally, we focus on corporate debt dynamics in the non-financial sector. After the financial crisis, the ECB endeavoured to strengthen economic growth within the euro area through an extensive set of unconventional tools. This approach involved injecting substantial liquidity into the market and lowering interest rates. These measures were implemented to ensure the functioning of the monetary policy transmission mechanism, thereby stimulating output without compromising price stability.

The credit channel, notably emphasised in the APP, played a key role. The combination of low interest rates and the execution of sovereign and corporate security purchases incentivised debt accumulation. This consideration applies to publicly listed companies and privately held enterprises in Europe.[9]

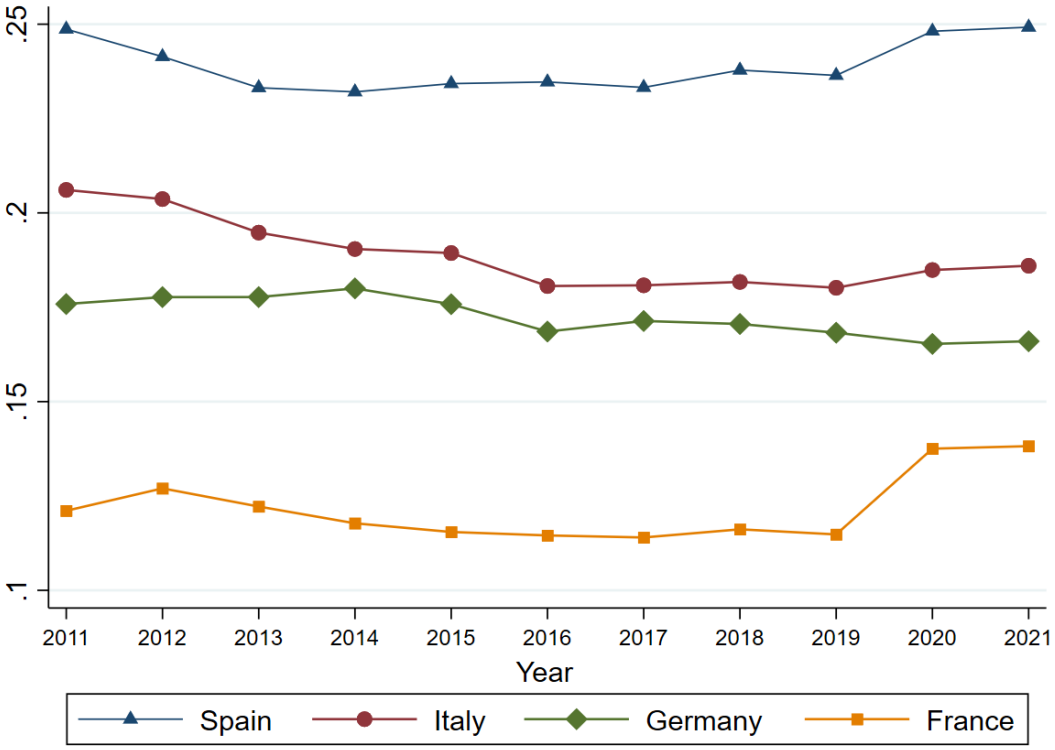
The onset of the pandemic crisis, followed by the Russo-Ukrainian War, has induced an inflationary shock, prompting the ECB to implement a hike in interest rates in July 2022. A natural question arises from the current scenario: could the financial exposure of businesses potentially lead to a fragmented transmission of monetary policy within the eurozone?

Figure 5 illustrates the trends in the euro area's debt exposures of unlisted companies.[10] Consistent with the evidence shown in previous sections, we have highlighted the trend in the indebtedness of companies established in the four major countries of the euro area. We need to specify that we consider non-listed corporations accounting for a relevant portion of the non-financial corporate sector in the euro area. We chose non-listed firms since they are subject to financial constraints and more responsive to changes in the ECB's monetary policy stance.

[9] See Grosse-Rueschkamp et al. (2019), Arce et al. (2021), and Betz et al. (2021).

[10] Specifically, we employ as a standardised indebtedness measure the firms' leverage which is defined as the total debt-to-total assets ratio.

Figure 5. Leverage for Eurozone non-listed companies (%)



Source: Orbis Bureau Van Dijk.

