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The Euro at 25: Fit for purpose?



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Abstract

This paper reviews the record of European Central Bank policymaking since the 2010-12 euro crisis in order to develop recommendations on: (1) the ECB's future monetary policy strategy, (2) its operational framework, and (3) the governance of European Economic and Monetary Union.

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 15 February 2024.

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LIST OF ABBREVIATIONS

ABPP	Asset-backed securities purchase programme
APP	Asset purchase programme
CBPP	Covered bond purchase programme
CSPP	Corporate sector purchase programme
DFR	Deposit Facility rate
ECB	European Central Bank
EMU	Economic and Monetary Union
EP	European Parliament
ESM	European Stability Mechanism
EU	European Union
GDP	Gross domestic product
HICP	Harmonised index of consumer prices
LTROs	Longer-term refinancing operations
MRO	Main refinancing operations
NCBs	National Central Banks
OIS	Overnight indexed swap
PEPP	Pandemic emergency purchase programme
PSPP	Public sector purchase programme
QE	Quantitative easing
QT	Quantitative tightening
SMP	Securities Market Programme
TLTRO	Targeted longer-term refinancing operations
TPI	Transmission protection instrument
USD	US dollar

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EXECUTIVE SUMMARY

- **This paper reviews the record of European Central Bank (ECB) policymaking since the 2010-12 euro crisis in order to develop recommendations on: (1) the ECB's future strategy, (2) its operational framework, and (3) the governance of Economic and Monetary Union (EMU).** The purpose is not to undertake a comprehensive evaluation of 25 years of EMU. Rather, it is to establish whether reforms and policy changes since the crisis are sufficient to remedy the defects of the currency union from the perspective of the conduct of monetary policy which were exposed by the crisis.
- **Since 2012, the ECB has proven adaptive and innovative in its policy framework and instruments.** It has also been fast and effective in addressing financial-stability risks to the euro. With respect to monetary policy, however, it has been late on two important occasions: in its January 2015 decision to undertake large-scale asset purchases including sovereign bonds, and in its July 2022 decision to raise interest rates.
- **We argue that these delays had a common cause: the political and fiscal fragmentation of the euro area.** This created a structural handicap for the ECB, reflected in concerns about the distributional impact of asset purchases on the one hand, and the financial stability impact of monetary tightening on the other.
- **The 2021 ECB strategy review marked significant progress but left major issues unaddressed.** These include: (1) a process for reviewing and (if necessary) adjusting the quantitative definition of the ECB's price stability objective, (2) the definition of the 'medium term' horizon over which price stability should be achieved, and (3) the relationship between that horizon and ECB secondary targets, such as financial stability. These issues should be taken up in the next (2025) strategy review. With respect to the ECB's much-expanded monetary policy instrument toolbox, there is a need to clarify and explain how these instruments will operate together in the future.
- **The 'ample reserves' operational framework that encourages banks to hold large buffers of excessive reserves has worked well in reconciling monetary policy control with financial stability; it should be retained.** We argue that the ECB should retain both refinancing operations on a full-allotment, fixed-rate basis, and a structural bond portfolio that enables it to control bank liquidity through bond purchases and sales if needed.
- **Overcoming the structural handicap of the euro relative to single-country reserve currencies does not require full fiscal union, but it requires both a liquid and safe bond market and some mechanism to ensure that the combined stabilisation effort by fiscal and monetary authorities is sufficient.** These aims could be in principle achieved through the combination of: (1) a larger EU budget supported by common borrowing, (2) further improvements to ECB policy instruments to reduce the financial-stability risks linked to fiscal fragmentation, and (3) reducing vulnerabilities that lead to fiscal fragmentation, by rebuilding fiscal buffers and by reducing the sovereign exposures of banks while not precluding the possibility of raising exposures again in crisis times. Without a consensus amongst member states on the implementation of these policies, the structural handicap is likely to persist.

1. INTRODUCTION*

The Economic and Monetary Union (EMU) has survived two large economic crises. It has also experienced a protracted period in which inflation undershot the European Central Bank's (ECB) price stability target, and a brief but unusually adverse period of high inflation. To adapt to the challenges, the Union has responded by reforming its policy concepts and institutions. These have included significant changes in the ECB's policy framework, strategy and instruments. The ECB is now a very different institution to that which was originally designed.

Many of these changes, however, have been introduced by necessity and often after costly delays and hesitation. While the ECB's ability to adapt is a sign of resilience, it is important to understand whether these delays merely result from behavioural biases or reflect a structural problem. This is what we attempt in this paper. Moreover, new risks are looming that may call for changes in the ECB's strategy, and more generally for reform of the EMU.

The purpose of this paper is also to present ideas for the next steps of EMU, focusing on the ECB and the elements of EMU governance that are most directly relevant to the ECB's mandate. The basis for our analysis is the historical record of ECB policy since 2012, that is, after the reforms of the euro area institutional and policy frameworks that were triggered by the euro area crisis of 2010-12. Hence, the purpose is not to undertake a comprehensive evaluation of 25 years of EMU¹. Rather, the question is whether the reforms and policy changes introduced since the crisis are sufficient to remedy the defects of the currency union revealed by the crisis, from the perspective of the conduct of monetary policy.

The remainder of the paper is divided into three sections. Section 2 describes and reflects on the last decade of ECB policy, starting with the stabilisation of financial markets after the euro crisis, and ending with the recent experience with high inflation and disinflation. Section 3 discusses the lessons that the ECB itself has drawn in its strategy review of 2021, in relation to challenges that emerged after the COVID-19 pandemic. Section 3 also identifies open questions that should be addressed in the next strategy review, to be published in 2025. It takes a view on whether the ECB should formally adopt the operational framework of 'ample reserves', which has been in use since 2008. In Section 4, we discuss what our analysis implies for the fiscal-structural environment in which the ECB operates, ways in which fiscal policy in EMU could become more centralised, and reforms that could reduce the fragmentation of EMU arising from differences in fiscal fundamentals.

We find that the ECB has generally been successful in adapting to a different economic and financial environment than the one its designers had in mind when preparing for monetary union. But we also find evidence that the job of the ECB has continued to be harder than that of other central banks, for reasons that relate to the political and fiscal environment in which it operates. After monetary policy became constrained by the effective lower bound on interest rates, distributional concerns resulting from this fragmentation delayed the deployment of ECB asset purchases as a monetary policy instrument, even though such purchase programmes had long been part of the toolkit of other major central banks. And as inflation concerns came to the fore in 2021-2022, fiscal fragmentation worries

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¹ Hence, the paper does not cover the pre-crisis and crisis history of EMU, nor does it evaluate EMU governance more broadly. For a recent stock-take covering the entire 25 years of EMU, see Corsetti and Buti (2024). For a discussion of the euro-area crisis and what it revealed about the flaws of the euro architecture, see Pisani-Ferry (2014). For a recent discussion of the unfinished agenda on banking union, see Beck *et al.* (2022). For the unfinished agenda on Capital Markets Union, see High Level Forum on Capital Markets Union (2020). For a discussion of the most recent attempt to reform the fiscal rules, see Blanchard and Zettelmeyer (2023), Darvas *et al.* (2023) and Zettelmeyer (2023a, b).

delayed the ECB's tightening of monetary policy, with the consequence that its eventual reaction had to be more forceful. Distributional concerns related to fiscal fragmentation are also a major complicating factor in the ongoing discussion of whether and how to change the ECB's operational framework within the context of the current review.

Our main conclusion is hence that the claim that *"successful monetary union requires fiscal union"* is indeed at least partly right. Successful monetary union does not require *full* fiscal union in the sense of a federal state. But it requires both a liquid and safe bond market and some mechanism to ensure that the combined stabilisation effort by fiscal and monetary authorities is appropriate. In the absence of full fiscal union, these aims can be achieved through the combination of: (1) a larger EU budget supported by common borrowing; (2) further improvements to ECB policy instruments to reduce the financial stability risks linked to fiscal fragmentation, and (3) steps to reduce vulnerabilities leading to fiscal fragmentation, by rebuilding fiscal buffers in countries with debt sustainability risks, and lowering the sovereign exposures of banks.

These are difficult steps in their own right, particularly the first, which requires unanimity of all member states. The ECB's structural handicap will hence not be fully overcome until there is much greater consensus in taking steps toward fiscal union than is presently the case.

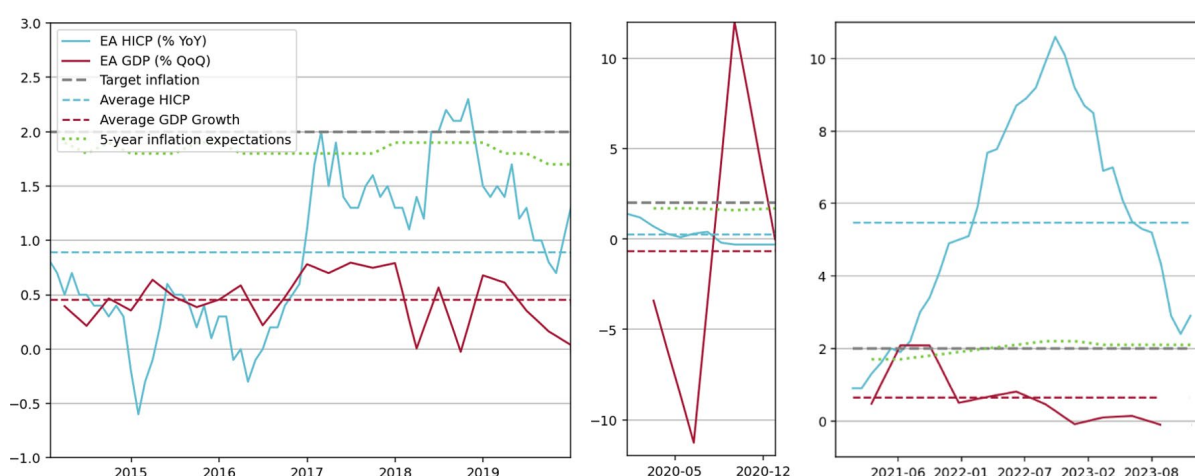
2. THE RECORD

2.1. The battle against low inflation, 2013-2020

In the second half of 2012, the acute phase of the sovereign debt crisis came to an end, reflecting the combined effect of the establishment of the European Stability Mechanism (ESM), the political agreement on Banking Union, and ECB President Mario Draghi's famous announcement that *"within our mandate, the ECB is ready to do whatever it takes to save the euro"*². This was soon followed by the announcement of the outright monetary transactions programme (OMT, meaning unlimited bond purchases), as a last resort to stabilise sovereign debt markets in countries with ESM programmes (see Table 1, Annex, for a chronology of ECB policy actions).

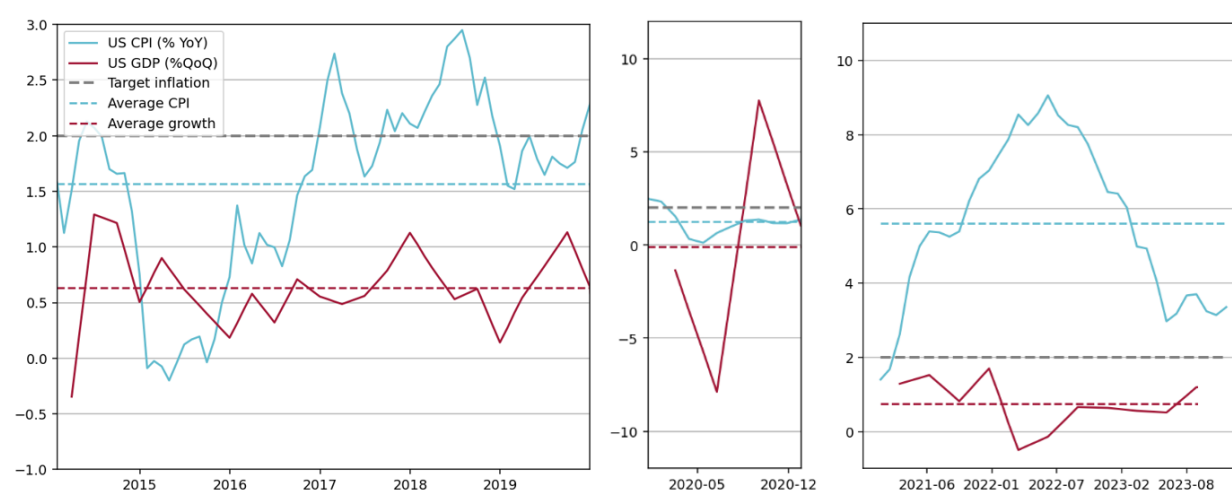
Figure 1: Euro area and US economic performance, pre-, during, and post-COVID-19

Panel A: Euro area economic performance pre-, during, and post-COVID-19



Source: Bruegel based on ECB and OECD; ECB Survey of Professional Forecasters.

Panel B: US economic performance, pre-, during, and post-COVID-19



Source: Bruegel based on Federal Reserve and OECD.

