EUROFI Monetary Scoreboard

SEPTEMBER 2023

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with the support of Elias Krief

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Monetary Scoreboard

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Executive summary

The objective of this scoreboard is to analyse the evolution of monetary policy and central banks' decisions over the last two decades through the extensive use of data[1]. Indeed, central banks' balance sheets have only rarely reached similar heights relative to GDP, except during wartime. By presenting key numbers and charts, this document opens the debate on monetary policy and the need to change course.

During the Global Financial Crisis (GFC), the EU sovereign debt and the Covid-19 crises, central banks played a crucial role and intervened at an unprecedented scale to keep financial markets liquid and stabilise the financial system. In addition, in Europe, the ECB's measures have avoided a financial fragmentation in the dynamics of bonds prices, particularly for sovereign bonds. These swift and decisive actions have helped to prevent potential economic collapses.

However, the 2% inflation target has trapped monetary policy in a systematic and asymmetric accommodative stance for the past two decades. Lasting accommodative monetary policies have pushed global debt to an all-time high record of 338% of the world GDP in 2022 and has driven the monetary base of OECD economies to be multiplied by 10 since 2000. Persistent low interest rates have been fostering liquidity hoarding at the expense of productive investment in Europe in particular. The price paid in terms of over-leverage, decline in corporate dynamism, productivity growth, important assets bubbles and instability, has been high. Through its monumental programme of government bond purchases, the ECB has become a *de facto* agent of fiscal policies, buying most government bond issuances in 2020-21. In turn, this huge leverage has weakened the financial system stability: the search-for-yield behaviour has fuelled swelling bubbles.

Lasting very accommodative monetary policies have also been accompanied by a significant increase in wealth inequality.

Since the second quarter of 2021, inflation has been increasing to levels not seen in decades fuelling concerns about the rising cost of living for households. Although inflation has been falling since the fourth quarter of 2022, it remains persistent and well above the 2% target.

Year-on-year inflation in the OECD area reached 5.7% in June 2023. High inflation should last longer than expected. Formerly attempting to "look through" what they considered to be "transitory" higher inflation, many central banks across Advanced Economies responded late.

Central banks have raised their policy rates by 425 basis points in the Euro area between July 2022 and August 2023, and by 525 basis points in the US between March 2022 and August 2023. Nevertheless, monetary policies are still expansionary especially in the Euro area with real interest rates still negative, unlike in the United States.

In such a context, the fight of inflation must remain the priority of central banks despite the vulnerabilities they have created over the years. Quantitative tightening must be studied carefully but implemented firmly and intelligently. Any victory against inflation comes at a cost: less growth and fewer jobs. If we do not accept the price, it is likely that the spectre of stagflation will reappear.

1. All charts and statistics in this report are based on data released as of to 3 August 2023.
The authors thank Pr. Philippe d'Arvisenet for his wise remarks.

1. The monetary base of OECD economies has been multiplied by 10 since 2000, mainly as a result of the 2% inflation target which has become the absolute guide to monetary policy until 2022

Monetary base has grown significantly in OECD economies as a result of the non-standard monetary policies conducted in response to the 2008 and Covid-19 crises, as well as of the 2% target which has become the absolute guide to monetary policy. The balance sheets of central banks have exploded in the past 20 years.

Monetary policy, notably in the Euro area, has been asymmetric: it has stimulated activity at the first signs of slowing growth, whereas it has been reluctant to tighten when overheating appeared. Indeed the 2% inflation target has trapped monetary policy in this systematic accommodation until 2022.

1.1 Central Banks' Balance sheets between 2000 and 2022: facts and figures

1.1.1 The monetary base of OECD countries has increased tenfold between 2000 and 2022

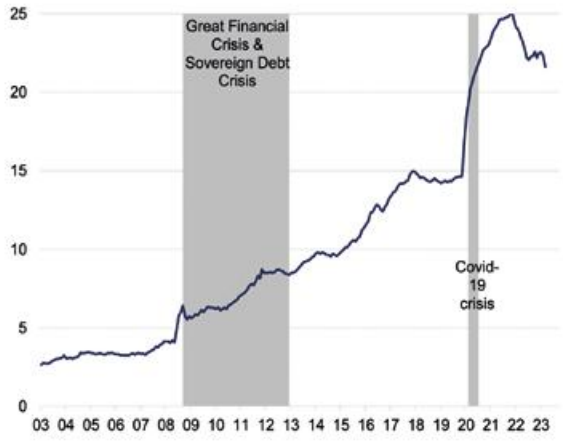
The chart below highlights the exceptional and significant increase of the monetary base in OECD economies. The aggregate monetary base of the OECD countries (US, Eurozone, Japan, UK) has grown from $ 2.5 trn in 2000 to $ 25 trn in March 2022, an increase of 900%.

Two phases must be distinguished in this unprecedented expansion:

- Between January 2008 and the end of 2019, the monetary base had grown by $ 10.7 trn, reaching $ 14.6 trn in December 2019.
- From March 2020 to March 2022, the amount of money issued by central banks had increased by a further $ 10 trn, reaching $ 24.6 trn in March 2022.

So, the rise in the monetary base has been much stronger in response to the Covid-19 crisis than to the Global Financial Crisis in 2008.

CHART 1.
OECD*: Monetary base (USD trn)



Source: Federal Reserve, Bank of Japan, European Central Bank
Notes: Last data are from 30 June 2023
**OECD = US, UK, EA, Japan*

From the beginning of 2008 to end-2021, the monetary base of the US Federal Reserve (Fed) has been multiplied by 8, and by 7 in the Euro area.

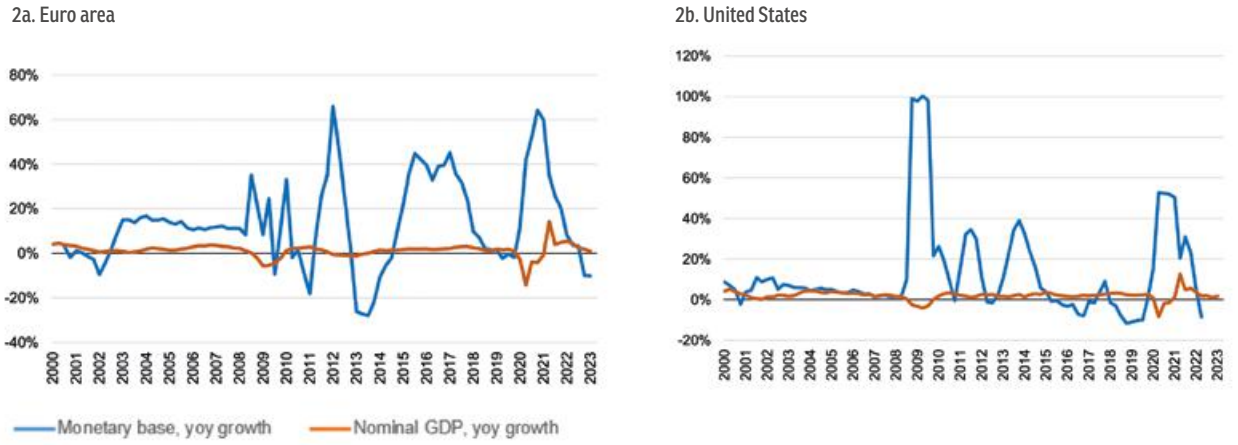
1.1.2 The growth of the monetary base in particular in the US and the Eurozone has consistently exceeded that of GDP in these countries since 2000

M0 grew extremely fast between 2008 and 2019: 13.5% annually in advanced countries, while their GDP grew by 2% on average, in real terms. Given an annual inflation around 1.5%, the average nominal growth of GDP in AEs has been in the order of 3.5%. Therefore, during those 10 years, the money base grew almost 4 times faster than the nominal GDP.

In the Euro area (*see Chart 2*), the monetary base grew by an average of 13.8% per year between the end of 2007 and the end of 2019, *i.e.*, 5.8 times faster than nominal GDP growth (+2.5%).

Over the same period, the monetary base in the United States grew by 14.8% per year on average, a pace 4.6 times higher than that of nominal GDP (+3.2%).

CHART 2.
Nominal GDP against Monetary base, quarterly growth,% annual change



Sources: ECB, Federal Reserve, OECD
As of Q1-2023

1.1.3 The expansion of the monetary base results from central banks' asset purchase programmes, which have led their balance sheets to grow by more than 500% between 2008 and 2022

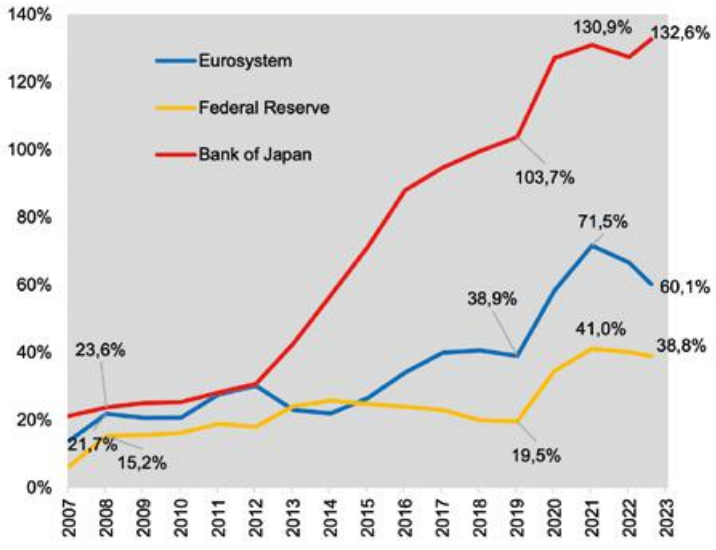
Between January 2008 and June 2022,

- The Fed's balance sheet grew by 890%, a total increase of $ 8 trn.
- The Eurosystem's balance sheet grew by 560%, corresponding to an increase of € 7.5 trn.
- The growth in balance sheet size was 548% in Japan and 1056% in the UK.

As a result, the size of the assets held by the Fed represented 41.7% of US GDP in June 2022, compared to 6.1% in 2008. The Eurosystem's assets were 73.3% of Eurozone GDP in June 2022, up from 13.8% in January 2008 (*see chart 3*).

The assets of the Bank of Japan (which began its asset purchase programme in March 2001) were equivalent to 132.6% of Japanese GDP in June 2022, compared with 21.7% in January 2008.

CHART 3.
Central Banks' Total Assets Relative to GDP, %



Source: Federal Reserve, Bank of Japan, European Central Bank
Notes: Last data are from 30 June 2023 ; the ratio is calculated on the basis of the 2019 nominal GDP for all the data since 2019

The fact that a Central Bank like the ECB decided to buy – and, in effect monetize – bond securities to the tune of more than 70% of the Eurozone's GDP gives an idea of the unprecedented scale of the explosion that has occurred since 2014 in monetary support to the economy.

J. de Larosière points out in his latest book[2] (*see chapter V*), "when [the ECB] buys – through money creation – the equivalent of ¾ of the national economy, we get problematic results:

- A certain form of "nationalisation" of the economy by the issuing institution,
- A "fiscalization" of the role of the central bank insofar as it becomes an essential part of the financing of the treasuries,
- The substitution of a public body for market forces and, by the same token, a decisive influence on the yield curve (such a subordinate position of the Central Bank in relation to the public authorities was generally only encountered in times of war when national defence governments set rates)".

1.1.4 A significant part of the increase in the aggregate monetary base occurred outside of recessionary phases, which is a consequence of the asymmetry of monetary policy

As we have seen, the aggregate monetary base increased by $ 22.5 trn between 2000 and 2022:

$ 13.4 trn were issued during the Great Financial Crisis and the European sovereign debt crisis between 2008 and 2013 (+$ 4.5 trn) and in response to the Covid-19 crisis in 2020 (+$ 8 trn).

The remaining $ 9.1 trn were issued outside of the recessionary phases (*see chart 1*), namely between 2000 and 2008 (+$ 1.6 trn), between early 2014 and late 2019 (+$ 5.3 trn) and between January 2021 and early March 2022 (+$ 2.3 trn).

1.2 Central banks reacted swiftly and forcefully during the Lehman Brothers, EU sovereign debt and Covid-19 crises

The Fed's purchases from 2008 to 2015 in reaction to the Global Financial Crisis (GFC).

Between 2008 and 2015, the Federal Reserve's balance sheet expanded from **$ 0.9 trn to $ 4.5 trn** (corresponding to nearly 16.8% of US GDP as of January 2015).

This increase results from the massive purchase programme of US Treasuries and Mortgage-Backed Securities (MBS) that was conducted by the Fed in three phases. The first wave of QE occurred between November 2008 and March 2010, during which the Fed accumulated a total of $ 1.75 trn of securities, or twice as much as its total assets' value prior to the crisis. In October 2010, the FOMC announced the second round of QE, containing US Treasuries purchases worth $ 600 bn and ending in June 2010. Finally, the third round of QE began in 2012 and ended in 2015, targeting a monthly purchase of MBS ($ 40 bn) and longer-term Treasuries ($ 45 bn). Over $ 1.7 trn of assets were acquired during this period.

ECB purchases from 2011 to 2015 to counter the effects of the GFC and the EU sovereign debt crisis.

Between 2008 and 2013, the Eurosystem's balance sheet grew from **€ 1.2 trn to € 3.03 trn**, corresponding to 14.2% of Euro area GDP as of January 2013.

Unlike the Fed, the ECB's emergency action has been less sizeable in terms of balance sheet expansion in the aftermath of the Great Financial Crisis in 2008. However, as the crisis extended with the sovereign debt crisis in the Euro area (2010-13), the Eurosystem's balance sheet has significantly expanded in the following years.

By December 2011, the Eurosystem had purchased government bonds under the Securities Markets Program with a total settlement amount of € 211.4 bn. Accounting for 47% of the outstanding, Italian debt was the largest holding, followed by Spain (21%), Portugal (10%), Ireland and Greece. The Eurosystem's balance sheet expanded in an unprecedented way, overall, more than doubling in size between 2008 and mid-2012, before starting to recede in the second half of 2012. The provision of central bank refinancing which had decreased substantially to around € 90 bn at the end of December 2012, largely remained in a € 90-130 bn range throughout 2013.

Following the Global Financial and EU sovereign debt crises, the ECB monetary policy remained strongly accommodative. As inflation stood below the 2% target and fell to 0.4% in 2014, the ECB decided to embark in a massive asset purchase programme. Launched in January 2015, it aimed at purchasing public and private securities at a monthly pace of € 60 bn, as part of the Asset Purchase Programme (APP). The share of each

2. J. (de) Larosière, "Putting an end to the reign of financial illusion: for real growth", Odile Jacob, September 2022.

country security in the portfolio was based on the respective National Central Banks' contribution to the ECB's capital. Though, the maximum holding limit of a single issuer's outstanding securities was limited to 33%.

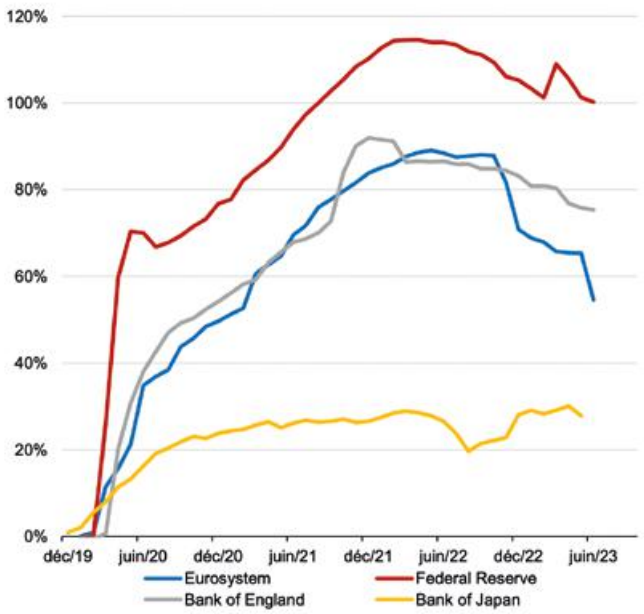
From January 2015 to early March 2020, a total of € 2.66 trn of public and private securities were purchased by the Eurosystem, corresponding to nearly 20% of the Eurozone's 2019 GDP. This brought the balance sheet's value to € 4.7 trn (*i.e.*, 39.3% of GDP).

Central banks' responses to the Covid-19 crisis (2020 – 2022).

When the pandemic struck in March 2020, most Central Banks in Advanced Economies (AEs) were already providing very accommodative financing conditions and their key financing rate could not be lowered further, as it was the case for the ECB and the Bank of Japan. The Fed immediately reduced its main rate by a total of 1.5 percentage points, from a range of 1.05 – 1.75% to 0 – 0.25%. Accordingly, the three Central Banks deployed massive emergency purchase programmes.

Between December 2019 and December 2021, the ECB's total assets grew by 83.8% while the Fed's balance sheet rose by 110.2% (*see Chart 4*).

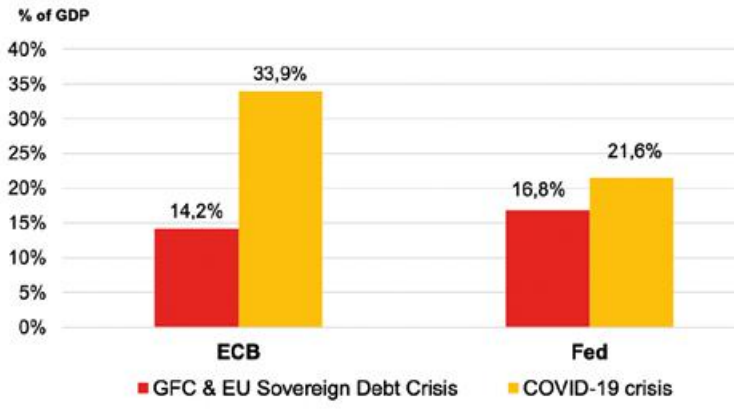
CHART 4.
Change in Central Banks' balance sheet since December 2019,%



Source: Federal Reserve, Bank of Japan, European Central Bank
Notes: last data are from 30 June 2023

Between March 2020 and March 2022, the size of the Eurosystem's balance sheet as a share of the Eurozone's GDP expanded by more than twice as much as it did in the five years of the GFC and EU sovereign debt crisis [2008-2013] (*see Chart 5*). As for the US, the total rise of the Fed's balance sheet amounted to 21.6% of GDP in less than two years, between March 2020 and December 2021, compared to an increase of 16.8% of GDP between 2008 and 2015.

CHART 5.
Expansion of Central Banks' Balance sheet during the Global Financial Crisis and during the Covid-19 crisis



Source: Federal Reserve
Notes: the period associated to the ECB's Balance sheets extended from 2008 to 2013; and from 2008 to 2015 for the Fed; the Covid-19 period extends from 13 March 2020 to 31 March 2022; data are calculated on the basis of the 2019 nominal GDP

Considering the **ECB's action**, on March 2020 the Governing Council decided to launch its Pandemic Emergency Purchase Programme (PEPP), on top of the existing Asset Purchase Program (APP) in place since 2015. According to CGFS calculations[3], the two programs (PEPP + APP) carried out by the ECB during the Covid-19 crisis amounted to 19.7% of 2019-Euro area's nominal GDP and were largely conducted under the PEPP.

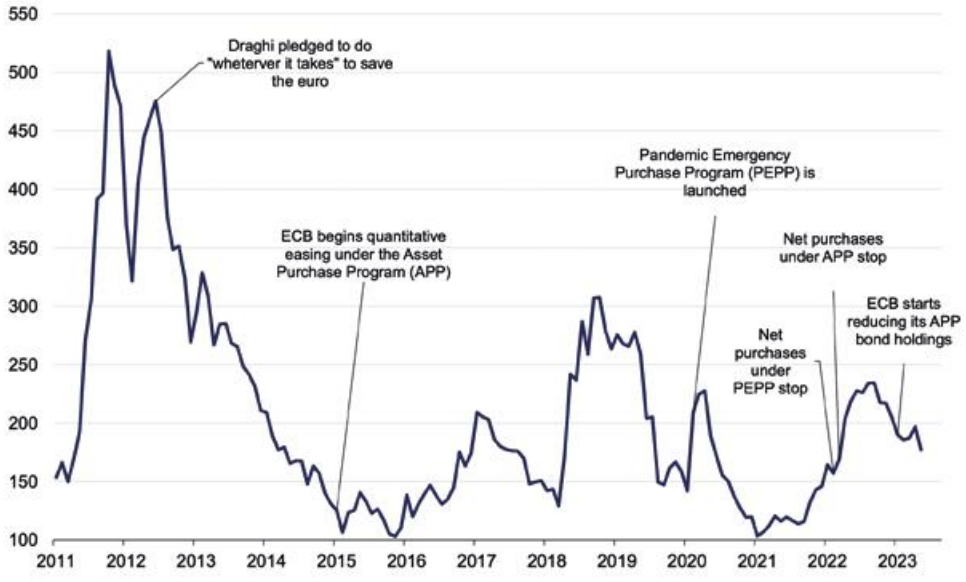
Specifically, the total planned envelope of the PEPP amounted to € 1.850 trn (corresponding to around 15.5% of 2019-Euro area nominal GDP), which comprises the initial € 750 bn envelope announced in March 2020 and subsequent additional envelopes amounting to € 600 bn in June 2020 and € 500 bn in December 2020. Cumulative net purchases under the PEPP were carried out until March 2022 and amounted to € 1.718 trn, implying a 93% use of the total envelope. PEPP purchases consisted of private and public sector securities, the eligibility criteria for which were expanded relative to the APP. In the first three months of the PEPP, public sector purchases accounted for 80% of overall purchases, reaching around 97% of overall PEPP purchases in March 2022. The ECB discontinued net purchases under the PEPP at the end of March 2022 and terminated net purchases under the APP as of 1 July 2022.

In response to the Covid-19 pandemic, the **Federal Reserve** purchased large quantities of Treasury securities and agency MBS, including commercial MBS between March 2020 and March 2022. As a result, the Federal Reserve's holdings of assets increased from $ 4.31 trn in March 2020 to $ 8.96 trn in April 2022, corresponding to 20.2% and 41.9% of 2019 GDP, respectively. As underlined by Better Markets[4], half of the increase in the Fed's assets ($ 2.1 trn) occurred in just 90 days after the 2020 Pandemic Stress, an amount that took nearly four years for the Fed to purchase after the 2008 Crash. In November 2022, the Federal Reserve's holdings of assets stood at $ 8.6 trn, or 40.2% of 2019 GDP.

1.3 Very accommodative monetary policies have allowed financial markets to continue functioning and being liquid in the EU, and also prevented the tightening of financing conditions for states, firms and households

During the European sovereign debt crisis (2011-2012), the Italy-Germany spread reached a considerable level – up to 450 basis point (bps) in the first quarter of 2012. This led to a significant reaction from the ECB. Indeed, the Eurosystem's balance sheet expanded in an unprecedented way, more than doubling in size between 2008 and mid-2012. Notably, the European Financial Stability Facility (EFSF)[5] announced a € 750 bn envelope in June 2010 coupled with Mario Draghi's "whatever it takes" speech in July 2012, contributing to control the spread and pave the way out of the crisis.

CHART 6.
Italy-German Ten-Year Spread, basis points



Source: OECD Monthly data, as of June 2023

3. "Central Bank asset purchases in response to the Covid-19 crisis", BIS (March 2023).

4. D. Kelleher & P. Basil, "Federal Reserve Policies and Systemic Instability", Better Markets (January 2023).

5. Temporary crisis resolution mechanism created by the Euro area Member States in June 2010 to provide financial assistance.

Sustained ultra-accommodating policies implemented since 2015 have avoided a financial fragmentation within the Euro area (with the maintenance of homogeneous financing conditions).

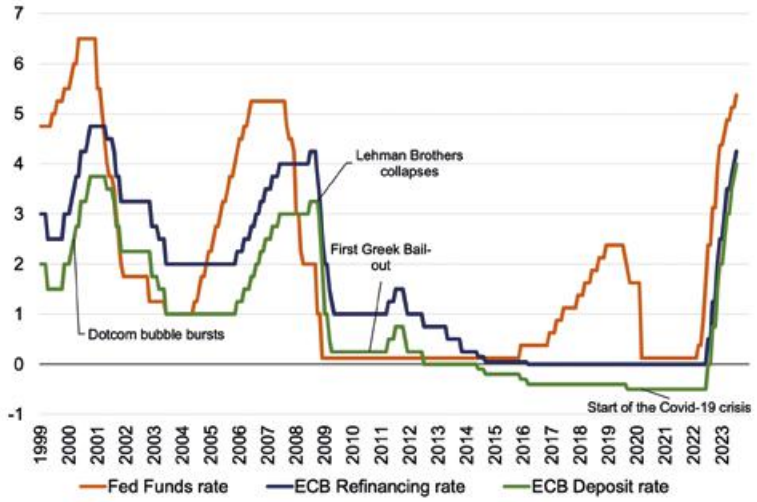
Chart 6 also illustrates the narrowing of Euro area bond yields spreads between core and peripheral countries, since the EU sovereign debt crisis: whereas the Italian 10 year bond yield was almost 500 bps higher than the German yield in 2011, the spread now fluctuates around 200 bps, without economic fundamentals to justify such an improvement.

However, loosened monetary policy has not restored capital mobility from the richer countries with excess savings to the poorer countries in the Euro area[6].

