The rise and fall of inflation. New lessons for monetary policy?

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Per Jacobsson Lecture

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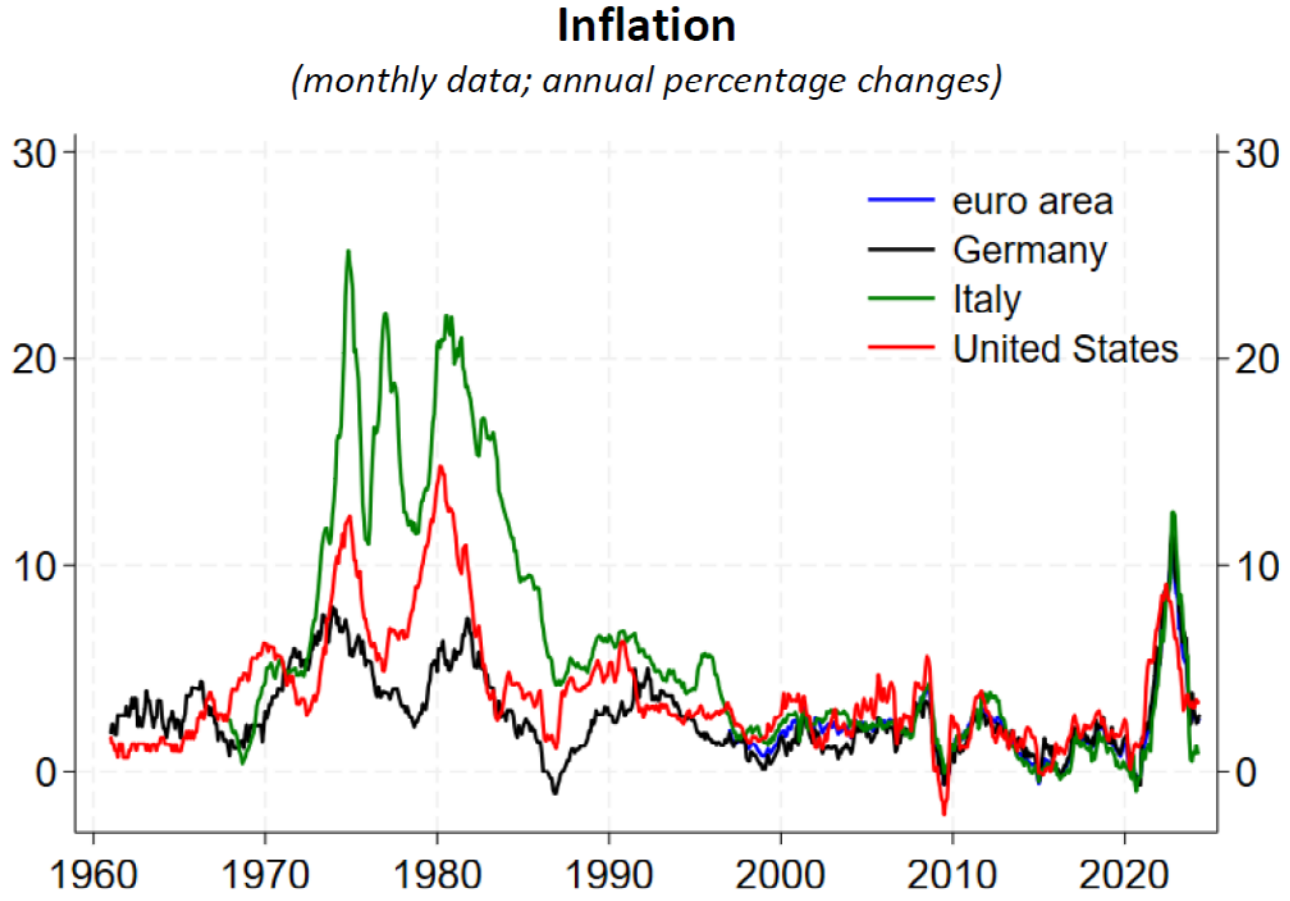
Outline

1. Introduction
2. Economic and institutional changes since the 1970s
3. Key stylised facts of the recent inflationary surge
4. An appraisal on the rise and fall of inflation and the role of monetary policy
5. Some issues related to the role and conduct of monetary policy
6. New lessons and challenges ahead

Per Jacobsson and the Bank of Italy

- Per Jacobsson greatly admired at the Bank of Italy
- Donato Menichella [Governor, 1948-1960] praised his advisory role in Italy's post-war stabilisation programme (Introduction to the 1966 PJL, against «financial dominance»…)
- Paolo Baffi [Deputy Governor and Governor, 1960-1980] was his successor as «interim» BIS Economic Counselor 1956-60 (with same role in the Bank of Italy)
- Baffi then had to face, with his predecessor Guido Carli, a series of shocks (the two major oil shocks included) that led (as elsewhere) to the high inflation of the 1970s
- In Italy high inflation continued to some extent in the 1980s. It was only tamed when Governor Ciampi's 1981 call for a new monetary constitution was fulfilled

The return of inflation



Source: Bundesbank, Eurostat, Istat and US Bureau of Labor Statistics.
Note: Harmonised Index of Consumer Prices (HICP) for the euro area; Consumer Price Index (CPI) for Italy and Germany up to 1996 (Western Germany up to 1993) and HICP afterwards; CPI for the United States.

Economic and institutional differences, today vs. 1970-80s

- Political, demographic and technological developments
- Changes in product, labour and financial markets and, especially, … independence of central banks
- Different economic and monetary initial conditions
  - 1970s : fiscal and social tensions, aftermath of end of Bretton Woods system
  - 2010s : risks of deflation, COVID-19 pandemic-related recession, "radical" uncertainty
- But especially…
  - then: persistency of shocks
  - today: "temporary" bottlenecks and short-lived energy spikes