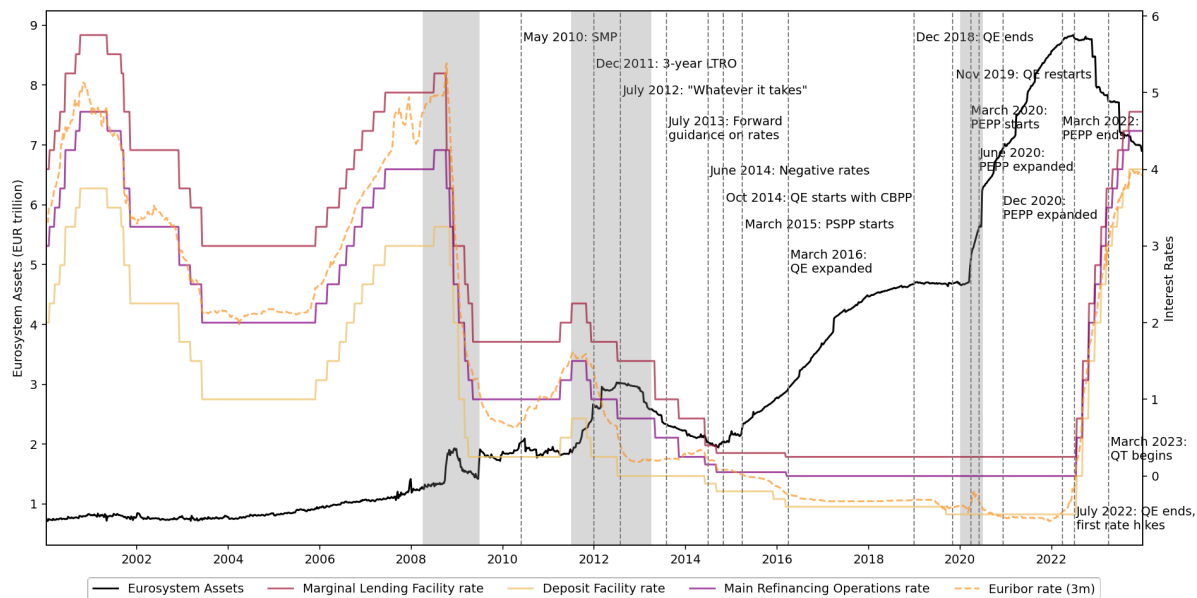
Sovereign spreads declined rapidly, and the euro area exited the second dip of a prolonged recession that had been triggered initially by the financial crisis in the first quarter of 2013. However, the recovery remained weak, with 2013-14 growth averaging just 0.6% (compared to 2% in the United States), and

² ECB President Mario Draghi's speech at the UK Trade and Investment Global Investment Conference, 26 July 2012. See <https://www.youtube.com/watch?v=tB2CM2ngpQg>.

a widening output gap relative to 2012 (while it declined continuously and markedly in the US). Inflation was also well below the target (defined as “just below 2%” at the time): HICP annual inflation averaged only 0.34% during 2013-14 and only 0.96% during 2013-19, compared to 1.54% and 1.55%, respectively, for the US (Figure 1).

Figure 2: Eurosystem assets and key ECB interest rates

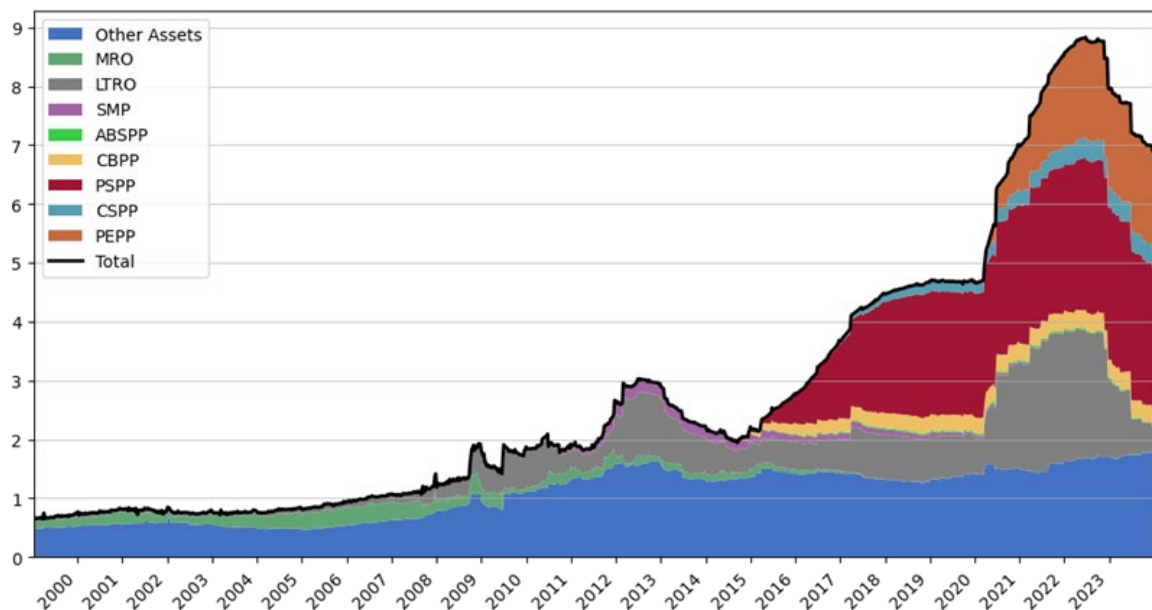
Panel A: Eurosystem assets (left) and key ECB interest rates (right)



Source: Bruegel based on ECB and Bloomberg.

Note: Key policy dates added by authors. Grey areas indicate euro area recessions according to the CEPR Euro Area Business Cycle Dating Committee.

Panel B: Eurosystem assets by class (EUR trillion)



Source: Bruegel based on ECB and Bloomberg.

Note: MRO = main refinancing operations, LTRO = longer-term refinancing operations, SMP = Securities Market Programme, ABSPP = asset-backed securities purchase programme, CBPP = covered bond purchase programme, PSPP = public sector purchasing programme, CSPP = corporate sector purchase programme, PEPP = pandemic emergency purchase programme. Other Assets includes gold and gold receivables, claims on non-euro area residents denominated in foreign currency and euro, claims on euro area residents

denominated in foreign currency, other claims on euro area residents, general government debt and other securities of euro area residents.

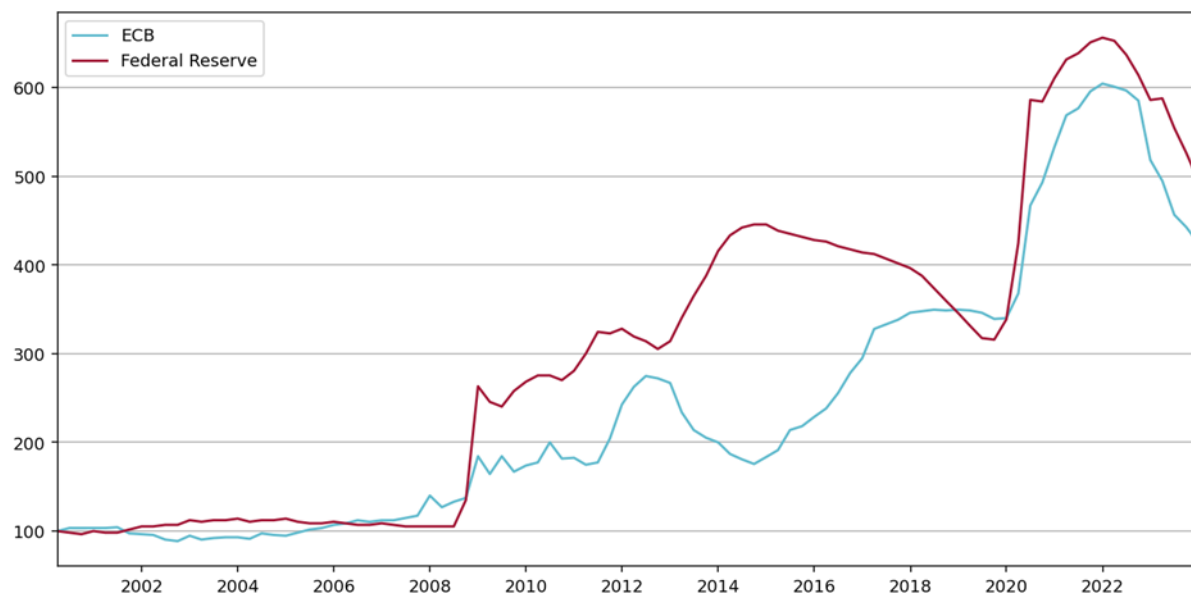
The weakness of the recovery was a consequence of both a fragile financial system and insufficient policy stimulus. By late 2012, market interest rates had fallen to the bottom of the corridor set by the ECB, the central bank's deposit facility rate (DFR), which had been at zero since July 2012. This reflected large-scale liquidity provided by the ECB to banks in the form of three-year long-term refinancing operations (LTROs) conducted by late 2011 and early 2012, which banks had redeposited in the ECB's deposit facility as excess reserves. Fiscal policy was still tight and would remain so until 2014. And bank efforts to deleverage and repay funding borrowed under the three-year long LTROs of late 2011 and early 2012 gradually led to a 'passive tightening' of financial conditions (see Figure 2, showing the decline in the size of the euro-system balance sheet from 2012 to 2014, and the simultaneous gradual rise of the Euribor interest rate).

In this setting, a cut in the main refinancing operations (MRO) rate by 25 basis points to 0.5% in May 2013 did nothing to ease monetary conditions. As the market understood that interest rates could not go as low as the inflation objective demanded, the forward interest curve steepened. This amounted to an effective *tightening* of monetary conditions (Rostagno *et al*, 2019).

The right response at this point (if not earlier) would have been for the ECB to embark on quantitative easing (QE), that is, to use active outright purchases of securities to lower the long-term interest rate. But the ECB hesitated (Figure 3). Instead, it tried to lower longer-term rates by introducing, in July 2013, forward guidance as a new tool to complement interest-rate setting. This meant that the ECB started communicating explicitly both its inflation objective and the path of the policy interest rate consistent with that objective, a practice already adopted by the Federal Reserve and the Bank of England. For the ECB, this was a significant departure from the previous principle to "*never pre-commit*". However, long-term rates did not come down, probably because markets had been expecting bond purchases and were disappointed to get forward guidance instead. Notwithstanding the ECB's attempt to guide expectations, uncertainty remained high, as indicated by the volatility of market reaction to ECB communication (see Figure 4, which reports movements of the one-year overnight indexed swap (OIS) rate around the time of the press release following the ECB Governing Council meeting).

In June 2014, the Governing Council decided to set a negative rate on the deposit facility, taking it first to -0.1% and then to -0.2% in September. The idea was to compress the term premium by making it costly to hold short-term securities and to push banks to shift to holdings of longer-term assets instead. Again, this was not the solution. The annual inflation rate became negative in December 2014 and remained negative until March 2015, two months after the introduction of a comprehensive asset purchase programme (APP), including of public securities.

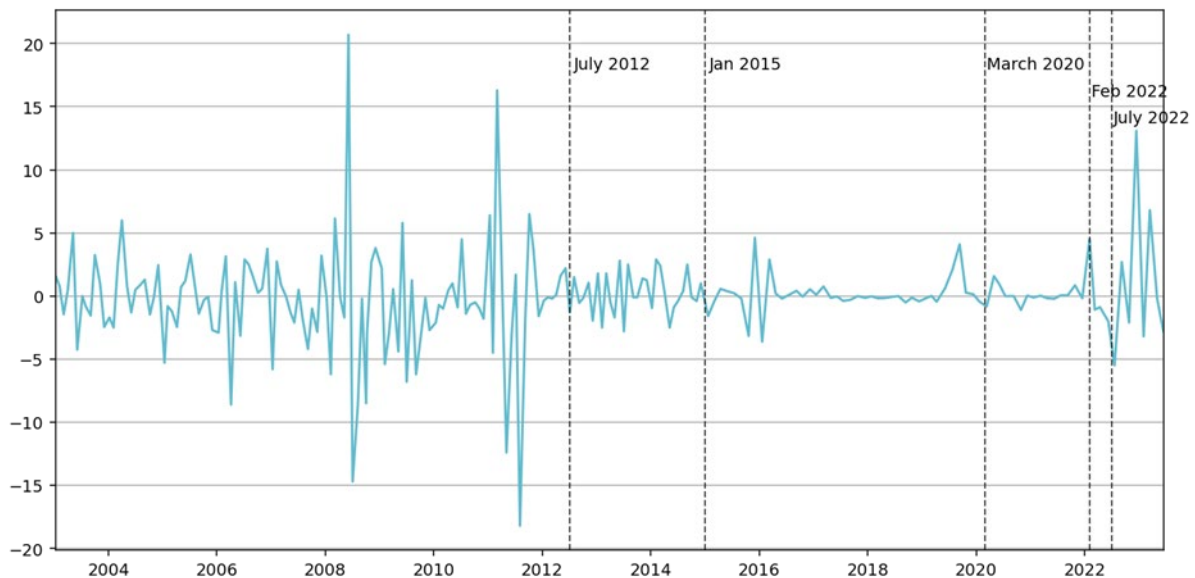
Figure 3: Index of Eurosystem and Federal Reserve assets as a percentage of euro area and US GDP (Q1 of 2000 = 100)



Source: Bruegel based on Bloomberg.

The question is, why two years of hesitation? The ECB's statutes gave its Governing Council full authority to undertake outright bond purchases to fulfil its monetary policy objective. Hence, the obstacle was not legal³. Neither was it behavioural inertia: two innovative tools – forward guidance and negative deposit rates – were quickly adopted, even though the introduction of negative rates was a bold move that no other major central bank had taken at the time. At the same time, the ECB hesitated to implement a QE programme, though the Bank of England, the Federal Reserve and the Bank of Japan had all adopted this approach years earlier, and although – as the experience of the Bank of Japan in the early 2000s demonstrated – hesitation in adopting QE could be costly. Indeed, inflation expectations became de-anchored from the 2% target and started diverging from US values (see Figure 5 which reports five-year inflation expectations for the two jurisdictions).

³ Legal challenges in Germany alleging the violation of the prohibition on monetary financing and the principle of proportionality established by the Treaty were eventually dismissed. Following [years](#) of legal wrangling, in May 2021, the German Constitutional Court [cleared the way](#) for continued Bundesbank participation in one of the ECB's key asset purchase programmes.