1.4 Lasting easy monetary policies have contributed to the downward path of interest rates

The continuation of very accommodative monetary policies has led to the downward path of interest rates. Notably, the ECB deposit facility – one of the policy rates of the ECB – remained negative between 2014 and 2022 (*see Chart 7*).

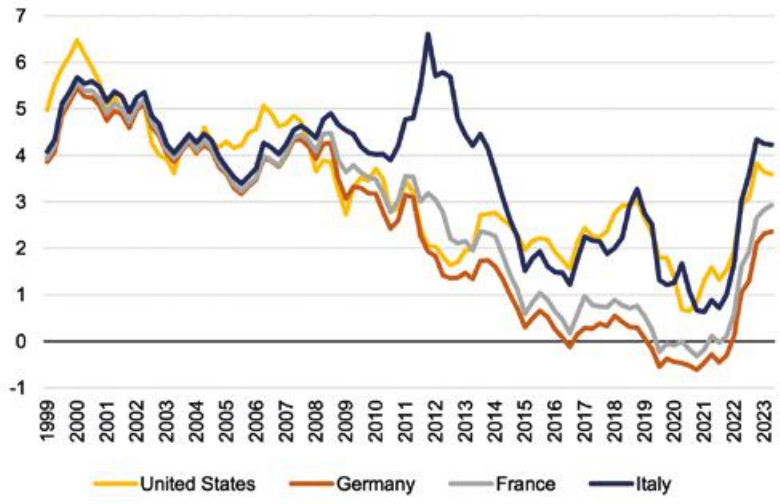
CHART 7.
Key Nominal Short-term Interest Rates for the US and the Euro Area



Source: BIS, ECB
Latest data from February 2023

The following Chart (*Chart 8*) displays the downward trend in long-term interest rates in some main advanced economies over the last 20 years. The German 10 year interest rate was the first to become negative in the end of 2016, while the French 10 years interest rate was close to zero. From the end of 2019 to the end of 2021, both were negative. Since the start of 2022, French and German long-term government bond yields have returned above zero (*see Part 4*).

CHART 8.
10 Years Nominal Interest Rates of Selected Advanced Economies, quartely data,%



Source: OECD
Latest data from Q2-2023

6. See Eurofi, Macroeconomic Scoreboard, September 2022.

An abundant academic literature shows that natural interest rate has been on a downward trend for the past few decades. It may well be for secular reasons (ageing population, globalisation…) but zero or negative nominal interest rates are not a natural phenomenon. They are in large part the result of heavy central bank purchases.

Expansionary monetary policies partly influence risk-free rates and reduce the interest rate risk premium. Without the central bank intervention, risk-free rates might not be significantly higher because they depend in part on growth potential, which has been noticeably low for the past few years. Indeed, QE affects long-term yields through the signalling and portfolio rebalancing channels.

The IMF reminds us[7] that according to the 'portfolio rebalancing' channel, asset purchases compress the term premium (*i.e.*, the required compensation to hold long-term debt securities) and therefore reduce long-term yields. This happens because QE reduces the net supply of long-term assets held by the private sector. Private sector agents, in turn, will accept to reduce their holdings of such assets if their prices go up (or yields go down).

The IMF also underlines that "estimates of the magnitude of QE's effect on yields in the Euro area suggest that the stock of assets currently held by the Eurosystem could be reducing long-term yields by up to 265 bps. The evidence on the magnitude of QE for the Euro area is more limited than for the US as the ECB started its asset purchase programs only in 2015".

Furthermore, the massive liquidity and quantitative easing programmes implemented by the AEs' central banks (*e.g.*, the ECB, the Fed, the BoJ) have been blurring the reading of long-term interest rates which no longer play their discriminating role and lead to a mispricing of risk (*see Section 3.2.1*).

As a result, central banks have managed the yield curve and took control of traditional functions of markets.

Lastly, the asset purchase programs have also made the interbank market less relevant by creating an environment of abundant bank reserves. The implementation of asset purchases led to the creation of reserve balances which over time shifted the unsecured overnight lending rate close to the Deposit Facility Rate (DFR). The IMF adds that "as a result, banks have become less vigilant about their counterparty risk and over time, accustomed to the abundant liquidity, which might make it difficult to withdraw such excess liquidity should there be a desire to do so".

1.5 The 2% inflation target has led the ECB's and the Fed's monetary policies to be asymmetric over the past 20 years

Over the past 20 years, monetary policies have been asymmetric and have broadly remained accommodative to hit the 2% inflation target. This overwhelming objective has driven monetary policies since then. The massive increase in central banks' total assets (*Chart 3*) and the expansion of the monetary base (*Chart 1*) illustrate this asymmetry.

The reality is that overall **monetary policy has become disconnected from the economic cycle: it has been highly expansionary over the past two decades. Central banks have not tightened monetary conditions when the economic situation improved. It has led the financial system into over-financialization.**

An inflation target is supposed to protect the system from excessive price increases or deflation, but not to seek an artificial rate of inflation higher than the one resulting from market forces. The problem with the 2% target is that the equilibrium, until the Covid-19 crisis, was actually achieved, for structural reasons, with an inflation rate of about 1%. This was the order of magnitude that avoided both deflation and excessive inflation.

But instead of letting inflation evolve around 1%, the Central Banks wanted, at all costs, to increase inflation from 1% to 2%. This erroneous and doctrinal vision led the Central Banks to massively and unnecessarily inflate money creation. The pretext was: "we have not yet reached the sacrosanct 2% target" (despite the fact that this 2% figure was artificial and that even if it had been reached, it would not have guaranteed prosperity). In fact, the danger of deflation was exaggerated while the drawbacks of persistent low interest rates were completely underestimated.

According to J. de Larosière[8], "an illustration of this asymmetric approach was the injection of liquidity by the Fed to prevent a feared, but mistaken, deflationary trend in 2002. This overreaction produced a massive demand bubble. If, as political correctness would have it, there was no desire to raise interest rates in the face of this widespread indebtedness, it would at least have been desirable to implement a macroprudential policy adapted to the different countries and circumstances. Some countries that are particularly prone to inflation would have tightened regulatory constraints (*e.g.*, by raising the minimal capital contribution required to obtain a mortgage). But these reactions to the scale of indebtedness did not occur. The lessons were not learned, and subsequent episodes of crisis were not avoided as the warning signs if excessive indebtedness continues to appear…".

7. IMF, "Quantitative tightening by the ECB: why and when?" Euro area policies, selected issues, July 2023.

8. See J. (de) Larosière, "Putting an end to the reign of financial illusion: for real growth", Odile Jacob, September 2022.

1.5.1 Once the economic situation improved after the sovereign crisis, the ECB's monetary policy has not been tightened nor normalised

The Global Financial Crisis and the EU sovereign debt crisis legitimately called for substantial bond-buying programmes. As soon as late 2013, GDP growth returned on a reasonable sustained path. Unlike the ECB, the Fed decided to "normalize" its policy by gradually raising the federal funds rate from 0,25% to around 2,4% by the end of 2018 and reducing the size of its balance sheet by $ 675 bn between mid-2017 and mid-2019.

This was not the case for the ECB, which maintained its purchases despite the economic recovery in the Euro area. Indeed, in 2017, growth in the Euro area was around 2.6% while that of the US was around 2.3%. In addition, inflation had risen above 2% in the Euro area between May and October 2018. Nevertheless, between October 2014 and December 2018, the Eurosystem made net purchases of securities which increased the ECB's balance sheet from € 2.2 trn in 2014 to € 4.4 trn in 2018 and the ECB's refinancing rate remained unchanged at 0%.

If monetary policy over the past 15 years had been geared to a more realistic inflation target of around 1% instead of 2% and had taken into account the increasing financial vulnerabilities linked to the very accommodative stance (*see Section 3*), the world would have avoided this unnecessary expansionary monetary stance as well as deflation.

1.5.2 Central banks were overly involved: the asymmetry of the Fed's and the ECB's monetary stances over the past 20 years can be illustrated by the trajectory discrepancy of their real short-term interest rate

As showed in Chart 9, the real short-term interest rate over the past two decades has mainly evolved in the negative territory both in the Euro area and the US. Monetary policy has become disconnected from the economic cycle: it has been accommodative over the two past decades. As interest rates were close to zero or even negative in real terms, central banks have also used QE programmes during, as well as after, crises.

The ECB has not tightened monetary conditions when the economic situation improved thus limiting the ability to act decisively at the next turning point.

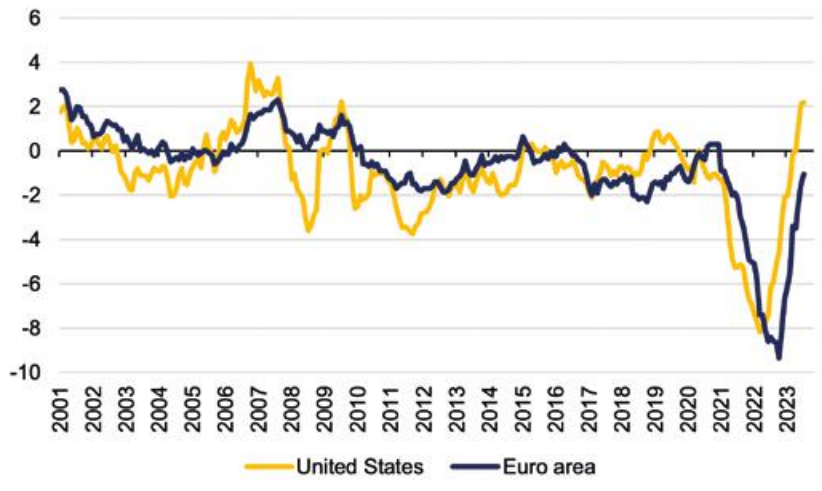
For instance, the real refinancing rate in the Euro area remained negative through 2019 despite the economic improvement, whereas the recovery in the United States led to a slight monetary policy normalisation. While inflation peaked and then stood above 2% between April and October 2018, the ECB kept its main policy rates unchanged: 0% for the refinancing rate and -0.4% for the deposit facility rate.

In September 2019 the ECB decided to resume the asset purchase programme at a monthly pace of € 20 bn. It also lowered its deposit rate from -0.4% to -0.5% in response to the decrease of the HICP inflation by 0.3 ppts from a month earlier, but still averaging 1.3% in the previous six months and while economic conditions were far from worrying.

In other words, the leaning-against-the-wind mantra has been abandoned for 20 years. Before the 2008 crisis real interest rates were low but positive. Since then, the ECB has maintained negative rates despite the economic recovery.

Changes in interest rates cannot affect the structural reasons which explain the downward pressure in inflation (ageing of our societies, opening of international trade to imports from countries with very low wage, changes in labour market behaviours, productivity gains resulting from new technologies...).

CHART 9.
Real Refinancing Rates in the US and Euro Area
Policy rate minus headline inflation rate, % points

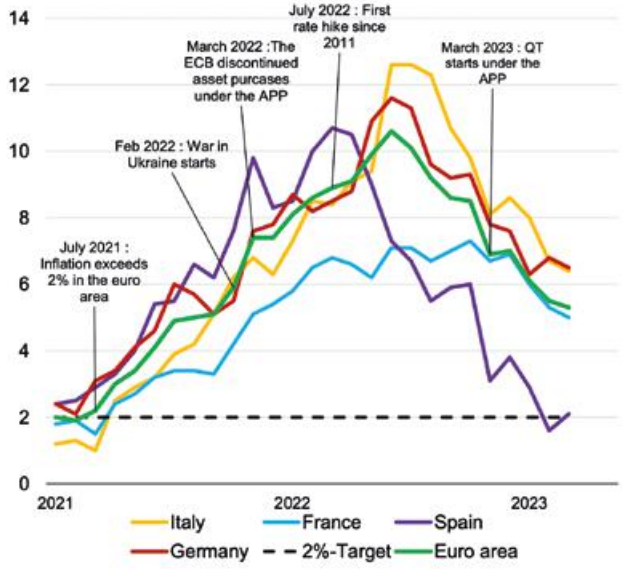


Source: BIS
Notes: Latest data from June 2023

1.5.3 Until July 2022, the ECB continued its QE policy while inflation was rising sharply, climbing to its highest levels since the beginning of the monetary union

While inflation has consistently exceeded 2% in the Eurozone since July 2021 and has risen to record levels since then (*see Chart 10*), the ECB did not stop its securities purchase policy until July 2022 and minimized the risk of inflation.

CHART 10.
Recent inflation (HICP growth) devlopement across selected Key Eurozone Member States, annual change,%



Source: Eurostat
Latest data from July 2023

After peaking at € 160 bn in June 2020, net monthly purchases of securities by the ECB averaged € 91.3 bn between October 2020 and November 2021 (*see Chart 11*). The pace of purchase was then reduced to € 50-70 bn per month between December 2022 and March 2022.

Following the end of the net purchases under the PEPP in March 2022, the Eurosystem continued buying securities as part of the APP. In April 2022, a total of € 40 bn public and private securities were purchased under this program, while the headline inflation was more than three times higher than ECB's 2%-target. Monthly net purchases then declined to € 30.2 bn in May, and € 19.7 bn in June, before being discontinued on 1 July 2022 (*see last section*).

CHART 11.
Asset purchases Programs of the ECB and inflation in the Euro area
Monthly Net Purchases of Debt (Billon EUR)

Source: ECB
Notes: latest data taken from June 2023

So, despite accelerating inflation, including core inflation since the third quarter of 2021, the ECB stuck to an extremely expansionary stance until July 2022. This was based on models which predicted that inflation would return below 2% whatever the circumstances due to the credibility of its policy. As explained by D. Gros and F. Shamsfakhr, "With its own forecasts always ending with inflation below target, the ECB acquired a dovish bias. The models used by the ECB imply that shocks in energy prices drive headline inflation up to 8%, at the end of the forecast horizon inflation would return automatically anyway (*i.e.*, without any policy change to slightly below 2%)[9]".

The models used by the ECB are hardly able to adjust to structural changes. They imply in particular that any wage pressure would be neutralised because the models assume explicitly that the ECB inflation target of 2% will be reached because central banks credibility is such that the public expects that it will be reached. Wages demand have significantly increased across the whole Euro area, including double-digit increases in minimum wages in several countries (*see Part 4.1*). This could have been expected: How to imagine that European workers would accept a loss of purchasing power of 7-10% without demanding any compensation?

In a speech delivered in November 2021, M. King[10] emphasised that "the models used by central banks are based on questionable assumptions that are not necessarily those of the markets and have become the determining factors of expectations. This type of models only works when nothing happens…".

•

J. de Larosière underlines that "it is understandable that a Central bank may, at certain times, and for reasons of economic adjustment, lower its key rates to zero. But to do so continuously for two decades (*see Chart above)* is difficult to conceive and justify. This is unheard of… A situation of negative rates for so long defies comprehension. This is because one of the fundamental forces of the economy has been artificially broken. This has led to profound disruptions in the financing of the economy…, which contributed to a shape a hyper-leveraged financial system vulnerable to crises…

An inflation target is supposed to protect the system from excessive price increases or deflation, but it is not to seek an artificial price level higher than the resulting from market forces… The danger of deflation was exaggerated, while the drawbacks of persistent low interest rates were completely underestimated".

Instead of fighting structural weaknesses, most countries over the last decade restrained from implementing structural reforms. With accommodative monetary and fiscal policies that should normally just aim at managing the economic cycle.

A. Weber in an article for the Eurofi magazine[11] stressed that "even if monetary policy were effective in countering some of these problems, which it is not, it would have been the wrong tool. With interest rates at zero or slightly negative and central bank balance sheets massively expanded by quantitative easing, the ultra-loose monetary policy has largely operated through the exchange rate channel and the asset price channel, whilst the traditional interest rate channel and the credit channel of monetary policy transmission had become ineffective. Policymakers were trying to solve massive structural problems by pushing up debt to unprecedented levels and by using cheap money for devaluing their currencies and artificially inflating stock and real estate prices. The longer the underlying structural problems are not tackled, the greater they become".

9. D. Gros & F. Shamsfakhr, "Too little too late: ECB's normalization path was model – rather than data-driven", Suerf policy brief, July 2022.

10. M. King, "Monetary policy in a world of radical uncertainty", International Monetary research Institute, 23 November 2021.

11. A. Weber, "Cheap money and rising debt undermined the growth potential of the Eurozone", Eurofi Magazine, April 2023.

2. Such prolonged monetary policies easing has steadily been contributing to the indebtedness of economies

Central banks did not control credit growth and hence contributed to the over indebtedness of economies. In fact, the expansion of credit has not caught their attention over the past two decades.

By favouring government debt, monetary policy has damaged the long-term growth potential.

Both public and private sectors entered the Covid-19 crisis with high levels of debt because of persistent loose credit conditions. The system has been swamped with liquidity through the highly accommodative monetary stance of the two past decades. This has pushed global debt to 340% of the world GDP in December 2022, and have disincentivised many countries to undertake structural reforms and to regain control of their public deficits and indebtedness.

In such a context, Central Banks ended up owning a growing significant share of the national government debts and have *de facto* become fiscal agents.

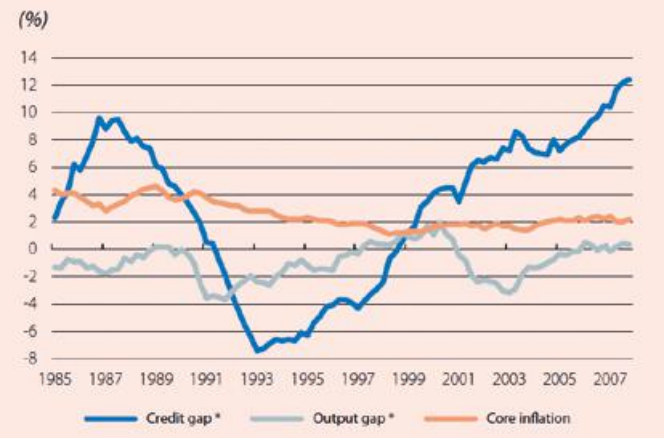
2.1 Lessons on the causes of the 2008 crisis have not been learned by policy makers

The explosion of credit was a major factor behind the Global Financial crisis (2008).

J. de Larosière explained in 2010[12] that the explosion of credit – which is a monetary phenomenon – was a major factor behind the Global Financial Crisis[13]. Of course, the abuse of off-balance sheet operations (SIVs, conduits, etc.) and securitization of complex and opaque products significantly contributed to this expansion. But many central banks – and in particular the Federal Reserve which allowed real interest rates to hover around zero for several years – pushed up credit expansion which, in turn, boosted the monetary aggregates.

In the period preceding the 2007-2008 crisis, debt rose much faster than the economic grew (*see Charts 12 and 13*).

CHART 12.
Measures of macroeconomic and financial stability in the United States [1985-2008]



Source: CaixaBank Research, based on data from the BIS, US Congressional Budget Office and US Bureau of Economic Analysis
** Above-potential growth in credit and economic activity, respectively*

J. de Larosière already pointed out that "given the importance of credit for both domestic and external monetary stability, it is something of a mystery that central banks don't seem to have paid much attention to it as an indicator, even though traditionally credit growth has been a major element in the analysis and toolbox of monetary policymakers. At the very least, the magnitude of the credit bubble should have raised questions about the adequacy of monetary policies".

To avoid the recurrence of such events, central banks will have to resume monitoring the expansion of credit and therefore avoid inflating bubbles. J. de Larosière underlined in particular that central banks should lean against the wind to "improve macro-economic performance by reacting systematically to asset price misalignments, over and above their reaction to inflation forecasts and output gaps... Central banks can use different options..."

12. See J. de Larosière, "Monetary policy has played a major role in the run up to the financial crisis", Columbia University, December 2010.
13. For example, the ratio of US private sector debt to GDP skyrocketed from 112% in 1976 to 295% in 2008. In Britain, the ratio of households' mortgage debt to disposable income has surged from 80% in 1991 to 140% in 2008. In the United States, credit expanded by around 10% to 15% per year from 2004 to 2008 when economic growth in nominal terms was around 5% (the corresponding figures for the Eurozone are 8% to 10% for a nominal GDP growth of 4%).

Unfortunately, these 2010 analyses and proposals have not been followed up. Worse, the financialization[14] of economies has only increased since then.

The current situation has characteristics that make it much worse than in 2007.

In terms of debt, everything went back to business as usual after the financial crisis subsided. Even worse, "the debt engine shifted into a higher gear"[15]. Global debt is now at its highest level in peacetime:

- At the end of 2006 the overall debt level in the world – private and public debt combined – stood at $ 150 trn. By the end of 2022 the figure had exactly doubled.
- The world debt to GDP ratio increased from 270% in 2006 to 340% in 2022, according to the Institute of International Finance.
- Helped by strong economic activity and high inflation, the global debt-to-GDP ratio declined over 15 percentage points (pts) to 335% of GDP in 2023-Q1 – but is still above pre-pandemic levels (320% of GDP at the end of 2019).

For 20 years, debt has exceeded investment.

Mc Kinsey[16] has calculated that on average 4 dollars of liabilities (debt and similar) have been needed to create 1 dollar of net investment between 2000 and 2020.

Even if there are significant disparities between countries in this area, the fact remains that this multiplier of 4 indicates a considerable leverage effect – a historical record – which can only raise concerns about debt sustainability in the future.

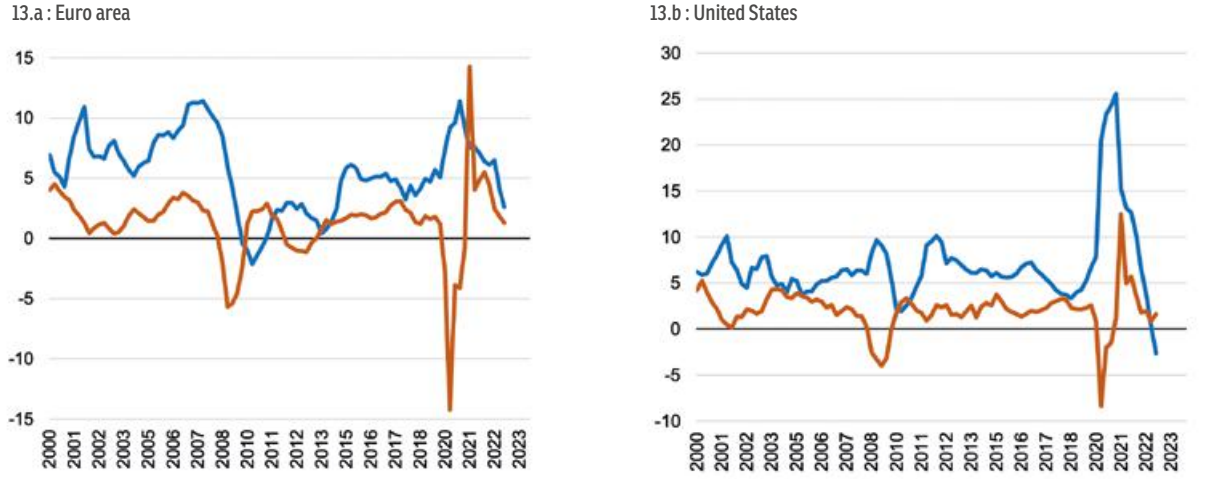
2.2 Central banks have not acted to control – let alone rein in – credit growth during the past decades

Two periods should be distinguished: the 2000 – 2019 and then the period from Covid-19 to the present day.

2.2.1 Money supply growth has been high over the past decade and stronger than GDP growth in advanced economies between 2000 and 2019

For the Euro area, the M3[17] aggregate grew at a yearly pace of 5.3% between 2000 and 2019, against 6.1% in the US.

CHART 13.
M3 Growth Rate Against Real GDP growth rate,% annual change



Source: OECD. As of Q1-2023

14. The term refers to the growing importance of international finance – and the debt it carries – in the development of the economic cycle.

15. J. Van Overtveldt, "The Mystic Hand", Agate, 2022.

16. Mc Kinsey Global Institute,"The rise and rise of the Global balance sheet", November 2021.

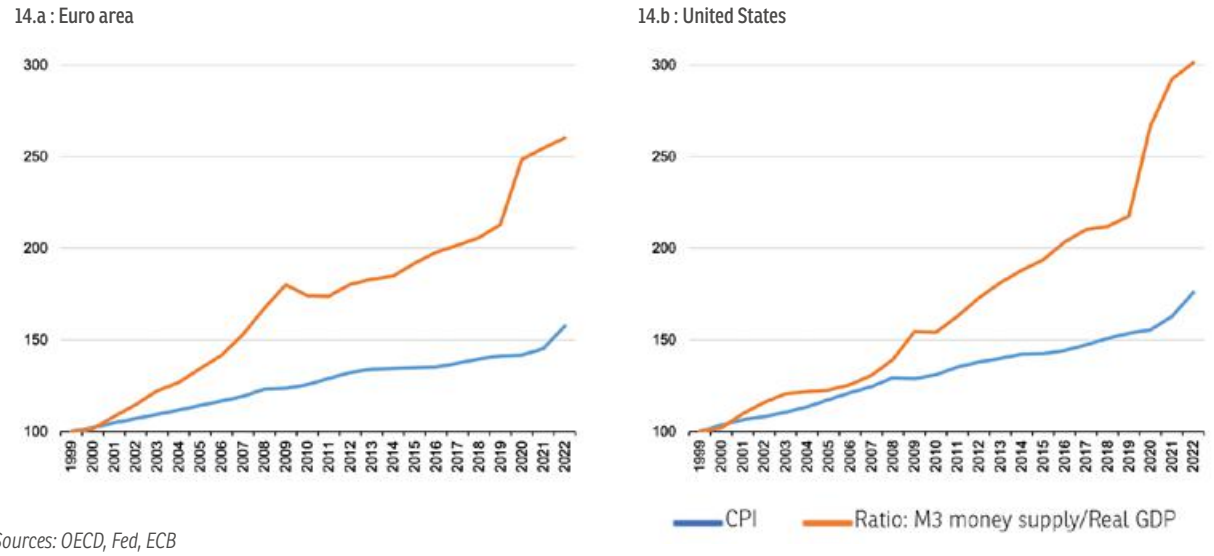
17. M3 is a broad measure of the quantity of money in circulation, that includes highly liquid assets as cash and deposits accounts but also less liquid components as institutional money market funds, and short-term repurchase agreements.