Key stylised facts of the inflationary surge

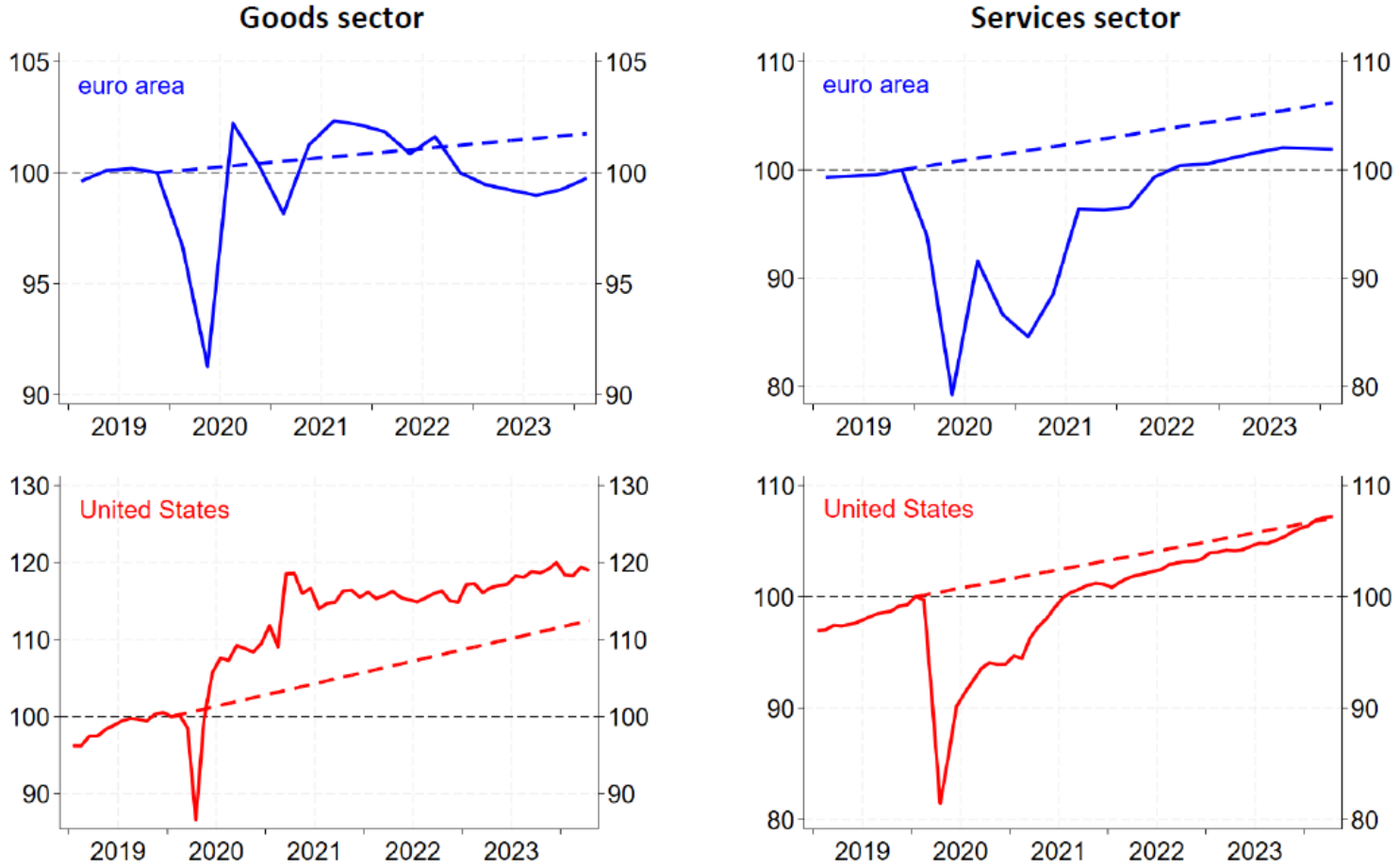
- Several comprehensive and authoritative accounts of the inflationary surge, of the central bank responses and of the progressive decline in inflation
- February 2024 CEPR e-book on "Monetary Policy Responses to the Post-Pandemic Inflation", editors' sharp conclusion:

"*In short, the aggressive monetary policy response that central banks ultimately put in place may have been enough to ensure that the inflationary effects of the COVID-related disruptions were actually transitory in the end*"

Similar inflation patterns, but different underlying sources (1)

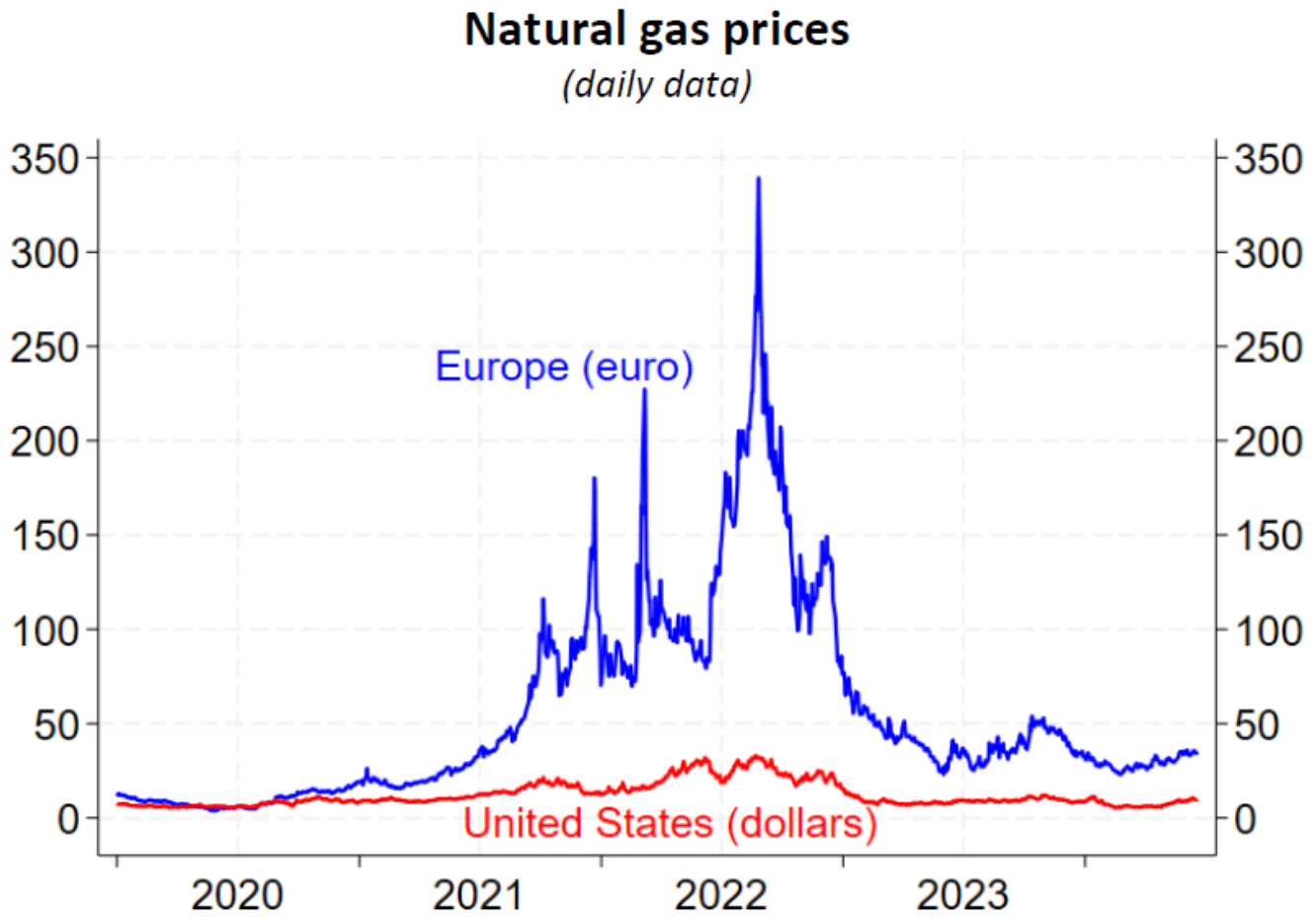
Demand in the goods and services sectors

(monthly and quarterly data; indices: Jan. 2020 / 2019 Q4 = 100)



Source: US Bureau of Economic Analysis and estimates based on Eurostat.
Note: dashed lines show pre-pandemic trends.