Figure 4: 1-year overnight index swap (OIS) rate shocks around ECB press conferences (in basis points)

Source: Bruegel based on ECB Euro Area Monetary Policy Event Study Database.

Note: The shock is computed as the change in the median one-year OIS quote from the window 13:25-13:35 before the press release to the median quote in the window 15:40-15:50 after the press conference (Altavilla et al., 2019). Last updated in July 2023.

Instead, the likely reason for the delayed adoption of QE was the divisive nature of asset purchases in the euro area. As pointed out by Claeys and Linta (2019), all decisions related to QE between 2014 and 2016 were taken by majority vote: this was the case in September 2014, when the ECB first announced a programme to purchase (private) securities⁴; in January 2015, when it decided to expand the programme to include sovereign bonds; in December 2015, when the programme was extended until March 2017; in March 2016, when the monthly purchase volume was increased from EUR 60 billion to EUR 80 billion; and in December 2016, when the programme was extended further to December 2017 while monthly purchases were scaled back to EUR 60 billion. In contrast, initial decisions on forward guidance and negative rates were taken unanimously. We regard these differences as indicative of the structural character of the difficulties the ECB had to overcome.

Once it had decided to embark on a potentially divisive policy path, the ECB needed to figure out how to distribute fiscal risks in a way that was politically acceptable. After the decision to embark on asset purchases was taken in September 2014, it took several additional months, until January 2015, to include public-sector bonds in the programme. In the end it was decided that full risk sharing would apply to the securities purchased directly by the ECB (8% of the total) and to the securities issued by European institutions (12% of the total) purchased by the national central banks (NCBs). The remaining NCB purchases (80% of the total programme) would not be subject to loss sharing⁵.

Figure 5: Inflation expectations in the Euro area and the US

⁴ The September 2014 package included asset backed securities (ABPP) and covered bonds (CBPP). The January 2015 announcement was for an encompassing package, referred to as the asset purchase programme (APP), which included a public-sector securities purchase programme (PSPP).

⁵ It was additionally decided that the PSPP would be subject to an issue share limit initially set at 25%, and a limit of 33% for the aggregate holdings of a single issuer's outstanding securities. The decision also clarified that the securities purchased under the PSPP would have a minimum remaining maturity of two years and a maximum remaining maturity of 30 years, and excluded securities trading at a yield to maturity below the deposit facility rate.



Source: Bruegel based on Bloomberg.

Note: 5-year break-even inflation is a measure of expected inflation derived as the difference between the yield on the 5-year Constant Maturity Treasury Bond and the yield on the 5-year Inflation Indexed Constant Maturity Treasury Bond. An inflation-linked swap is a transaction where one party transfers inflation risk to a counterparty in exchange for a fixed payment. The 5-year inflation swap is a measure of expected inflation at 5-year horizon.

Including QE as an instrument of monetary policy to replace the interest rate when the latter was at the effective lower bound was an important step that brought the ECB's operational framework into line with those of its main peers. Was it successful in stabilising financial and macroeconomic conditions? Altavilla *et al.* (2021), based on an analysis of market reaction to the January announcement, found that ECB asset purchases amounting to 10% of euro-area GDP compressed euro-area 10-year sovereign bond yields by around 65 basis points, which is sizable. The impact on inflation and output were smaller, but remained significant. According to Reichlin *et al.* (2021), a shock that compresses the debt-weighted euro-area ten-year yield by 100 basis points induces a peak increase of industrial production and prices by 4% and 0%, respectively. These estimates are broadly in line with conclusions of other researchers⁶.

After a brief rebound, however, inflation started declining again, partly because of uncertainty about the calibration of the programme, partly because of external factors, and partly because of aggregate fiscal tightening in the EU⁷. This prompted a new “*whatever it takes*” policy package, in March 2016, to raise the inflation rate. The ECB used its entire firepower and announced a new lending programme for banks (the TLTRO-II), a rate reduction (with the MRO rate cut to 0% and the DFR to -0.4%), an increase in the monthly volume of purchases from EUR 60 billion to EUR 80 billion, and a new version of forward guidance that indicated that the key rates were to remain low for an extended period, past the horizon of net asset purchases. This had a positive impact on inflation, which started moving back to the 2% target, and a large impact on spreads (Figure 5), as well as on the volatility of market reaction to policy announcements. Figure 4 indicates that, since then, movements of the one-year OIS rate around policy meetings have become much less volatile, a signal that communication has become more effective.

In short, the years following the euro crisis can be seen as a process in which the ECB, faced with a systematic undershooting of its inflation objective, gradually and reluctantly adopted the monetary policy toolkit of a modern central bank. As discussed in section 3, this toolkit was later incorporated in

⁶ See the literature reviews in Hartmann and Smets (2018) and Dell’Ariccia *et al.* (2018).

⁷ See Reichlin *et al.* (2023) for evidence on the latter point.

the ECB's 2021 strategy review. But the process of reaching consensus took a long time, and this delay was costly.

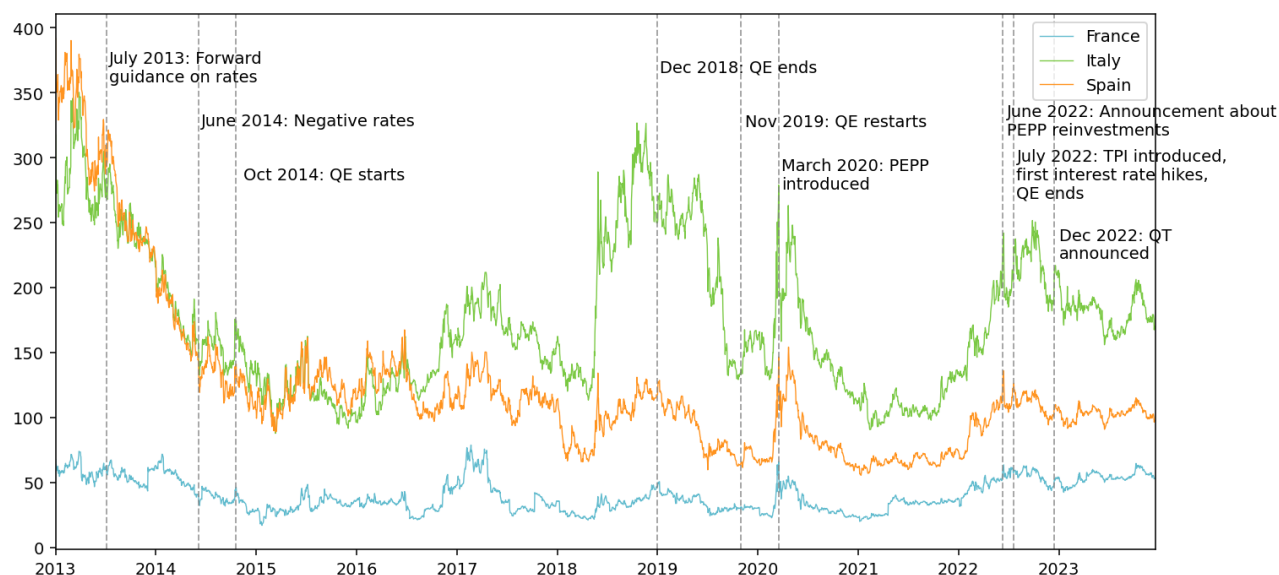
Moreover, the battle to get inflation back to target was not won. By October 2018, inflation had reached 2.2%, but this mostly reflected energy-price increases while underlying inflation remained weak. In the year preceding COVID-19, inflation softened again, notwithstanding a high degree of monetary accommodation. The decline of equilibrium real interest rates made fiscal policy particularly impactful on activity and inflation. However, fiscal policy remained collectively too tight.

2.2. The 2020 COVID-19 response

The COVID-19 pandemic led to a major downturn in both economic activity and inflation, in the euro area as much as in other parts of the world. Inflation in the euro area reached -0.3% in December 2020. The COVID-19 recession was deep but short and the rebound very steep (Figure 1). Concomitant with the rebound, inflation started increasing, reaching 2% in June 2021 and 5% in December of the same year.

The main ECB instrument to fight off the impact of the pandemic was the Pandemic Emergency Purchase Programme (PEPP) announced on 16 March 2020 and implemented on 26 March 2020, with the explicit purpose of preserving favourable financial conditions until at least March 2022. The PEPP had an overall limit of EUR 1,850 billion. Important features included flexibility in the distribution of purchases, which were to be determined on the basis of market conditions, both across EU countries and in time. In this respect the PEPP departed from the APP criteria. However, the same risk-sharing principles applied to the PEPP and to the APP.

The combination of size, time horizon and flexibility made the PEPP a success. When it was announced, the sharp rises in corporate and sovereign spreads that followed the announcement of lockdowns and the initial suggestion that the ECB's role was not to manage sovereign spreads were quickly reversed. Figure 6 shows that as the COVID-19 shock hit, the yields of peripheral countries went up disproportionately, reflecting the higher degree of risk in these markets. Figure 6 also shows that sovereign yields rebounded briefly, until the ECB announced that the collateral eligibility of bonds falling below the Eurosystem's rating-agency determined minimum credit quality requirements would be "*grandfathered*" (maintained in case of downgrade), embarking on what Draghi (2023) later called implicit transfers. This shows that, given the potential of self-fulfilling liquidity crises, it is important that the ECB establishes collateral eligibility for its operations independently from the market (Lengwiler and Orphanides, 2020, 2023).

Figure 6: Selected sovereign spreads with the bund on 10-year benchmarks (in basis points) and key policy dates

Source: Bruegel based on Bloomberg.

Two additional lessons must be drawn from the COVID-19 response. First, the ECB was prepared for a timely and aggressive intervention to preserve financial market intermediation. Unlike monetary policy, liquidity intervention to preserve financial stability has always been a well-established and consensual ECB policy. Second, unlike in the period of the euro crisis, the ECB quickly realised that preserving financial stability and the smooth functioning of the transmission of monetary policy required flexible purchases of sovereign bonds across countries, since a feature of the adjustment to risk in the euro area is the flight to the safety of government bonds of core countries – especially Germany. The gravity and urgency of this concern left no room for procrastination. This is probably why the ECB acted swiftly and decisively.

2.3. The exit from COVID-19 and the return of inflation, 2021-22

As the economy exited the COVID-19 recession, price pressures emerged as the result of both demand and supply-side pressures. Pent-up demand was the result of the economy reopening, while supply factors, including the increase in energy prices and supply-chain bottlenecks, also put upward pressure on prices. But the ECB's view by late 2021 – consistent with that of the Federal Reserve and with market consensus – was that those factors were temporary and that the medium-term forces driving inflation were still weak. In this view, accommodative monetary conditions remained necessary to stabilise inflation at 2% over the medium term (Lane, 2021).

In February 2022, with the Russian invasion of Ukraine, gas prices spiked. The size of the energy shock faced by the euro area, measured from peak to trough, was larger than that experienced in the early 1970s in Europe and in the US. For Europe, a net importer of energy, this constituted a large negative terms-of-trade shock, weighing on real income (see Guerrieri *et al.*, 2023, for an analysis). Although headline inflation as measured by the harmonised index of consumer prices (HICP) surged and reached an annual rate of 7.4% in March 2022, the ECB hesitated to tighten monetary policy, while the Fed increased the policy rate by 25 basis points. However, press releases became increasingly hawkish.

In March 2022, it was announced that net purchases under the APP would amount to EUR 40 billion in April, EUR 30 billion in May and EUR 20 billion in June, and would end in the third quarter if inflation remained strong, while PEPP net purchases would be discontinued by the end of the month. In April, communication reinforced the expectation that net purchases would end in the third quarter. In June,

it was communicated that they would end on 1 July. As the tone became more hawkish, the long end of the curve steepened, effectively tightening financing conditions. This, and the fact that the euro area faced a large negative terms-of-trade shock, can explain the lack of synchronisation with the Fed. However, maintaining a negative deposit rate with rapidly increasing inflation was hardly defensible.

The main reason for the delay in raising rates in 2022, particularly after the Russian invasion of Ukraine, was fear of market fragmentation, that is, the fear that higher interest rates might prompt sharply higher spreads in Italy and other fiscally vulnerable countries, raising the spectre of a new debt crisis and complicating the transmission of monetary policy. Indeed, as the tone of ECB communication became more hawkish, sovereign market spreads rose, and reactions to policy announcement became more very volatile (Figures 4 and 6). In addition, the sequencing of policy moves indicated by the ECB – to end net asset purchases before starting to implement interest-rate increases – may have contributed to rising spreads. Oddly, it implied that when interest rates would be lifted off, asset purchases would no longer be available as an instrument for reducing volatility (Darvas and Martins, 2022). Perhaps for this reason, the ECB stated, at its 9 June 2022 meeting, that *“in the event of renewed market fragmentation related to the pandemic, PEPP reinvestments could be adjusted flexibly across time, asset classes and jurisdictions at any time”*. But this did not stop spreads from spiking again later in June (Figure 6).

In July 2022, the ECB announced a new instrument, the Transmission Protection Instrument (TPI), explaining that it would be activated if liquidity stress in sovereign markets, not caused by a rise in fiscal risks, were to *“pose a serious threat to the transmission of monetary policy across the euro area. By safeguarding the transmission mechanism, the TPI will allow the Governing Council to more effectively deliver on its price stability mandate”* (ECB, 21 July 2022). On the same day, the ECB raised the deposit facility rate by 50 basis points to zero and stopped net asset purchases under the APP, while stating that principal payments from maturing securities purchased under that programme would be reinvested in full for an extended period (implying no net reduction in bond holdings). As for PEPP, the ECB maintained the reinvestments of redemptions falling due and declared that PEPP remained the first line of defence to counter risks to the transmission mechanism related to the pandemic. After these combined announcements, spreads eased.