The growth of M3 has continuously exceeded real GDP growth both in the US and in the Eurozone (*see Chart 13*).

Between 2000 and 2019, the volume of M3 increased by 219.9% in the US, while GDP grew by 48.6% in volume terms. In the Euro area, M3 grew by 172.5%, while real GDP grew by 28%.

Until 2021, this amount of "excess money" did not result in higher prices of goods and services, but it fuelled the rise in real estate and financial asset prices (*see Section 3.1.1*) and contributed to explain the increase in liquid savings held by individual savers in EU countries (*see Section 3.2.2*).

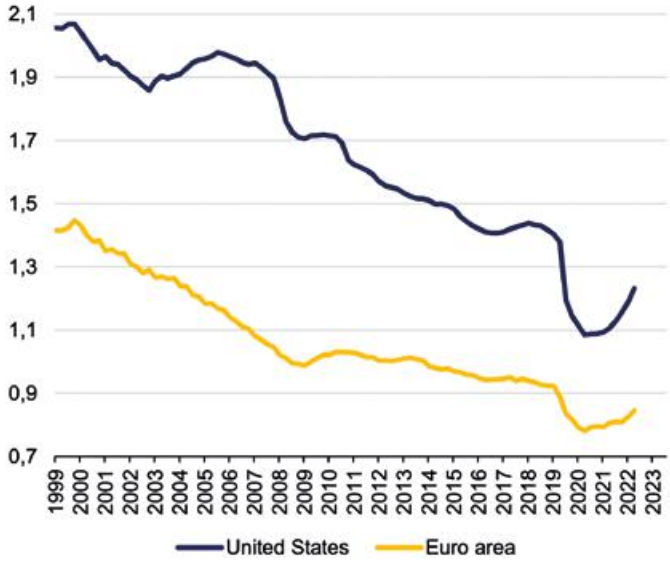
CHART 14.
Money supply, real GDP and inflation, 1999 = 100



Sources: OECD, Fed, ECB

One way to understand the differing paths of evolution in money supply and growth is to look at the velocity of money[18]. Money creation has not been seeping into the real economy because its transactional power and velocity have weakened. According to the Banque de France, the velocity of money declined by 53% in the Euro area and 46% the United States between 1999 and end-2019 (*see Chart 15*).

CHART 15.
Velocity of Money in Circulation in the United and the Euro area, in units



Source: ECB, Federal Reserve
Last data from 2023 Q1

18. The number of times a currency unit moves from one hand to another, over a quarter, for instance.

Following the Covid-19 crisis, the growth of money supply driven by central banks asset purchases has significantly accelerated.

In the United States, the growth rate of M3 peaked at 26.9% YoY in February 2021 – a record since 1943 – before gradually falling back to approximately 12% between June 2021 and January 2022, twice the pre-pandemic average (+5.5% per year on average between 2014 and 2019).

In the Euro area, annual M3 growth has been more moderate, peaking at 11.9% in January 2021, fluctuating around 7-8% between May and December 2021, and slightly above 6% since January 2022. Annual M3 growth has been close to 6% until September 2022, although it remains well above its pre-pandemic trend of 4.5% per year on average between 2014 and 2019.

Between February 2020 and April 2022, the money supply increased significantly by 40% in the US and 20.2% in the Euro area, the same as the six past years. Indeed, between January 2013 and December 2019, the money supply increased by a total of 46.2% in the US and 33.3% in the Euro area.

Because the increase in money supply has been much greater than GDP, the amount of 'excess money' thus confirms that inflation is a monetary phenomenon (*see Section 4.1*).

Another key factor behind the current rise in inflation lies in the dynamic of the velocity of money. After collapsing during the Covid-19 crisis following the sharp increase in the quantity of money and the fall in GDP (*see Chart 13*), the velocity of money stabilised in late 2020 in the Eurozone and the United States (*see Chart 15*). Since June 2021, it has started to increase slightly in the two regions, indicating that such excess money that was first hoarded by households and firms, has been used to purchase goods and services, resulting in a strong demand, which associated with supply constraints, resulted in a high degree of inflation.

Since March 2022, when the Fed ended its asset purchase program and began raising its policy interest rate (*see Part 4*), the annual growth rate of M3 has fallen sharply from 9.4% in March 2022 to 0.4% in November 2022. It turned negative in December 2022 (-1.1%) and contracted further in the following months of 2023. In April 2023, M3 dropped by 4.4% compared to a year earlier, the largest contraction since 1937-38. According to S. Hanke and J. Greenwood[19], "this flip from expansion to contraction is the steepest adjustment in money-supply growth in postwar US history", which could accelerate the pace of disinflation in 2023. As a result, the authors lowered their forecast for year-on-year inflation from 5% to between 2% and 5% by the end of 2023.

2.3 Lasting low interest rates contributed to the over-indebtedness of advanced economies

Lasting very low interest rates brought global debt to records high level in peace time, even before the Covid-19 crisis. According to statistics issued by the IIF (*see Chart 16*), global debt reached a record high of 360% of GDP at the end of June 2021, up from 320% in 2019 and 200% in 2011.

Public deficits have been booming and the public debt-to-GDP ratio rose from 100% to 120% in advanced countries within five years (2015-2020). Private debt has also ballooned.

Thanks to the rebound of economic activity and high inflation, the global debt-to-GDP ratio has declined to 335% of GDP in the first quarter of 2023 but remains nearly 20 ppts above its pre-pandemic level.

CHART 16.
Global debt

Source: Institute of International Finance
Last observation from 2023-Q1

19. S. Hanke & J. Greenwood, "High Inflation Will End Soon", Wall Street Journal (14 February 2023).

Financial crises are always the result of excessive debt.

The more debt increases, the more borrowers – some of whom are overexposed – sink into debts, and the more likely and severe future crises become. Some of the indebted states (especially those in the developing world) will not be able to meet the costs of their commitments[20]. This means that our – over-exposed – financial system is vulnerable.

According to the BIS, the ratio of global debt to GDP increased by 53 percentage points between 2008 and 2022.

According to BIS data (*see Table 1*), which unlike the IIF excludes financial debt, global debt[21] has risen from 186.2% of GDP in 2008 to 239% in 2022. It should be noted that the overall debt had already increased by 38 ppts between 2008 and 2019 to 224.2% of GDP before the start of the pandemic.

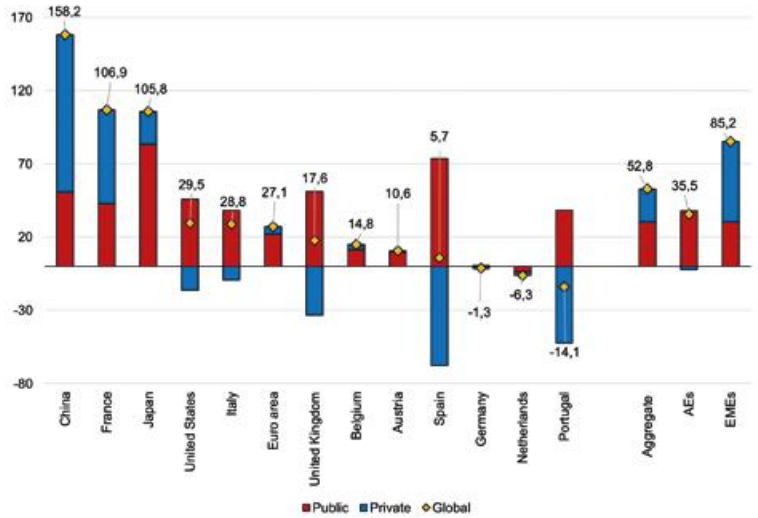
- The public sector and non-financial corporations were the main contributors to the increase in overall debt between 2008 and 2022.
- Between 2008 and 2022, overall public debt increased by 30.3 ppts, from 55.7% in 2008 to 86% of GDP in 2022.
- Private sector debt increased by 22.5 ppts, from 130.5% of GDP in 2008 to 152,3% of GDP in 2022.
- The debt of non-financial companies has largely contributed to this (+19.1 ppts, from 76.8% of GDP in 2008 to 95.9% in 2022), while the households debt increase has been more limited (+3.2 ppts, from 53.9% of GDP in 2008 to 57.1% in 2022).

TABLE 1.
Credit To Non-Financial Private Sector, Public Sector, Firms and Households% of GDP

	General Government			Private Non-Financial Sector (a + b)			Non-Financial Corporations (a)			Households (b)		
	2000	2008	Q4-2022	2000	2008	Q4-2022	2000	2008	Q4-2022	2000	2008	Q4-2022
United States	48,6	66,1	111,9	135,4	168,8	152,5	64,3	72,5	78,1	71,1	96,3	74,4
United Kingdom	37,7	50,8	101,8	135,3	184,8	151,4	70,7	90	67,9	64,6	94,8	83,5
Japan	114,6	145,1	228,5	187,5	163,8	186,2	117,7	103,5	118	69,8	60,3	68,2
China	22,9	27,1	77,7	109,3	111,9	219,5	n.a	93,9	158,2	n.a	17,9	61,3
Euro area	69,3	70	92	126	157,2	162,3	76,8	96,5	104,9	49,2	60,7	57,4
France	58,8	68,8	111,7	137,7	164,2	228,2	104,3	116,2	162	34,2	48,6	66,2
Germany	59,3	65,8	66,3	140,6	129,9	128,1	69,4	70,1	72,9	71,2	59,8	55,2
Italy	108,9	106,2	144,3	79,3	116,5	107,2	56,6	77,5	66,5	22,6	39	40,7
Spain	57,8	39,7	113,2	117,9	214,2	146,4	72,5	131,6	93,4	45,4	82,6	53
Netherlands	52,2	54,7	51	219,7	234,7	232,1	130,1	123,2	137,1	89,6	111,5	95
Austria	66,1	68,7	78,4	127,8	142,5	143,4	63	90,5	95,2	45,3	52	48,2
Portugal	54,2	75,6	113,9	142,8	206,3	153,9	83,9	117,4	92,4	58,8	88,9	61,5
Belgium	109,6	93,2	104,5	146,2	192,1	195,8	105,4	142,2	135,3	40,8	49,9	60,3
Aggregate	n.a	55,7	86	113,1	130,5	153	n.a	76,8	95,9	n.a	53,9	57,1

Source: Bank For International Settlements
'Aggregate' regroups 45 advanced and emerging economies

CHART 17.
Change in global debt between 2008 and 2022
Percentage points



Source: Bank For International Settlements

20. W. Rhodes and J. Lipsky, "Act now to prevent a new sovereign debt crisis in the developing world", 23 March 2022.
21. Global debt is aggregated using data from 45 advanced and emerging economies.

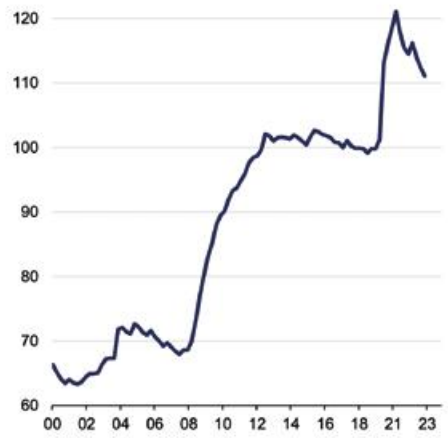
2.3.1 Loose credit conditions have entailed a huge public debt overhang

Over the past two decades, the level of public debt of advanced economies has risen continuously, from 63.4% of GDP in 2000 to 99.7% in 2019, according to the BIS. Following the Covid-19 crisis, public debt of advanced economies jumped to 114.5% of GDP in 2021. Helped by higher growth and inflation, public debt declined marginally to 111.1% of GDP in 2022-Q4, although it remains 11.3 ppts above its pre-pandemic level.

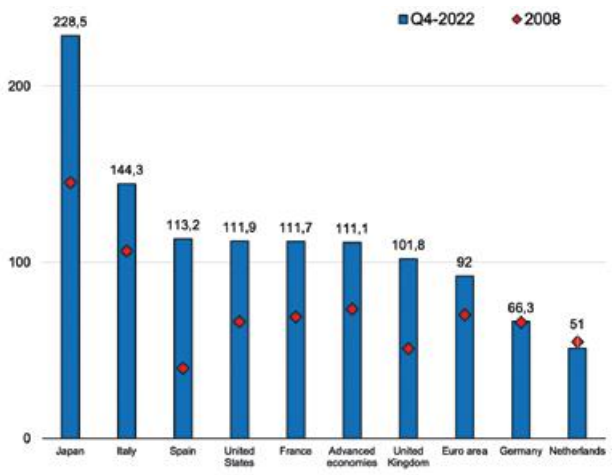
Among the main advanced economies, the US, the UK, France, Italy and Spain saw their public-debt-to GDP ratio increasing by more than 30 ppts between 2008 and 2022. Only Germany experienced a change not exceeding 10 ppts during this period (*see Chart 18.b*).

CHART 18.
Gross Public Debt, as % of Nominal GDP

18.a : Advanced economies



18.b : Main Advanced Economies



Source: Bank For International Settlements. Last observation from 2022-Q4

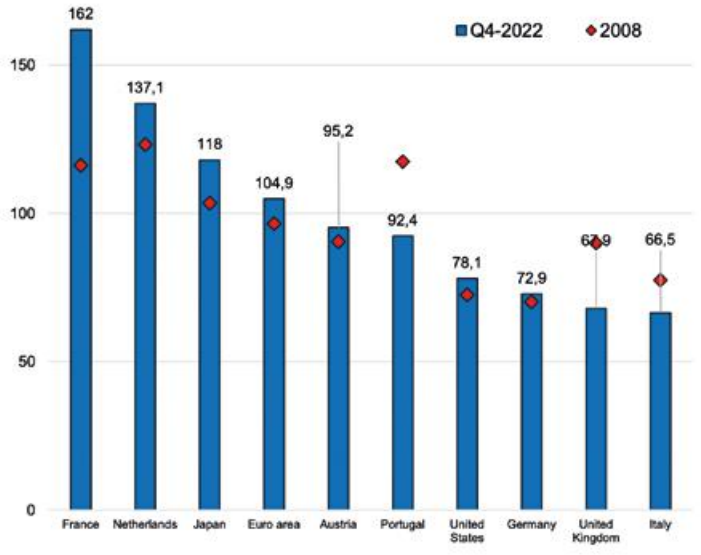
2.3.2 The corporate sector entered the Covid-19 crisis with high levels of debt

In such a context, the amount of debt of non-financial corporations in advanced economies (loans + bonds) amounted to $ 43.8 trn at the end of 2019, compared to $ 20.2 trn in 1999 (*see Chart 17*). Expressed as percentage of total GDP, the figure reached 91.4% in Q4 2019, compared to 76.2% in 1999 (*see Chart 17.a*). As of December 2022, the debt of non-financial corporations increased to $ 48.7 trn, corresponding to 93.4% of GDP.

CHART 19.
Credit to private non-financial corporation, as% of Nominal GDP

19.a : Advanced economies aggregate

19.b : Selected Advanced Economies



Source: BIS
Last observation from Q4-*2023*

The global outstanding stock of non-financial corporate bonds at the end of 2019 reached an all-time high of $ 13.5 trn. Notably, since 2010, around 20% of the total amount of all bond issues has been continuously non-investment grade, testifying of a long-lasting issue in overall bond quality[22].

The decline in the quality of the corporate bond market also affected global investment-grade bonds: while between 2000-2007, BBB rated bonds constituted on average 38.9% of global investment-grade issuance[23], they averaged 44.1% in the 2008-2018 period and reached 53.8% in 2018. This shift in BBB share occurred at the expense of bond issued with AA and AAA ratings: the average annual share of AA rated bonds moved from 16.7% to 13.7% between 2000-2007 and 2008-2018 periods and that of AAA rated bonds declined from 5.4% to 2.3%.

Accordingly, as stressed by the OECD in February 2020, "this prolonged decline in bond quality points to the risk that a future downturn may result in higher default rates than in previous credit cycles".

Hence, the corporate sector entered the Covid-19 crisis with high levels of debt and had to keep borrowing through the crisis, raising concerns for a significant number of borrowers.

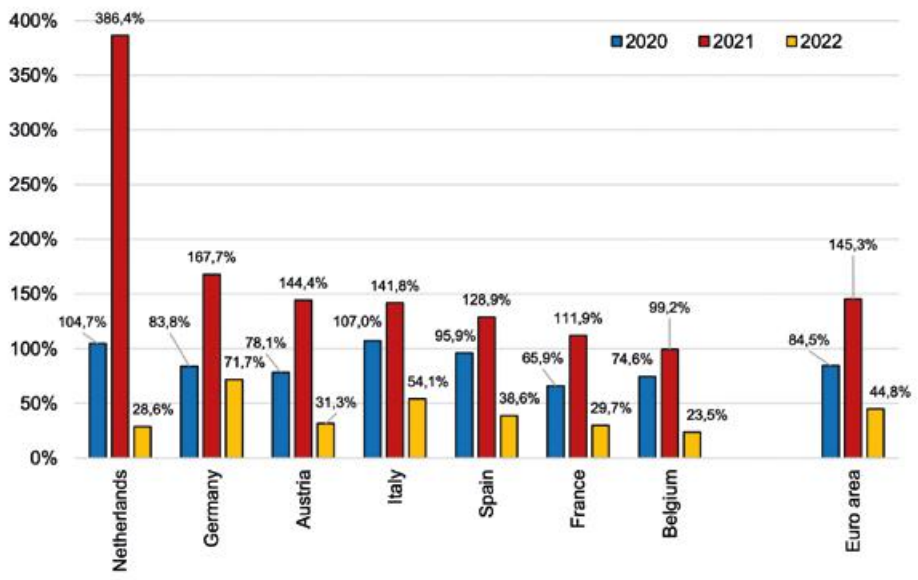
As explained by J. de Larosière in Chapter 1 of his latest book[24], "Low interest rate policy has played an important role for a long time in this deterioration of credit quality. Indeed, an environment of persistent very low interest rates leads financial actors to seek yields and therefore to take more risks. This may concern credit risks (operators agree to lend to companies that are already over-indebted) and liquidity risk (the duration of loans is extended and the level of cash down payments required is lowered)".

2.4 Central banks have *de facto* become fiscal agents

National Central Banks own a growing and significant share of their country general government debt.

The Eurosystem has had a leading role in public debt monetisation during the Covid-19 crisis, as its government securities purchases amounted to most of government borrowing requirements (*see Chart 20*). The scale of these interventions has been a considerable advantage for borrowing governments (*i.e.*, "fiscal dominance").

CHART 20.
Share of Public Debt purchased by the Eurosystem



Sources: ECB, Eurostat, Eurofi Calculations

In 2020, Euro area governments issued an additional € 1058.6 bn of public securities of which € 901.4 bn of bonds were absorbed by the Eurosystem, *i.e.*, 85.2% of new issuances[25].

In 2021, Euro area governments issued € 621 bn (a decline of € 400 bn compared to 2020). However, the amount of asset purchased by the Eurosystem increased slightly compared to 2020, up to € 905.7 billion in 2021 (*i.e.* 145,7% of public debt issuance). In other words, in addition to having absorbed all the new issues in 2021, the Eurosystem has also repurchased back part of the rolled-over debt that matured in 2021.

22. Celik.S, Demirtas.G, Isaksson .M, Corporate bond market trend, emerging risks and monetary policy – OECD capital market series, 2020.

23. This covers corporate bonds issued by non-financial companies from 114 countries.

24. See footnote n°5.

25. We calculate the share of Eurosystem purchases in government refinancing needs, by dividing the total amount of net purchases of Eurosystem securities in a year to the annual change in government debt.

According to Eurofi calculations, more than the entire debt issued in 2021 by the French, German, Spanish and Italian governments would have also been acquired last year by the Eurosystem (see chart 20)[26].

In 2022, the Eurosystem's net purchases of securities accounted for 44.8% of debt issuance in the Euro area. The reduction and subsequent end of net asset purchase in July 2022 explains this decline compared to the past two years: in 2022, € 197.7 bn of securities were purchased by the Eurosystem, a fifth of the amount acquired in 2021.

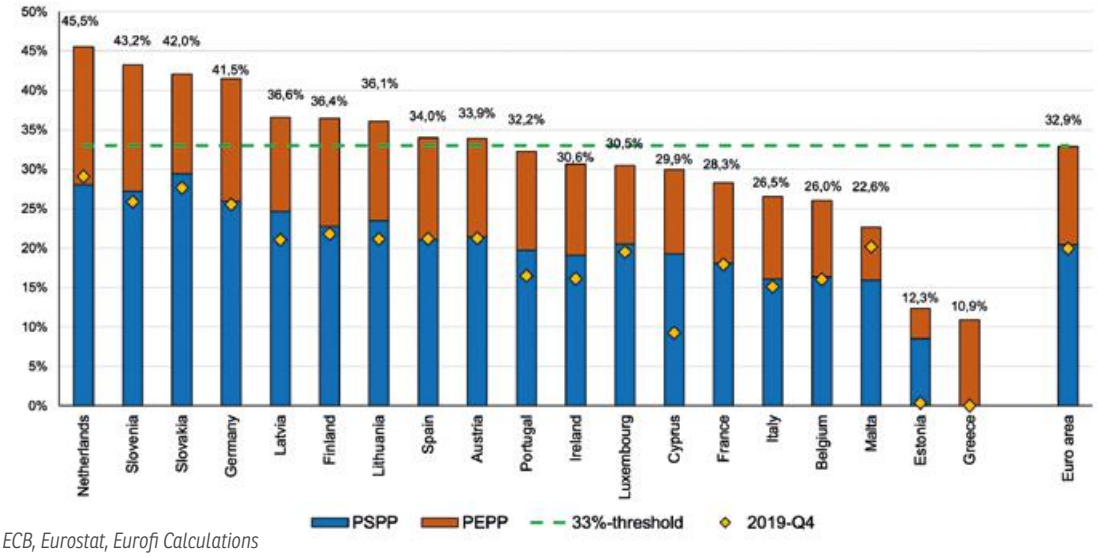
The purchase of sovereign bonds since 2015 has led the Eurosystem to hold more than a third of the Euro area's public debt outstanding in 2022.

Charts 21.a & 21.b show the growing share of government debt held by National Central Banks. The latter has been increasing continuously since 2015, when the ECB launched its Asset Purchase Program (*see Section 1*). Between January 2015 and December 2019, the share of public debt held by the Eurosystem grew from 4,4% to 19.5%.

In December 2022, six months after the ECB officially ended its net purchases under the APP (*see Section 4*), the proportion rose to 32.9%.

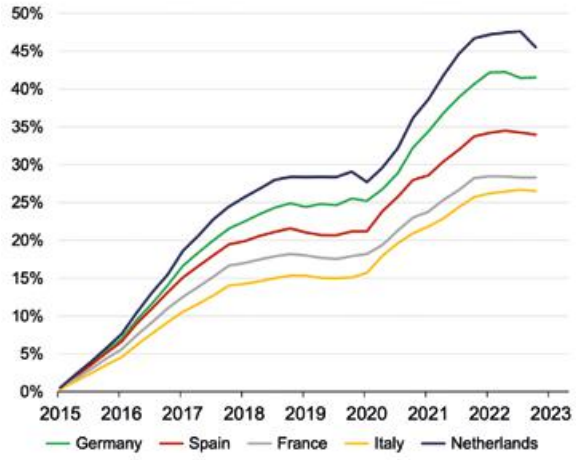
28.3% of the stock of French public debt and 26.5% of the stock of Italian debt were held by the Eurosystem in December 2022. The share of Dutch, German, Spanish and Austrian debt has exceeded the 33% threshold, initially set under the APP but suspended under the PEPP.

CHART 21.a
Share of Government Debt held by the Eurosystem as of December 2022 (as % of sovereign debt)



Sources: ECB, Eurostat, Eurofi Calculations

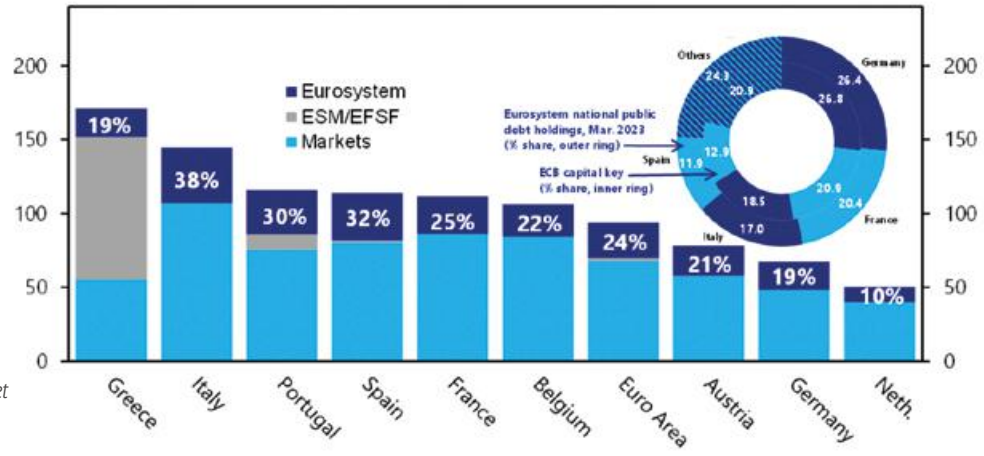
CHART 21.b
Share of public debt held by the Eurosystem (as % of sovereign debt)



Sources: ECB, Eurostat, Eurofi Calculations
Last observation from 2022-Q4

26. When the Eurosystem purchases more than the newly issued debt, *i.e.*, more than 100%, it means that the figure includes principal repayments of maturing securities purchased previously.