Similar inflation patterns, but different underlying sources (2)



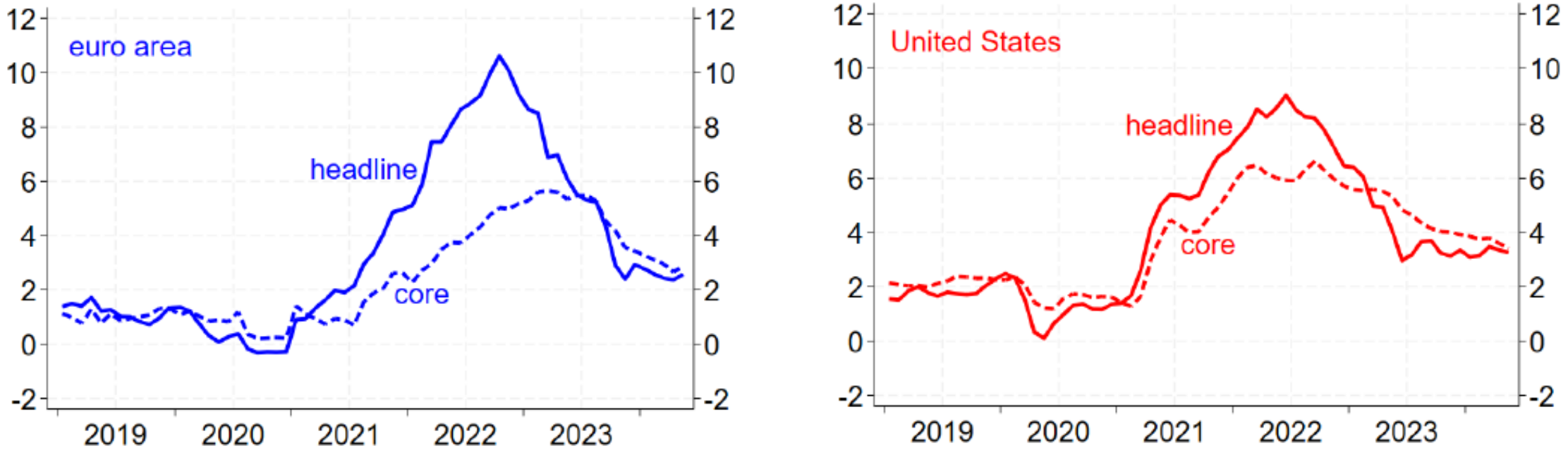
Source: LSEG.

Note: Title Transfer Facility (TTF) quotations for European gas and Henry Hub for US gas.

Similar inflation patterns, but different underlying sources (3)

Headline and core inflation

(monthly data; annual percentage changes)



Source: Eurostat and US Bureau of Labor Statistics.

Note: Harmonised Index of Consumer Prices for the euro area and Consumer Price Index for the US.

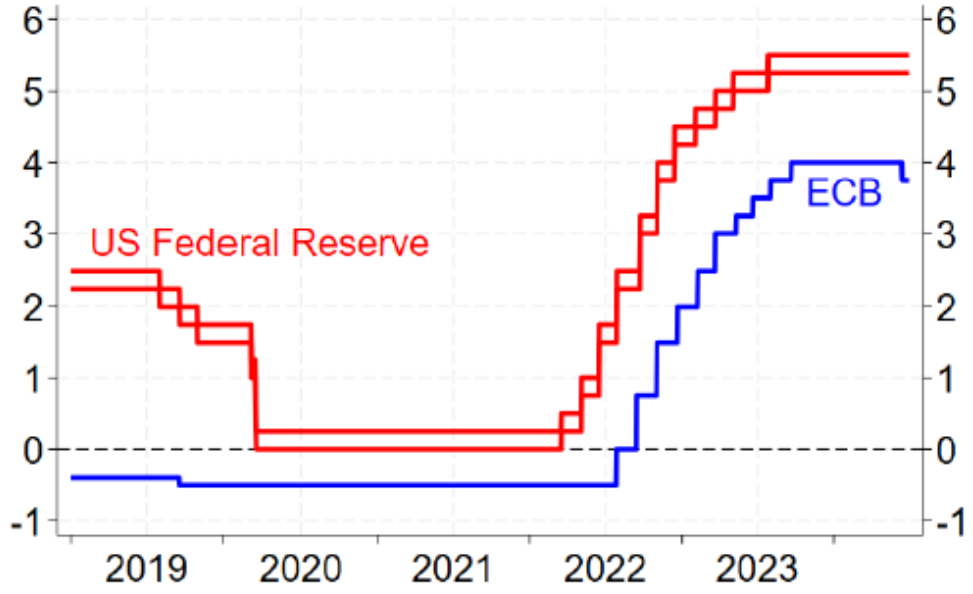
Both the ECB and the Fed first ended QE, then increased key rates

Central banks' key rates and balance sheets

(daily data)

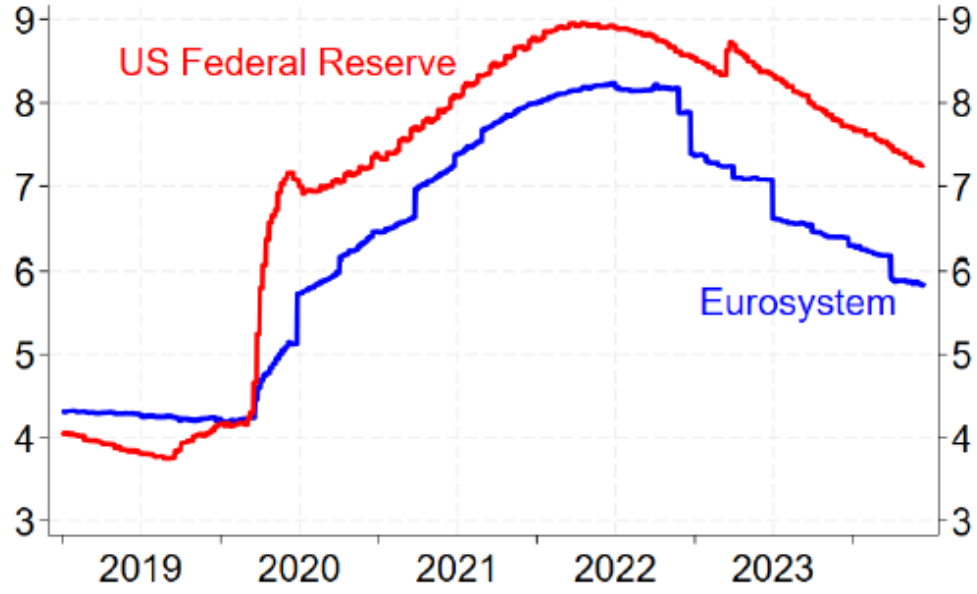
Key rates

(per cent)



Total assets, net of gold

(thousands of billions of euros / US dollars)