The introduction of the TPI enabled the ECB to tighten without the fear of creating stress in sovereign debt markets, and has made the toolbox for asset purchases in emergency situations more complete. This toolbox now consists of three instruments: the OMT for crisis countries subject to ESM conditionality; the TPI, which does not require an ESM programme but includes compliance with the fiscal rules as one of four eligibility criteria; and the PEPP, which comes with no conditions but was created specifically for a pandemic emergency that is now over.

Each of these instruments has its own issues, however. ESM loans carry stigma and are too small for larger countries. The OMT overcomes the ESM’s size limitation but not its stigma, and is unlikely to be invoked for that reason. The TPI is based on a carefully negotiated compromise between fiscal hawks and fiscal doves, which may not survive first contact with an actual debt run. This leaves the PEPP, with its lack of conditionality that makes it the most flexible in a crisis. While linked to the pandemic, it could plausibly be brought back (after dropping the first P) in a setting that involves a large adverse shock to the economic and financial stability of the entire euro area. But it is not a politically plausible instrument for dealing with a debt run on an individual country or group of countries, unless this is triggered by a common shock.

In light of these issues, it is unclear when and which asset purchase tool will actually be used in an emergency. We return to this topic in section 3.

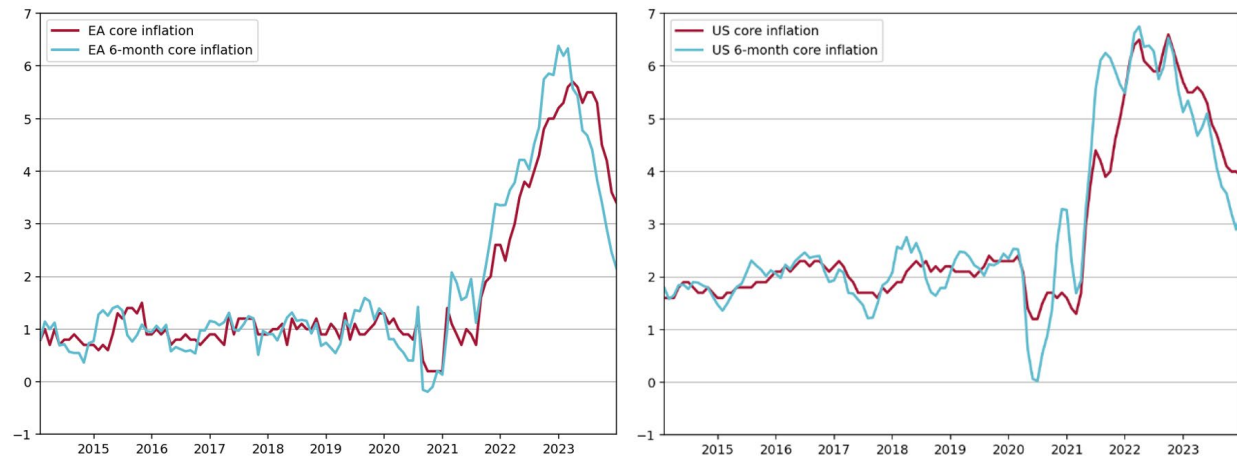
2.4. Tightening and disinflation, 2022-23

Since July 2022, the ECB has continued to tighten monetary policy based on its primary instrument – the deposit facility rate. In September 2022, it hiked rates by 75 basis points and again in October, bringing the deposit rate to 2%. Forward guidance was replaced by a meeting-by-meeting approach to rate decisions. The overall magnitude and speed of the tightening (10 consecutive increases in the deposit rate, from -0.5% to 4%) has no precedent in European post-war history. The tightening was accompanied by a drastic change in narrative. Since October 2022, the ECB has characterised inflation as persistent rather than transitory (*"Inflation remains far too high and will stay above the target for an extended period"*), and the risk of under-tightening has received far greater prominence than that of over-tightening.

As for the balance sheet, the tightening has been more gradual since monetary policy and liquidity provision considerations had to be balanced. At the same time, the ECB is working on the revision of its operational framework, the result of which will be announced in June this year. The purpose of the review is to decide on the size and structure of the balance sheet when monetary policy is neutral (i.e. the structural balance sheet). Its result may lead to a more rapid reduction in the size of the balance sheet, independently from monetary policy considerations (see section 3).

HICP inflation peaked in October 2022 at 10.6% and has been declining since, while core inflation (i.e. excluding energy and food prices) peaked in March 2023 at 5.7%. While core inflation remained above 5% until August 2023, it has declined rapidly since then. The most recent reading at the time of this writing shows core inflation at 3.4% and HICP at 2.9% in December 2023 (see Figure 7 for a comparison with the US).

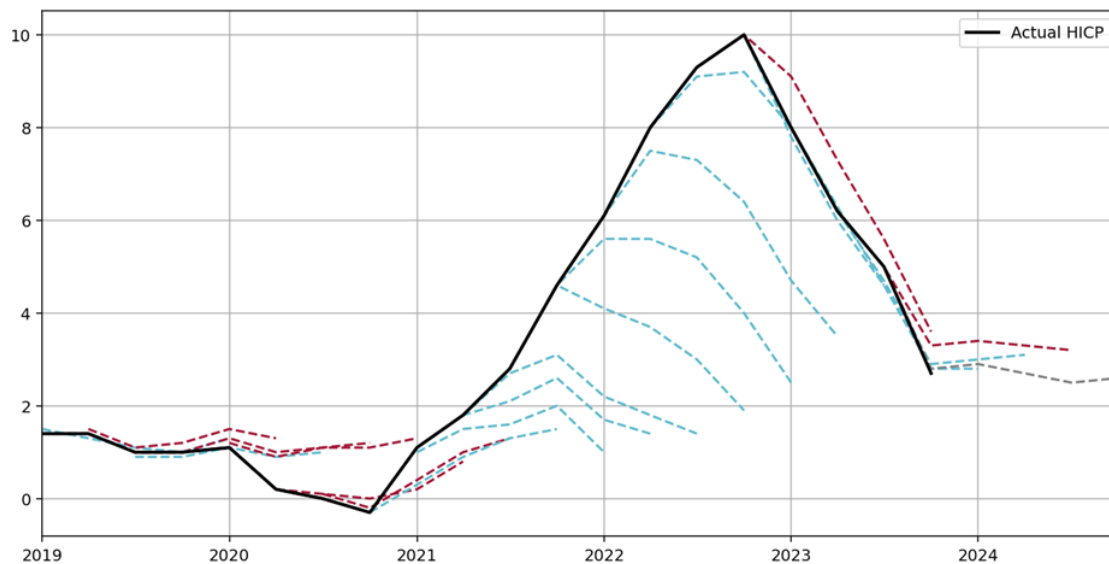
Figure 7: Core inflation rates in the euro area (panel A) and the US (panel B)



Source: Bruegel based on ECB and Federal Reserve Bank of St Louis.

Note: Core inflation refers to the year-on-year monthly inflation rate. 6-month core inflation is seasonally adjusted and annualised. In each case, core excludes energy and food prices.

After its October 2022 recognition that inflation was not transitory after all, the ECB based its hawkish stance on the persistence of core inflation and read this as a signal of second-round effects potentially destabilising inflation expectations. As shown empirically and theoretically in Guerrieri *et al.* (2023), however, core inflation lagging headline inflation and being more persistent than headline inflation is a feature of the response of prices to supply-related relative price changes, such as those experienced by the euro area since late 2021.

Figure 8: ECB HICP forecasts vs. actual HICP

Source: Bruegel based on ECB.

Note: The dashed lines refer to the quarterly Eurosystem staff euro area HICP forecasts for the quarter in question (as that information is not known at the time of publishing) and the subsequent four quarters, available on the ECB website, while the black line is the actual quarterly euro area HICP inflation rate. Blue lines denote forecasts that underestimated one-quarter-ahead inflation (e.g., the forecast in March 2019 for Q2 2019), and red those that overestimated them. The grey line is the Q4 2023 forecast, for which we cannot yet compute the one-quarter-ahead error.

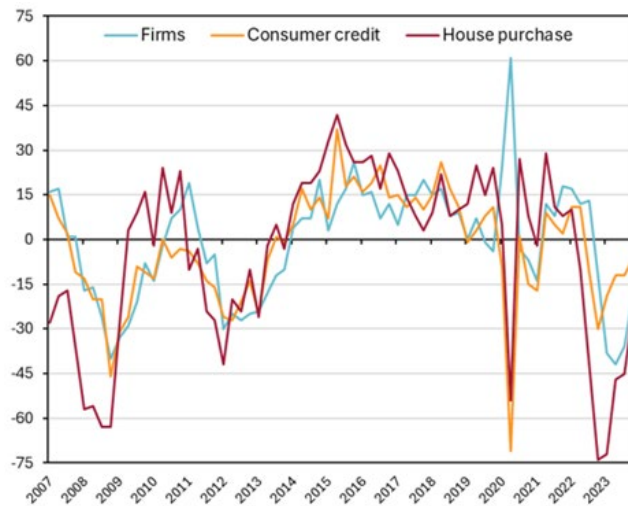
Indeed, the ECB was surprised by the speed of disinflation⁸. Inflation projections were biased to the upside during this period (Figure 8 shows HICP inflation and the sequence of ECB projections). From October 2022 to October 2023, the rate of HICP inflation more than halved while the economy slowed more than expected.

Is the ECB again behind the curve? Several observations suggest that this might be the case. Inflation has declined faster than expected and market inflation expectations remain firmly anchored. Signals of a price wage spiral are limited: the rate of growth of compensation per employee is projected to fall in 2024 and beyond. Credit variables are very weak. Figure 9a shows that loan demand is weaker than in the 2011 crisis, while Figure 9b shows that credit conditions have tightened as much as in 2011. Recently released GDP data show that the euro area economy is stagnating. Considering that the effect of monetary policy on the real economy has long lags and that quantitative tightening may have further negative effects on the supply of credit, these observations suggest that the current stance of monetary policy is excessively tight. It is also interesting to observe that, although the euro area economy is weaker than in the US, markets expect the Fed to ease more than the ECB in 2024.

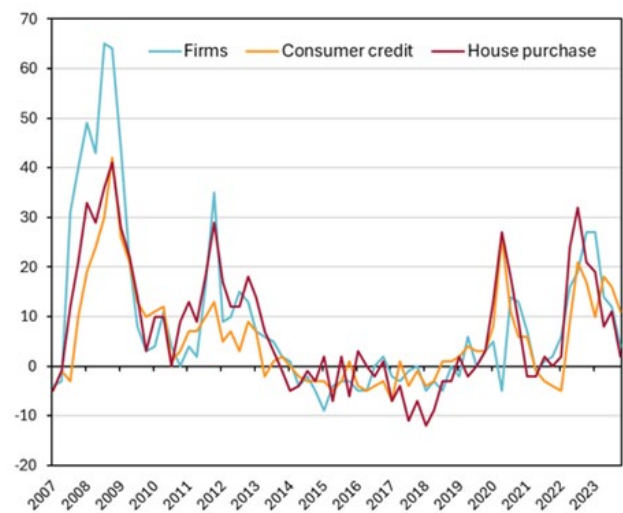
⁸ The ECB forecast for the fourth quarter of 2023, published in the third quarter, was 3.3%. The actual reading in December was 2.7%.

Figure 9: Credit conditions in the euro area

Panel A: Change in demand for loans



Panel B: Change in credit standards applied to loans



Source: Bruegel based on ECB's Bank Lending Survey.

Note: Panel A reports the net percentages of banks reporting an increase in demand for loans or credit lines by loan type. It is defined as the difference between the sum of the percentages of banks responding "increased considerably" and "increased somewhat" compared to the previous quarter and the sum of the percentages of banks responding "decreased somewhat" and "decreased considerably". Panel B reports the net percentages of banks reporting a tightening in credit standards applied to the approval of loans or credit lines by loan type. Net percentages are defined as the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably".

3. ECB STRATEGY AND OPERATIONAL FRAMEWORK

3.1. Strategy

The main innovations in the 2021 strategy review were the definitions of the price stability objective and of the instruments of monetary policy. These have codified changes in practice that have emerged since the financial crisis and provide clarity for the future. However, some issues remain unaddressed. These relate to the horizon over which price stability must be attained, the implications of secondary policy objectives and the ECB's much richer and more complex policy toolbox.

3.1.1. The price stability objective

The Treaty on the Functioning of the European Union and the Statutes of the European System of Central Banks (ESCB) and the ECB specify that their primary goal is to pursue price stability, and to support – without prejudice to price stability – the general economic policies of the European Union. While providing strong guidance, this also leaves considerable leeway for the ECB/ESCB to define the primary objective and to determine which secondary objectives to include.

The strategy review has defined the price stability objective as maintaining 2% inflation over the medium term. The target is symmetric.

A symmetric target specified as a numerical value is an important innovation. The previous “*close to but below 2 percent*” definition of price stability left a large margin of ambiguity on what the target actually was, which led to difficulties in understanding the ECB's reaction function and made it harder to anchor inflation expectations. This was particularly problematic during the low inflation period. Symmetry also removes the deflationary bias of the previous objective.

That said, the review did not touch on three important issues that we believe should be considered in future reviews.