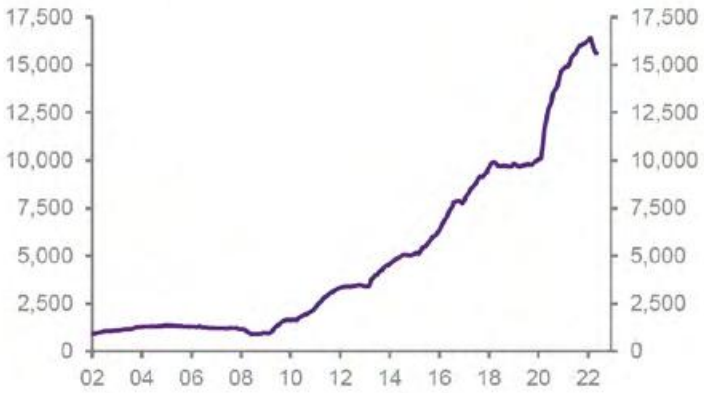
CHART 21.c
Euro area: Gross Public Debt and Eurosystem Holdings, December 2022 (% of GDP)



Sources: Taken from A. Bathia & al, "Raising Rates with a Large Balance Sheet: The Eurosystem's Net Income and its Fiscal Implications", IMF WORKING PAPERS (July 2023)

The strengthening of the link between sovereign states and central banks.

CHART 22.
Outstanding public-sector debt held by central banks across OECD countries (USD bn)



Sources: Natixis Economics Research (P. Artus "Monetary policy: How to transition from fiscal dominance to inflation targeting?",4 July 2022)

The above chart (*Chart 22*) illustrates the strengthening of the link between sovereign states and central banks. Advanced economies have seen their central banks endorsing stronger responsibilities, strengthening the sovereign-central bank link.

Ultra-low rates and other monetary interventions have lowered government debt service ratios. This has encouraged governments to believe that the economic situation was under control, and that governments could also continue with "business and usual".

It should have been clear that systematic purchase of public bonds should not open the way for governments to finance vast stimulus plans without conditions. Increasing the efficiency of public spending and giving priority to public investment instead of current redistribution should also have been considered.

The "fiscal dominance[27]" that has been presently taking place carries two big dangers. First, it raises doubts about the independence of central banks. Then, it has been a major disincentive for governments to replace current expenditures by productive public spending and engage in the structural reforms that are notably essential to meet fundamental challenges of the green transition that cannot be faced by printing more and more money.

In fact, lasting zero or even negative interest rates have been a disincentive for many Member States in the EU to undertake structural reforms which could have lifted potential growth. Indeed, with interest rates at ultra-low levels, governments are under no pressure to reduce their debts. Negative real interest rates encourage them to borrow more. And if government borrowing becomes a free lunch there is a clear disincentive to fiscal discipline. Furthermore, the rules of the Stability and Growth Pact have not been respected by most EU large economies since their implementation (*e.g.*, Italy, Spain, France, Belgium).

27. In a fiscal agent regime, debt sustainability is therefore maintained by low long-term interest rates and not by a reduction of fiscal deficits if they are excessive.

In other words, the reassurance of low rates, given political imperatives, encourages governments to increase debt further. But thinking that monetary creation can solve the problems arising from excessive debt is an illusion[28]. The end of the pandemic is now likely to reveal that we have a debt overhang problem that only governments, not central banks can deal with.

•

While debt is acceptable when it is used to finance investments that will eventually generate additional income (which will pay off the debt), debt should be of concern when it is used to finance current expenditure or public deficits. In this case, unless there is an unlikely euphoric growth, it can only be repaid by taking on more debt, creating an indefinite process of debt accumulation.

The exaggerated growth of debt not backed by future income has a major drawback: it weakens the financial system by multiplying bad risks, causing defaults, or artificially favouring the zombie companies that survive thanks to benefit from the subsidy of low interest rates and prevent the development of new competitors. The extreme increase in global indebtedness that has been achieved demonstrates the over-financialization of our system and the danger of a financial crisis as soon as monetary conditions turn around.

"The production potential of the economy decreases with increasing debt levels, because the interest burden of servicing the higher public debt levels has now become a meaningful government expense again with higher interest rates. This will lead to a further increase of taxes and duties, with all their negative knock-on effects on economic incentives and future growth. In the long run, there will be a high price to pay for this recent period of cheap money[29].

28. See the Eurofi note, "Addressing the dangers of the monetary policy deadlock" (September 2020).

29. A. Weber, "Inflation and monetary policy: way forward", Eurofi Magazine, April 2023.

3. Persistent ultra-loose monetary policies have led to negative economic and financial stability consequences

Lasting ultra-accommodative policies have put interest rates on a downward path of damaging productive investment and growth as the preference for liquidity prevails over investment notably in Europe. Such policies have fuelled a misallocation of capital, encouraging zombie-firms proliferation and an increase in share buybacks. Persistent low rates have exacerbated financial vulnerabilities, leading to mispricing of risks and asset bubbles. They have favoured financial valuations detrimental to growth and have been accompanied by a significant increase in wealth inequalities.

3.1 Lasting zero interest rates damaged productive investment and growth in Europe

The ultra-loose monetary policy has undermined the growth potential of the Eurozone. Abundant liquidity and low interest rates have not resulted in higher productive investment but in liquidity hoarding. Interest rates that remain at zero for an indefinite period have discouraged investors from investing in risky projects, who instead move into yielding and speculative assets. Household and non-financial corporations' savings have shifted to liquid and non-risky assets, as investments no longer yield any return, in Europe in particular.

Furthermore, low or negative interest rates induce a fatalistic mindset that lowers – and not raises – propensity to invest. Under what John Maynard Keynes[30] called the 'liquidity trap', investors play safe by placing savings in very short-term instruments rather than deploying them over longer term, where low interest rates generate inadequate returns for higher risks.

As stated by the BIS[31], "no well-functioning economy should operate with real interest rates that remain negative for too long: capital is misallocated and growth impaired".

3.1.1 Signs of the liquidity trap: preference for liquidity prevails over productive investment

Loose monetary policies coupled with expected low returns on earnings drive a preference for liquidity.

Charts 23 and 24 indicate that, since 2008, a significant increase occurred in the purely liquid part (currency and sight deposits) of portfolios of households and non-financial corporations across the Euro area countries. Once the investor's risk is no longer rewarded, investors turn away from more risky long-term projects.

Indeed, the liquid share of financial assets held by households and non-financial corporations increased from 10.2% in 2007 to 19.3% in 2019 in Germany and from 5.3% in 2007 to 7.3% in 2019 in France. The increase was also important in Spain and Italy over the same period (respectively +7.3 ppts and +5.1 ppts). Following the Covid-19 crisis, the figure reached 20.8% in Germany as of September 2022, 9.9% in France, 22.9% in Spain and 25.1% in Italy.

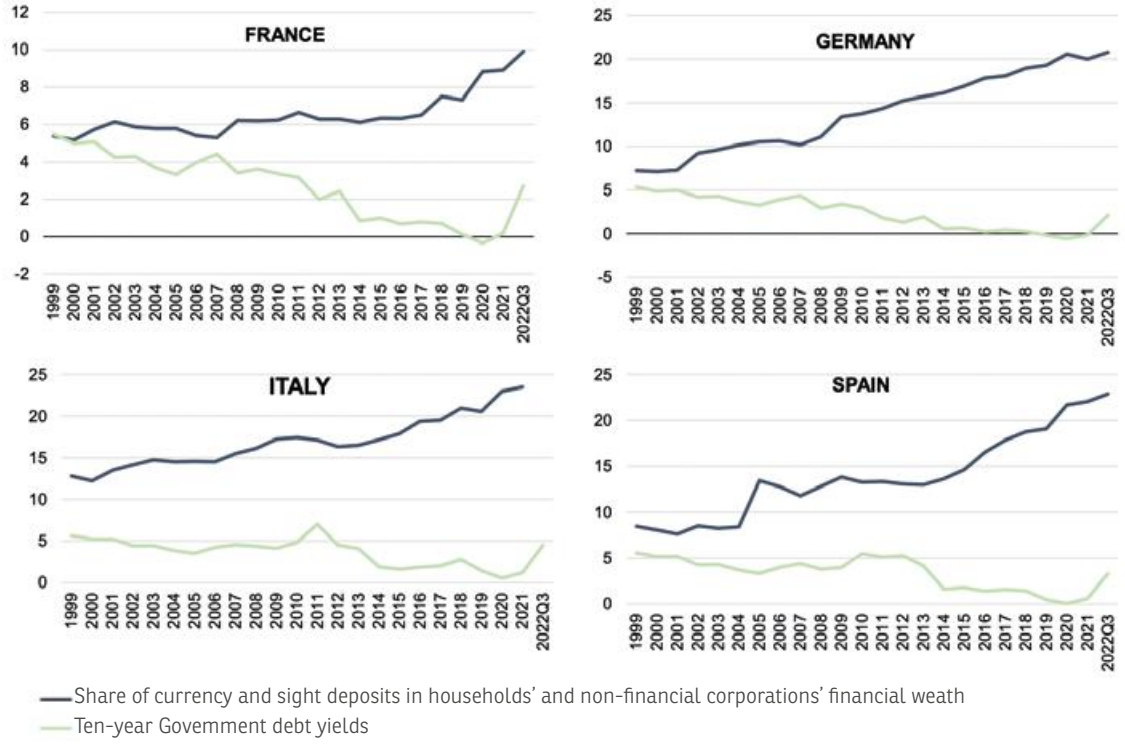
As noted by G. Naacke and L. Gabaut[32], "the Covid-19 crisis has certainly had the effect of restricting household consumption, which has translated into a significant increase in their savings; but they have mostly remained passive vis-à-vis this "forced saving". They have kept a large portion in their current accounts. Moreover, uncertainty about the duration of the crisis accentuates the willingness to build up precautionary savings. The persistence of low interest rates also explains this flight to liquidity phenomenon, as traditional risk-free savings vehicles no longer yield any return".

30. Keynes was in favour of low interest rates in adverse circumstances, but he specified not too low interest rates. Indeed, when they are too low, they deter savers from investing in long-term bonds and encourage them to either keep their savings in liquid forms, which they are doing, or in assets remunerated only because they are risky. On the other hand, entrepreneurs, discouraged by the prospect of no growth emanating from zero interest rates for a long time, are turning away from productive investment in favour of things like share buybacks and speculative opportunities.

31. BIS, Annual economic report – June 2021.

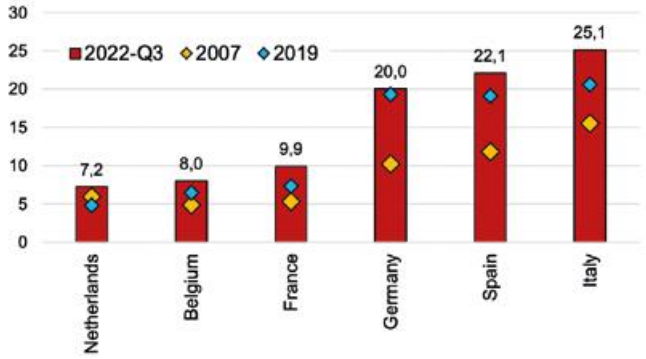
32. G. Naacke & L. Gabaut, "La baisse du taux d'épargne n'est pas pour demain", Revue Banque, January 2022.

CHART 23.
Evolution of the liquid assets of economic agents as proportion of financial wealth and interest rates and government bonds



Sources: Eurostat, Refinitiv Eikon, OEE (Observatoire de l'Epargne Européenne)

CHART 24.
Share of financial liquid assets held by households and non-financial corporations,% of financial wealth



Sources: Eurostat, Refinitiv Eikon, OEE (Observatoire de l'Epargne Européenne)

In a context of a rising inflation and concerns about the international economic and geopolitical environment, European economic agents remain cautious. Despite the loss of purchasing power created by inflation, European households are still saving more money than before the Covid-19 crisis. In France, the households' saving rate stood at 16.2% in the third quarter of 2022 *i.e.*, 1.5 ppts above the level observed before the Covid-19 crisis.

Nevertheless, financial investments remain highly concentrated on liquid and risk-free assets in Europe. As highlighted in the previous graph, loose monetary policies coupled with expected low returns on investments that we observed since the Lehman crisis, drove a preference for liquidity. Since 2008, a significant increase occurred in the purely liquid part (currency and sight deposits) of the portfolios of households and non-financial corporations across Euro area countries. Once the investor's risk is no longer rewarded, investors turn away from more risky long-term projects.

From the end of 2008 to September 2022, the liquid share of financial assets held by households and non-financial corporations increased from 11.1% to 20.8% in Germany and from 6.2% to 9.9% in France. The increase was also important in Spain and Italy over the same period of time (respectively +10.1 ppts and +9 ppts). Moreover, it should be noted that the flight to liquidity effect measured by this liquidity ratio is underestimated because of the valuation effects on stock markets. Over the same period of time, the STOXX Europe 600 index increased by 96%. The strong valuation effects on stock markets affected the denominator (total financial wealth) but not the numerator (liquid assets). Such a preference for liquidity diverts savers away from long-term productive investments.

This concentration of households' investments in liquid and risk-free assets is also explained by the fact that many savers remain passive and don't take time to think about the optimal way to allocate their savings. For example, this was illustrated during the Covid-19 crisis, where we saw an important increase of saving rates due to consumption constraints with containment measures, but a large part of these amounts of complementary saved money remained on non-interest-bearing current accounts. This was highlighted in a recent article by G. Naacke and L. Gabaut[33]. In a study by L. Calvet[34] commissioned by the European Savings Institute (OEE), it is also highlighted that only a small proportion of the wealthiest economic agents are adapting their saving behaviors according to the evolution of the economic context.

Moreover, "monetary illusion" is present. In France, we recently saw an increase in the flows of money invested in regulated saving products following the increase in nominal interest rates of these products. Nevertheless, with high inflation rates, the real interest rates were in fact decreasing and becoming significantly negative. By doing so, households cause their financial assets to lose value.

The OEE recently launched an index[35] measuring the performance of households' financial investments. We can see that changes in the weight of each asset class in households' portfolios remain small ones and therefore have few impact on global performance of the index. Fixed income products still account for 79% of households' financial wealth in France.

Over the past ten years:

- The annual average performance of the index reached 2.11%.
- Equity products contributed to nearly half of the performance of the index (46%), whereas their weight in the index was below 20% on average.
- Annual growth has been lower than inflation over nine quarters from 2018 Q2 to 2022 Q4. In 2022, the index performance net of inflation decreased continuously throughout the year and reached -7.48% in the fourth quarter.

The long-running low-interest rate policies tended to undermine productive investments.

It is long term productive investment that allows an economy to progress, to increase its productivity and face the necessary transitions (green, digital…). Long-term investment involves betting on the future and taking risks. Lasting low interest rates do not foster by themselves, more productive investment. Indeed, entrepreneurs are discouraged from investing in an environment of persistently low interest rates, which means low growth prospects. When uncertainty, risk aversion and lack of return combine, it is obvious that the prospect of long-term investment fades in favor of defensive, risk free and liquid investment.

Chart 25 underlines that in advanced countries the level of gross non-residential investment in tangible assets has declined significantly over the past two decades, from 14.5% of GDP in 2000 to 12% in 2019. Half of this decline occurred between 2008 and 2019.

The rise in intangible investment over the same period was lower than the decline in tangible non-residential investment (*see Chart 25.b*). Indeed, non-residential intangible investments that include patent, brand, trademark, copyright and software have stagnated or increased slightly over the past two decades, reflecting the digitalisation of advanced economies. In AEs, it has increased from 4.3% of GDP in 2000 to 5.1% in 2019. But this did not compensate for the decline of total non-residential investment, that went from 18.8% of GDP in 2000 to 17.2% in 2019.

As a major contributor to GDP, non-residential investment in tangible assets results from expenditures such as infrastructures, commercial real estate, machinery, and industrial plans.

This gradual decline is broad-based across major advanced economies. In the US, it fell by 2 ppts since 2000, to reach 11.1% of GDP in 2019. In Germany, it fell by 2.4 ppts since 2000, to 11% of GDP in 2019. Italy and Spain are among the large Euro area countries that have experienced the most important decline, with investment dropping by respectively 2.5 ppts and 4.5 ppts since 2000, to reach 10.8% of GDP and 11% of GDP in 2019. French non-residential tangible investment has registered one of the lowest changes in the past two decades (-0.4 ppts). Except for Italy, the level of non-residential investment was still below its pre-pandemic level in 2021 for all the countries mentioned.

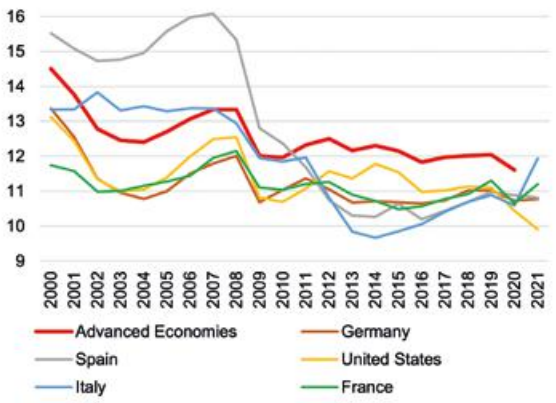
33. G. Naacke & L. Gabaut, "La baisse du taux d'épargne n'est pas pour demain", Revue Banque, January 2022. https://www.revue-banque.fr/archive/baisse-taux-epargne-est-pas-pour-demain-KORB20518

34. "How Did Low Interest Rates Impact the Cash Holdings of Individual Investors and Firms?" – Mai 2021 – Étude réalisée par Sebastien Betermier (Université McGill), Laurent Calvet (EDHEC Business School) et Jens Kvaerner (Université de Tilburg). https://www.oee.fr/download/saving-behaviors-of-low-income-households-in-europe/#

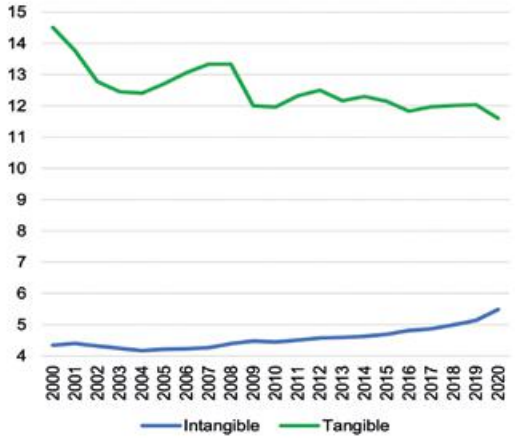
35. https://www.oee.fr/performance-of-financial-saving-index/?lang=en

CHART 25.
Non-Residential Investments in Advanced economies,% of GDP

25.a : Non-residential Tangible Investments in selected Advanced economies



25.b : Non-residential tangible versus intangible investment in Advanced Economies



Sources: OECD, IMF Staff Calculations
Notes: Advanced economies = Australia, Canada, France, Germany, Italy, Japan, Korea, Spain, United Kingdom, United States ; the series include government and corporate investment

An article in the Financial Times[36] citing World Bank data indicated that "France and the US have invested nearly two percentage points of GDP less this century than they did in the 1970s and 1980s; Germany and Italy about 4.5 pts less; the UK and Japan 6 and 10 ppts less respectively. These are enormous numbers".

A note issued by Natixis[37] analyzed the net corporate investment rate (*i.e.*, excluding capital depreciation and in real terms, to avoid biases due to the measurement of quality effects) in OECD countries since the subprime crisis. The evolution of this ratio (*see Chart 26*) highlights the shortfall in net corporate investment since the GFC. This note also underlines that net corporate investment compared to GDP has been decreasing in both the US and the Eurozone, over the last twenty years or more, although over the same period corporate profitability has risen in the two areas[38]. Moreover, in the Eurozone, net corporate investment has consistently been lagging behind the US.

The study concludes that "the increase in corporate gross investment has not offset the increase in capital depreciation".

CHART 26.
Net corporate investment
(as% of nominal GDP)

Source: Natixis, with Refinitiv, BEA and Eurostat data

36. M. Sadbu, "The investment drought of the past two decades is catching up with us", Financial Times, 20 July 2022.
37. P. Artus, "Since the subprime crisis, OECD countries have suffered from a shortfall in corporate investment", Flash Economics, Natixis, 25 January 2022.
38. The rise in earnings has been used to increase shareholder remuneration in the United States and to make acquisitions and increase cash reserves everywhere (United States, Eurozone, Germany and France), according to P.Artus (P. Artus, "What have companies done instead of investing", Natixis Economic Research, April 2022).

If we want to achieve the green and digital transitions that can only be financed by household savings (and not money creation), we must restore the two necessary conditions for long term investment:

- financial stability that reassures about the future (while inflation blurs the horizon);
- a sufficient return on the risks incurred in long-term financing.

3.1.2 'Too low for too long' policies have fuelled the survival of weak firms, increasing a misallocation of capital

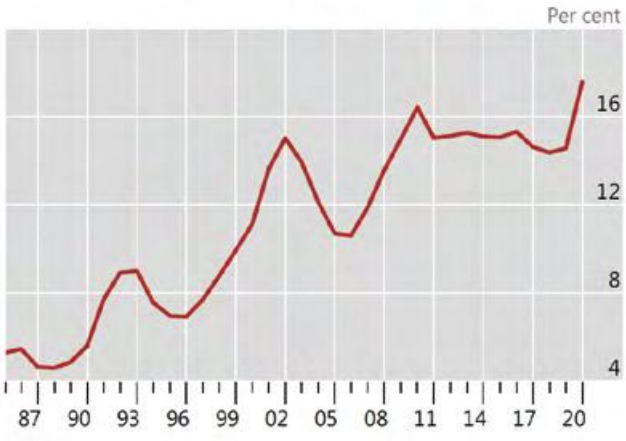
The lack of success from monetary policies at reviving economic growth can also be entailed to capital allocation choices. Favourable borrowing conditions ensure the survival of non-productive firms – firms whose profitability is so low that they would not be viable if interest rates were higher.

Over the past decade, loose monetary policy has impeded the process of creative destruction, by securing the survival of zombie firms that should have gone bankrupt. This has further damaged the aggregate productivity growth, and this excess supply perpetuated the disinflationary pressures that prevailed over the period prior to the Covid-19 crisis. Acharya et al. (2020)[39] have detailed the process: in sectors where zombie firms prevail, prices decline (so do profits). However, increased competition for factors inputs raises costs and further decreases profits for all. This reduces investment, particularly for healthy firms, and decreases the growth in future productivity. The level of productivity in the sector also falls arithmetically since it includes low productivity zombies. In short, zombie firms increase disinflationary pressures in the short run, since excess capacity is maintained; but they also lower the level and the growth of productivity. Put otherwise, zombification encourages (through lower inflation) further monetary stimulus even as it raises the probability of future inflation.

Chart 27 illustrates the fact that the share of zombie firms in OECD economies has grown from 1% in 1990 to 15% in 2017. According to the CFFS Working Group[40], the share of public firms classified as zombies spiked in 2020. This CFFS report underlines that "one risk is that – as seen in previous cycles – the share does not completely reverse, leaving a subset of less productive firms that hold back the growth of more productive and dynamic firms. Another risk is that debt overhang problems may weaken investment and lead to a decline in the economy's productive capacity".

Thus, productivity is hampered by zombie firms, impeding the reallocation of resources necessary for innovation and growth.

CHART 27.
Share of zombie firms in listed Non-Financial Companies across advanced economies,%



Sources: CGFS Working Group calculations, Datastream Worldscope
Notes: Across 14 advanced economies, zombie firms defined as firms with both an interest coverage ratio of less than 1 and a Tobin's q below the median firm in the sector over two years. To be declassified as a zombie firm, an ICR larger than one or a Tobin's q above the sector median over two years is required. Zombie share is the ratio of zombie firms to all firms

The expansion of zombie firms would have contributed to the trend decline in potential growth in OECD countries: when the share of zombie firms in an economy increases, total factor productivity growth falls[41].

According to W. White, the sharp reduction in corporate default rates in recent years also attests the growing zombification of many economies. Since the pandemic, the drawing down of bank lines and heavy recourse to bond market has likely made this problem worse. Insolvencies have in fact declined further in many countries.

39. V. Acharya, M. Crosignani, T. Eisert & C. Eufinger, "Zombie credit and dis-inflation: evidence from Europe", National Bureau of Economic Research, May 2020.
40. Malikamas et al, "Private sector debt and financial stability", CGFS Paper (May 2022).
41. R. Banerjee et B. Hofmann, The rise of zombie firms: causes and consequences, BIS (September 2018).