Companies operating in Italy and Spain consistently show more indebtedness than that recorded for German and French companies. It is noteworthy that Spanish companies show the highest level of indebtedness compared to Italian companies, and this trend appears to return to pre-crisis levels in the years 2020-2021. Additionally, Figure 5 highlights the convergence in the debt levels of Italian and German companies. This convergence, which started in 2012, seems to reduce starting from 2020, when the level of indebtedness of Italian companies increases, while that of German companies appears to decrease significantly.

Interestingly, French companies appear to be less indebted than those in other countries and maintain a stable level of indebtedness. However, it is worth noting that French companies experienced a noticeable jump with the onset of the pandemic. This new level does not seem to decrease in 2021. Figure 5 shows that the increase in the average debt of French companies could be driven by the significant decrease in the cost of debt recorded in France after the onset of the pandemic. Furthermore, we strongly emphasise that companies have increased their indebtedness in all countries except Germany since the onset of the pandemic crisis.

The implementation of massive interventions in the bond market (both sovereign and corporate), combined with fiscal policies that facilitated the provision of subsidised credit to companies affected by lockdowns, has undoubtedly incentivised the increase in debt exposure, posing risks to financial stability (Brunnermeier and Krishnamurthy, 2020).

4. A CHANGING ECB IN A CHANGING WORLD

This part of the paper discusses the evolution of the ECB's policy framework regarding the 2020-2021 monetary policy strategy review. Specifically, we focus on what we consider the two fundamental innovations. The first concerns revising the ECB inflation target announced in July 2021 and providing a new definition of price stability. The second addresses the introduction of a new instrument called the Transmission Protection Instrument (TPI). The first element is helpful to explain the ECB's initial reaction to the inflation onset in the post-pandemic period, while the second becomes crucial in a time of high-interest rates and financial stability risk.

4.1. The revisions of the ECB's inflation target

It is widely recognised that price stability is the central banks' primary goal. The 1992 Statute of the European System of Central Banks stated that price stability is the main objective of the ECB's monetary policy. In 1998 the ECB Governing Council adopted the first quantitative definition of price stability, according to which the EA inflation rate had to be below 2%. In the same meeting, it was specified that price stability should be considered a medium-term objective. This approach was justified because, at the beginning of the euro's life, EU policymakers did not perceive the necessity of having a minimum level of "positive" inflation. Indeed, the main concern was the high inflation rates registered by several European countries, especially during the twenty years before the Maastricht Treaty.

The ECB decided to review the definition of price stability in the Governing Council meeting of May 2003. According to this new approach, the inflation rate had to be not only below 2% but also close to this target. Even if the inflation target remained downward and asymmetric, the ECB implicitly announced the need for an inflation rate close to 2%. This specification was mainly due to the necessity of constituting an inflation buffer to reduce the deflation risk. The presence of countries with different business cycles further justified the minimum positive inflation rate at the EA level.

In July 202,1 the ECB's Governing Council provided a new concept of price stability in its monetary policy strategy review. According to this revision, the 2% inflation target had to be reached in the medium term. It is a clear evolution concerning the above-discussed definitions since inflation below or even close to 2% is insufficient for price stability. First, it is stressed that inflation must strictly reach 2% in the medium term. Second, it is specified that the new target is symmetric. It implies that the ECB assigns symmetric costs to positive and negative deviations from the target, which are equally undesirable for a central bank. In other words, the ECB is ready to react similarly in case of an inflation rate either higher or lower than 2%.

In addition to a symmetric target, the monetary policy strategy review of July 2021 introduces the concept of proportionality. Specifically, when the nominal interest rate is close to the zero lower bound (ZBL), with an economy facing a negative cyclical phase or a negative trend, it is reasonable to implement a monetary policy stance accepting a transitory period in which inflation is moderately above 2% even in the medium term.

The 2003 and 2021 monetary policy strategy reviews were motivated, as Benigno et al. (2021a) argue, by the decline in the natural rate that has also characterised the EA since the global financial crisis. This equilibrium real interest rate (often denoted by r*) stabilises the inflation rate. In the presence of a negative natural rate interest, the central bank's probability of being constrained by the ZLB is higher. One way to prevent this possibility is to create a sufficient inflation buffer that, when entering inflation expectations, can reduce the real interest rate with a positive nominal policy rate. The new target has positively impacted inflation expectations. Thus, a higher inflation target allows the central bank to cut the nominal interest rate in case of an economic downturn, preventing the ZLB. Furthermore, even if the economy is at the ZLB, increasing the inflation target is a way to accelerate the exit from a liquidity trap and the ZLB.