First, there should be a **process for reviewing and (if necessary) adjusting the target value**. The macroeconomic environment of the next decades will likely be very different from that of the ‘great moderation’ years. The effects of China's entry into the world economy won't be repeated. The accelerated transition away from fossil fuels will likely entail major relative price changes. In particular, the energy transition implies that supply constraints will be more likely and so will be the volatility of inflation. Since energy-related shocks imply large changes in relative prices, one issue to consider is the value of the optimal inflation target. As shown by Adam and Weber (2019), movements in relative prices caused by structural changes in the economy have a material impact on optimal inflation, a subject the ECB's 2021 review did not address. To reflect the possibility that optimal inflation changes over time (whether for the reasons identified by Adam and Weber (2019) or for different reasons), the target value should be reviewed regularly, following a process designed and communicated *ex ante*, to manage market expectations. As argued in Reichlin *et al.* (2021), the next review could propose such a process (even if it concludes that the 2% target remains appropriate for now).

Second, the ECB should consider **adopting a carefully designed “make-up strategy”** to increase the power of monetary policy if interest rates were to return to very low levels. A make-up strategy states that when interest rate policy is constrained by the effective lower bound, past deviations of inflation from its long-run target should make the central bank more tolerant of inflation overshooting its target in the future (Bernanke, 2017). Unlike the Federal Reserve (2020), the ECB's opted against an explicit ‘make-up’ strategy in its 2021 review.

Since we cannot rule out the possibility that the ECB will be faced with a low-inflation, low-interest-rate environment again in the future, we would argue for such a strategy, which may include some version of average inflation targeting, price level targeting or nominal GDP targeting. At the same time, is

important to avoid a make-up strategy that ties the hands of the central bank excessively, as this might create the risk that inflation deviates too far from the target and/or that prolonged overshooting of inflation might interfere with ECB secondary objectives. In the Fed's average inflation targeting framework, for example, flexibility is maintained by refraining from specifying the window over which the average is calculated. But this makes the target ambiguous, potentially harming credibility. A better approach might be to adopt average inflation targeting, in conjunction with guidance on the factors that the length of the window would depend on. The ECB should consider such a strategy in its next review.

A third, related issue is the **relationship between the horizon of the 'medium term' and the secondary objectives**. Bringing inflation back to target could be costly. When inflation undershoots the target, prolonged easy conditions could harm financial stability. When it overshoots the target, tightening policy may have costs for both economic activity and financial stability. There is thus a possible trade-off, in welfare terms, between the secondary target and the speed with which the primary target is attained. While the primary target has absolute priority over the secondary target, the ECB's mandate implies that the ECB should do the best it can in reaching its secondary targets (such as economic activity and financial stability), subject to maintaining 2% inflation over the medium term.

While this principle is clear, it is less clear what it implies for monetary policy. The answer may depend on the nature of the shock, on whether the shock pushes inflation above or below target, and on the secondary objective. To take one example, research by Guerrieri *et al.* (2023) suggests that in response to relative price shocks, the central bank should be more patient in getting inflation back to target, regardless of whether the shock leads to an undershooting or overshooting of the target value⁹. To take another example, in a situation of chronic lack of demand, returning to price stability as quickly as possibly may require large asset purchases, which flatten the yield curve and have an adverse impact on financial stability. In such cases, lengthening the horizon over which to reach the price stability objective may or may not be desirable, depending on the adverse effects on the secondary objectives of faster stabilisation, and the ECB's faith that a return to price stability will eventually succeed.

Reflecting secondary objectives in the formulation of the ECB's target and policy strategy is a complex undertaking that was not addressed in the 2021 strategy review. It should be addressed in the next review.

3.1.2. Monetary policy instruments

The 2021 strategy review concluded that although the short-term policy rate remains the primary instrument of monetary policy, unconventional monetary policy instruments – negative interest rates, forward guidance, asset purchases and longer-term refinancing operations – will remain in the toolbox. The strategy review concluded that unconventional monetary policy instruments were effective in raising output, employment and inflation, and that they reinforced each other and respected the principle of proportionality.

This is progress and will help the ECB if the low-interest environment returns. But it also creates new challenges. With a multidimensional policy space, the ECB will need to calibrate its policy stance by selecting the parameters of forward guidance, the size of the interventions, the mix of LTROs versus APP, the different types of LTROs and associated list of collateral haircuts, the source and maturity of the national bonds to be purchased, and the basket of corporate and covered bonds to hold. In turn, such a calibration requires a sense of the effectiveness of policies, both individually and in conjunction.

⁹ According to Guerrieri *et al.* (2023), the persistence of core inflation in response to such a shock is explained by the transmission of mark-ups in the goods market. In these circumstances, reacting too forcefully can have large output costs, by hampering the process of relative price adjustment, with consequences for real activity. In this case, allowing a longer horizon to get back to the inflation target might be appropriate. The same argument applies in the event of a supply shock that pushes inflation below target.

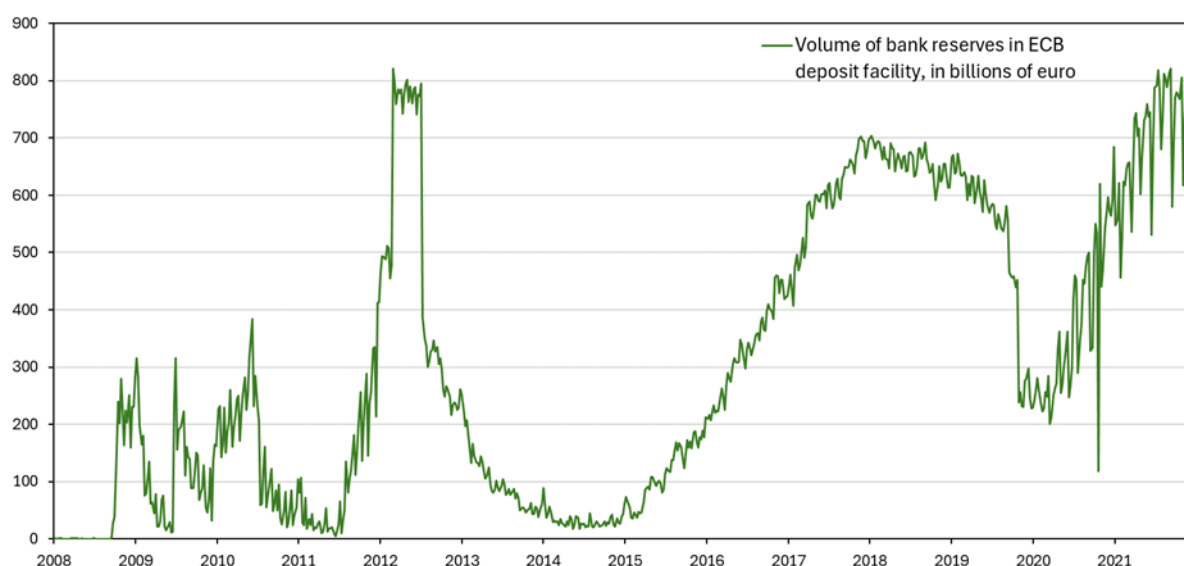
Assessing this effectiveness and developing guidelines on how to choose, combine, calibrate and communicate policy instruments is hard, given the relatively short track record and the fact that the economic environment in which such policies were applied in the past may not return in exactly the same form. But it is something the ECB cannot avoid.

3.2. The operational framework and the size of the ECB balance sheet

Now that quantitative tightening is on the way, it is important to set expectations for the likely size and structure of the balance sheet, assuming monetary policy neutrality. The latter will depend, at least in part, on the choice of operational framework, which the ECB aims to review in spring 2024.

Since the financial crisis the ECB has operated in a way that has resulted in an abundant (or 'ample') supply of reserves to the banking system. This was initially the consequence of a financial-stability motivated change in the way the central bank operates in the money market (its operational framework), but subsequently an implication of asset purchases conducted for monetary policy reasons.

- Prior to 2008, the ECB used its main refinancing operations (MRO) to auction fixed volumes of loans, at a variable rate, to steer the market interest rate within a corridor between the rate offered by the marginal lending facility, at which the ECB is prepared to lend any quantity of funds to Eurosystem banks, and the rate on the deposit facility (or deposit rate for short), which it pays on deposits placed with it by Eurosystem banks. In this system, reserves were scarce: any excess reserves would come at a cost to banks. As a result, excess reserves held in the ECB's deposit facility were near zero (Figure 10).
- In the 2008 global financial crisis, the ECB, like other central banks, found that using control over the volume of reserves supplied to the banking system for monetary-policy purposes conflicted with the need to increase the supply of liquidity for financial-stability reasons. Interbank markets had frozen. Commercial banks were unwilling to lend to one another because counterparty risk had risen dramatically (banks did not know whether the banks they were lending to were solvent, or if they would be liquid the next day). The solution, adopted in the wake of the Lehman Brothers shock, was to offer funds on a fixed rate, 'full allotment' basis. This meant that banks' demands for reserves were met.
- In December 2011, as the euro area entered a new recession, the ECB offered fixed-rate, full-allotment refinancing with an exceptionally long three-year maturity. Given the longer maturities, these operations constituted funding on favourable terms, rather than just liquidity. For this reason, and given the high uncertainty in the market, the banks used this opportunity to borrow in large amounts and redeposited the excess reserves with the ECB. This explains both the large rise in excess reserves during 2011-12 and their subsequent fall, when the loans were repaid as a consequence of the banks' deleveraging (see Figure 10 and section 2).
- From late 2014 onward, the ECB started making asset purchases for the purposes of quantitative easing. Only then did excess reserves in the banking system rise persistently, as visible in Figure 10.

Figure 10: Excess reserves held in the ECB's deposit facility

Source: Bruegel based on ECB, Eurosystem consolidated statement (Series ILM.W.U2.C.L020200.U2.EUR).

Irrespective of these ECB-induced changes, the appetite of banks for reserves today is likely to be larger than in the past, given banking regulations on liquidity holdings and a generally higher preference for safe assets. Hence, it is generally recognised that it would be impossible to return the ECB's balance sheet to a size similar to that which prevailed pre-crisis.

However, the question of how large this balance sheet should be in a monetary policy-neutral state is open, with the answer depending on how the ECB chooses to operate in the future. In principle, two choices are available. First, the ECB could conceivably return to the pre-2008 approach of auctioning fixed amounts of reserves at a variable rate. Second, conditional on maintaining the current satiation approach, it could decide to return to the 2008-2014 practice of supplying reserves only through refinancing operations, as it did prior to the introduction of QE, or also by purchasing bonds from banks. This choice matters for the composition and size of the ECB balance sheet. If excess reserves on the ECB balance sheet are exclusively the result of refinancing operations, they will be mostly backed by claims on banks (assets on the ECB's balance sheet). In contrast, if they result from asset purchases, they will be matched by holdings of assets (mainly sovereign bonds) that are used to inject liquidity. In that case, the ECB would need to keep a sizeable bond portfolio on its balance sheet for 'structural', i.e. liquidity provision, reasons, irrespective of monetary policy (as the Fed decided to do after reviewing its operating framework in 2019).

In our view, a return to the pre-2008 system would be inappropriate, as it would imply a greater financial-stability risk without any gain in monetary control. The ECB can commit to full allotment while keeping market interest rates inside a narrow corridor between the DFR and the MRO rate. The only conceivable argument for a return to reserves scarcity is to revive the interbank money market, and hence a form of market discipline. However, information about creditworthiness of banks is better transmitted through equity and bond markets, in which banks seek longer-term funding, than through the market for very short-term liquidity. And without a disciplining motive, efficiency arguments support satiation of the demand for reserves by the central bank¹⁰.

¹⁰ The 'Friedman rule' states that the opportunity cost of the social means of payment should be zero, since the cost of producing the means of payment is approximately zero. Satiation of reserves is, therefore, the Friedman rule applied to reserves. The Friedman rule for cash requires that the nominal interest rate in the interbank market is zero, since cash pays zero interest. For reserves, which today far exceed cash in amount outstanding, the Friedman rule would be met when the market for reserves was saturated (this point has been made by Goodfriend, 2002, and Woodford, 2000).

Whether asset purchases and sales should play a role in the control of liquidity is less straightforward. This approach, which would require the ECB to maintain a structural bond portfolio, differs from the alternative – controlling bank liquidity only via full allotment refinancing operations, as the ECB did between 2008 and 2014 – in three ways:

1. Maintaining a structural bond portfolio exposes the ECB to greater credit and market risk than it would otherwise. Indeed, there have been warnings that some national central banks in the Eurosystem will sooner or later have to declare negative capital as a result of large bond holdings¹¹. Although a central bank can operate with negative capital, a protracted period of negative capital could put pressure on the bank to act in ways that would conflict with its monetary policy, and would eventually erode its credibility.
2. Excess reserves are easier to control via bond sales and purchases than through refinancing operations. Offering banks liquidity through refinancing operations is tantamount to taking a horse to water; the amount the horse ultimately drinks is demand-determined. If a substantial buffer of excess reserves is viewed as an advantage for financial stability or monetary policy reasons, then the bond-sales approach should be preserved.
3. Bond purchases are not just an instrument of liquidity provision to banks or monetary policy, they also have a direct impact on the size and volatility of sovereign bond spreads. While long-term, large-scale refinancing operations also affect bond markets (as they may increase bank demand for government bonds), this impact is less direct, and less easily controlled by the central bank.

The first of these differences argues for a return to the 2008-14 system of liquidity provision, or variants of this system, such as the Bank of England's approach to offer banks a short-term repo facility with full allotment at a fixed rate set at the same level as the deposit rate (see Hauser, 2023).

The second and third differences, in contrast, are in our view advantages for the bond-sale approach. As Greenwood *et al.* (2016) argued for the US case, the provision of a buffer of liquidity to the banking system over and above the amount required by regulation has financial-stability advantages, since it will weaken market-based incentives for private-sector intermediaries to issue too many of their own short-term liabilities. Moreover, the source of reserves has a significant effect on bank lending. In the euro area, there is evidence that banks are more prone to increase lending in relation to reserves obtained through outright transactions (bond sales) than in relation to reserves obtained through borrowing (repos) (Altavilla *et al.*, 2024). Conversely, sole reliance on refinancing operations could lead to a squeeze in credit, as the experience of 2013 suggests. Finally, the system avoids potential delays in the provision of emergency liquidity arising because banks may be reluctant to go to the central bank for funding in times of stress (the stigma of the discount window), even if it is provided at a non-penal rate.