3.1.3 Lasting low interest rates incentivise companies to take on cheap debt to buy-back their shares rather than invest in long-term projects

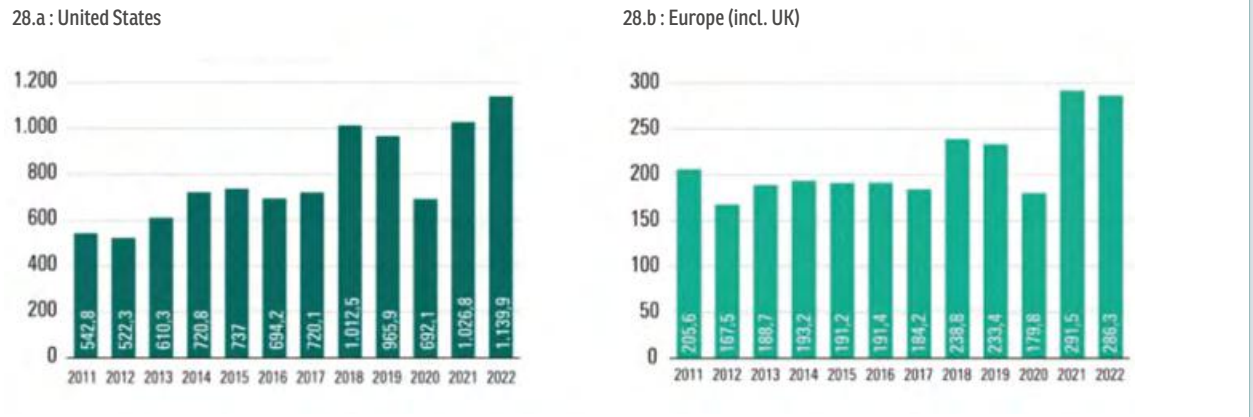
Developments with respect to share buybacks cannot be decoupled from monetary policy (*see Chart 28*).

The 2021 OECD report[42] stresses that "this link is particularly important in the current low interest environment, which greatly affects the relative cost of debt and equity. Low interest rates may drive increases in corporate debt issuance to finance share buybacks, rather than invest in future projects. Expansionary monetary policy initiatives such as the ones undertaken in many OECD countries after the 2008 crisis and the Covid-19 pandemic may directly affect the development in payout policy and adjustments in the companies' capital structures".

According to the OECD, of the total value of share buybacks in 2018, approximately 83% was attributable to US corporations. A significant proportion of US share buybacks comes from the financial sector, whose profitability has been affected by lasting low interest rates. In 2018 US companies' shares repurchase accounted for roughly $ 1.1 trn, more than twice the 2010 amount.

In 2019, the total share buybacks in OECD countries amounted to $ 599 bn, more than twice the amount of new equity issuance. The amount spent on share buybacks has exceeded the amount of equity issuance every year from 2016 to 2019[43].

CHART 28.
Share buybacks by non-financial corporations (USD USD)



Sources: S&P Global Market Intelligence, via AGEFI

A major increase in the value of shares repurchased by listed corporates in both sides of the Atlantic occurred in 2022: in the United States, a new record was reached at $ 1.139 trn (1.8% of GDP), against $ 1.026 trn in 2021 (*see Chart 28.a*), according to the S&P Global data[44].

In Europe, $ 286 bn buybacks (1.4% of GDP) occurred in 2022, down from $ 291.5 bn in 2021 (*see Chart 28.b*).

Across the biggest 11 European markets, the value of shares repurchased by listed corporates amounted to € 161 bn, nearly twice the € 84 bn of share buybacks executed in 2021, according to BNP Paribas Exane[45]. The four major markets (UK, France, the Netherlands and Germany) alone accounted for 77% of executions in 2022. Takeovers doubled in Germany, tripled in the UK and even increased sixfold in Italy.

As reported by a recent study from Natixis[46], "the real motivation for share buybacks is to boost share prices, using the portion of profits that would otherwise be invested at a lower return on equity than the standard of corporate profitability".

This suggests that these share buybacks have not led to the transfer of savings into financing more efficient corporate investments, and so that the Schumpeterian reallocation of capital to more efficient companies did not actually materialise. Indeed, share buybacks have coincided with a decline in capital accumulation (*see Charts 25 & 26*) and a rise in share prices over the past decade (*see Chart 28*).

42. "Trends in the corporate sector and capitals markets pre-Covid-19", OECD – July 2021.

43. Idem.

44. "Un millésime 2022 record en Europe et aux Etats-Unis pour les *buybacks*", AGEFI (17 March 2023).

45. "European corporate share buyback volumes almost doubled in 2022", Global Markets (February 2023).

46. P.Artus, "What about share buybacks?", Natixis Economic Research (February 2023).

This is worrying, since companies will have to invest massively to achieve their decarbonization, and the return on such investment is fairly low. As noted by P. Artus[47], "share buybacks will deprive companies of some of this financing needed for energy transition investment".

3.2 Persistent low rates have been exacerbating financial vulnerabilities

With ultra-expansionary monetary policies, net wealth has grown much faster than income, asset prices have been massively distorted. High leverage has massively increased market valuations and thus spurred the development of asset bubbles. In such a context, wealth inequalities between asset and non-asset owners and across generations have widened.

3.2.1 Net wealth has grown much faster than income[48]

In a result of the very accommodating monetary policy, financial and real asset prices have risen out of proportion with incomes. This marks a break with historical precedents.

Prior to 2000, net wealth (the value of assets at market prices) evolved largely, with some exceptions, in line with GDP.

Since 2000, net worth has exploded (the ratio of net wealth to GDP has increased from 0 to 50%) while GDP has grown only moderately.

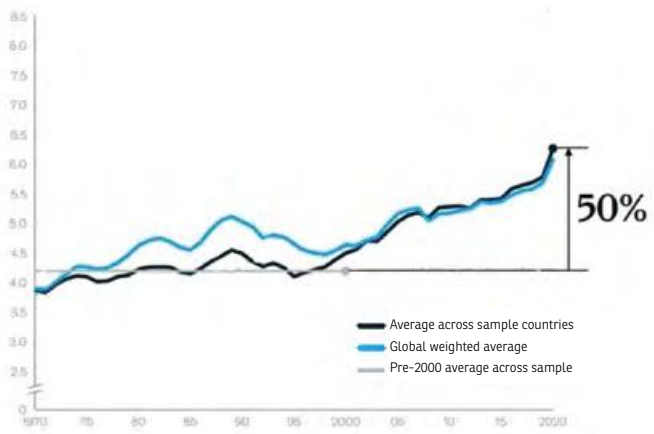
Chart 29 illustrates the break that occurred around the year 2000.

The surplus savings, which did not give rise to productive investments, were channelled largely into real estate. All in all, it is a system that is not very productive (debt financing of current expenditure, transactions in old buildings) that generates high asset valuations while real growth remains modest.

The central finding of McKinsey's work is that, at the level of the global economy, the historical link between net worth and output (GDP) growth is no longer true. Economic growth has been modest over the past 20 years, while valuations have surged. The pace of valuations – which traditionally kept pace with GDP – is now 50% higher than the historical relationship.

Two systems: before 2000 net worth follows GDP; after 2000 it takes off (*see Chart 29*).

CHART 29.
Net worth at market prices relative to nominal GDP, 1970–2020



Source: CEIC; Federal Reserve Board; national statistics offices; OECD; World Inequality Database; World Bank; McKinsey Global Institute analysis
Note: The global average is an extrapolation derived from a weighted average of ten countries based on GDP. Labels for values <1 not shown. Figures may not sum to 100% because of rounding

McKinsey has calculated that 77% of the increase net worth from 2000 to 2020 comes from rising asset prices and valuations (and only 23% from real resource creation).

In the environment of quantitative monetary ease and low – or negative – interest rates maintained by central banks for nearly 15 years, financial asset valuations have surged, allowing equity holders in particular to realize gains in excess of normal remuneration ("operating returns").

It is understandable, under these conditions, that investors have given priority to making quick profits on valuations rather than committing themselves (without remuneration) to financing risky long-term projects.

47. Idem footnote 17.

48. We quote here in extenso pages 27, 28 and 29 of J. de Larosière's latest book, "Putting and end to the reign of financial illusion – For real growth", Odile Jacob, September 2022.

This observation is important. An economy cannot function in the long term and for the good of all if investors' choices are oriented (notably because of monetary policy) towards immediate speculative opportunities and gains on valuations, rather than towards long-term growth prospects.

3.2.2 Interest rates no longer play their discriminating role, thus leading to a mispricing of risks

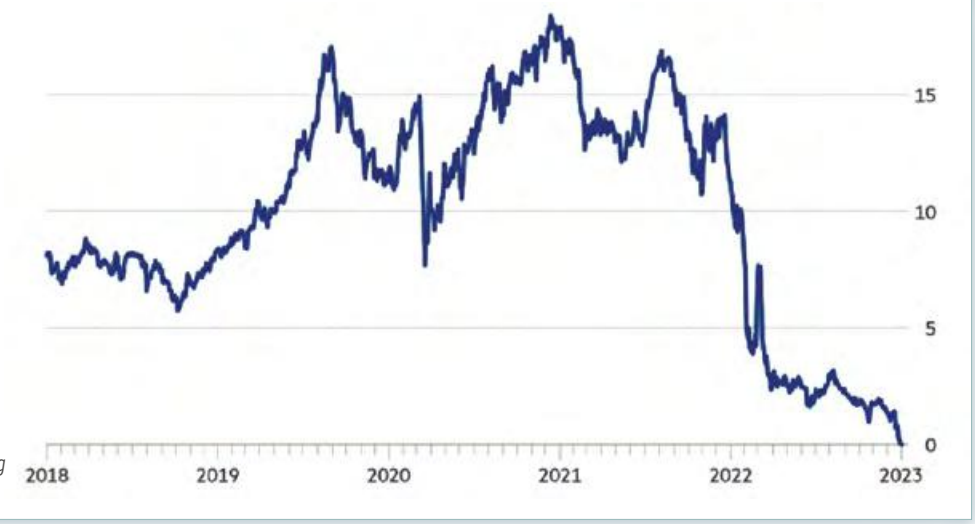
In a market-based economy, financial markets should discriminate across signatures according to their quality and not be dominated by the setting up of interest rates by central banks. But with their large-scale central bank purchases, as we have seen in Section 1, central banks in OECD countries have been controlling the prices of a growing number of assets: not only short-term interest rates but those with QE which leads to monitor the yield curve. Indeed, with control over long term interest rates through government bond purchases, sovereign risks premia do not reflect market forces nor provide savers with appropriate information about the economic and financial developments. In other words, sovereign bond prices have been turned from market prices into administrated prices.

How can free markets assess value in these conditions? Let us not underestimate the importance of this loss of benchmarks as zero interest rates blur risk premia. This reduction of risk premia was a phenomenon already observed prior to the 2007-08 crisis.

One illustration of the mispricing of risk has been the growing share of negative-yielding debt securities worldwide between 2015 and 2022. As of the end of 2020, close to 40% of global government debt offered negative yields, corresponding $ 18.4 trn (see chart 30), according to The Economist[49].

In March 2021, roughly 20% of bond yield in Europe were negative, and around 60% were below 1%, according to the Banque de France. Even the Greek 5-year bond yield turned negative for the first time in May 2021.

CHART 30.
Amount of Global Negative Yielding Bonds, $ tr



Source: Wall Street Journal/Bloomberg
As of January 2023

Such a proportion of ultra-low yielding assets has brought financial markets to ignore economic fundamentals. This has pushed investors into riskier segments in search for yield compelling them to invest to lower-quality companies and countries.

Pandemic-related actions taken by Central Banks in 2020-21 distorted financial markets by incentivizing even more risk-taking, which was already at all-time highs. In the US for instance, the Fed's actions had the predictable impacts of driving Treasuries and MBS yields lower across all maturities and leading to a classic "search for yield" by investors, as stated by Better Markets[50].

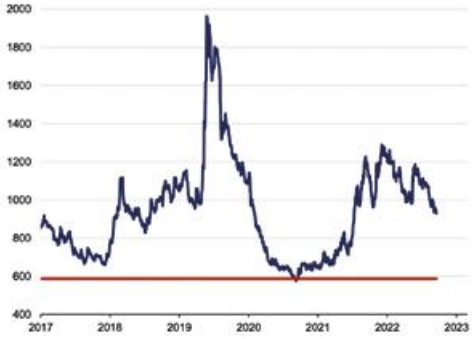
According to their report, "because financial returns had been lowered, investors were willing to take on more risk to potentially make the financial returns they wanted. As a result, the cost of credit was greatly reduced, and the availability of credit was greatly increased". For example, in 2021, spreads on junk bonds reached lows not seen since 2007 (*see Chart 31.a*). Lower credit cost led average issuance of high yield debt in the six quarters following the 2020 Pandemic Stress to double, compared to the average of issuance in the three years before that (*see Chart 31.b*).

49. The Economist, "A requiem for negative government-bond yields", (23 April 2022).

50. D. Kelleher & P. Basil, "Federal Reserve Policies and Systemic Instability", Better Markets (January 2023).

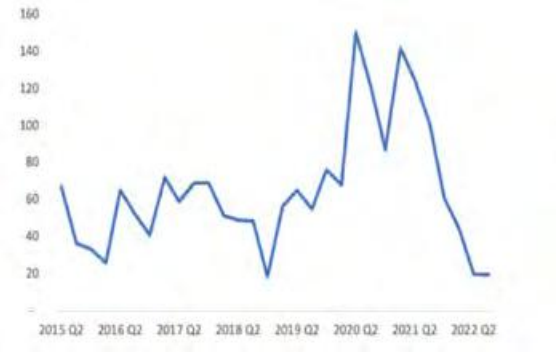
CHART 31.
Corporate bond Spreads and High-Yield debt issuance in the United States

31.a : Spreads on CCC and Lower Rated Corporate Bonds (basis points)



Source: St. Louis Fed
Last observation from 23 March 2023
The red line represents the 2007-average; spreads are computed as the difference between CCC and Lower rated bond yields and investment grade rated corporate debt publicly issued in the US domestic market

31.b : Issuance of High Yield Bonds (USD bn)



Source: taken from the Banking report of Better Market 'Federal Reserve Policies and Systemic Instability : Decoupling Asset Pricing from Underlying Risks'

3.2.3 High leverage has massively increased market valuations and thus spurred the development of asset bubbles

Money supply growth has been abundant over the last 20 years, without success in generating a proportional economic growth. This massive wave of money supply failed at achieving the 2% inflation target until 2020 but was transferred to financial and real estate's prices. High leverage has massively increased market valuations, which puts financial stability at stake notably in a context of inflation and higher interest rates.

The absence of a leaning-against-the-wind stance has nourished financial imbalances. The disconnection between financial and housing asset prices on the one hand and the economic fundamentals on the other hand is leading to market bubbles. Indeed, lasting low interest rates open the floodgates of credit to both governments and the private sector, encourage search-for-yield behaviour and represent a source of financial instability.

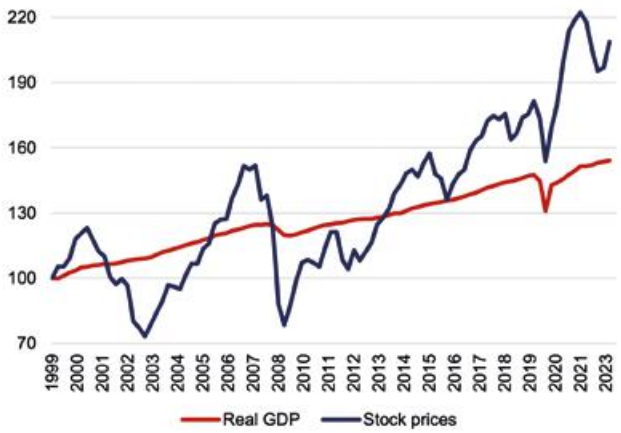
This can be illustrated by stock and real estate assets inflation, and lately by the Bitcoin price volatility.

Stock markets have been mainly governed by central bank monetary expansion during the past years.

Chart 31 highlights the widening gap between stock prices and real GDP growth in OECD economies, indicating a clear disconnection between financial markets and fundamentals. Between early 2013 and early 2020, stock prices in the OECD countries increased by 45.5%, three times as much as the real GDP (+15.4%). Their disconnection from the economy was also illustrated by the rise of 16.26%[51] of the S&P500 and 43.6% of the Nasdaq in 2020, while the world experienced a 4.2% recession that year.

Stock indexed rose even further in 2021, as the S&P 500 and the Nasdaq indexes returned, respectively 27.2% and 20.1% in 2021.

CHART 31.c
Stock prices versus Real GDP in OECD Economies*
(1999:Q1 =100)



Source: OECD
**including the United States, the Eurozone, Canada, Australia and the United Kingdom ; data are quarterly ; last observation from 2023-Q1*

51. Excluding dividends for S&P500 and Nasdaq.

This chart also underscores that, given the permanent loose monetary policies during the past decade, share price declines caused by negative shocks (*cf.* Lehman Brothers' bankruptcy and Covid-19 crisis) were immediately followed by an upturn.

The steep rise in house prices due to the overwhelming influence of central banks 'liquidity'.

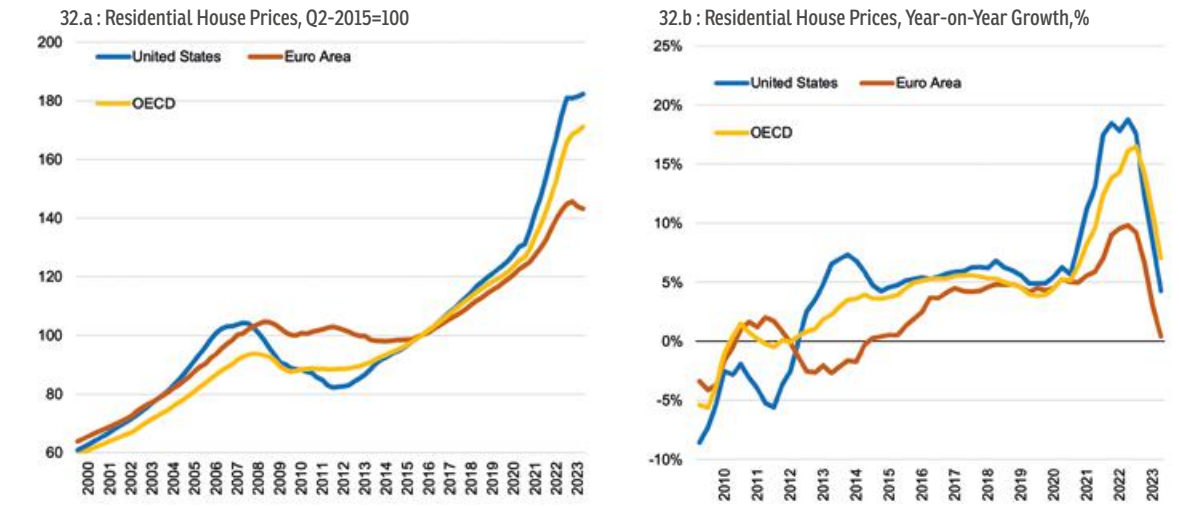
The associated chart (*Chart 32*) displays the steep rise in house prices, both in the United States and the Euro area, which has been stimulated by the abundance of money supply growth during the past years. Between 2015 and 2019, house prices rose by roughly 21% in OECD economies (*see Chart 32.a*). They increased by 25% in the United States and 19% in the Euro area.

Following the Covid-19 crisis and central banks actions that pushed interest rates to further low levels, home prices were 67.9% higher than their 2015 level as of March 2023 in OECD economies, up to 41.6% up in the Euro area and to 78.7% for the US.

We can see that the increase in real estate values since 2014 at the OECD level is higher than that observed between 2000 and 2007 and which led to the crisis of 2008[52]. This comparison – that is worrying – should be a cause of concern.

Since late 2022, house prices have continued to rise at lower pace, as they adjust to higher borrowing costs. In the first quarter of 2023, Eurozone house prices increased by 0.3% in 2023-Q1 YoY, down from 3.6% in the previous quarter. In the United States, prices rose by 4.3% in 2023-Q1, half than in the previous quarter (8%).

CHART 32.
House Prices development



Source: OECD, Last data are from 2023-Q1

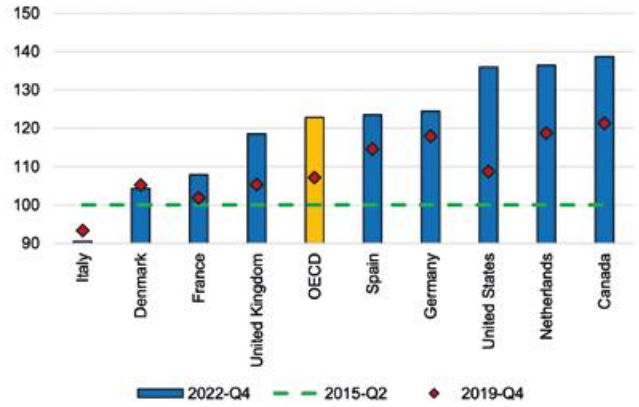
The surge in house prices illustrates the implied difficulty for households to access housing, in particular for the youth. A measure of the affordability of homes for households is the price-to-income ratio (*see Chart 33*). Its increase indicates that home prices are rising faster than the disposable income.

From a level of 100 in 2015, the ratio increased to 107 in December 2019. Following the Covid-19 crisis, the index rose again to 122.7 at the end of 2022.

Already up by 9.7% in 2019 compared to 2015, the ratio was 35.9% higher than in 2015 in the United States, in December 2022. Although there is no available indicator for the Euro area, the development is similar in some Member States. Over the past four years to 2019, Germany and the Netherlands have experienced the largest increase in the price-to-income ratio, jumping by 17.8 ppts and 18.5 ppts respectively. Three years later as of December 2022, these numbers have increase by an additional 6.5 ppts in Germany and 17.3 ppts in the Netherlands.

52. For OECD at the whole, the increase in house prices between 2014 and 2022 was 19 ppts higher than in 2000-2007. This is also the case for the US, where the increase in 2014-22 was 26 ppts higher than in 2000-2007. In the Eurozone , house price increases, by 47% between 2014 and 2022, and are still 10 ppts lower than in 2000-2007, a period which price grew by a cumulated +58%.

CHART 33.
Price-to-income Ratio (Q2-2015 = 100)



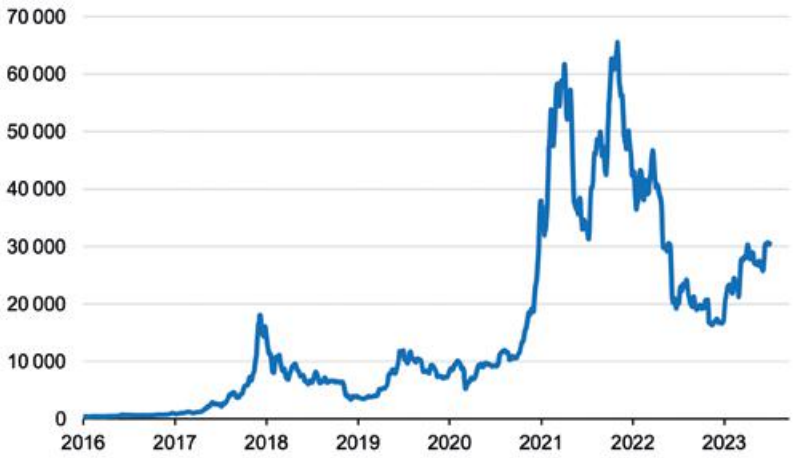
Source: OECD

As mentioned in the last chapter of his latest book, J. de Larosière stressed that "when the value of assets increase much faster than GDP, this is generally a sign of overheating, which always leads to a market correction. If the growth in net worth is the result of asset price increases rather than investment, there is a risk of favouriting the minority of the wealthiest asset holders to the detriment of wage earners with little financial savings".

Cryptocurrency development

The search-for-yield attitude also spreads across cryptocurrencies where excess money supply has brought volatility. The Bitcoin, whose price index soared by more than 4 000% between 2016 and January 2022, is a staggering example. After reaching $ 60 000 in the first months of 2020, the price of Bitcoin has fallen by 50% in only few weeks (*see Chart 34*).

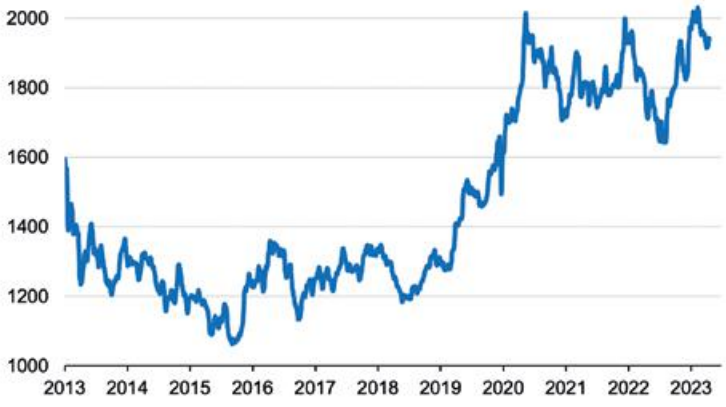
CHART 34.
Price of Bitcoin, USD



Source: Yahoo Finance
Last data from 14 July 2023

As chart 35 shows, gold is the ultimate safe haven in times of crisis. Its price has risen sharply since the Covid-19 crisis. The Ukraine war and the recent financial turmoil have increased its attractiveness for savers.