The 2021 inflation surge in the EA was caused by supply bottlenecks during the post-pandemic recovery. The EA's average inflation rate, as measured by the Harmonised Index of Consumer Prices (HICP), rose from slightly over 2% in July 2021 to nearly 5% by January 2022. With policy interest rates at the ZLB, the ECB allowed a temporary inflation deviation due to the different shocks affecting the European economy. Applying the concept of proportionality and believing that raising policy interest rates before concluding unconventional monetary programmes would have been inappropriate, the ECB maintained an expansionary monetary policy stance.

Furthermore, the ECB's Governing Council members attributed the inflation increases not to the typical excess in aggregate demand but to the lingering supply bottlenecks from disruptions in international value chains since the pandemic. Consequently, they argued that a restrictive monetary policy would have been ineffective in alleviating these bottlenecks, asserting that the upward deviations in inflation were temporary and essential for definitively overcoming the pandemic crisis under ZLB.

Russia's invasion of Ukraine in February 2022 further exacerbated the situation, creating a significant contraction in energy supply for the European economies. The headline inflation rate increased to 7.4% in March 2022. As we have seen above, the concept of proportionality can be used to explain why the ECB delayed the contraction in monetary policy following the onset of inflation after the pandemic crisis.

4.2. Transmission Policy Instrument and Outright Monetary Transactions

During the press conference of June 2022, the ECB defined the fragmentation risk as "the uneven transmission of the normalisation of our monetary policy across jurisdictions."[11] It implies that under market fragmentation, the transmission of a centralised monetary policy is heterogeneous due to different financing conditions prevailing in European countries. Market fragmentation was not new for European economies, being present well before the pandemic crisis. The EA has experienced ongoing fragmentation since the global financial crisis and the subsequent European sovereign debt and banking sector crises. The ECB press conference of September 2012 provided details on the Outright Monetary Transactions (OMT), the first instrument announced by the ECB to reduce market fragmentation in the EA.[12]

During the 21 July 2022 meeting, the ECB's Governing Council agreed on an additional tool to reduce the possible consequences of resurged market fragmentation in the EA after the end of the net APP purchases in June: the TPI. As the ECB stated, "the TPI is necessary to support the effective transmission of monetary policy and […] to counter unwarranted, disorderly market dynamics that pose a severe threat to monetary policy transmission across EA. The press conference of the same meeting referred to the different instruments adopted by the ECB to reduce market fragmentation, including the new TPI, the flexibility in reinvesting redemptions due in the PEPP portfolio and the still existent OMTs "to deal with unwarranted impairment to the transmission that is caused by redenomination risks and that is country specific."[13]

The ECB seems to differentiate between the TPI and OMT, referring to the latter as addressing the redenomination risk that affected the EA, particularly during the sovereign debt crisis. As Benigno et al. (2021b) showed, in 2012, the OMT announcement was the key driver in determining the sharp reduction of the different measures of the redenomination risk.

[11] https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220615~2aa3900e0a.en.html
[12] https://www.ecb.europa.eu/press/pr/date/2012/html/pr120906_1.en.html
[13] https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220721~973e6e7273.en.html

Even if the ECB announced a set of instruments to reduce market fragmentation in EA, some concerns would arise about their feasibility. Since June 2022 the ECB has leveraged the flexibility of PEPP reinvestments as the" first line" to reduce market fragmentation. First, in our view, PEPP is not the correct instrument to reduce market fragmentation since the ECB introduced it to avoid a fall in inflation due to the pandemic crisis. Second, even though the OMT effectively reduced the redenomination risk in the EA, the activation of the OMT in a post-pandemic environment is perplexing due to the rigorous conditionality attached to the programme, making it likely only for countries close to bankruptcy. This fact implies that the TPI can be considered more credible than the OMTs in contrasting market fragmentation in the EA. Let us recall that a central bank acting as a lender of last resort should purchase only risk-free assets, and conditionality is a way to ensure that the borrower's debt is sustainable.