It is also worth emphasising that with no change in current or expected interest rates, the size of the balance sheet has no effect on expected inflation. As shown during 2020, the ECB can massively increase the size of the balance sheet to respond to emergencies without losing control of its interest rate and inflation targets.

For these reasons, we would argue for retaining the 'ample reserves' approach, notwithstanding its main cost: the fiscal risks created by a large central bank balance sheet. The emphasis on these risks in the euro area seems to be motivated especially by concern about how potential losses would be distributed across member states, but this should not be a primary consideration; the objective of the

¹¹ Calculations in Belhocine *et al.* (2023) show that some national central banks in the euro system, including the Bundesbank, the Banque de France and the Bank of Spain, will see their capital and reserves turning negative in 2024 and will remain so for a few years.

central bank should be to provide the most robust system for the task of financial stability, liquidity provision and control of the short-term interest rate. We have seen how, in the past, these considerations have led to delays and hesitation in monetary policy, which have carried costs for European citizens. By the same token, they should not lead to suboptimal choices in the review of the operational system.

4. IMPROVING THE FISCAL-STRUCTURAL UNDERPINNINGS OF EMU

As shown in the previous two sections, political and fiscal fragmentation in the euro area have complicated monetary policy, compared to that of single-country central banks. When inflation needed to be raised from very low levels, monetary easing was delayed because its potential fiscal consequences divided the members of the ECB Governing Council and because the risk-sharing implications of ECB bond purchases had to be sorted out first. When high inflation required an end to bond purchases, monetary tightening was delayed because a new instrument, the TPI, needed to be invented to deal with the associated financial stability risks in the fiscally weaker countries. In addition, running a structurally larger balance sheet – even if this is optimal for reasons related to liquidity provision and financial stability – is harder to do in the euro area than elsewhere because the fiscal risks arising from this balance sheet have distributional consequences.

The institutions, risk-sharing compromises and financial-stability instruments agreed since 2012 have alleviated but not solved these problems, for two reasons. First, they do not cover every contingency. For example, the risk-sharing compromise established in the context of the APP does not address the distributional tensions arising from a possible need to recapitalise the ECB. Second and more fundamentally, the instruments reflect political and technical compromises that may break down when they are applied. Complicated battle plans rarely survive first contact with the enemy. This worry applies particularly to the latest anti-fragmentation instrument, the TPI.

To reduce the ECB's structural disadvantage and strengthen the stability of the European currency union (euro area), it is hence essential to improve the fiscal-structural underpinnings of EMU. Full fiscal union would of course do the trick, but would require a much greater degree of political union than is currently – or perhaps ever – feasible. The remainder of this section discusses steps short of full fiscal union that could mark a significant improvement.

4.1. Improving monetary-fiscal coordination and expanding EU-level safe assets

Increases in the ECB balance sheet are difficult for reasons related to tensions between monetary policy and the distribution of fiscal risks. This tension could be mitigated in two ways.

The first would be to improve fiscal-monetary coordination, leading to more fiscal support for the ECB when it is fighting chronically low inflation, and hence reducing the need for a large balance-sheet expansion in the first place. Monetary-fiscal coordination is more difficult if the euro area fiscal stance is the aggregate of many fiscal authorities, particularly when low inflation requires an expansion in demand. In such a setting, fiscal policy is likely to be too tight in equilibrium since a fiscal expansion benefits the euro area as a whole, while its fiscal costs are borne at the national level. This is the reason why the ECB has called repeatedly for a euro area fiscal capacity, particularly during 2014-19 (Draghi, 2014, 2018, 2019).

One way of creating such a fiscal capacity would be to both enlarge the EU budget and allow it to issue debt, so it can provide stimulus by running a deficit and withdraw stimulus by running a surplus. While possible under the Treaty on the Functioning of the EU, this would require overcoming formidable hurdles, both legal and substantive.

The legal hurdle consists in the need to amend the Own Resources Decision (ORD, a special legislative procedure under Article 311 of the Treaty). This would need to be approved by all EU countries in line with their national constitutional requirements, which for most member states means ratification by national parliaments (Grund and Steinbach, 2023). In particular, the ORD would need to both designate the proceeds of borrowing as an 'own resource' and identify sufficient non-borrowed own resources

to meet the corresponding EU debt service in any year. Unless the latter comes from tax bases that are currently untapped – for example the taxation of aviation fuel, a net-wealth tax on the richest individuals or an increase in external tariffs – this will require a fiscal effort by member states (directly, or by foregoing taxation that may otherwise have benefitted them).

The substantive hurdle is that to get member states to agree, any such effort would need to be more than offset by the gains of transferring spending to the EU level. EU-level spending that might generate large economic gains compared to the status quo include inter alia (a) coordinated investments in cross-border infrastructure and in renewable energy sources that exploit the geographic diversity of the EU; (b) an EU-level industrial policy that avoids distorting the single market; and (c) common defence. A strong governance structure would need to reassure members states that the spending remains in line with the agreed purposes (Fuest and Pisani-Ferry, 2019; Claeys and Steinbach, 2024).

Even if both hurdles can be overcome, it is unclear whether an EU budget determined by such public finance considerations would be large enough to permit countercyclical fiscal policy.¹² Although a reallocation of national spending to the EU level would automatically increase risk-sharing across the EU (because a country-level economic downturn would not affect the supply of EU-provided public goods), it would leave automatic stabilisers unchanged (as it would likely not expand significantly the overall size of government in the EU). Hence, any EU-level countercyclical fiscal policy would need to come from *discretionary* policy, for example, by reducing or increasing EU-level revenue rates, or by delaying or accelerating investment projects.

If an EU-level fiscal capacity remains elusive or too small to be macroeconomically meaningful, then an expansion of the ECB balance sheet will remain the only viable tool to deal with deflation risks when interest rates are near their effective lower bound. Reducing the distributional concern associated with bond purchase would require expanding the pool of EU-level safe bonds to the point where they could become the main and perhaps only asset used in monetary policy operations.

This could happen in two ways. First, by expanding debt issues within existing EU-level categories, which include ESM bonds, European Investment Bank bonds, and bonds to finance special extra-budgetary funds, such as the Recovery and Resilience Fund. For example, this could arise from an expansion of the role of the EIB as a funding instrument for strategic investments (Demertzis, Pinkus and Ruer 2024), or from new extra-budgetary funds created to finance EU-level climate investments or deal with emergencies such as the defence of Ukraine. Second, by issuing ‘synthetic’ safe bonds such as sovereign bond-backed securities (SBBS) or E-bonds, which are debt obligations collateralised by national bonds or loans.¹³

Having created this expanded EU bond pool, the ECB would gradually replace its current holdings of national-level government bonds, as these come due, by EU-level safe bonds. Creating such an expanded EU bond pool would reduce the problem of how to share country-specific fiscal risks in the ECB balance sheet, shifting it to the question of how the common fiscal instruments (and/or the common institutions issuing such instruments) should be designed¹⁴.

How much would EU-level issuance have to increase to fully replace member state sovereign bonds on the ECB balance sheet? The Eurosystem currently holds just under 2.6 trillion of public sector bonds, including 2.3 trillion of government bonds and the 270 billion of bonds issued by EU supranational

¹² The current EU budget is about 1% of EU GDP. The Swiss federal budget is about 11% of Swiss GDP. It is reasonable to assume that the optimal EU budget would be somewhere in between these two values.

¹³ See Brunnermeier et al (2017); Leandro and Zettelmeyer (2018, 2019); European Systemic Risk Board (2018); Giudice et al (2019).

¹⁴ Notice that, however, this would not eliminate this problem fully. Even if these EU instruments were credit-risk free, the ECB could still make losses due to interest risk. With a structurally large bond portfolio, this is a problem that all central banks face. It can be addressed with clear rules on capitalization (for a discussion see Reichlin et al, 2021).

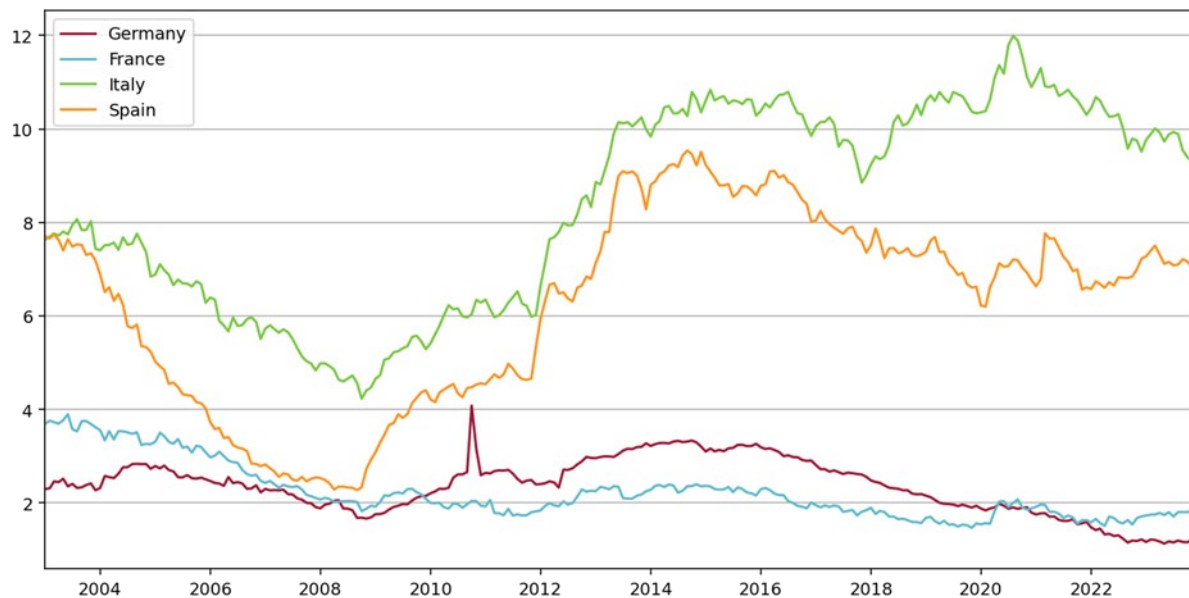
entities. Although the ECB is shrinking its balance sheet, its current size could be seen as a proxy for the level to which the ECB may have to return if new bond purchases became necessary to fight very low inflation. Since the ECB will buy no more than 33.3% of an issuer's outstanding securities, replacing public sector bonds would require a stock of EU-level bonds of $2.58 \times 3 = 7.7$ trillion, roughly 46% of 2023 EU GDP. Total EU public sector debt is about 90% of GDP, of which 84% of GDP are general government debt, and 6 %supranational debt.¹⁵ Hence, to *fully* replace government bonds in the ECB's current balance sheet without increasing the overall indebtedness of the EU, supranational bonds would need to increase by 40 percentage points, from 6 to 46% of 2023 GDP, while government debt would need to fall from 84 to 44% of GDP, a massive and unlikely shift.

EU bonds and bills in issue are projected to increase from about 458 billion in January 2024 to about 868 billion by 2027, mostly driven by RRF issuance, an increase of 2.4 percentage points of GDP to about 8.3%. No further increases are currently envisaged. This suggests that the volume of genuine EU bonds will likely remain insufficient to replace sovereign bonds on the ECB balance sheet. Short of a breakthrough decision in the direction of fiscal union, the only practical way to create EU-level safe assets is therefore to create synthetic safe bonds such as SBBS or E-bonds.

4.2. Reducing fiscal-fragmentation risks when monetary policy needs to tighten

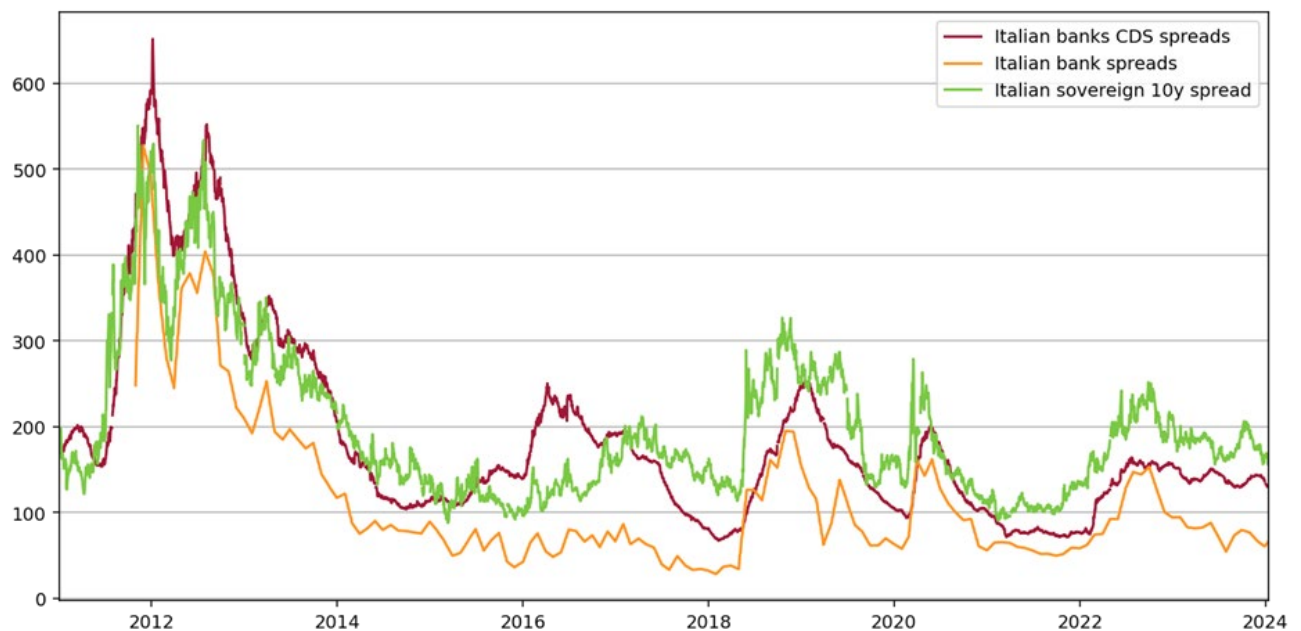
In addition to creating an instrument for more centralised fiscal policy, an expanded EU budget financed by common bond issuance would go some way toward reducing fiscal fragmentation in the EU, by improving fiscal risk-sharing. Since in the event of a major shock, a larger share of expenditure would continue to be financed at the EU level, increases in national deficits and debt (for example, as a result of automatic stabilisers operating at the national level) would be smaller than in the *status quo*. Hence, concerns about whether national-level public finances can cope would be less pronounced, and any widening of national bond spreads should be more contained.