CHART 35.
Gold price, USD/ounce



Source: Yahoo Finance
Last data from 14 July 2023

Consequently, monetary policy is widening wealth inequalities between (i) asset and non-asset owners and (ii) across generations.

As we have seen, low interest rates, asset purchases and other accommodative unconventional monetary policy instruments have tended to increase asset prices (particularly housing, equity, as well as government and corporate bonds) and thereby have especially benefited the wealthiest segment of society.

Ultra-accommodative monetary policy also has cross-generation distributional consequences. Since elderly people tend to have higher savings (accumulated from their families and during their active time), they are able to sell their assets whenever it is appropriate for them and maintain their consumption level. Thus, they really benefit from upward price changes. Conversely, younger households are usually the ones that will buy these assets at a rather high price for their accommodation or to save for retirement. This absorbs a higher share of their revenues at the time when they start their activity.

More generally, these income inequalities have a lasting effect because they tend to be transmitted across generations: wealthiest older people can easily help their offspring to buy accommodation in residential places, also giving more chances to their grandchildren to go in the best schools and universities.

A report issued by the McKinsey Global Institute[53], notes that global net worth has tripled since 2000; mainly reflecting valuation gains in real assets – especially real estate – rather than investment in productive assets. Rising asset prices and two decades of relatively low interest rates have helped expand the world's "balance sheet" to high levels, far outpacing underlying economic growth and raising questions over whether it is sustainable.

Moreover, "asset values are now nearly 50% higher than the long-run average relative to income", the report continues. "Not only is the sustainability of the expanded balance sheet in question; so too is its desirability, given some of the drivers and potential consequences of the expansion. For example, is it healthy for the economy that high house prices rather than investment in productive assets are the engine of growth, and that wealth is mostly built from price increases on existing wealth?".

The central finding of McKinsey's work is that the historical link between net worth and output (GDP) growth no longer holds. Economic growth has been modest over the past 20 years, while valuations have surged. The pace of valuations – which has traditionally kept pace with GDP – is now 50% higher than the historical relationship.

McKinsey has calculated that 77% of the net worth growth from 2000 to 2020 comes from rising asset prices and valuations (with thus only 23% from real resource creation). It is generally observed that those who have benefited the most from the rise in stock prices are in the top 10% of the population.

> ***"If we take only households in the United States and China, we see that 2/3 of the wealth is held by the richest 10%. The increase in inequality in China is striking: the poorest 50% of the population are seeing their share of wealth decrease: they only held 15% of the wealth in 2015.***
> ***In the United States, household wealth held by the richest 10% of the population rose from 67% to 71% of the total between 2000 and 2019. As for the share held by the poorest 50%, it now represents only 1.5% of the total…"***
>
> *Table taken from the book J. de Larosière's latest book, "Putting an end to the reign of financial illusion – For real growth", Odile Jacob, September 2022*

53. McKinsey Global Institute, "The rise and rise of the global balance sheet", November 2021.

According to J. de Larosière, "the fact that our financial system has favoured to such an extent the holders of assets with a high and growing stock market value sheds a harsh and problematic light on the social consequences of monetary management as it has been conducted for the last twenty years. Similarly, the explosion of real estate prices prevents young people from settling in urban centers and leads to costly social inequalities, especially in terms of productivity. The excessive concentration of wealth in the hands of a few has never been a source of global growth…"

This assessment and its consequences lead us to question the "benefits" of the tripling of net worth described by McKinsey. A system that results in increased financial valuations for the richest 10% while leaving wage income stagnant does not seem likely to increase employment in the productive sectors. This system poses a major political and social problem: the rich become exponentially richer than the wage earners living from their work… A system that results in increased financial valuations for the richest 10% while leaving labour income stagnant does not seem likely to increase employment in the productive sectors"[54].

•

Persistent cheap money has undermined financial stability and the growth potential. Here we can quote A. Weber[55], who writes in this respect that "with their ultra-expansionary monetary policy, central banks have endangered their mandate of price stability and financial stability. With the recent massive reflation the risks to price stability have materialized. Central banks have also endangered financial stability by massively distorting asset prices. Distorted prices send the wrong signals to investors, who took bad investment decisions, for example in driving liquidity-fueled boom-bust cycles in property markets or investing in the wrong financial products, firms, sectors, regions, or countries. Some of these investments will have to be written-off at some point in the future…

Moreover, the ultra-loose monetary policy has undermined the growth potential of the Eurozone. By subsidizing highly indebted countries or ailing economic sectors, central banks have not only lowered the cost of refinancing, but they also have contributed to reducing the pressure for the necessary consolidation and delaying restructuring. Labour and capital remained trapped in stagnant or, in the worst case, even value-destroying investments and were missing elsewhere. Reforms were being put off; structural crises became protracted".

54. See J. de Larosière, "Putting an end to the reign of financial illusion: for real growth", Chapter III, Odile Jacob, September 2022.

55. *Op.Cit* footnote 11.

4. The return of inflation: state of play and challenges

Inflation is continuing to hover well above central banks targets across much of the world. Since the fourth quarter of 2022, headline inflation has started to decline, largely driven by lower energy prices notably in the United States, the Euro area, and Latin America. Indeed, Headline year-on-year inflation in OECD countries continues to fall, reaching 5.7% in June 2023, down 1.2 percentage points vs. April, and 5 pp off its peak of 10.7% in October 2022. This is its lowest level since October 2021. But despite being on a downward trend, it remains far too high.

Core inflation (excluding food and energy) has proved to be sticker. It stood at 6.6% in June 2023 in OECD countries – only 1.2 pp below its peak of 7.8% in October 2022. Among G7 countries, only the US and Canada recorded lower core inflation in May than in October. It remains above 5% in the UK and Germany.

At first, higher inflation was seen as transitory, reflecting increased relative prices for numerous pandemic-affected items. But it proved persistent, broadening over time and the war in Ukraine added to the inflationary pressures.

Formerly attempting to "look through" what they considered to be "transitory" higher inflation, many Central Banks across Advanced Economies responded late and slowly. However, since March 2022, central banks tightened their monetary policy but to varying degrees across countries. But, unlike the United States, nominal policy rates remain below inflation in the Euro area. As a result, real ex post policy rates – *i.e.*, adjusted for inflation – are negative in the Eurozone continuing to push people into more debt.

The damage that a high-inflation regime does to the economic and social fabric is well-known (reduced consumer purchasing power, increased uncertainty and hence investment). The longer the inflation is allowed to persist, the greater the likelihood that it becomes entrenched and the higher the costs of curbing it. Furthermore, it is noticeable that wage pressures have been gradually building up as workers have sought compensation for high inflation in tight labour markets.

4.1 High inflation is expected to last for longer

We are experiencing another episode of inflation since March 2021, breaking with the trend of slow prices growth that prevailed during the decade prior to the Covid-19 crisis. Inflationary pressures have intensified in 2022, following the war in Ukraine. Inflation has been increasing to levels not seen in decades, fuelling concern about the rising cost of living for households. Inflation has thus once again become the primary concern of Europeans, who are experiencing a sharp decline in their purchasing power. Indeed, inflation is lowering real revenues and has the highest impact on the poorest. This uptrend is global, although it varies across regions, with numerous and complex roots.

The causes are many and complex, driven by a mix of cyclical and structural factors. Soaring energy prices – which extended to a wide range of commodities as food and raw materials have been a key driver in the inflationary shock. Global supply-chain disruptions exacerbated pressures on prices. But other sources of pressure exist too; the acceleration of inflation in 2022 may also be the result of the substantial excess of broad money growth over the past years.

Since the fourth quarter of 2022, Headline consumer price inflation has begun to decline in most economies mainly due to the easing of energy and food prices. However, core inflation remains elevated held up by strong service price increases, higher margins in some sectors and cost pressures from tight labour markets.

4.1.1 Even prior the war in Ukraine, inflation was already an issue for OECD countries

Before the outbreak of the war, price pressures had intensified considerably:

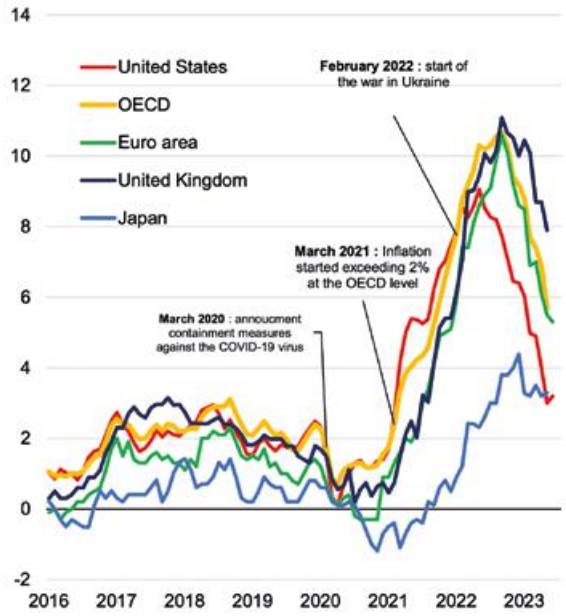
Between March 2021 and February 2022, consumer price index inflation (CPI) has been running above 2% in many advanced economies.

At the OECD level, inflation increased from 2.4% in March 2021, to 4% in June 2021 and 7.8% in February 2022 (*see Chart 12*).

In the Euro area, the HICP growth rate exceeded 2% for the first time in July 2021. Since November 2021, the headline inflation has been above 2% in all Eurozone Member States and kept rising until February 2022.

In the United States, inflation has been exceeding 2% annually since March 2021, and increased to 7.9% until February 2022.

CHART 36.
Consumer Price Index growth in key advanced economies,% annual change



Sources: OECD, Eurostat
Latest data from July 2023 for the Euro area and the US, and June for the UK, OECD and Japan

In a speech delivered in August 2022, the President of the Bundesbank[56] explained this return of inflation: "One major factor driving this momentum was the global economy's unexpectedly swift recovery from the pandemic-induced recession. The fiscal and monetary policy support measures taken around the globe to limit the economic damage caused by the pandemic played a part in this. The rapid revival of economic activity then sent commodity prices soaring.

Another contributing factor was the shift in consumer demand away from services and towards goods during the pandemic – instead of heading to the cinema or the gym, people were ordering laptops and exercise bikes. That left industry struggling to produce enough to keep up in some cases. This has further exacerbated price inflation, both for final products and at upstream stages.

In addition, the pandemic disrupted global supply chains and transport routes. Some of these supply disruptions have proved to be more persistent than initially expected. This, too, has had a hand in pushing up prices. And, with demand robust, energy prices were already on the rise before the war began".

4.1.2 The war in Ukraine has triggered a major global commodity market shock, pushing inflation to higher levels in OECD economies in 2022 and 2023

At the **OECD level**, the aggregated consumer price index rose by 9.6% in 2022, the highest level since 1988. Although it has fallen since its peak of October 2022 (10.7%), headline inflation remained at 5.7% in June 2023.

In the **United States**, year-on-year headline inflation averaged 8.1% in 2022. As of July 2023, it fell to 3.2% from its peak of 9.1% recorded in June 2022. Core inflation, which peaked at 6.4% in March 2022, has been decreasing more slowly compared to the headline inflation. In June 2023, it declined to 4.7%, from 5.9% in in June 2022.

In the **Euro area**, consumer prices were up by 8.3% in 2022 compared to 2021, the highest level recorded since the creation of the monetary union in 1999. It peaked at 10.6% in October 2022, before slowly decreasing since, to reach 5.5% in June 2023. Core inflation has been more persistent: in July 2023, it stood at 5.5%, unchanged compared to June, and only 0.2 pp below its peak of 5.7% reached in March 2023.

In the **United Kingdom**, inflation averaged 9% in 2022, a level not recorded since 1982. After remaining above double-digit levels until March 2023, headline inflation has started to decrease slowly to reach 8.7% in June, at levels unchanged compared to May 2023. Unlike other advanced economies, core inflation has continued to rise from 5.8% in January to 7.1% in June 2023, up from 6.8% a month earlier.

As in **Japan**, headline inflation reached 2.5% in 2022, a low level by international standards but uncommon in a country that has been fighting deflation for decades. After peaking at 4.3% in January 2023, headline inflation declined to 3.3% in June 2023. The Japanese indicator of core inflation, which excludes fresh food but includes fuel costs, also decelerated to 3.3% in June 2023, from its peak of 4.2% reached in January 2023.

56. J. Nagel, "Monetary policy in times of geopolitical crises and high inflation", 30 August 2022.

Inflation in the Euro area: close to three times the ECB target.

The war in Ukraine, and the associated pressures in energy and food supply pushed the Euro area headline inflation into unprecedented double-digit territory in October (10,6%) and November (10.1%) last year, and to 8,4% for 2022.

The large import price shock has led to the highest inflation rates in the Baltics among Euro area countries. In Estonia, headline inflation doubled from 11.6% in February to peak at 25.2% in August 2022. It jumped to 22.5% in Lithuania, and 22% in Latvia, both in September 2022.

Headline inflation also jumped significantly in Germany, which peaked to 11.6% in October 2022. It also exceeded 10% in Spain (10.7% in July 2022), Italy (12.6% in October 2022) and the Netherlands (16.8% in October 2022).

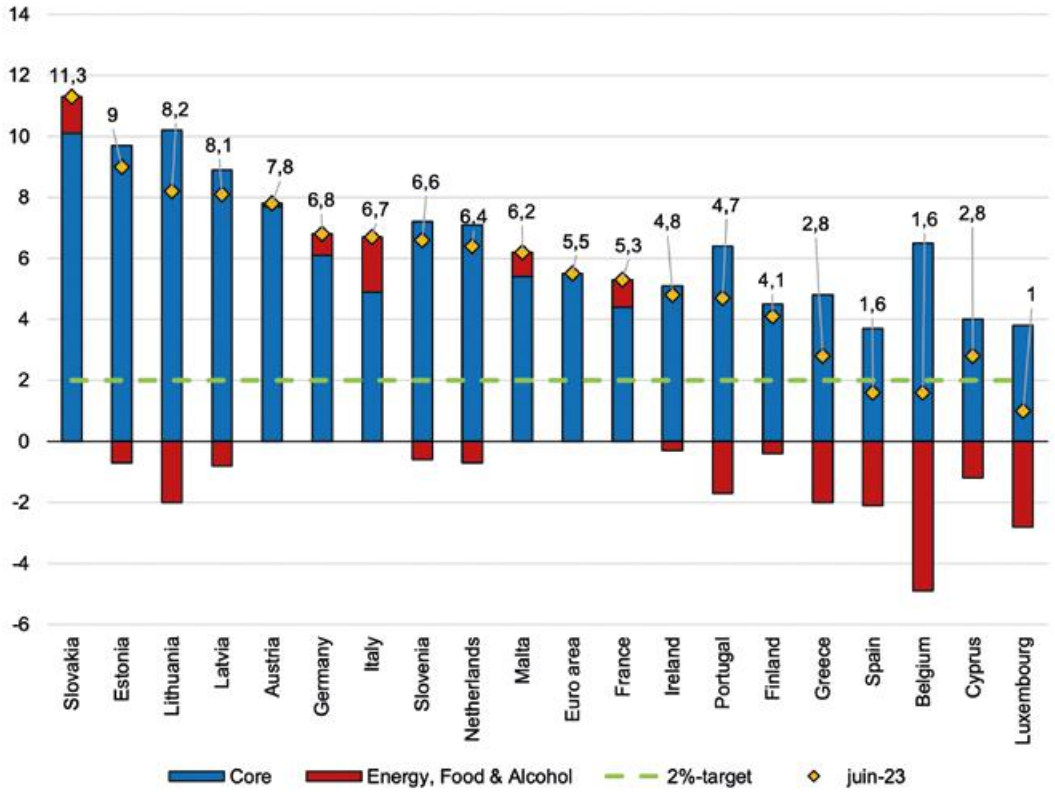
As result of the recent decline in energy prices, headline inflation has decreased in many Member States from its peak of October 2022. In the Euro area, year-on-year headline inflation, dropped to 5,5% in May 2023, from 7% in April.

This masks significant variability across member states. In June 2023, it fell below 2% in Spain, Belgium and Luxembourg for the first time since 2021, although Spanish inflation rebounded to 2.1% in July 2023 according to preliminary data from Eurostat. By contrast, headline inflation remained close to 7% in Germany (6.8%) and Italy (6.7%), and above 5% in France (5.3%) in June 2023. Preliminary data for July 2023 suggest marginal decrease compared to last month: in July, inflation stood at 6.5% in Germany, 6.4% in Italy and 5% in France.

The decline in headline inflation contrasts with the rise in core inflation, as observed in most Member States since the third quarter of 2022.

In June 2023, almost half the Eurozone member states recorded a core inflation level similar or higher than in January 2023. Germany and France are among them, with core inflation reaching 6.1% and 4.4% respectively in June 2023, compared to 5.1%, and 4.2% in January 2023. Core inflation exceeded 6% in Belgium (6.5%), the Netherlands (7.1%), Austria (7.7%) and Portugal (6.1%) in particular and remained close to 5% in Italy (4.9%), as of June 2023. At 3.7%, Spain had the lowest level of core inflation of the Euro area in June 2023.

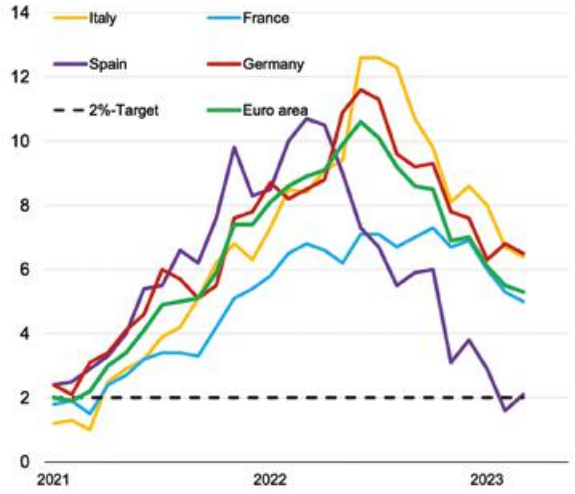
CHART 37.
Headline Inflation Across Eurozone Member States as of June 2023,% annual change



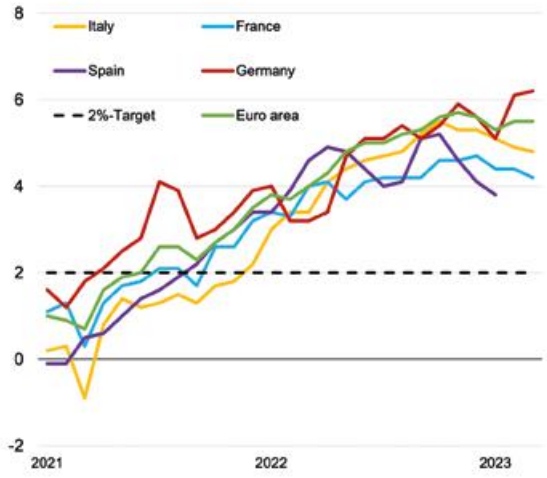
Source: Eurostat
Label Data concern healdline inflation (Core + Energy, Food & Alcohol) in June 2023

CHART 38.
Headline versus Core Inflation across the main Euro area Member States, annual% change

38.a : Headline inflation



38.b : Core Inflation



Source: Eurostat. Last data from July 2023, except for Spanish core inflation which dates from June 2023

4.1.3 The current inflation spike is driven by structural factors

Since it has been exceeding the 2% target, policymakers have mainly described the inflationary upsurge as the result of a mix of special factors that would ease in the near-term. Headline consumer price inflation has spiked around the world, in 2021, pushed up by **higher commodity prices, supply side disruptions and a strong consumer demand** boosted by accommodative monetary and fiscal polies as economies reopened.

The Russian invasion of Ukraine has intensified some of these pre-existing price pressures, putting more upward pressure on energy prices, raising the energy input costs of other products and creating additional distortions of supply chains. At the same time, China's zero-Covid-19 policy continued to weigh on the global outlook, lowering domestic growth and disrupting global supply chains.

The situation was in fact more complex because demand, driven by expansionary monetary and fiscal policies, ran up against the long-standing structural problem of inelasticity of the productive capacities, which is largely due to insufficient productive investment over the past years.

But ultimately inflation is a monetary phenomenon. Indeed, **the excessive monetary growth of the previous years** has exacerbated supply chain issues by inflating overall spending and demand, reflecting a policy failure and not just "the teething problems of an economy recovering from the pandemic slump[57]". When monetary policy is too tight, it slows aggregate demand. When monetary policy is too loose, it damages aggregate supply. The amount of 'excess money' resulting from a mix of highly expansionary fiscal and monetary policies has boosted inflation.

The excessive monetary growth of the previous years emanating from aggressive central banks' quantitative easing policies (in particular in 2020 and 2021) has exacerbated supply chain issues, reflecting a policy failure and not just the teething problems of an economy recovering from the pandemic slump.

One thesis, particularly in the US, suggests that the Fed's easy money policy has not led to an increase in bank lending insofar as the banks have maintained their reserves with the central bank instead of granting credit to the economy. Nevertheless, the truth of the quantitative theory is not denied. What is difficult is to establish precise links between the evolution of the money supply and inflation (the velocity of money is volatile, investment and savings decisions are motivated by multiple factors...).

But just because these relationships are difficult to formulate does not mean that reality does not exist. The mere fact that we continue to take an interest (albeit insufficiently) in the evolution of credit shows that quantitative theory continues to apply. Indeed, the increase in the money supply (M3 or M2) is strongly determined by the evolution of credit (a large part of M3 is the counterpart of bank credit), so indirectly it is indeed a money supply problem that is at stake.

57. P. Krugman, "The year of Inflation Infamy", the New-York Times, 16 December 2021.

The **green transition** should contribute to higher inflation in the medium term. Previously, when oil prices were going up, shale oil producers quickly increased their levels of production, which put downward pressure on prices. That is not happening to the same degree now. I. Schnabel's insight[58] was that "this can probably be explained by the fact that, owing to the green transition, there is less incentive to invest in shale oil facilities. [...] If that is true, we are perhaps going to see stronger upward trends in oil prices in the future". She added that as the shift in the energy mix towards cheaper and less carbon-intensive fuels will take time, a rising carbon price, higher tax rates across a range of fossil fuels, and relatively inelastic energy demand may lead to continuous upward pressure on consumer prices in the transition period.

The green transition and the increasing use of electricity should also lead to a rise in energy prices because the cost of producing renewable energy is higher than the cost of producing thermal energy, amortised capital is replaced by new unamortised capital which leads to an increase of the cost of capital and due to electricity storage costs. In addition, the equipment needed for the energy transition (wind turbines, hydrolysers, electric batteries, electricity grids) uses important quantities of metal whose prices should increase.

More recently, second rounds effects have materialised in reaction to high inflation: as firms are passing higher input costs to their final prices and workers are bargaining **higher wages** to make up for the loss of purchasing power. In the meantime, **government actions** implemented to offset the loss of households' purchasing power (tax cuts, subsides, energy-price caps) supported demand and contributed to inflationary pressures. These effects suggest that domestic price pressures may persist and keep inflation above Central Banks's 2%-target for longer.

4.1.4 Wage growth has become a dominant component of "homemade" inflation

Wages have increased significantly in 2022 and continued to rise at high levels in 2023, in the context of high inflation and tight labour markets.

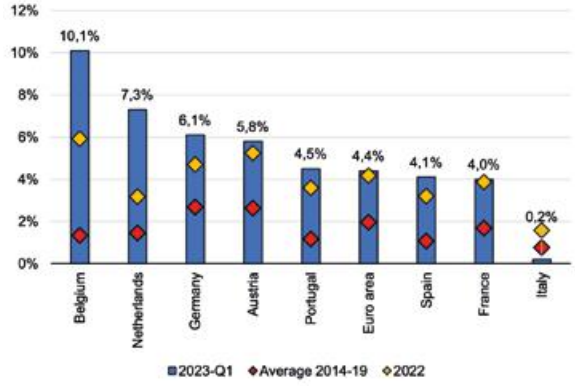
In the US, nominal wages of US workers in the private sector have risen by 6.4% in 2022, a record-high number in a decade, according to the Bureau of Labor Statistics. An alternative measure of wages dynamic provided by the Fed of Atlanta indicates that private wages peaked at 7.1% YoY in June 2022. The latest data in June 2023 suggest that wage growth has slowed to 6%, although it remains twice as high as its historical average of 3.3% (*see Chart 39.a*)

In the Euro area, hourly wages rose by 4.1% in 2022 according to Eurostat, twice as the yearly average growth of 2% recorded between 2014 and 2019 (see Chart 39.b). in 2022, Nominal wages have risen by 4.8% in Germany, and 3.9% in France notably. The most recent data (2023-Q1) suggests that wages have accelerated further across Euro area Member States, increasing by 7.3% in Netherlands and 6.1% in Germany.