A crucial difference between the OMTs and the TPI is that the latter targeted bond purchases with longer maturities (between 1 and 10 years). The TPI activation is at the discretion of the ECB, depending on specific conditions that need to be met by the potential beneficiary country. A pre-defined quantitative threshold does not constrain the purchase size but should not interfere with the existing monetary policy. Despite the significance of this instrument, the ECB's Governing Council did not provide a comprehensive specification of these features in the announcement made in July 2022. Despite the lack of details, three fundamental aspects can be considered: the determinants of TPI activation, the above-described conditionality, and its impact on monetary policy.

Regarding the TPI activation, the press release of 21 July 2022 reports: "A decision by the Governing Council to activate the TPI will be based on a comprehensive assessment of market and transmission indicators, an evaluation of the eligibility criteria and a judgment that the activation of purchases under the TPI is proportionate to the achievement of the ECB's primary objective." It implies that the potential beneficiaries should be characterised by excessive spreads representing their structural weaknesses.

Although at first sight the TPI features bring this instrument close to the OMTs (Bini Smaghi 2022), these two instruments' mechanisms are quite different. As Canofari et al. (2022) argued, two factors are crucial: the different levels of the ECB's autonomy in activating the two programmes and the invariance of the ECB's balance sheet size. Even if the ECB is free to implement and suspend both programmes, the TPI differs from the OMT since activation of the latter requires a country to submit a formal preventive request and to be already participating in a European assistance programme. The TPI activation is contingent on the ECB's discretionary assessment regarding an excessive spread (compared to the normal one).

5. LOOKING FORWARD: SOME UNPLEASANT EU MONETARY GEOMETRY

In 1981 Thomas J. Sargent and Neil Wallace published an influential work in monetary theory titled "Some Unpleasant Monetarist Arithmetic." Their primary focus was to explore the dynamics between monetary and fiscal policies and their impact on inflation and economic stability. Sargent and Wallace highlighted how monetary and fiscal policies are not independent. Even if a central bank aims to control inflation through monetary policy, its actions can be undermined by irresponsible fiscal policy, such as high budget deficits. When a government spends more than it earns, it needs to increase its debt or print more money. If the market is unwilling to purchase additional bonds at a sustainable interest rate, the central bank might be forced to "monetise the debt". This can lead to inflation. The alternative is a default and, in a monetary union, the end of the common currency if the country involved is large enough.

Even though it may seem that monetary policy can control inflation in the short term, fiscal sustainability becomes crucial in the long run. If economic agents expect that the government will need to print money to finance its debt in the future, they may start to anticipate inflation, leading to a vicious cycle between rising actual and expected inflation. The term "unpleasant" used by Sargent and Wallace indicates that inflation can rise even with restrictive monetary policy if fiscal policy is not sustainable. This point highlights the importance of responsible and sustainable fiscal policy for maintaining price stability. Essentially, the article by Sargent and Wallace warns against the overly simplistic view that the central bank can control inflation independently of government actions. It underscores the importance of harmony and consistency between monetary and fiscal policies to ensure long-term economic stability.

As we will argue, the viewpoint of Sargent and Wallace is at the heart of the construction of and debate on the euro area's architecture. One cannot discuss the design of the ECB as an institution without considering the design of domestic fiscal policies and the fact that they are based on heterogeneous financial constraints among country members.

Our point is that the European Monetary System is inherently characterised by structural vulnerabilities that tend to emerge during such crises, an issue that can be dated to its foundation.[14] This observation is particularly pertinent today as we are in what might be described as an age of turbulence – a time marked by instability and profound systemic changes. In such a context, the ECB has consistently been the central institution (the only player in town) in addressing economic turbulences, notably contributing to the resolution efforts during each crisis.[15]

The optimal (or ideal) structure of the European Monetary System should remain stable over time, effectively handling both symmetric (by the common monetary policy) and asymmetric (by domestic fiscal policies) shocks affecting member countries. Such an ideal monetary framework should rest on three main pillars:

[14] The monetary policy design has never been optimally integrated with fiscal policies, probably due to the need for political compromise between the different points of view of the individual member countries.