¹⁵ This statement is based on the following sources and assumptions. Projected 2023 EU general government debt is 84 percent of GDP according to the [October 2023 IMF World Economic Outlook](#). Outstanding EU supranational debt at end-2023 was just under 1 trillion euros, including 458 billion EU issuance (source: [EU investor relations website](#)), assuming that EIB and ESM debt securities in issue are roughly in line with their end-2022 levels, 423 billion and 102 billion, respectively (source: [EIB](#) and [ESM](#) annual reports) Assuming 2023 EU GDP of 16.7 trillion, this is 5.9 percent of EU GDP. 2023 EU GDP of 16.7 trillion is an estimate based on 2022 EU GDP (15.8 trillion), [preliminary 2023 real growth of 0.5 percent according to Eurostat](#), and projected change in the GDP deflator of about 5 percent, according to IMF October 2023 World Economic Outlook projections.

Figure 11: Domestic government bonds as a share of monetary financial institutions (MFI) total assets

Source: Bruegel based on ECB MFI Balance Sheets

This said, even a substantially larger EU budget would not eliminate fragmentation risk while the structure of national-level finance in the EU – with large national budgets, large national debts, major differences in national fiscal space and limited cross-border financial integration – remains unchanged. One way of reducing this risk is to improve compliance with fiscal rules designed to minimise the risk of insolvency. This is the main aim of the ongoing reform of the EU fiscal governance framework. Another is to reduce the possibility of self-fulfilling confidence shocks magnified by the mutual dependence of sovereigns and banks. In several euro area countries, including Italy and Spain, domestic sovereign bonds continue to constitute a large share of bank balance sheets (see Figure 11 and Altavilla et al. 2017 for an analysis). As a result, worries that a sovereign might be in trouble trigger not only sharply higher sovereign spreads but also sharply tighter financing costs for banks that hold sovereign bonds (Figure 12). This in turn leads to a credit crunch, a recession and a widening fiscal deficit, validating the original expectation.

Figure 12: Measures of Italian sovereign and bank spreads (in basis points)

Source: Bruegel based on Bloomberg.

Note: 'Italian sovereign 10y spread' refers to the spread between the benchmark Italian and German 10-year bonds. 'Italian bank spreads' refers to the spread between the Bloomberg index of bonds issued by Italian banks with a composite rating of BBB+, BBB or BBB- and the corresponding index of European banks with a composite rating of AA+, AA or AA-, averaged across the 3-, 5-, 7- and 10-year maturities. 'Italian banks CDS spreads' is the weighted average (based on September 2023 assets) of the Bloomberg Issuer Default Risk Implied CDS Spread for Intesa San Paolo, Unicredit, Banco BPM, and Monte dei Paschi Siena.

The TPI was designed to address this problem by preventing unwarranted spikes in sovereign spreads in the first place. But what if it is not fully credible, or fails in its first application?

4.2.1. Simplifying the TPI

One answer is to reform the TPI to make it simpler and hence more predictable and less "accident-prone". The TPI comprises of four conditions, which are meant to ensure that only countries with sound macroeconomic fundamentals benefit from TPI support (for all others, there is the ESM/OMT). The conditions are "*compliance with the EU fiscal framework*", "*the absence of severe macroeconomic imbalances*", "*fiscal sustainability*" and "*sound and sustainable macroeconomic policies*". These conditions are then checked in ways that mostly have to do with compliance with complicated EU rules (the fiscal rules, the macroeconomic imbalance procedure and commitments submitted to the Recovery and Resilience Facility). On this basis, it is hard for markets to predict whether a country will meet the eligibility conditions¹⁶. Indeed, according to January 2024 ECB survey of market analysts, 53.3 percent of market participants believe that the TPI will never be invoked (ECB 2024, p.9)

If the purpose of the eligibility criteria is to distinguish between solvent and illiquid countries, as it should be, then most of these criteria are unnecessary. They could be boiled down to just one: fiscal sustainability. This should be assessed using a methodology that is both high quality and reproducible by the general public. A methodology for the debt sustainability assessment is currently under discussion in the negotiations for the review of the EU fiscal framework. A public and replicable assessment could be the basis for eligibility under the TPI.

¹⁶ Furthermore, the ECB refers to the criteria as a "cumulative list", which suggests that not all criteria may be individually necessary; see <https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220721~973e6e7273.en.html>. This said, it is hard to imagine the ECB stating that the criterion of compliance with the EU fiscal rules was merely indicative and was disregarded in an actual application of the TPI.

Alternatively (and less radically), the four existing TPI eligibility criteria could be reduced to just the first (compliance with the fiscal rules), since the new fiscal rules embody debt sustainability (Darvas and Zettelmeyer, 2023). Unlike the previous suggestion, under this proposal compliance with the aspects of the fiscal rules that have nothing to do with debt sustainability (such as deficit and debt ‘safeguards’, see Zettelmeyer, 2023a, b) would be a condition for TPI eligibility. From the perspective of monetary-fiscal coordination, this makes the first variant of our proposal preferable, as it makes no sense to restrict fiscal policy using ‘safeguards’ that have no basis in debt sustainability (Darvas and Zettelmeyer, 2023; Darvas *et al.*, 2023).

4.2.2. Reducing direct exposure of banks to their own sovereigns in normal times

Another answer to the question of how to reduce fragmentation risks (not exclusive with the first one) is to reduce the mutual dependence of banks and sovereigns by enacting regulation that requires banks to reduce their holdings of domestic bonds (regulatory treatment of sovereign exposures, RTSE). This approach has been fiercely resisted by Italy and other countries where banks have high sovereign exposures. Those countries worry, first, that the process of reducing sovereign exposures could be bumpy, raising the risk of an accident in sovereign bond markets in the short term. Second, the prohibition (or heavy penalisation) of large exposures to any individual sovereign removes a form of funding for sovereigns – the domestic banking system. This funding can be particularly critical in an emergency.

It is possible that these fears are exaggerated. No matter where one stands on this question, however, resistance to hard regulatory instruments that would effectively strip the domestic banking system of its role as a lender of last resort to the sovereign makes this approach politically unfeasible, at least in the short and medium terms.

Importantly, however, weakening the doom loop and maintaining sovereign access to domestic banks as a source of *emergency* financing may not be mutually exclusive, as the former depends on the pre-crisis stock of sovereign bonds in bank balance sheets, while the latter depends on the ability of to *raise* that stock in a crisis. The challenge is to create a mechanism that offers incentives to reduce exposures in normal times, while not precluding the possibility of raising exposures again in crisis times.

A possible way of answering this challenge is as follows:

1. First, to reduce the exposure of domestic banking systems to their sovereigns in normal times, by gradually replacing maturing sovereign bonds with either safe EU bonds or a diversified basket of national bonds (Alogoskoufis and Langfield 2020, Véron, 2017). This could be achieved by regulatory means, by supervisory guidance or through a combination of the two. In the absence of a regulatory solution, supervisory guidance would need to be backed up by a political agreement in the Council and between the Council, the ECB and the Single Supervisory Mechanism (which brings together bank supervisors). National supervisory authorities, in coordination with each other and the ECB via the Single Supervisory Mechanism, would subsequently nudge banks along a pre-agreed path that gradually reduces bank exposures to the domestic sovereign. This would reduce fiscal/financial vulnerability *ex ante* by removing the main channel of contagion from sovereigns to banks.
2. Second, to combine this regulation or supervisory guidance with a safeguard clause that could be activated in crisis situations. This would allow banks to increase their exposures in the event of a debt run, provided that the ECB Governing Council gives a green light. This green light could be linked to a fiscal-sustainability check (following a Council-endorsed EU methodology), and evidence of sovereign stress.

Using an indicator of market stress to justify an increase in sovereign exposure could of course re-introduce the possibility of a self-fulfilling crisis (a perceived increase in sovereign risk might spill over to the banks expected to buy more government bonds in a crisis). But compared to the existing doom-loop, this mechanism would be attenuated in two respects: first through much lower initial exposures of banks to their own sovereigns, and second because the supervisory permission for banks to raise their sovereign exposures would be linked to debt sustainability.

5. CONCLUSION

Over its twenty-five-year history, and particularly during and after the 2008-2012 crisis, the ECB has proven resilient, adaptive and innovative. To interpret and evaluate ECB policy changes, it is useful to classify them into two broad buckets.

The first comprises the evolution of the ECB's operational framework, monetary policy tools and strategy. In chronological order, this includes the switch to fixed-rate, full-allotment refinancing operations in 2008, the introduction of forward guidance in 2013, the use of negative deposit rates in 2014, the move to full-fledged asset purchases in early 2015, the 2020 Pandemic Emergency Purchase Programme and the 2021 strategy review which codified some of these achievements and eliminated the problematic asymmetry in the ECB's price stability objective.

These changes paralleled those of other major central banks, which all adapted and innovated in response to new economic and financial stability challenges. Given its origins however, the ECB often had a greater distance to travel. For the most part, it has done so decisively and speedily, notwithstanding its more complicated governance. In some cases, it was even ahead of its major peers, such as for the emergency liquidity provision in 2007 and the negative interest rates in 2014.

In two cases, however, the ECB has been slow, with significant adverse consequences for both price stability and secondary objectives. The 2015 APP should have started two years earlier. And the ECB was again slow to react to the inflationary surge triggered by the combination of COVID-19 aftershocks and the brutal rise in energy prices. As we have argued in this paper, these delays reflected a structural handicap: the politically and fiscally heterogeneous nature of the euro area. Monetary policy decisions were delayed whenever they had important fiscal consequences. In such cases, the ECB needed extra time, compared to single-country central banks: time to evaluate, confront and mitigate the distributional (2015) or financial-stability (2022) consequences of its actions.

The second set of ECB innovations consisted of actions to neutralise – or at least mitigate – the structural handicap just described. These included the 2012 OMT instrument, the elaborate risk-sharing arrangements underlying the 2015 APP, the flexibility element of the 2020 PEPP, the decision to 'grandfather' collateral quality ratings of sovereign bonds in 2020, and the 2022 TPI. Again, the ECB proved innovative and, for the most part, fast in following through decisions of principle with concrete actions.

The future agenda of the ECB and the EMU in which it is embedded can be linked to these two classes of actions.

1. In the area of **monetary policy strategy and operational framework**, the ECB has a rich agenda, which is largely under its control. The next strategy review should tackle a range of questions that are important, fascinating and difficult, including: whether there should be a process for regular review of the definition of price stability and what it should be based on, how the 'medium term' should be defined and to what extent this definition should be linked to the central bank's secondary objectives. We have also argued that the current 'ample reserves' framework should be maintained. But if it is modified, finding an alternative that preserves most of the strengths of the current system will create its own challenges.
2. In contrast, with respect to **innovations designed to offset its structural handicap**, the creativity of the ECB may by and large have reached the limits of feasibility. The sole exception is that the TPI might be amenable to simplification; we have proposed some ideas on this. For the most part, however, the innovations will now need to come from reforms to the EU governance that sit largely outside the ECB.

A wholesale reform of the EU fiscal system is currently not in the cards – changes in the fiscal system generally do not arise from macroeconomic considerations. However, the *combination* of piecemeal reforms can go a long way. These would involve a larger EU budget involving common bond issuance backed by adequate own resources, effective implementation of the ongoing fiscal governance reform to reduce fiscal vulnerability, and steps to reduce the exposure of banks to their domestic sovereigns, while providing flexibility in times of stress. We have proposed pragmatic steps in this direction. To these, one must add the longstanding objective of completing banking union and deepening and integrating capital markets, which were not discussed in this paper, but which would make the job of the central bank much easier by improving private risk sharing across the euro area.

Short of politically implausible radical changes, an imperfect solution to a structural problem is the best response one can hope for. This will require invigorating, coordinating and implementing reforms on multiple fronts: building a common fiscal capacity, striving for a larger pool of EU assets, and reducing fiscal and financial vulnerabilities. There is also limited scope to further strengthen existing ECB instruments, particularly the TPI. Our discussion shows that achieving consensus to pursue these objectives, in particular the first two, will be hard. But without significant progress on several of these fronts, the euro will likely remain fragile.