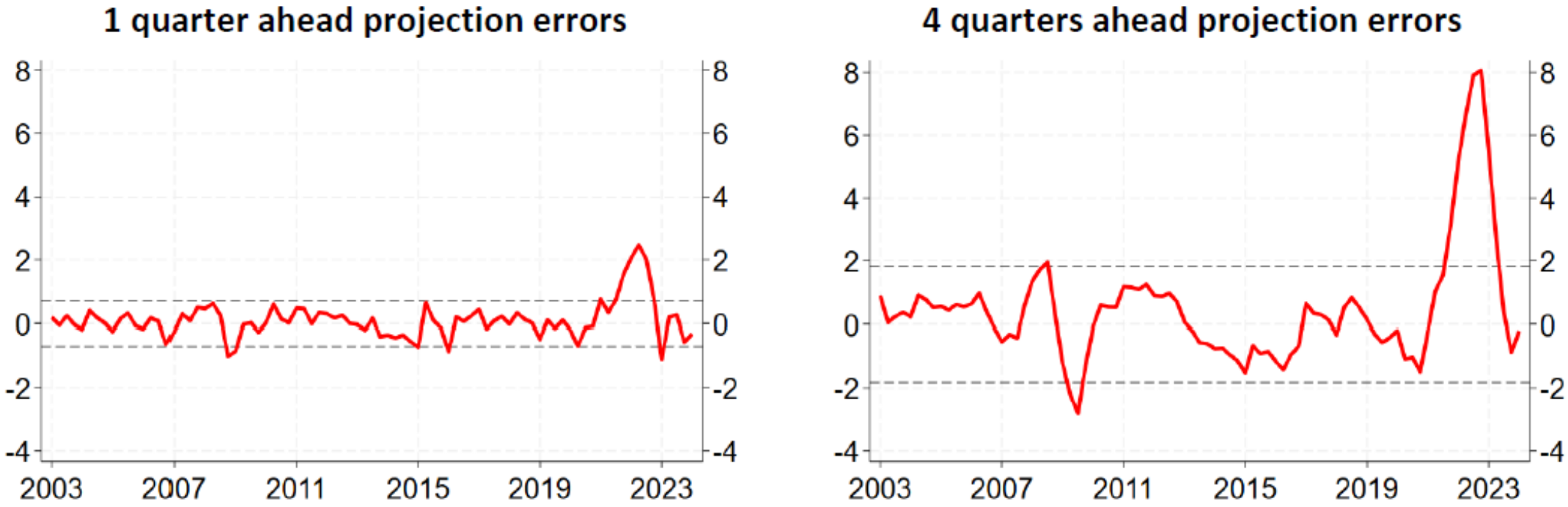
Source: Board of Governors of the Federal Reserve System and ECB.

Note: Deposit facility rate for the ECB and target range for the federal funds rate for the US Federal Reserve System.

Most forecasters made significant projection errors

ECB/Eurosystem projections errors for euro area headline inflation

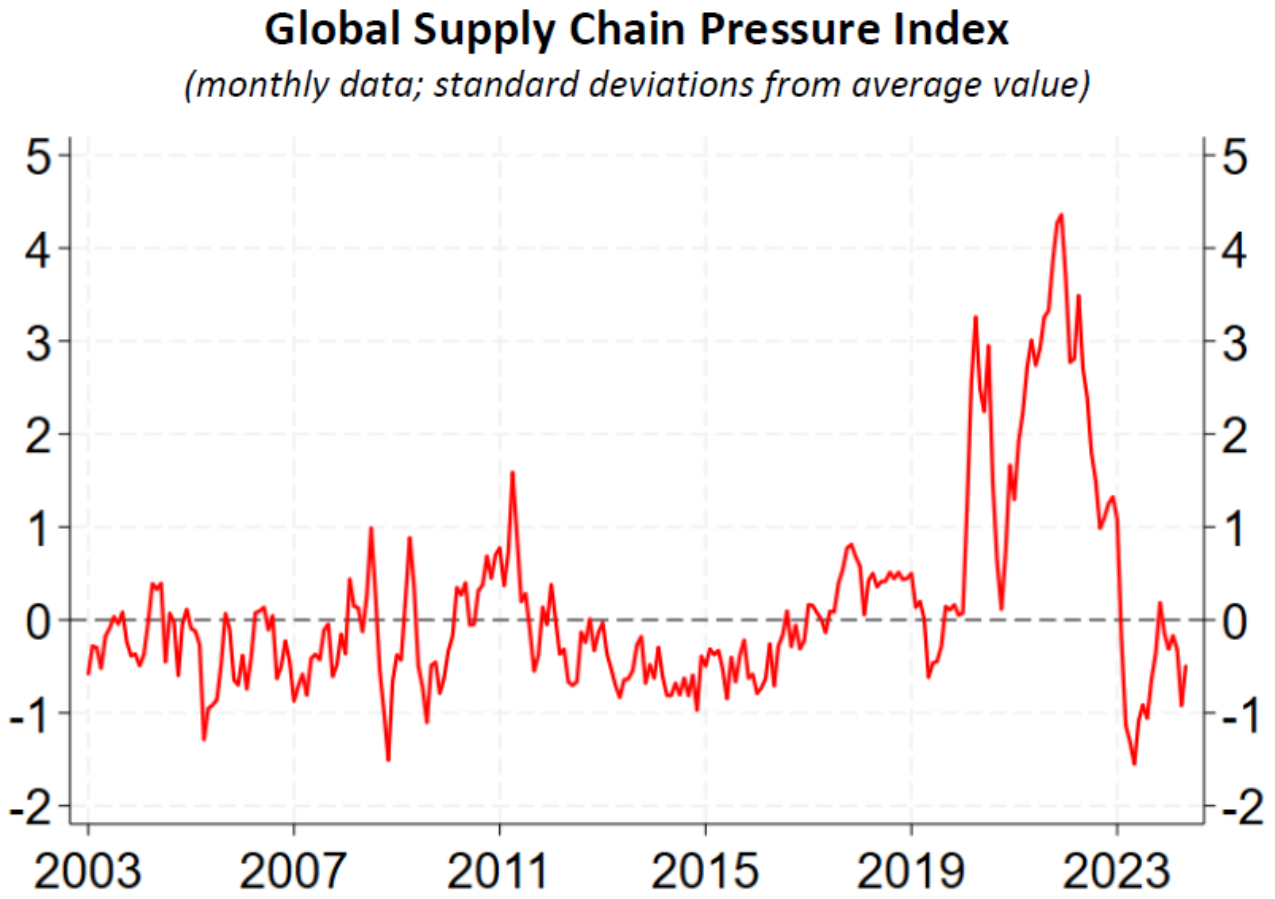
(quarterly data; percentage points)



Source: Bank of Italy and ECB.

Note: dashed lines denote an interval around zero of plus/minus two standard deviations of projection errors realized in 2003-2020.