[15] We previously outlined the pandemic crisis in stages, highlighting the role of monetary policy intervention. Following the financial and sovereign debt crises, the pandemic marks the third significant disruption in the euro area. The inflation surge was the last act of the recent European crisis. Since the summer of 2021 the euro area has been experiencing a period of resurgent inflation. This shift marked the end of the low inflation phase due to the post-COVID-19 pandemic recovery and the subsequent crisis in the energy sector. Interruptions in supply chains and escalating energy prices have played a significant role in driving up core inflation. Nonetheless, the ECB's monetary interventions have successfully realigned long-term inflation expectations with the new 2% symmetric inflation target. See Neri (2023) for a discussion.

i) Fiscal rules — stringent enough to prevent a moral hazard but sufficiently adaptable to respond to economic cycle fluctuations — preventing excessive deficits in high-debt countries without promoting expansionary measures for those with fiscal space.

ii) Lack of a centralised fiscal authority (fiscal independence), precluding the transfer of fiscal sovereignty from individual member states to the European Union.

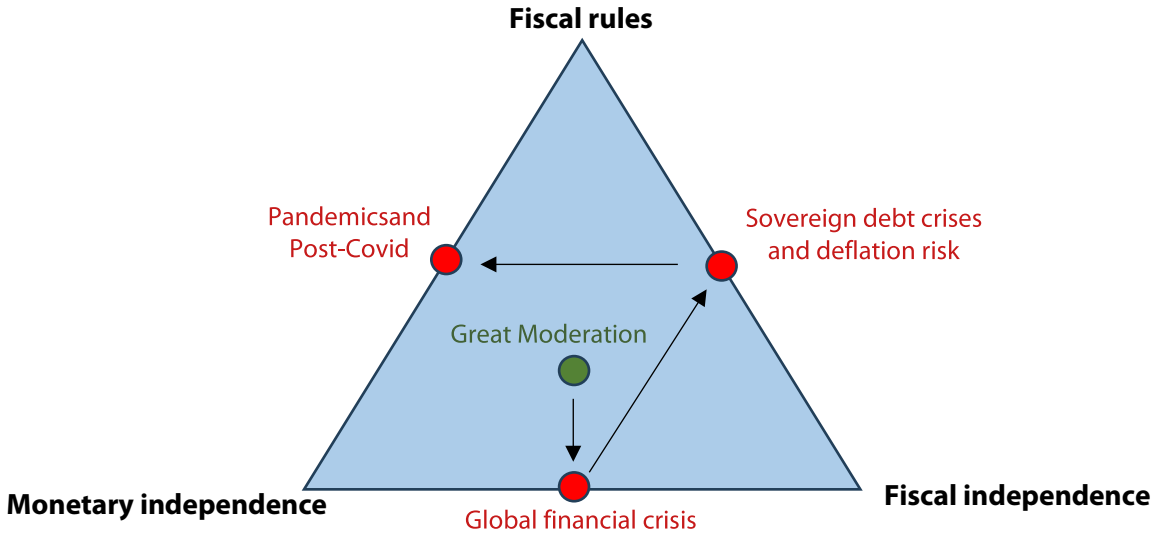
iii) The safeguard of the central bank's independence (or absence of fiscal dominance) ensures that monetary policy focuses on stabilising prices and output rather than fiscal positions, thereby avoiding governments' moral hazard.

Unfortunately, these three objectives have proven incompatible in Europe, creating a trilemma and suggesting that the European Monetary System's structure can only be based on two pillars (Buti and Messori, 2021). It should be noted that these pillars are not structurally incompatible. In other words, an impossible trinity may emerge under exceptional shocks. The European Monetary System, established by the Maastricht Treaty in 1992, functioned smoothly thanks to the stability provided by the Great Moderation period. However, the system has proven unsustainable in the face of subsequent global shocks (i.e. financial crisis, sovereign debt crisis, pandemic crisis).

The reasoning, partly drawn from Buti and Messori (2021), is summarised in the figure below. The potential pillars of the European Monetary System are represented at the triangle's corners. The European Monetary System can only be constructed on one side of the triangle formed by adopting restrictive **fiscal rules**, no central fiscal capacity (**fiscal independence**), and no fiscal dominance (**monetary independence**).

According to a very simplified crisis narrative and considering the abovementioned trilemma, the inconsistency becomes clear. From its creation until the global financial crisis, the euro area experienced relative economic stability, enjoying the effects of the Great Moderation, as all advanced economies. However, after the financial turmoil in 2007, pressure on national banking and economic systems led Member States to abandon fiscal rules due to the central bank's inability to intervene. The result was the unprecedented growth of national public debts and the abandonment of the rules set by the Stability and Growth Pact. In our view, this shifted the European system towards the bottom of the triangle in Figure 6.