REFERENCES

- Adam, K. and H. Weber (2019) 'Optimal Trend Inflation', *American Economic Review* 109(2): 702-737.
- Alogoskoufis, S and S. Langfield (2020), 'Regulating the Doom Loop', *International Journal of Central Banking* 16(4): 251-292, available at <https://www.ijcb.org/journal/ijcb20q3a6.pdf>.
- Altavilla, C., Pagano, M. and Simonelli, S. (2017) 'Bank Exposures and Sovereign Stress Transmission', *Review of Finance* 21 (6): 2103–2139.
- Altavilla C., L. Brugnolini, R. Gürkaynak, R. Motto and G. Ragusa (2019) 'Measuring euro area monetary policy', *Journal of Monetary Economics* 108: 162-179
- Altavilla, C., G. Carboni and R. Motto (2021) 'Asset Purchase Programs and Financial Markets: Lessons from the Euro Area', *International Journal of Central Banking* 17(4): 1-48
- Altavilla, D., M. Rostagno and J. Schumacher (2024) 'Anchoring QT: Liquidity, credit and monetary policy implementation', *CEPR Discussion Paper 18581*, Version 8, January
- Blanchard, O. and J. Zettelmeyer (2023) 'Fixing Germany's fixes of the European Commission's fiscal governance proposal', *Bruegel Analysis*, 18 April, available at <https://www.bruegel.org/analysis/fixing-germanys-fixes-european-commissions-fiscal-governance-proposal>
- Beck, T., J.-P. Krahnen, P. Martin, F. Mayer, J. Pisani-Ferry, T. Tröger, B. Weder di Mauro, N. Véron and J. Zettelmeyer (2022) 'Completing Europe's banking union: economic requirements and legal conditions', *Policy Contribution 20/2022*, Bruegel, available at <https://www.bruegel.org/policy-brief/completing-europes-banking-union-economic-requirements-and-legal-conditions-0>
- Belhocine, N., A. V. Bhatia and J. Frie (2023) 'Raising Rates with a Large Balance Sheet: The Eurosystem's Net Income and its Fiscal Implications', *IMF Working Paper*, 7 July, available at
- Bernanke, B. (2017) 'Temporary price-level targeting: An alternative framework for monetary policy', *Brookings Institute blogpost*, 12 October, available at <https://www.brookings.edu/articles/temporary-price-level-targeting-an-alternative-framework-for-monetary-policy/>
- Brunnermeier, M. K., S. Langfield, M. Pagano, R. Reis, S. Van Nieuwerburgh and D. Vayanos (2017) 'ESBies: Safety in the Tranches', *Economic Policy* 32(90): 175–219, available at <https://doi.org/10.1093/epolic/eix004>
- Claes, G. and T. Linta, (2019) 'The evolution of the ECB governing council's decision-making', *Bruegel Blog*, 27 June, available at <https://www.bruegel.org/blog-post/evolution-ecb-governing-councils-decision-making>
- Claes, G. and A. Steinbach (2024) 'A framework for the identification and governance of European Public Goods', *Working Paper*, Bruegel, forthcoming
- Corsetti, G. and M. Buti (2024), "The first 25 years of the euro". European University Institute.
- Darvas Z. and C. Martins (2022) 'Tackling inflation: learning from the European Central Bank's six lapses', *Bruegel Blog*, 22 September, available at <https://www.bruegel.org/blog-post/tackling-inflation-learning-european-central-banks-six-lapses>
- Darvas, Z., L. Welslau and J. Zettelmeyer (2023) 'A quantitative evaluation of the European Commission's fiscal governance proposal', *Working Paper 16/2023*, Bruegel, available at <https://www.bruegel.org/working-paper/quantitative-evaluation-european-commissions-fiscal-governance-proposal>
- Darvas, Z. and J. Zettelmeyer (2023) 'The economic governance review and its impact on monetary-fiscal coordination', analysis for the European Parliament Economic and Monetary Affairs Committee, available at [https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/747863/IPOL\(2023\)747863_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/747863/IPOL(2023)747863_EN.pdf)
- Dell'Ariccia, G., P. Rabanal and D. Sandri (2018) 'Unconventional Monetary Policies in the Euro Area, Japan, and the United Kingdom', *Journal of Economic Perspectives* 32(4):147-172

- Demertzis, M., D. Pinkus and N. Ruer (2024) *Accelerating strategic investment in the European Union beyond 2026*. Bruegel Report, January
- Draghi, M. (2014) 'Monetary policy communication in turbulent times', speech at the Conference De Nederlandsche Bank 200 years: Central banking in the next two decades, Amsterdam, 24 April, available at <https://www.ecb.europa.eu/press/key/date/2014/html/sp140424.en.html>
- Draghi, M. (2018), 'Economic and monetary union: past and present', speech at Europa-Konferenz, Hertie School of Governance, Jacques Delors Institute and Bettelsmann Foundation, Berlin, 18 September, available at <https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180919.en.html>
- Draghi, M. (2019) 'Remarks by Mario Draghi, President of the ECB, at the farewell event in his honour', Frankfurt am Main, 28 October, available at <https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp191028~7e8b444d6f.en.html>
- Draghi, M. (2023) 'The Next Flight of the Bumblebee: The Path to Common Fiscal Policy in the Eurozone', *NBER The Reporter* N°3, October, available at <https://www.nber.org/reporter/2023number3/next-flight-bumblebee-path-common-fiscal-policy-eurozone>
- European Central Bank (2024) *The ECB Survey of Monetary Analysts: Aggregated Results*, available at https://www.ecb.europa.eu/stats/ecb_surveys/sma/shared/pdf/ecb.smar240129_january.en.pdf?db98421d684c66f74147303312402645
- European Systemic Risk Board (2018) *Sovereign Bond-Backed Securities: A Feasibility Study*, Study by the High-Level Task Force on Safe Assets, Frankfurt
- Federal Reserve (2020) *2020 Statement on Longer-Run Goals and Monetary Policy Strategy*, available at <https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-statement-on-longer-run-goals-monetary-policy-strategy.htm>
- Giudice, G., M. de Manuel Aramendía, Z. Kontolemis and D. P. Monteiro (2019) 'A European safe asset to complement national government bonds', *MPRA Paper 95748*, University Library of Munich, Germany
- Goodfriend, M. (2002) 'Interest on Reserves and Monetary Policy', *Economic Policy Review* 8 (1): 77–84
- Grund, S. and A. Steinbach (2023) 'European Union debt financing: leeway and barriers from a legal perspective', *Working Paper 15/2023*, Bruegel, available at <https://www.bruegel.org/working-paper/european-union-debt-financing-leeway-and-barriers-legal-perspective>
- Guerrieri, V., M. Marcussen, L. Reichlin and S. Tenreyro (2023) *Geneva 26: The Art and Science of Patience: Relative prices and inflation*, CEPR Press, Paris and London, available at <https://cepr.org/publications/books-and-reports/geneva-26-art-and-science-patience-relative-prices-and-inflation>
- Hartmann, P. And F. Smets (2018) 'The European Central Bank's Monetary Policy during Its First 20 Years', *Brookings Papers on Economic Activity* 49(2): 1-146
- High Level Forum on Capital Markets Union (2020) *A New Vision for Europe's Capital Markets- Final Report*, available at https://finance.ec.europa.eu/system/files/2020-06/200610-cmu-high-level-forum-final-report_en.pdf
- Lane, P. (2021) 'Inflation in the short term and the medium term', Welcome address at the ECB Conference on Money Markets, 8 November, available at <https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp211108~c915d47d4c.en.html>
- Leandro, Á. and J. Zettelmeyer (2018) 'The Search for a Euro Area Safe Asset', *Peterson Institute for International Economics Working Paper 18-3*, March, available at <https://www.piie.com/publications/working-papers/search-euro-area-safe-asset>
- Leandro, Á. and J. Zettelmeyer (2019) 'Creating a Euro Area Safe Asset without Mutualizing Risk (Much)', *Peterson Institute for International Economics Working Paper 19-14*, August, available at

<https://www.piie.com/publications/working-papers/creating-euro-area-safe-asset-without-mutualizing-risk-much>

- Lengwiler, Y. and A. Orphanides (2020) 'Options for the ECB's Monetary Policy Strategy Review', study for the European Parliament Economic and Monetary Affairs Committee, September, available at [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652753/IPOL_STU\(2020\)652753_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652753/IPOL_STU(2020)652753_EN.pdf)
- Lengwiler, Y. and A. Orphanides (2023) 'Collateral Framework: Liquidity Premia and Multiple Equilibria', *Journal of Money, Credit and Banking*, May, available at <https://doi.org/10.1111/jmcb.13048>
- Pisani-Ferry, J. (2014) *The Euro Crisis and Its Aftermath*. Oxford University Press
- Pisani-Ferry, J. and C. Fuest (2019) 'A Primer on Developing European Public Goods', *EconPol Policy Report 16/2019(3)*, November, available at <https://www.ifo.de/en/publications/2019/working-paper/primer-developing-european-public-goods>
- Reichlin, L. (2019) *La Banque Centrale Européenne et la Crise de l'Euro*, Fayard Paris, September
- Reichlin, L., K. Adam, W. McKibbin, M. McMahon, R. Reis, G. Ricco and B. Weder di Mauro (2021) *The ECB strategy: The 2021 review and its future*, CEPR Press, Paris and London, available at <https://cepr.org/publications/books-and-reports/ecb-strategy-2021-review-and-its-future>
- Reichlin, L., G. Ricco and M. Tarbé (2023) 'Monetary–fiscal crosswinds in the European Monetary Union', *European Economic Review* 151, available at <https://doi.org/10.1016/j.euroecorev.2022.104328>
- Rostagno, M., C. Altavilla, G. Carboni, W. Lemke, R. Motto, A. Saint Guilhem and J. Yiangou (2019) 'A tale of two decades: the ECB's monetary policy at 20', *Working Paper Series* 2346, European Central Bank
- Véron, N. (2017), 'Sovereign Concentration Charges: A New Regime for Banks' Sovereign Exposures', study for the European Parliament Economic and Monetary Affairs Committee, November, available at [https://www.europarl.europa.eu/RegData/etudes/STUD/2017/602111/IPOL_STU\(2017\)602111_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2017/602111/IPOL_STU(2017)602111_EN.pdf)
- Woodford, M. (2000) 'Monetary Policy in a World without Money', *International Finance* 3 (2): 229–60
- Zettelmeyer, J. (2023a) 'Are the emerging EU fiscal rules green enough?', *Bruegel newsletter*, 20 November, available at <https://www.bruegel.org/newsletter/are-emerging-eu-fiscal-rules-green-enough>
- Zettelmeyer, J. (2023b) 'Assessing the Ecofin compromise on fiscal rules reform', *Bruegel First Glance*, 21 December, available at <https://www.bruegel.org/first-glance/assessing-ecofin-compromise-fiscal-rules-reform>

ANNEX

Table 1: Key ECB policy decisions

Date	Policy measure
May 2010	Securities Markets Programme (SMP) is introduced
December 2011	3-year longer-term refinancing operation (LTRO) is launched
July 2012	ECB President Mario Draghi gives his “Whatever it takes” speech
September 2012	Outright Monetary Transactions (OMT) is introduced
July 2013	Forward guidance on interest rates introduced as the SMP is terminated
June 2014	First targeted longer-term refinancing operation (TLTRO) launches
June 2014	Negative interest rates
October 2014	Asset purchasing programme (APP) begins with the third covered bond purchase programme, with approximately EUR 10 billion of monthly net purchases
March 2015	APP increases significantly with the launch of the public sector purchase programme, with monthly net purchases recalibrated to EUR 60 billion
April 2016	APP increases to EUR 80 billion of monthly net purchases
April 2017	APP decreases to EUR 60 billion of monthly net purchases
January 2018	APP decreases to EUR 30 billion of monthly net purchases
October 2018	APP decreases to EUR 15 billion of monthly net purchases
January 2019	No net APP purchases, only reinvestments of redemptions
November 2019	APP net purchases restart at EUR 20 billion monthly
March 2020	Pandemic emergency purchase programme (PEPP) introduced, with an initial envelope of EUR 750 billion
March 2020	A temporary EUR 120 billion envelope of net asset purchases under the APP is added from March to December 2020
June 2020	PEPP envelope expanded by EUR 600 billion
December 2020	PEPP envelope expanded by EUR 500 billion
March 2022	Net purchases under PEPP end, with maturing principal payments from securities purchased under this programme to be reinvested until at least the end of 2024 and the future winding down of the portfolio to be managed to “avoid interference with the appropriate monetary stance”
April 2022	EUR 40 billion of net APP purchases
May 2022	EUR 30 billion of net APP purchases
June 2022	EUR 20 billion of net APP purchases

June 2022	Statement that “PEPP reinvestments could be adjusted flexibly across time, asset classes and jurisdictions” to respond to pandemic-related market fragmentation.
July 2022	Net asset purchases under the APP are discontinued, but principal payments from maturing securities continue to be reinvested in full.
July 2022	Transmission Protection Instrument (TPI) introduced.
July 2022	Interest rates (on the main refinancing operations, marginal lending facility and deposit facility) are increased by 50 basis points
September 2022	Interest rates are increased by 75 basis points
November 2022	Interest rates are increased by 75 basis points
December 2022	Interest rates are increased by 50 basis points
February 2023	Interest rates are increased by 50 basis points
March 2023	Principal payments are only partially reinvested, and the APP portfolio begins to decline by EUR 15 billion per month on average
March 2023	Interest rates are increased by 50 basis points
May 2023	Interest rates are increased by 25 basis points
June 2023	Interest rates are increased by 25 basis points
July 2023	Reinvestments under the APP are discontinued.
August 2023	Interest rates are increased by 25 basis points
September 2023	Interest rates are increased by 25 basis points
October 2023	Interest rate increases are paused, with the main refinancing operations, marginal lending facility and deposit facility rates remaining at 4.5%, 4.75% and 4% respectively

This paper reviews the record of European Central Bank policymaking since the 2010-12 euro crisis in order to develop recommendations on: (1) the ECB's future monetary policy strategy, (2) its operational framework, and (3) the governance of European Economic and Monetary Union.

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