Causes of projection errors (1)

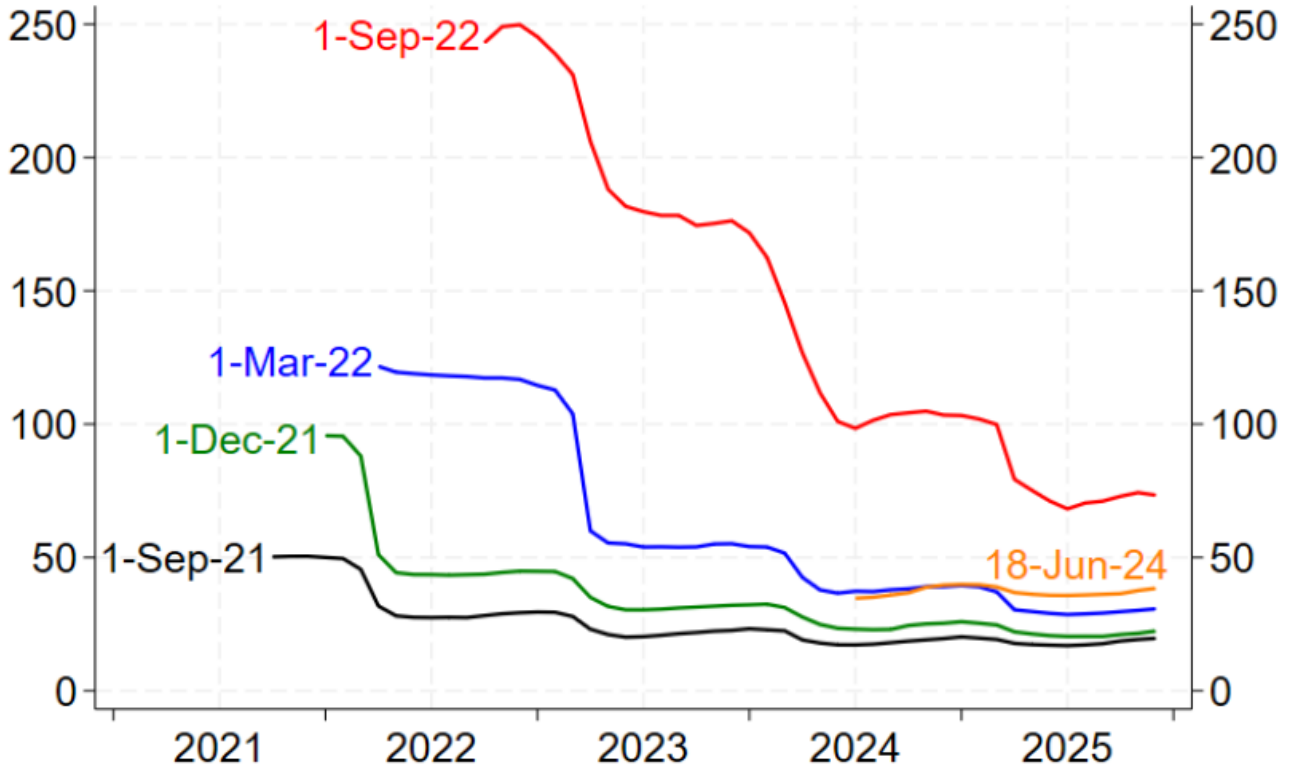


Source: Federal Reserve Bank of New York.
Note: the index integrates transportation cost data and manufacturing indicators to provide a gauge of global supply chain conditions.

Causes of projection errors (2)

Market expectations of natural gas prices in Europe

(euro)



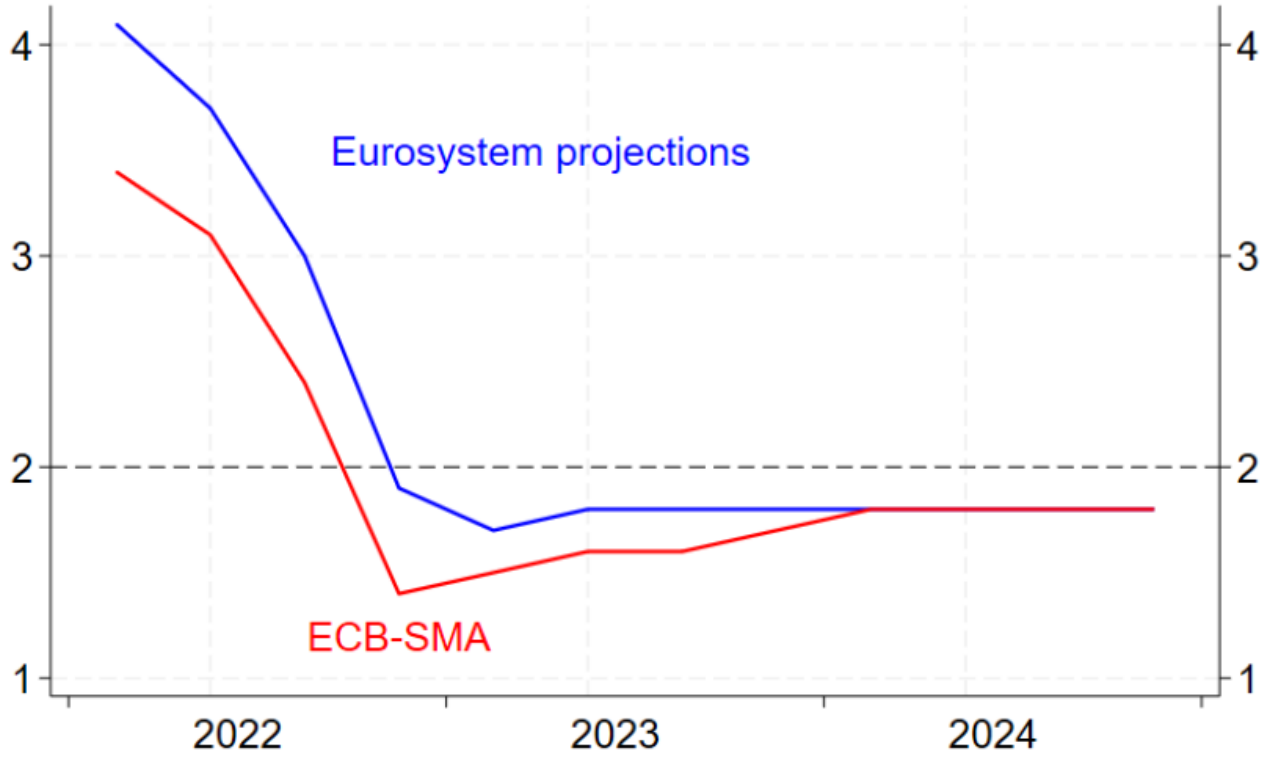
Source: LSEG.

Note: profiles of Title Transfer Facility (TTF) futures quotations at the dates reported in the figure.