Figure 6. The trilemma of the ideal architecture of the European Monetary System



The financial crisis then became a sovereign debt crisis, impacting Member States asymmetrically due to their initial fiscal positions, demonstrating the unsustainability of a tripartite European Monetary System model. Central bank intervention became necessary to safeguard the existence of the common currency. The ECB had to address the bond yield spreads first and then the fall in aggregate demand (given the impossibility of fiscal policy actions). In our view, this shifted the European system towards the right side of the triangle.

The response to the pandemic represented a discontinuity from the past in dealing with the trilemma. This time, the choice has been to create a centralised fiscal capacity to address first the pandemic emergence and later the chronic European weaknesses with the green and digital transitions. According to our narrative, these events shifted the EMU towards the triangle's left side.

The NGEU initiative may offer valuable insights for developing the economic management structure and introducing a permanent fiscal mechanism for the euro area in the future. Although NGEU is intended as a single initiative, the ECB has consistently advocated for a collective macroeconomic stabilisation function to strengthen the economic and institutional foundation of the EMU.16 Any fiscal mechanism established for the euro area should be designed to reinforce incentives for robust national fiscal and economic strategies. Specifically, it should support reforms targeting domestic structural issues and enhance adherence to the EU's fiscal and macroeconomic oversight framework.

The options are either to persist with a framework that is unable to deal with the growing number of global crises or to opt for a path that guarantees lasting resilience. Should the latter be chosen, policymakers should design a European Monetary System grounded in one of the various possible institutional frameworks considering policy trade-offs and the trilemma constraint.

The alternative is to ensure long-term viability based on one of the following institutional arrangements:

i) A model with fiscal rules without central fiscal capacity, where the monetary policy is subject to fiscal dominance (right side of the triangle);

ii) A model without fiscal rules and central fiscal capacity, with (domestic) fiscal and (common) monetary independence (base of the triangle);

iii) A model with fiscal rules and an independent ECB with a permanent central fiscal capacity (left side of the triangle).

It should be noted that iii) is the only institutional arrangement preventing a moral hazard and the only sustainable option if it is believed to be a potential issue. A centralised fiscal policy, intended as a European stabilisation policy (which can also act asymmetrically), eliminates the risk of a moral hazard and promotes monetary independence but poses limits in terms of political feasibility. Regarding debt sustainability, the impact cannot be adverse. If countries' public debts are sustainable by adopting a centralised fiscal policy, national fiscal positions will not deteriorate. If a country's fiscal position is potentially unsustainable, it might become sustainable because a centralised fiscal policy represents a form of risk-sharing between European economies. Simultaneously, creating a common fiscal capacity would allow for loosening monetary policy and make indebted countries' adjustment policies more sustainable. A centralised fiscal space signifies a partial transfer from the periphery to the centre (financed at lower rates) and insurance against potential stabilisation costs connected to future shocks.

The ongoing debate on fiscal rules and their interaction with the monetary authority will play a crucial role in shaping Europe's destiny. For instance, as pointed out recently by Draghi (2023), the success of the EU would depend on three conditions. First, national fiscal stabilisers need to operate without

[16] See Freier et al. (2022) and Canofari et al. (2023).

constraints. Europe's significant scale of national budgets could considerably mitigate local economic fluctuations. Second, constant support for the euro should facilitate indirect financial support, with economically weaker nations earning the fiscal robustness of stronger ones. This arrangement could reduce borrowing costs, enabling these governments to pursue stabilisation efforts without jeopardising their access to financial markets. Third, fiscal regulations must be structured and enforced to enhance trust in the long-term viability of public finances. This approach ensures that cyclical budget expansions do not trigger deep-seated concerns about financial stability, thereby maintaining the integrity of the implicit financial support mechanism.[17]

Considering our discussion, we can assert that the current debate on fiscal rules and their relationship with monetary policy will be fundamental for the future of the ECB's actions in upcoming crises. Generally, this debate must be approached with a long-term perspective, linking it to the changing world unfolding before us and the global change we intend to manage, such as the green and digital transitions.

[17] See also Lagarde (2023), Buti and Messori (2022, 2023).

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This study discusses the ECB's response to the recent crises, detailing interventions, new tools, and strategy shifts. It evaluates the effects of such crises on inflation expectations and financial stability across major European economies, offering insights into the euro area's policy dynamics and challenges.

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