CHART 39.
Wage growth development in the United States and across key Eurozone Member States

39.a : Median annual wage growth in the United States,%

39.b : Wages and salaries of the business sector, average for 2023-Q1,% annual change



Source: Current Population Survey, Bureau of Labor Statistics, and Federal Reserve Bank of Atlanta Calculations
Last data from June@ 2023

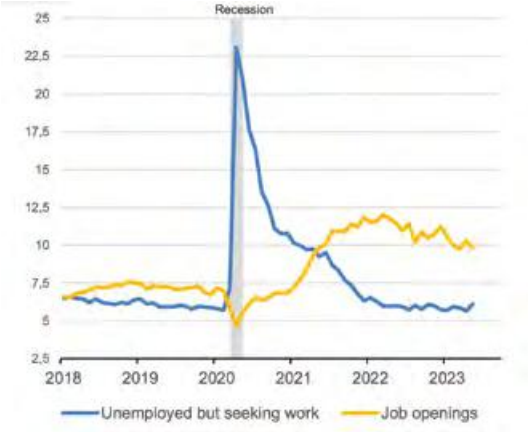
58. I. Schnabel, Interview with Le Monde, published on 22 December 2021.

Wage growth increases have occurred in a context of tight labour markets and staff shortages as reported by many firms across major advanced economies.

When the crisis hit in March 2020, many workers lost their job but never returned to the labour market since. The persistence of staff shortages contributed to widen the gap between job openings and jobs seekers, especially in the United States. As of October 2022, there were nearly two job openings for every unemployed worker in the US, the highest since 1950, when data were first collected. In May 2023, the ratio had decreased to 1.6, but remained well above relative to its pre-pandemic level (*see Chart 40.a*).

CHART 40.
Labour Market Tighteness across advanced economies

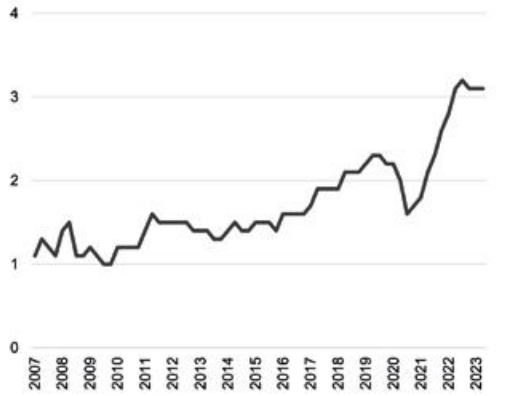
40.a : Job openings versus job seekers in the United States, millions person



Source: US Bureau of Labor Statistics

40.b : Job vacancy rate in the Eurozone

Proportion of vacant positions as a share of total jobs (filled and unfilled),%



Source: Eurostat. As of 2022-Q4

In Europe, the labour market has continued to improve, with unemployment remaining at its historical low of 6.5% in May 2023. Many firms are reporting staff shortages across Member States, and the vacancy rate[59] increased to reach 3.1% in 2023-Q1 in the Euro area according to Eurostat, one of highest since data were first collected in 2006 (*see Chart 40.b*). According to J. Nagel[60], surveys show that labour shortages have become considerable obstacles to production. In the European Commission survey for the Euro area service sector, for example, understaffing is the most frequently cited limit on business. Job vacancies across many sectors show that there is robust demand for labour.

According to the OECD[61], "low unemployment and high vacancy rates in most major economies, together with the extended period of high inflation, have put upward pressure on nominal wage growth". Indeed, such mismatch between labour demand and supply has been improving employees' bargaining power when demanding wage increases high enough to account for rising living costs.

However, wages have so far risen by less than prices have in most advanced economies, pushing real compensation growth to fall into negative territory.

Wage inflation has been below consumer price inflation across most advanced economies since the start of 2021, resulting in a decline in real consumer wages.

As of 2023-Q1, the annual hourly wage growth adjusted for CPI was -0.6% in the US and -3.6% in the Eurozone (*see Chart 41*). Recent data from June 2023 nevertheless indicate that real wage growth has returned to positive territory in the US, mainly as result of the faster-than-expected fall in headline inflation[62] which stood at 3% in June. This contrasts with the Eurozone, where real wage growth was still 3 points below its historical average in the first quarter of 2023.

The pain is being felt across Euro area Member States: real wages fell by 2.7% in Germany, 3% in France and by 9.3% in Italy as of 2023-Q1. Nevertheless, real wage growth has returned to positive territory in the Netherlands, thanks to a sustained rise in nominal wages, and was above -1% in Spain due to rapid disinflation (*see chart 41*).

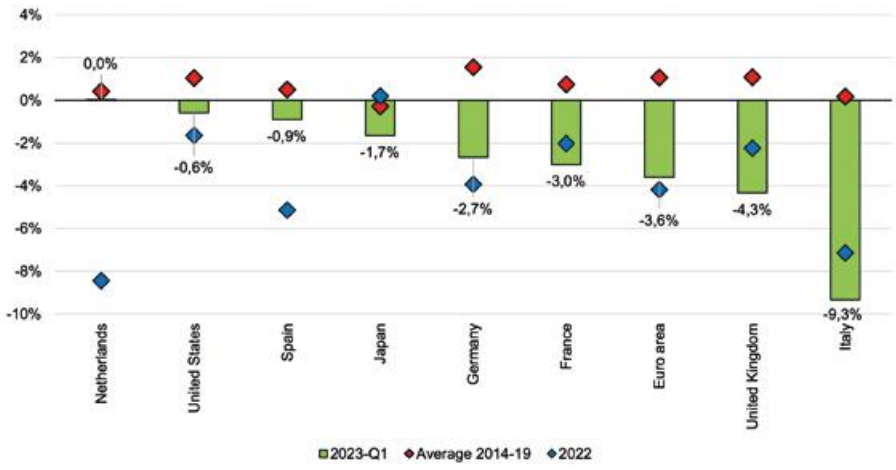
59. A job vacancy is defined as a paid post that is newly created, unoccupied, or about to become vacant. The job vacancy rate hence measures the proportion of total posts that are vacant, according to Eurostat (see https://ec.europa.eu/eurostat/web/labour-market/job-vacancies).

60. "The labour market – supporting the economy or fuelling inflation?", Speech at the OMFIF Economic and Monetary Policy Institute (March 2023).

61. OECD Economic Outlook, Interim Report March 2023.

62. A. Omeokwe & M. Tagami "Pay Raises Are Finally Beating Inflation After Two Years of Falling Behind", Wall Street Journal (17 July 2023).

CHART 41.
Nominal Hourly Earnings versus CPI annual growth (%) in selected countries, as of 2023-Q1



Sources: OECD, Eurostat
Notes: calculated as annual nominal wage growth minus inflation

A key reason behind the sluggish pace of wages growth is that wages are imperfectly indexed to prices. According to the ECB[63], only around 3% of private sector employees in the Euro area have their wages and minimum wages automatically indexed to inflation. It also underlines that, since the Great Financial Crisis, indexation regimes with a formal role for inflation in wage setting have become less prevalent.

Worldwide, institutional changes, such as the decline of workers' unionisation, also hint at an environment less conducive to wage-price spirals than in the past, according to a study from the BIS[64]. At the OECD level, union membership – the share of employees affiliated to a trade union – had fallen from 38% in 1973, to 16% in 2019.

While wage adjustments are still influenced by the lingering effects of the norms prevalent in the low-inflation regime, recent developments in minimum wage and wage negotiations across the EU Member States should be a cause for concern regarding inflation.

Attempts to recoup from loss of purchasing power combined with the structural decline in the available workforce could keep wage growth at levels incompatible with the 2%-inflation target in the medium term.

The latest BIS Annual Economic Report[65] underlines that "in the Euro area, negotiated wage growth has been on the rise and is now at its highest level since the inception of the common currency... In parallel, there are signs that price-setting behavior is changing. Firms are adjusting prices more frequently than when inflation was low instable... Firms are now more reluctant to accept profit squeezes and will pass on cost pressures to price more readily".

One reason to believe that wage growth will remain elevated is the attitude of workers and trade unions, who are trying to compensate for the loss of purchasing power in wage negotiations. According to the BIS[66], the inflation surge has severely eroded the purchasing power of households even more than in past disinflation episodes. A strengthening in wage pressures is observed in the growth rate of negotiated wages in the Euro area, which increased by 4.3% in the first quarter of 2023, compared with 3.1% in the previous quarter.

In 2022, German public sector unions have been bargaining a double-digit wage rise and Dutch unions are agreeing pay awards of 5-6%, well above historical norms, according to the Financial Times[67]. In Spain, a survey conducted by the Central Bank suggests that half of collective bargaining deals for 2023 contains "indexation clauses". For France, granular data collected by the Banque de France suggest that the average increase in industry level wage floors was close to 5% at the end of 2022[68].

Many governments have responded to trade unions, by increasing minimum wages. Statutory minimum wages rose by 12% on average across the EU in 2022, twice as during the previous year. As reported by the Financial Times, this increase was partly "due to a catch-up in eastern and central European states, but the wage floor also rose by 22% in Germany, 12% in the Netherlands and around 5 to 8% elsewhere in the core of the bloc". As noted

63. G. Koester and H. Grapow, "The prevalence of private sector wage indexation in the Euro area and its potential role for the impact of inflation on wages", ECB Economic Bulletin (October 2021).

64. F. Boissay et al, "Are major advanced economies on the verge of a wage-price spiral?" BIS Bulletin N° 53 (May 2022).

65. Annual Economic Report, Bank for International Settlements (June 2023).

66. Annual Economic Report (June 2023).

67. D. Strauss, "Global economy: will higher wages prolong inflation?", FT (March 2023).

68. E. Gautier, "Negotiated wage increases: what is the picture for 2022?", Banque de France blog post n°301 (January 2023).

by P. Hernández de Cos[69], "the recent agreement for the German public sector, which includes very substantial wage settlements for 2023 and 2024, augurs further pressures, and it must be borne in mind that the empirical evidence shows that private-sector wages in Germany tend to respond to changes in public-sector wages".

As workers sought compensation for high inflation, wages are expected to accelerate for the coming years. The Eurosystem June forecast[70] wages growth to increase by a further 14% between now and the end of 2025. Such increase would lead the annual wage growth to "remain over double its historical average for most of the projection horizon", and so "fully recover [its] pre-pandemic level in real terms". Inflation compensation, tight labour market, increases in minimum wages and low labour productivity gains were mentioned to justify this forecast.

As detailed above, wage agreements take place in a context of tight labour markets and staff shortages, as employees' greater bargaining power could lead to strong wage growth and thus to continued inflationary pressures. according to J. Nagel[71]. "Shortages of labour are already evident in an increasing number of sectors in Germany and throughout the Euro area. Given the foreseeable demographic change, a decline in the labour supply is to be expected. In Germany, for example, more baby boomers are likely to leave the labour market than can be offset by net migration from 2026 onwards".

As stressed by C. Goodhart and M. Pradhan[72], "there will be an absolute decline in the labour workforce in several countries – in the key economies of Japan, China and most of North Asia… as well as several continental Europe, such as Germany, Italy, Spain and Poland". Accordingly, labour scarcity in Advanced economies) "will put workers in a stronger bargaining position, reversing decades of stagnation. […] They will use that position to bargain for higher wages. This is a recipe for recrudescence of inflationary pressures".

Are we heading towards a distribution conflict in the United States or in the Eurozone?

A distribution conflict is a situation where households and companies refuse to lose real income faced with a negative shock; it leads to high inflation.

Looking at recent trends, P. Artus[73] sees "a distribution conflict in both the United States and the Eurozone, following the negative shock of higher energy and food prices and stagnant productivity. Unsurprisingly, this distribution conflict has led to very inflation excluding anergy and food".

4.2 Normalisation process as of end-July 2023: state of play

To varying degrees the Federal Reserve, the European Central Bank and the Bank of England have exited their ultra-expansionary monetary policies.

The Bank of England was the first among the G7 countries to raise its key rates, in December 2021. Later in March 2022, the Federal Reserve followed by lifting the Fed Funds rate, after ending its asset purchase program. Since June 2022, it has started to reduce the size of its balance sheet. The European Central Bank has raised its policy rates later than the Fed and the BoE. It was only as of 1 July 2022 that the ECB decided to end the net purchases under the asset purchase programme (APP) but it continued the reinvestment of purchased maturing securities. At that time, Euro area inflation was 8,9%. The Bank of Japan remains an exception, maintaining its highly accommodative stance.

Most central banks have continued to tighten monetary policy since the beginning of 2023 to address high inflation. As reported by the OECD[74], policy rate increases have nonetheless tended to become smaller, and some banks have announced a pause to assess the impact of the cumulative tightening already delivered. Yet, in an environment in which inflation has been resilient, several Central banks have resumed their hiking cycles in the second quarter of 2023, such as in Canada.

In addition to rate hikes, many central banks are reducing securities holdings, either by not (or not fully) reinvesting the proceeds of maturing bonds (passive quantitative tightening, QT) or by selling bonds (active QT).

The Federal Reserve has gradually increased the federal funds rate since March 2022 to reach 5.5% in July 2023. Since June 2022, the Fed has also been reducing its bond holdings.

69. "The European Central Bank's monetary policy in response to the price stability challenge" (May 2023).

70. Eurosystem Macroeconomic Projections, June 2023.

71. "Anchoring monetary stability in people's minds", Speech (June 2023).

72. C. Goodhart & M. Pradhan, "The Great demographic Reversal", Palgrave (2020).

73. P. Artus, "Are we heading towards a distribution conflict in the United States or in the Eurozone?", Natixis Research, 20 July 2023.

74. OECD Economic outlook, June 2023.

In November 2021, Jay Powell stopped considering inflation as a "transitory" phenomenon. This view, shared by many FOMC Members, justified the pursuit of a loosening monetary policy: between December 2020 and November 2021, the Fed continued to purchase US Treasures and Mortgage-Backed Securities (MBS) at a monthly pace of $ 120 bn, and left the federal funds rate unchanged at their bottom range.

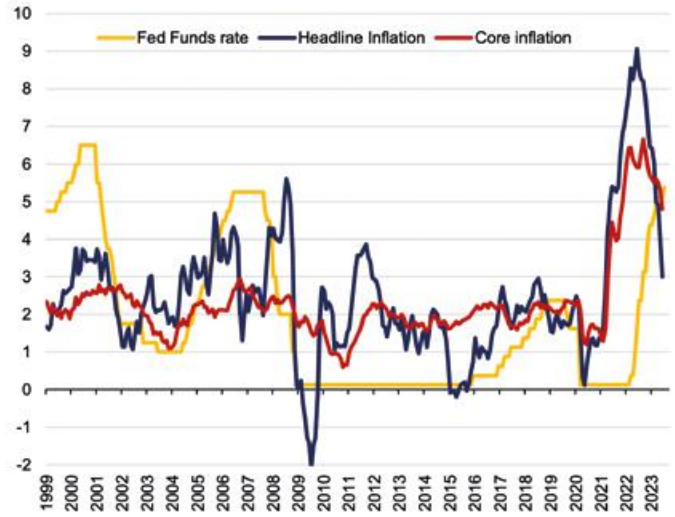
From **December 2021**, the Fed gradually reduced the pace of net asset purchases, which fully ended in March 2022.

In **March 2022**, the Committee raised the federal funds rate by 25 bps, for the first time since 2019, and officially ended the purchases of public and private securities.

The pace of rate hikes accelerated considerably in subsequent meetings, with the FOMC raising the Fed Funds rate by 50 bps in May 2022 and by 75 bps in each of the four meetings held between June and November 2022. The Fed Funds rate was raised again by 50 bps in **December 2022** and by 25 bps **in each of three meetings from February to May 2023**.

After leaving its policy rate unchanged in June **2023**, the Committee raised it by another by another 25 bps, to a level of 5.5% in **July 2023**. While Chair Powell underlined the need to assess "the uncertain lags with which monetary policy affects the economy", he also described inflation to be "elevated" and labor market "very tight". This assessment opens optionality for additional rate hikes by the end of 2023.

CHART 42.
Fed funds rate versus headline inflation in the United States (%)



Source: Federal Reserve
Last observation from July 2023 for the Fed Funds rate and from June for inflation's data

In June 2022, the FOMC started its quantitative tightening (QT) by reducing its holdings of US Treasury securities and MBS.

The Fed held $ 5.8 trn in US Treasuries, *i.e.*, a quarter of the government debt, as of June 2022. It also held $ 2.7 trn in MBS.

The monthly pace of balance sheet reduction has increased from $ 47.5 bn between June and September 2022 to $ 95 bn since then. Consequently, from a total of $ 8.9 trn in June 2022, the Fed's balance sheet has shrunk to $ 8.3 trn at the end of February 2023. The amount of US Treasuries outstanding decreased by $ 400 bn to $ 5.4 trn in February 2023 and the amount of MBS decreased by $ 89 bn to $ 2.6 trn.

According Caixa Bank[75], this pace of the reduction is much more aggressive than during the previous tightening cycles: in 2017, the Fed set a monthly cap of $ 50 bn, although in practice the initial pace was closer to $ 10 bn. Between 2017 and 2019, close to $ 613 bn of private and public securities were sold or not reinvested. Assuming the monthly cap of $ 95 bn unchanged, the Fed's balance-sheet should then drop by more than $ 1.6 trn in December 2023.

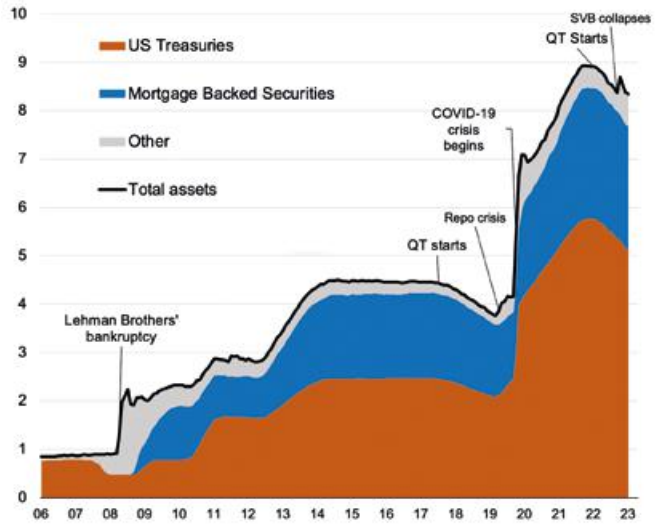
However, the banking turmoil induced by the SVB collapse in March 2023 has led the Fed's balance sheet to rise again since mid-March 2023. Indeed, collaboration with the Treasury Department, the US Central bank has established a "bank term funding program" to provide short-term liquidity assistance to U.S. banks. In the 10 days following the collapse of SVB, Fed's assets increased by nearly $ 400 bn, while they had fallen by nearly $ 600 bn between June 2022 and February 2023 due to QT.

75. A. Montilla, R. Gili, "On the reduction of the central banks' balance sheets" Caixa Bank Monthly Report No.468 (June 2022).

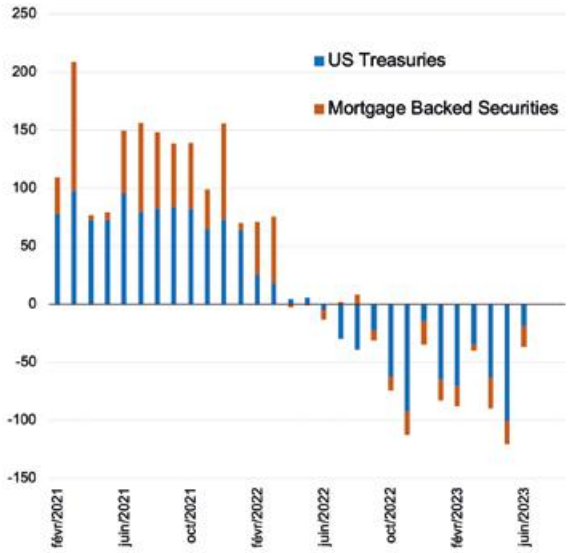
During the second quarter of 2023, the Fed continued reducing its securities holding. Consequently, its balance sheet has returned below its pre-banking crisis level of March 2023. In late June 2023, Fed's total assets amounted to $ 8.34 trn, against $ 8.38 trn in February 2023. After 12 months of QT, the Fed has sold 18% of the Treasury securities it had bought during pandemic QE ($ 3.25 trn).

CHART 43.
Federal Reserve balance sheet, stock and flows

43.a : Total Assets, breakdown by purchase program, USD Trn



43.b : Monthly change in securities holding, breakdown by purchase program, USD bn



Source: Federal Reserve; Last data from 26 March 2023

The European Central Bank raised its key policy rates by 425 bps between July 2022 and July 2023 and started to reduce its securities holding since March 2023.

Until December 2021, the ECB Governing Council was still considering that "monetary accommodation [was] needed for inflation to stabilise at the 2%-inflation target over the medium-term". This stance justified the pursuit of the bond-buying programs and the unchanged level of key interest rates. Between December 2021 and March 2022, net monthly purchased under the pandemic-scheme PEPP and the APP averaged € 60 bn, while the deposit facility rate was still negative, at -0.5%, since September 2019.

At the end of March 2022, the Governing Council discontinued net purchases under the PEPP, although it plans to reinvest the principal payments from maturing securities purchased under the programme "until at least the end of 2024". According to the ECB President, C. Lagarde, the reinvestment package totals € 1.7 trn. In the meantime, ECB continued purchasing government and private securities under the initial APP, at a monthly net purchase pace of € 40 bn in April, € 30 bn in May and € 20 bn in June.

In June 2022, it decided to end net asset purchases under the APP by 1 July 2022, but intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP "for an extended period of time".

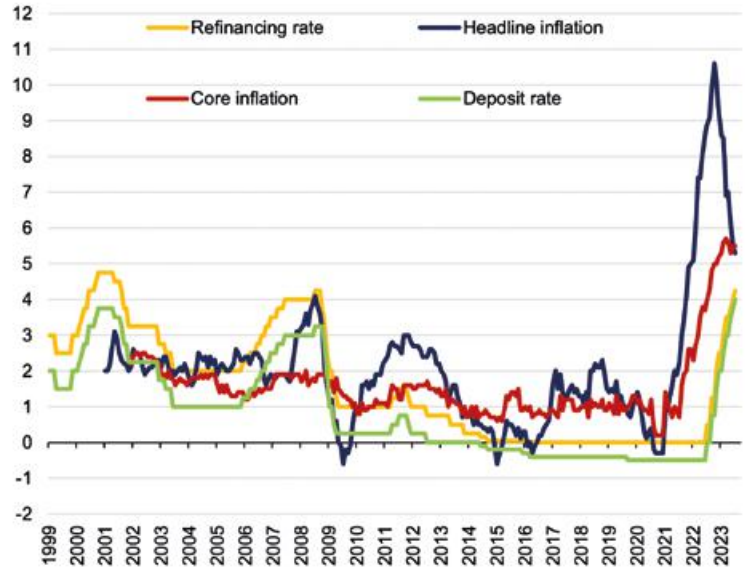
In July 2022, the Governing Council decided to raise the three key ECB interest rates by 50 bps – the first hike since July 2011 – to end its negative interest rate policy in place since 2014.

Separately, it approved the creation of the Transmission Protection Instrument (TPI), a new tool designed to support the effective transmission of monetary policy across all Euro area countries. Indeed, it "can be activated to counter unwarranted, disorderly market dynamics that pose a serious threat to the transmission of monetary policy across the Euro area[76]".

76. TPI purchases would be focused on public sector securities (marketable debt securities issued by central and regional governments as well as agencies, as defined by the ECB) with a remaining maturity of between one and ten years. Purchases of private sector securities could be considered, if appropriate.

Since July, interest rates have been raised at each meeting, by 75 bps in **September** and **October 2022**, and by 50 bps in **December 2022**, **February 2023** and **March 2023**. Since then, the ECB has slowed the pace of interest rate hikes, raising them by 25 bps at the last three meetings in **May**, **June and July 2023**. At its June meeting, the Governing Council raised its inflation forecasts for to 5.1% in 2023, 3% in 2024 and 2.3% 2025, signalling further rate hikes to come by the end of the year.

CHART 44.
Policy rate versus headline inflation in the Euro area (%)



Source: Federal Central Bank
Last observation from July 2023

This cumulative increase of 425 bps in policy rate so far is complemented by several measures to reduce the size of the Eurosystem's balance sheet, as part of the "Quantitative Tightening".

A first measure has been to allow early repayments from the Longer-Term Refinancing Operations (LTROs). **Between October 2022 and June 2023**, European banks have repaid close to € 1.5 trn borrowed from the ECB, out of € 2.2 trn of worth of cash from the LTROs. Repayment from refinancing operations have been the main reason for the decline in the € 1.3 trn's of total assets of the Eurosystem since November 2022 (*see Chart 45.a*).

Additionally, the Governing Council has started reducing its APP holdings. From the beginning of **March 2023 to the end of June 2023**, the APP portfolio declined by € 15 bn per month on average, as the Eurosystem did not reinvest all of the principal payments from maturing securities. Since July 2023, it decided to stop reinvesting redemptions under APP. This decision is set to increase the pace of reduction in security holdings to € 25 bn per month on average.

PEPP holdings are not subjected to QT, as these maturing securities purchased under the program are still reinvested until "at least the end of 2024".

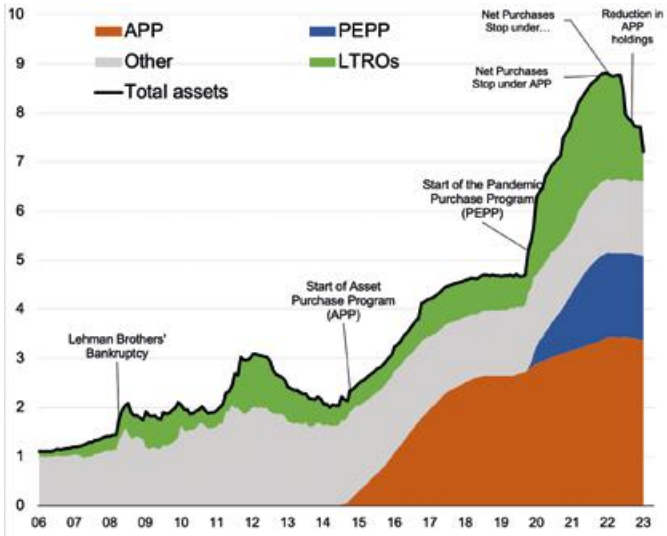
The Bank of England raised its policy rate for the fourteenth consecutive meeting since 2021 and sold UK governments bonds since February 2022.