Causes of projection errors (3)

Inflation in the euro area: Eurosystem projections and analysts expectations in December 2021

(quarterly data; per cent)

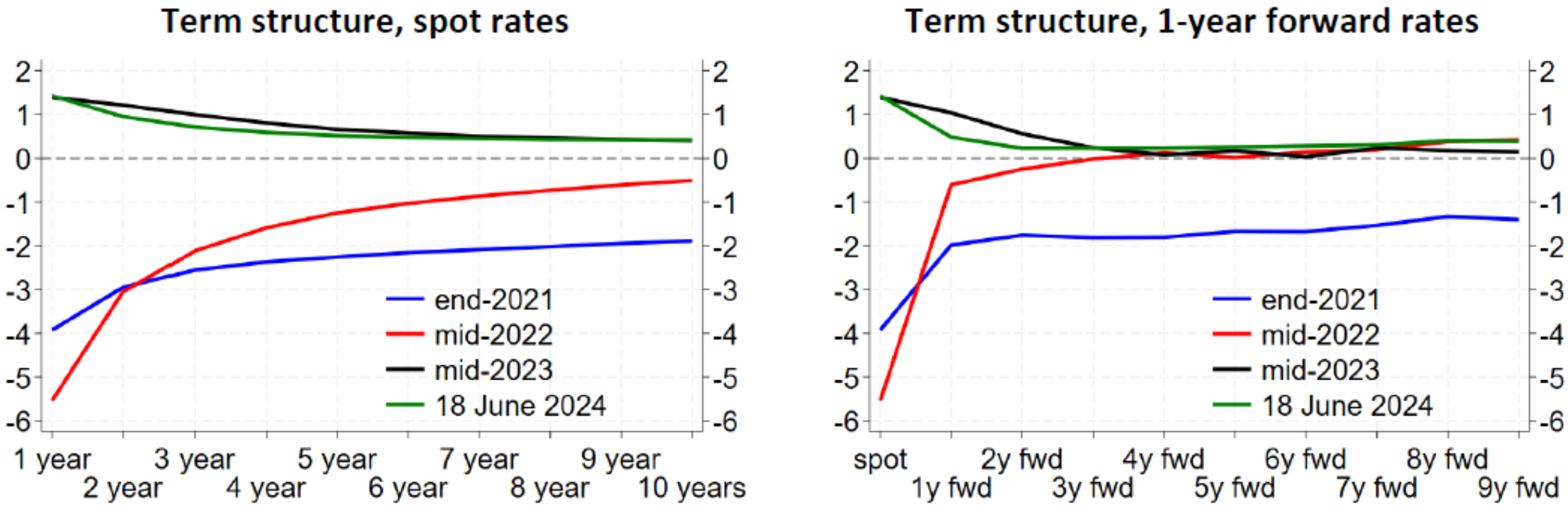


Source: ECB and ECB Survey of Monetary Analysts (ECB-SMA).
Note: median expectations in ECB-SMA and central values in Eurosystem staff macroeconomic projections for the euro area headline inflation.

Monetary policy reaction in the euro area

Real interest rates in the euro area

(per cent)



Source: Bloomberg and LSEG.

Note: nominal OIS interest rates deflated by the corresponding inflation-linked swap rates.

Inflation expectations in the euro area

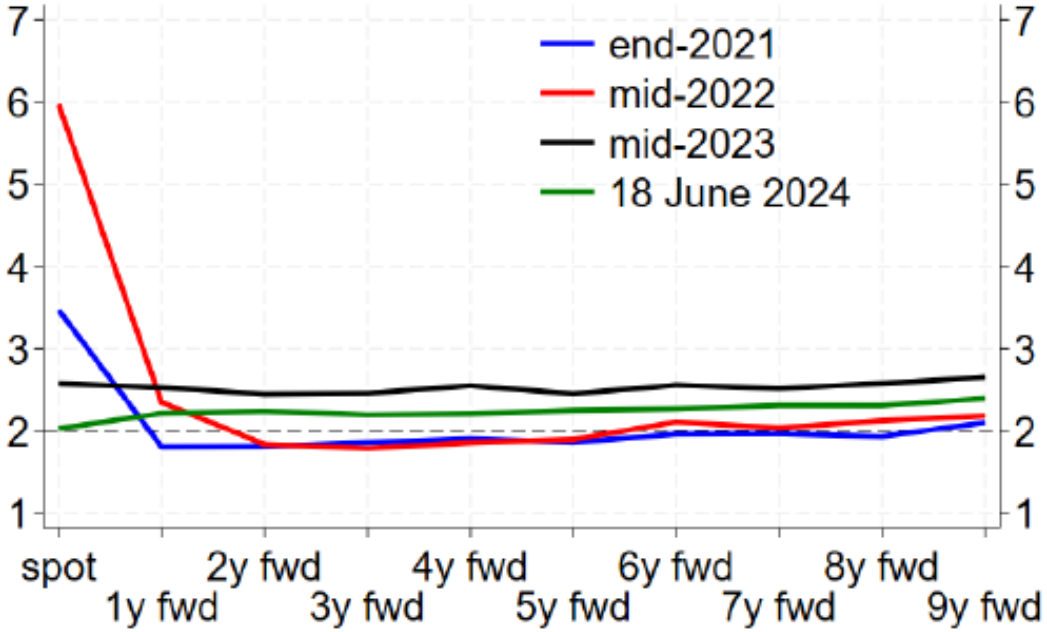
Market-based inflation expectations in the euro area

(per cent)

Inflation-linked swaps, spot rates

(daily data)

Inflation-linked swaps, 1-year forward rates



Source: Bloomberg.

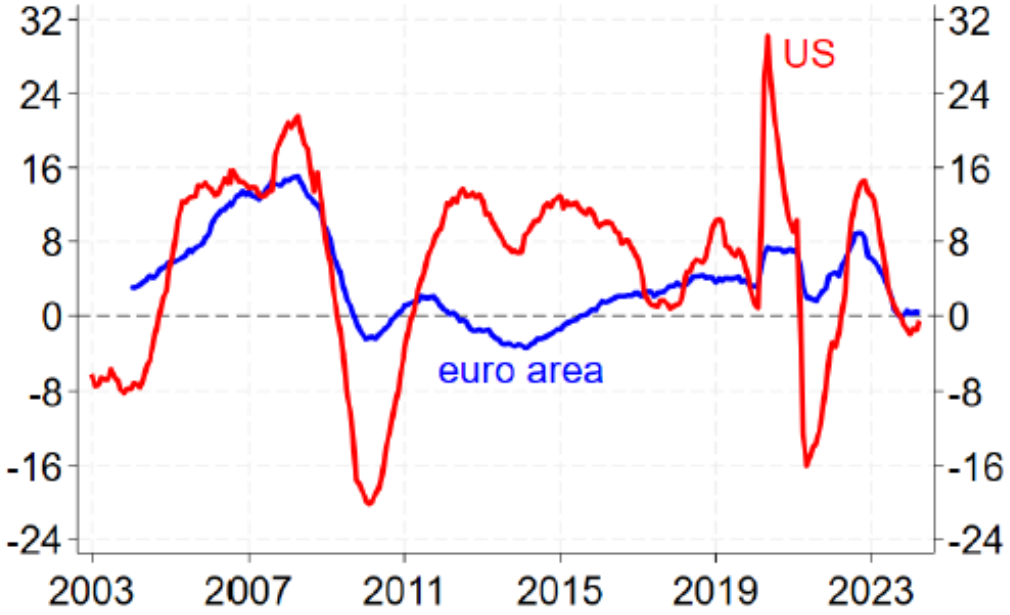
Monetary policy effects

Credit and money growth

(monthly data)

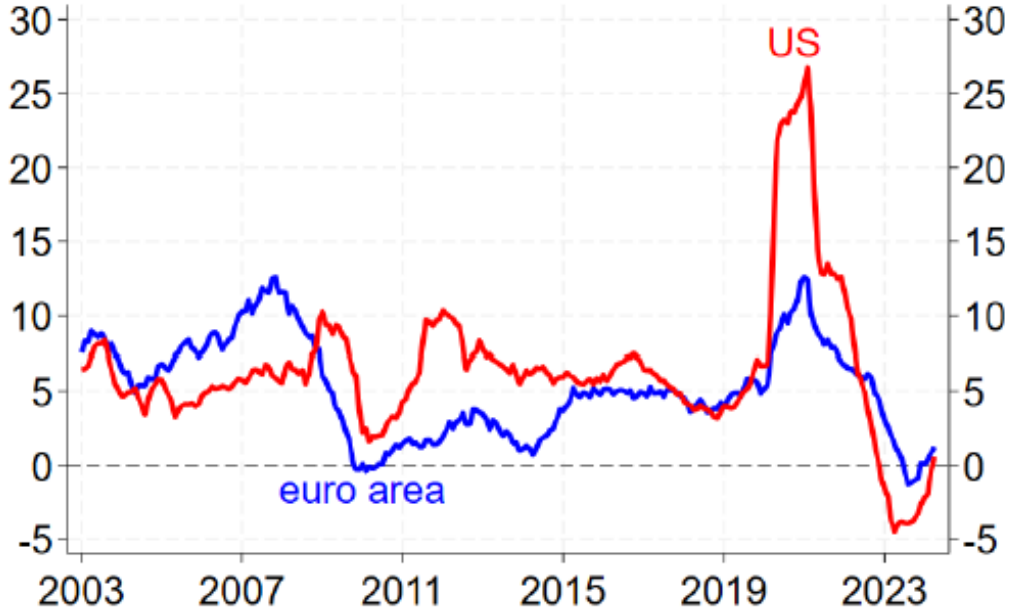
Credit to firms

(12-month percentage change)



Money

(12-month percentage changes)



Source: Board of Governors of the Federal Reserve System and ECB.

Note: M3 for the euro area and M2 for the US.

The rise of inflation & monetary policy

- Several readings, also on the basis of granular evidence
- Before COVID-19 pandemic
  - Years of very low inflation, with risks of (debt/) deflation and (downward) de-anchoring of inflation expectations
  - Unconventional monetary policy (QE and zero/effective lower bound)
- Pandemic as an unprecedented global shock
  - Extremely negative economic, financial and social consequences, if unaddressed
  - Discussion, at the time, was about "scarring effects" and unknown "new normal"
  - Thus: an extremely accommodative response of fiscal and monetary policies

The rise of inflation (1)

- Following most acute phase of pandemic:
  - sudden rebound in demand & severe disruptions in supply
  - unanticipated or considered manageable by central banks, but with material effects on producer and consumer prices
- Propagation was fast in the US, but not via labour markets; Bernanke & Blanchard (2023 wage-price model): a story of "pick-up of prices, given wages", because of imbalances and commodity prices
- In the euro area, most, if not all, 2022 HICP inflation linked to Russia's cuts in supply of natural gas, before & after the outbreak of conflict in Ukraine.

The rise of inflation (2)

- Rise in inflation could have been limited and temporary if the pass-through of higher costs to final prices had been sufficiently slow
- But sectoral interdependencies were at play and remarkable non-linearities kicked in
- In particular, research shows that firms responded to such large shocks rising the frequency of price adjustments. This contributed for some time to the inflation persistence: "large shocks travel fast" (to both producer and consumer prices), while – contrary to the past – also in Europe the catching-up of wages to unanticipated inflation has not been a dominant factor

Criticisms of the monetary policy response

- The delayed response of central banks has been criticised
- But has monetary policy been effective after all?
- Three criticisms raised:
  - Central banks fought deflationary risks for too long
  - Central banks joined the "transitory team" too easily
  - Central banks tied their hands too tightly to the announced sequence of raising policy rates only after QE tapering had been completed

Excessive fears of deflationary risks?

- No doubt that the initial conditions were very easy: the main discussion at the time was to avoid risks of deflation, i.e. to engineer a move out of the "effective lower bound" trap
- The jury is still out on the potential post-pandemic deflation risks successfully countered also maintaining easy monetary conditions, given the extraordinary shock of the pandemic and the truly radical uncertainty about its impact
- Yet, there was no lack in 2021 of discussions about further risks linked to a "second wave" of the pandemic, and most of our meetings were still taking place by remote…

An imprudent jump in the "transitory team"?

- At least for the euro area, it is hard to claim that inflation expectations became substantially unanchored in 2021
- In the summer of 2021, when the ECB's strategic review was completed, headline and core inflation were still below 2% and 1%, respectively
- And the sentiment in financial markets up to the end of the year seemed to be, if anything, that there was still a relevant tail risk of deflation
- It was only with Russia's invasion of Ukraine that short-term inflation expectations rose significantly

A too strict adherence to pre-announced policy sequencing?

- The sequencing did indeed take place, as the overriding objective was to maintain credibility without contradicting the stated commitment to contain potential risks to financial stability
- I doubt a different sequence would have achieved much, except for a very early (January 2021 in the US, autumn 2021 in the euro area?) and extremely aggressive tightening stance, with obvious recessionary effects and risks to financial stability
- A related issue concerns the initial – already very loose – conditions. They were reflecting, especially in the euro area, a monetary policy for too long left alone, to act as the "only game in town". But difficult to see alternatives

Monetary policy effectiveness (1)

- Even if central banks did take some time to react, it was not because of a natural tendency to "see through" a supply shock
- At least in the Eurosystem, it was clear from the outset that signs of "second-round effects" and inflation expectations de-anchoring would have to be strongly countered
- Indeed, the risk to move from a low to a high inflation regime was clear. Eventually, high inflation appears to have been temporary, especially so as the supply disruptions faded and the energy shock was largely reversed
- What contribution has then the sharp tightening of monetary policy made? And has it been enough or too much?

Monetary policy effectiveness (2)

- A brief detour on the persistence of an inflationary process may help
  - Inflation seen as combination of forces acting over time (costs, demand/supply, expectations). Formal representation: a statistical model that could be solved into a "final form", with inflation described in terms of its past
  - Then, in case of a linear autoregressive process, with homogeneity at the nominal level (unit roots), ceteris paribus a new, post-shock, "equilibrium" would be given by the ratio "size of the shock / mean lag of the process"
- Thus, the higher the inertia (the longer the lags), the lower the increase in inflation

Monetary policy effectiveness (3)

- Higher frequency of price adjustment or higher wage catching-up would then tend to have a persistently higher effect on inflation (reducing the inertia).
- By keeping expectations credibly well-anchored and by dampening excessive aggregate demand, monetary policy helped to return to, and maintain, a higher inertia in the overall inflation process
- Until when to be "guided by the data"? Until process under control and agents' behaviour stable again. Credible monetary policy made disinflation due the unwinding of shocks much more rapid
- But had shocks been persistent, tightening would have had to be stronger, with potentially much higher costs, given the more stringent trade-offs

Issues related to role and conduct of monetary policy

- The use of models and forecasting errors
  - Criticism 1: Models not realistic when built
  - Criticism 2: Models not flexible when used
  - Criticism 3: Not enough uncertainty attached to projections
- The role of expectations
  - Not only financial markets, but also business and households matter
  - But do they play a role in monetary policy transmission?
- The use of natural/neutral real interest rates
  - Can they be used to fine tune policy?
  - Is there a role in measuring the monetary stance?

First issue: Central banks' forecasting errors (1)

- Forecasting errors were large, but we should always remember the "non-ergodic" nature of economic systems and the fact that even the "best" models are necessarily "local" approximations of a very complex reality
- Certainly prepared to join those who criticize (because of regime changes) the use in forecasting of some particular classes of dynamic general equilibrium models, although some improvements have been made in the aftermath of the global financial crisis (heterogeneity, non-linearities)
- But have they been responsible for our forecasting failures and have they guided our decisions?

First issue: Central banks' forecasting errors (2)

- One of my favourite quotes:

"*Good predictions have two requisites that are often hard to come by. First they require either a theoretical understanding of the phenomena to be predicted, as a basis for the prediction model, or phenomena that are sufficiently regular that they can simply be extrapolated. Since the latter condition is seldom satisfied by data about human affairs (or even about the weather), our predictions will generally be only as good as our theories. The second requisite for prediction is having reliable data about initial conditions – the starting point from which the extrapolation is to be made.*"

H. Simon (1981)

First issue: Central banks' forecasting errors (3)

First observation on Simon's remarks:

- The critique applies to all macroeconometric models
- But models need to be used (and generally are) with the necessary grain of salt and combining as much art as science.
- Models should then best be seen – and used – as adaptable frameworks, rather than self-contained tools
- If there is little we can do about initial conditions, much should be done to improve the quality of external information (but epidemics and wars are in the category of the unpredictable)

First issue: Central banks' forecasting errors (4)

Second observation on Simon's remarks:

- A recurring problem, difficult to overcome, lies between the production of forecasts and their use, as well as in the way they are ultimately communicated
- Too much attention is paid to "point" forecasts; forecasting is much more complex and major improvements are necessary
- The aim should be to improve the construction of appropriate confidence bands (or fan charts) and to develop and use scenarios that can help policymakers when uncertainty seems overwhelming

Second issue: The inflation expectations channel (1)

- There is much ongoing research on the data collection and analysis of expectations. Still more research is needed to better understand the role they play:
- "*Central banks have been caught out by this sudden upturn in inflation. For several years they have been giving "forward guidance" that interest rates will remain close to or below zero for the indefinite future. They have drawn heavily on concepts derived from a family of theoretical models which rely on the assumption that expectations drive inflation, and central banks drive expectations*"

M. King (2021)

Second issue: the inflation expectations channel (2)

- King's statement points to a very relevant question: whether inflation really depends on its expected counterpart, and to what extent the latter is influenced by monetary policy decisions.
- And if we have doubts on both sides of this question, how important has the sharp monetary tightening been, and through what channels?
- Evidence on business and household (heterogeneous) expectations point to sharp reduction in "rational inattention" with large shocks. Aggressive monetary policy has been able to anchor expectations and avoid much more costly rise of real interest rates, containing the slowdown of activity, without much of a negative effect, so far, on employment

Third issue: the natural rate

- Correct assessment of strength of monetary restriction and distance from "neutral" conditions is important
- But quantifying them by means of measures of a "natural rate" is an elusive exercise, and not good reference for conducting monetary policy
- Still much is learned from the evolution of market-based measures of financial conditions, inclusive real interest rates, to check:
  - soundness of the monetary stance
  - risks to financial stability and difficulties in the vicinity to effective lower bounds
  - implications of demographic and technological trends, or geopolitical and other factors

Where do we stand? (1)

- Central banks entered the race against inflation with a handicap (in terms of initial conditions), and somewhat after the starting gun
- The tightening of monetary conditions has been effective, without giving way to sometimes strong political, and others', recriminations and pressures
- Overall, there has been no loss of credibility, as evidenced by the anchoring of inflation expectations (with central banks, then, not much «behind the curve»), which contributed to faster disinflation as supply shocks receded
- Inflation is now approaching the 2% target, without a wage-price spiral and no obvious recessionary effects

Where do we stand? (2)

- It should be reminded that for net importers the energy price shock is effectively a tax: it cannot be avoided by a sterile race between prices and wages. Prudent to ensure nominal adjustments remain spread out over time
- As regards the "last mile", the final disinflationary effort depends on items with a relatively low direct input of energy costs and a higher dependence on labour. The current monetary policy stance is such that, barring any new shocks, the inflation gap will be closed as expected
- Given a still high level of global uncertainty, it will be sensible to continue moving gradually out of the restrictive territory, monitoring carefully the risks, including those stemming from geopolitics

Lessons learned

- The "new" institutional framework of central banks has passed the (first) test of high inflation
- Institutional changes in financial, product and labour markets – with better regulation, more competition, less automaticity – have been a positive factor
- The discretion and flexibility of central banks have been and will continue to be crucial; this does not mean arbitrariness (but learn to better account for nonlinearities, expectations and regime changes)
- But central banks need to communicate better both about their forecasts and their reaction functions. In fact, a "data-driven" approach cannot be the rule, and the conditionality of their statements should be made clearer

On “rules” and “discretion”

- I have indeed some doubts about recent calls for “simple rules”. It all comes down to how good are policy makers’ discretion, their communications skills, and the way they balance science and art. Not an easy job, In fact:

“One may set up an arbitrarily designed automatic mechanism... Such an automatic mechanism is often contrasted with a so-called ‘discretionary’ system. Now over the years I have struggled with this distinction … and I am unable to isolate any real logical difference, either at the philosophical or pragmatic level. … It is not simply that such a mechanism is set up by discretion, is abandoned by discretion, and it is interfered with by discretion”

P. Samuelson (1951)

On fiscal dominance

- Demographic trends, trade fragmentation, green transition, etc., may lead to further pressures on government budgets and relative price changes. This, in turn, could lead to political pressure for a more flexible and lenient response to potential inflationary effects. So far central banks have responded well, and QT is being conducted with relatively minor market effects
- With rising public debts, pressures may also arise. More flexibility should not address political pressures, but limited and temporary flexibility around targets should be valued against structural reforms that could improve sustainability. And more constructive and forward-looking dialogue across the board could help to foster the values of independence

On financial dominance

- Several pertinent questions: May monetary policy be conditioned by the QE legacy of financial stability risks? Has the intermediation role of central banks become too large, especially in interbank markets? Was "too much money chasing too few goods / assets"?
- Indeed there are both complementarities and trade-offs between price and financial stability. Improvements in macro-prudential regulation, with NBFI and digitalisation, are certainly very much needed.
- On central bank balance sheets and unconventional instruments and policies, a pragmatic approach is inevitable, but they are to remain in the toolbox
- Always good to look at broad money and credit, but doubts on the overhang

To conclude

- Two words featured prominently in last year's reports on central banks' post-pandemic performance: "patience" and "humility"
- Patience was recommended to avoid excessive tightening as disinflation prospects were rapidly improving. Still there are reasons to be prudent while returning to more normal conditions
- And central bankers know well how much is not known; I feel they also know the virtue of being humble. This does not mean that they should be hesitant or submissive. Indeed, if anything, we can refer to a Greek oxymoron (*spèude bradéōs*), borrowed by the Romans as *festina lente* , and I am sure not lacking in other cultures, that is: "make haste slowly"