The BoE has been the first major Central Bank among G7 economies to start raising rates since the pandemic began. In **December 2021**, it lifted the Bank Rate, from 0.1% to 0.25%. Since then, the Bank rate has been raised twelve consecutive times to reach 5% in **June 2023**. The June meeting came after the release of a high inflation figure and a pick-up in annual private wage growth, which were both above the Bank's expectations in May 2023. To most members, "the scale of the recent upside surprises in official estimates of wage growth and services CPI inflation suggested a 50-bps increase in interest rates was required at this particular meeting". In its latest **August** meeting, the Committee raised its policy rate by another 25 bps to 5.25%. It also signalled that "if there were to be [...] more persistent pressures, then further tightening in monetary policy would be required".

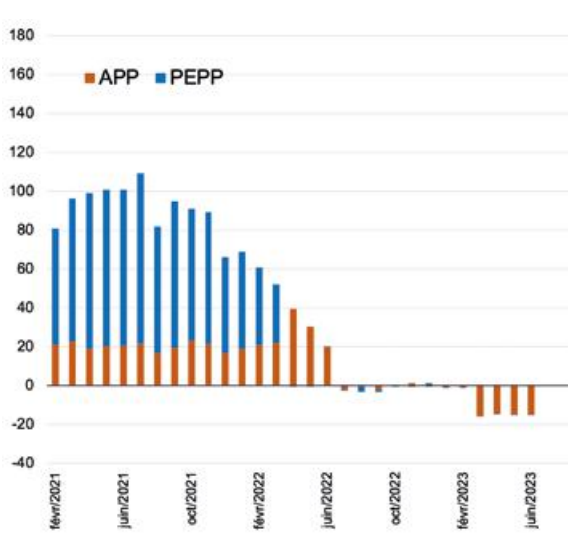
In addition to rate hikes, the BoE has been reducing its holding of UK government bonds. At the end of 2021, much earlier than the Fed and the ECB, it stopped reinvestments of maturing bonds as soon as February 2022. After being temporarily reversed when the gilt market faced severe dysfunctions in October 2022, the BoE resumed its QT in November 2022. In late June 2023, the total stock of government securities held by the BoE declined to £ 805 bn, from its peak of £ 875 bn.

CHART 45.
Eurosystem's balance sheet, stock and flows

45.a : Total Assets, breakdown by purchase program, EUR Trn

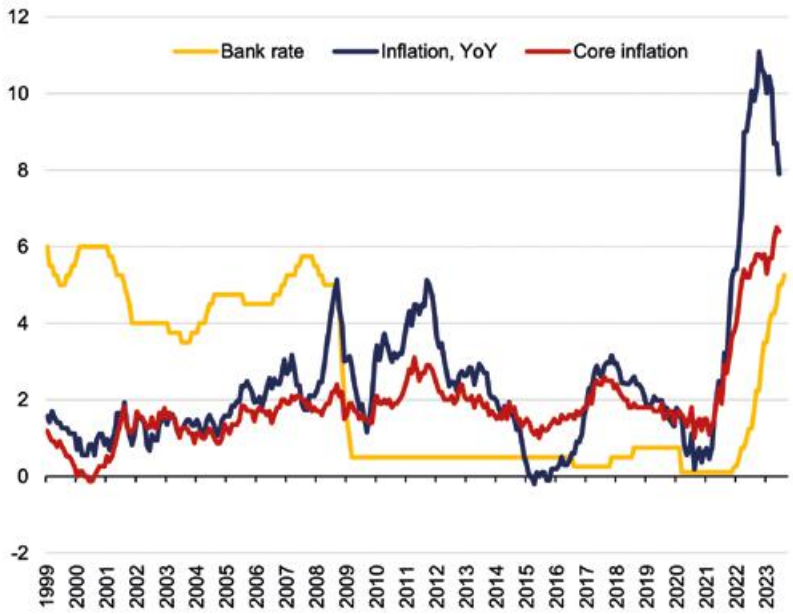


45.b : Monthly change in securities holding, breakdown by purchase program, EUR bn



Source: European Central Bank; Last data from 30 June 2023

CHART 46.
Policy rate versus headline inflation in the United Kingdom (%)



Source: Bank of England
Last observation from August 2023 for the Bank rate, and from June 2023 for inflation's data

Signs of monetary policy normalisation also take place at a more advanced stage in other developed and emerging market economies (*see Chart 47*).

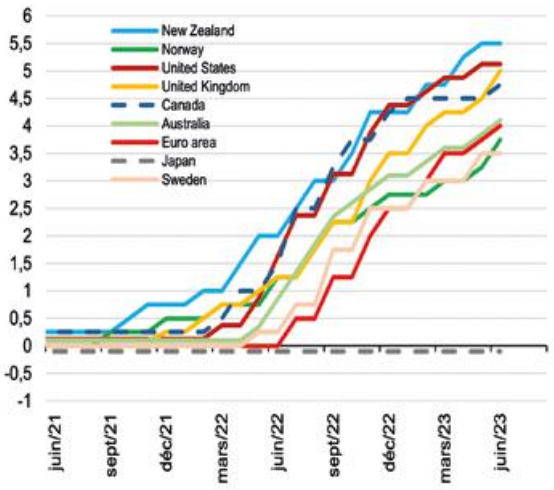
In December 2021, the Committee of **Central Bank of Norway** decided to raise the policy rate from 0.25% to 0.5%. The policy rate was raised again by 50 bps, twice in August and September, and by 25 bps during each of the last 3 meetings since November 2022, to reach 3.75% in June 2023. As "inflation is markedly above target and wage growth is set to be higher than in 2022", the Committee judges that "a higher policy rate than previously signalled is needed to bring inflation down to target" and indicates a rise in the policy rate to 4.25% in the course of autumn 2023.

The action follows the path of **the Central Bank of New Zealand**, that raised its policy rate at every meeting since October 2021, after ending QE in July 2021. After increasing it by 25 bps in April 2023, The Committee left the policy rate unchanged at 5.5% in July 2023, the highest level among advanced economies. As "inflation remains too high", the Committee agreed that the policy rate "needs to remain at a restrictive level for the foreseeable future, to ensure that consumer price inflation returns to target". It also continued selling $ 5 bn of its government bond holding per year since July 2022.

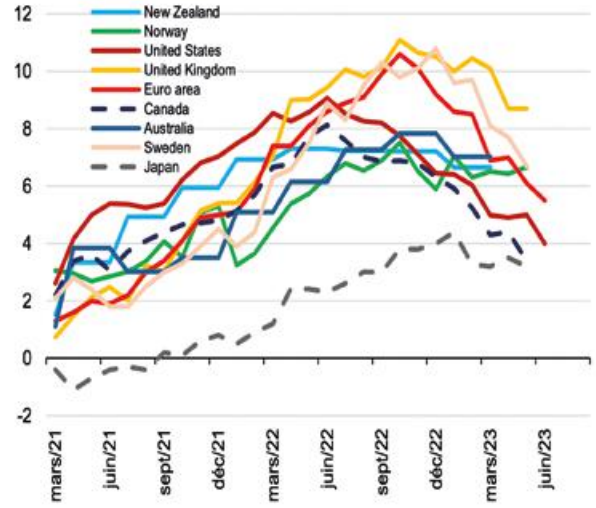
As the first central bank to announce a withdrawal of its monetary stimulus in July 2021, **the Central Bank of Canada** officially ended its QE programme in October 2021 and stopped reinvesting maturing bonds in April. It also raised its key policy by 50 bps at each of the three meetings that have taken place since then, bringing it to 1.5% in June 2022. In July 2022, the Bank lifted it by another 100 bps, the biggest rate hike since 1998, bringing the policy rate to 2.5%. Other smaller increases followed, bringing the rate to 4.5% since February 2023. Initially expected to remain unchanged at this level, the policy rate was finally raised in June 2023 by another 25 bps to 4.75%. According to the Governing Council, the decision to raise the policy rate in July "reflected the persistence in both excess demand and underlying inflationary pressures", suggesting that "monetary policy needed to be more restrictive to bring inflation back to the 2% target".

CHART 47.
Recent Development in nominal policy rate and headline inflation across selected advanced economies

47.a : Short-term nominal policy rate (%)



47.b : Headline CPI growth, annual change (%)



Sources: Bank for International Settlments, national Central Banks

In November 2021, **the Reserve Bank of Australia** exited the yield curve control tool implemented in March 2020 to keep the 3-year bond government yield at 0.1% but continued to purchase government securities at a weekly pace of $ 4 bn until February 2022. In May 2022, it increased the cash rate, the benchmark interest rate, for the first time since the pandemic began, from 0.1% to 0.35%, and allowed bond holdings to runoff. As of July 2023, the latter was raised cumulatively to 4.1%, and the Board signalled that "further tightening of monetary policy will be needed to ensure that inflation returns to target". Additionally, the Bank has been continuing to phase out maturing government held since July 2022.

In Sweden, **the Sveriges Riksbank** conducted a negative-interest rate policy between 2015 and end-2019, raised its policy rate by 25 bps in April. It has been raised by 50 bps in June, 100 bps in September and again by 50 bps in December 2022, February 2023 and May 2023. As inflation declined to 6.7% in May 2023, "more slowly than expected", the Executive Board added another 25 bps hike in June 2023, bringing the policy rate to 3.5%. The Board has also decided to reduce the Riksbank's asset holdings at a faster pace.

As for Emerging Market Economies (EME), Central Banks have been reacting rapidly and more aggressively an effort to tame double-digit inflation levels (*see Chart 53*). Since the fourth quarter of 2022, most EME central banks have paused their tightening, citing the prospect of disinflation, weakening economic outlook, and the materialisation of the effects of the hitherto substantial monetary policy tightening in their respective economies.

In December 2021 **the Czech National Bank** lifted its main interest rate by 100 bps to 3.75%, as the headline inflation rate hit a 13 year high of 6% in November. The move follows a 175 bps rate hike a month earlier, the highest increase since 1997. Additional increases have followed – especially since the start of the war in Ukraine that pushed the annual inflation rate to peak at 18% in September 2022 – bringing the policy rate to 7%, its highest level since 1999. The policy rate has been left unchanged at 7% for the eighth consecutive meeting in June 2023, and the Bank expects it "to stay at the current or a higher level for longer".

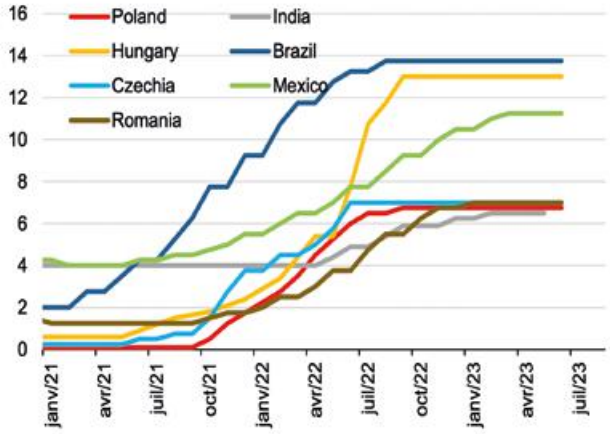
In the meantime, **the National Bank of Poland** raised its policy rate to 6.75% between September 2021 and September 2022, before leaving it unchanged for the eleventh consecutive meeting in June 2023. In its latest June meeting, the Council "assesse[d] that the strong monetary policy tightening is leading to a decline in inflation towards the target". Since its peak of 16.4% reached in October 2022, inflation stood at 11.5% in June 2023. The Hungary's central bank raised its base rate from 1.2% in July 2021 to 13% in September 2022. It was the twelfth consecutive rate hike in an attempt to tame inflation, that stood at 9.5% in April. The Bank maintained its base rate unchanged since September 2022, expecting the "disinflationary effects to increase in the coming months", after inflation declined from 26.2% in January to 21.9% in May 2023.

Among other EMEs outside of Europe, **the Central Bank of Brazil** gradually increased its policy rate, from 2.75% to 13.25% between March 2021 and June 2022. The policy rate has been held unchanged at 13.75% for the seventh consecutive meeting in June 2023, as the annual headline inflation dropped from its peak of 12.1% in April 2022 to 3.9% in May 2023. As "various measures of underlying inflation remain above the range compatible with meeting the inflation target", the Committee reiterated its strategy of keeping its policy rate at this level "until the disinflationary process consolidates".

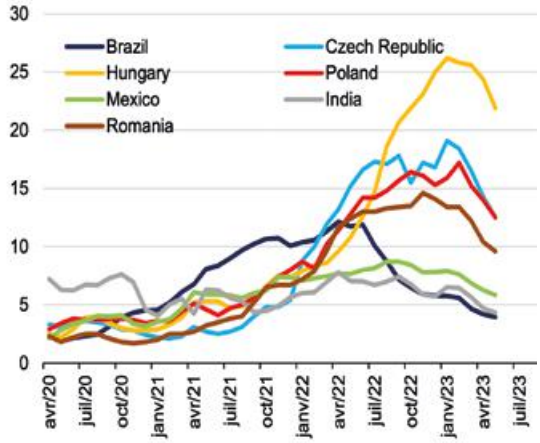
In **Mexico**, the Central Bank hiked its policy rate to 7.75% in June 2022 while year-on-year inflation hit 8% during the same month. Further actions led the policy rate to reach 11.25% in March 2023. The Bank left it unchanged since then, considering that "the disinflationary process is underway given that diverse pressures have eased".

CHART 48.
Recent Development in nominal policy rate and inflation across selected emerging markets economies

48.a : Short-term nominal policy rate (%)



48.b : Headline CPI growth, annual change (%)



Sources: Bank for International Settlements, national Central Banks

Against the backdrop of the global reduction in monetary accommodation, only **the Bank of Japan** kept its policy rate unchanged at -0.1% and pursued its Yield Curve Control (YCC) Policy, in place since 2016. "Patient" monetary accommodation therefore continued despite the rise in inflation which reached 4% in December 2022 and the core inflation rate (excluding fresh food but including energy) which rose to 3.7%in November – the highest in 40 years. As of June 2022, BoJ Members reaffirmed its strategy, with "the aim to achieve the price stability target of 2% in a sustainable and stable manner, accompanied by wage increases".

The YCC consists of purchasing public debt at an unlimited scale to limit the 10 year government bond interest rate exceeding 0.25%. Acknowledging "a possible negative impact on market functioning" such as the distortions in the yield curve, the BoJ decided to raise its effective cap on 10 year government bond yields to 0.5% from 0.25% in December 2022. To limit the rise of yields from other maturities following the December's announcement, the BoJ has significantly increased its bond-buying from 7.3 trn yen a month, equivalent to $ 55 bn, to 9 trn yen a month. In July 2023, the BoJ announced that it will conduct the "yield curve control" with greater flexibility, by offering to purchase 10 years JGBs at 1% for some government bonds auctions. The BoJ Governor Ueda said that this new policy was aimed at "improving the sustainability of the framework" of monetary easing, although he did not think that the new 1%-upper boundary would be reached, calling it a "just-in-case cap".

Quantitative Easing policies, particularly in the Eurozone , have resulted in the purchase of long-term securities with the issuance of bank reserves. At a time of market reversal, this strategy explains the magnitude of the losses recorded and to come by the central banks.

Indeed, the mistake of the Quantitative Easing policies carried out was to buy long maturity securities financed by the issuance of base money (bank reserves) which maximizes the risk of market reversal and leads central banks to keep in their balance sheet a legacy that dissolves only in the long term.

This strategy explains the magnitude of the losses recorded and to come by central banks. The cumulative losses of central banks from the holding of private and public assets between 2023 and 2034 could reach € 193 bn in Germany, € 138.5 bn in France, € 88 bn in Italy and € 76.9 bn in Spain according to the estimates of D. Gros[77]. At the Euro area level, total loss suffered by the Eurosystem would amount to € 700 bn[78], *i.e.*, 5% of the GDP of the Eurozone between 2023 and 2034.

4.3 Despite the increase of nominal interest rates by Central Banks, monetary and financial conditions remain expansionary, especially in the Euro area

Since January 2022, the strengthening of inflationary pressures, the end of asset purchase programs from Central Banks and the market expectations of rate increases by Central Banks have led to a sharp rise in sovereign bond yields.

However, as inflation has outpaced nominal interest rates so far, real interest rates remain deeply negative. Additionally, central banks actively pursue their reinvestment policies, limiting the rise in long-term bond yields and sovereign spreads in the Euro area. This indicates that monetary policies are still very accommodative and are not effective yet in reversing core inflation.

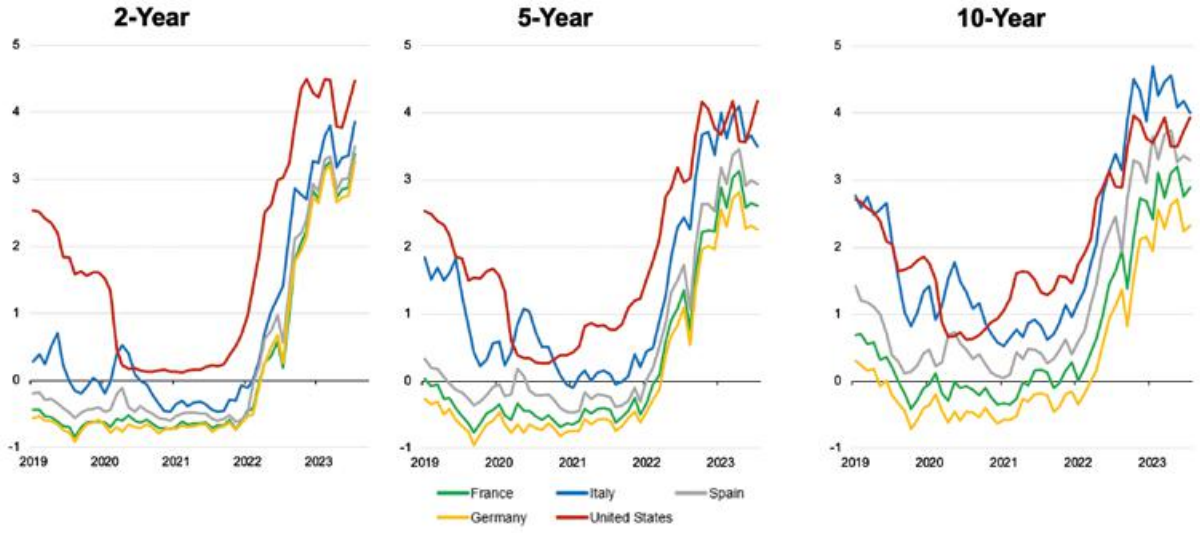
4.3.1 Government bond yields have increased in most countries since the start of 2022

From January 2022 to mid-July 2023, the nominal yield on 10 year government bonds in the United States has more than doubled to 3.9%, its highest since 2008. The 10 year German Bund yield, which was negative until December 2021, increased to 2.4% in mid July 2023. In France, it rose to 2.9% as of July 2023, from 0% in January 2022.

Sovereign bond yields have also increased significantly across Southern Member States. The Italian 10 year government yield soared by 280 bps since January 2022, approaching 4.1% in July 2023, its highest level since 2013. In Greece, long-term interest rate rose by 220 bps over this period, to reach 3.9% in mid July 2023.

It should be noted that most 10 year government bond yield have recently fallen from their peak reached in February-March 2023, in the context of disinflation and the expectations of future interest rate cuts by Central banks.

CHART 49.
Recent Trends of Sovereign Bond Yields in Selected Advanced Economies,%



Source: Bundesbank, Banco de España, Banque de France, Banca d'Italia, Federal Reserve. Latest data from 14 July 2023

77. D. Gros & F. Shamsfakhr, "The real fiscal cost of central bank bond buying", CEPS (November 2022).

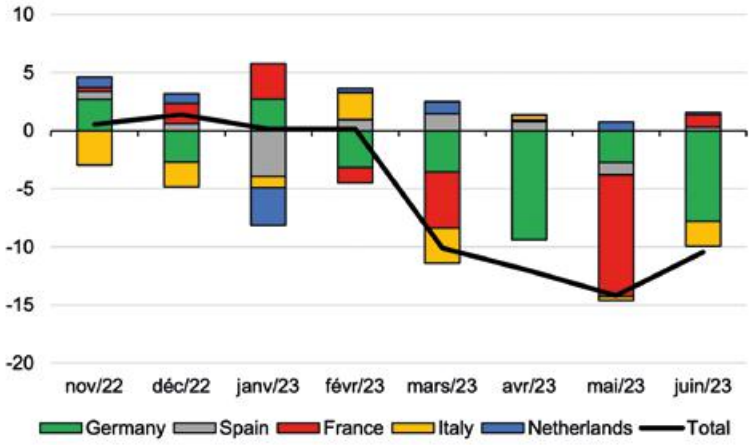
78. As detailed in the D. Gros's article, "If an NCB bought a ten-year bond a couple of years ago with a yield of 0.5% (not far from the average over the last decade) its income over the remaining life of this bond (say another seven years) will be 0.5% per annum. But if the deposit rate increases to 3%, the cost of holding this bond will be 3% per annum, resulting in a loss of 2.5% per annum. The cumulative loss will thus be 17.5% of the outstanding total. If one applies this 17.5% loss rate to the € 4.2 trn of government bonds held in the Eurosystem (as of July 2022), you arrive at a total of about € 700 billion".

4.3.2 Even though quantitative tightening has started , the ECB has been pursuing its reinvestment policy in favor of the most indebted countries, limiting the rise in long-term bond yields and sovereign spreads

Since March 2023, the Eurosystem does not reinvest all the principal payments from maturing securities held under its APP portfolio, valued at € 3.427 trn in February 2023 (*see 4.2*). The non-reinvestment of maturing bonds purchased amounted to € 15 bn per month on average between March and June 2023, and was increased to € 25 bn since July.

The bulk of the reduction in sovereign securities (PSPP) has mainly been concentrated on German and French jurisdictions, so far. Of the € 46 bn reduction in the stock of sovereign debt holdings between March and June 2023, 88% came from these two countries (*see Chart 50*).

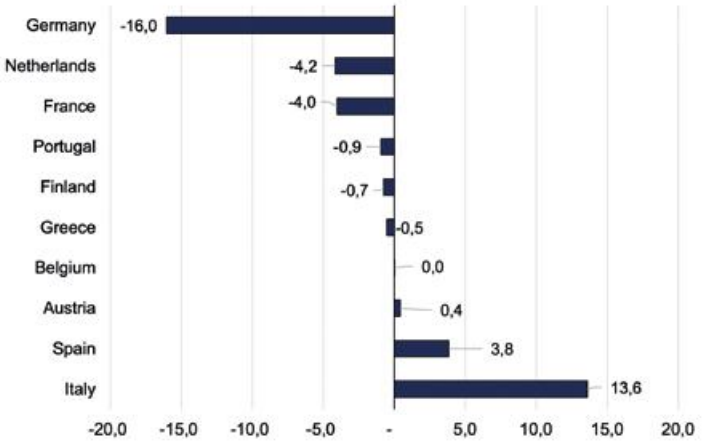
CHART 50.
Monthly change in Sovereign bonds holding under PSPP, (EUR bn)



Source: ECB

Separately, the Eurosystem continues to reinvest the principal payments from maturing securities purchased under the € 1.684 bn's PEPP, until at least the end of 2024. Since June 2022, the reinvestment policy has been focused on maturating bonds issued by the most indebted Euro area countries. Indeed, between June and July, the ECB purchased additional € 17.4 bn of Italian and Spanish government securities, while allowing its portfolio of German and Dutch debt to fall by € 20.2 bn (*see Chart 51*).

CHART 51.
Cumulated Net Purchases of public debt securities under PEPP between June 2022 and May 2023 (EUR bn)



Source: ECB

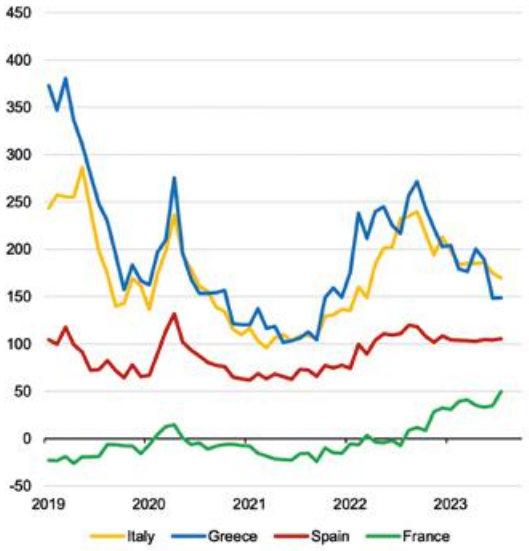
Reinvestment policies from the APP and PEPP, coupled with the announcement of the Transmission Protection Instrument designed to 'counter any sudden jumps in yields have coincided with a gradual decline in bond-yield spread since June 2022 (*see Chart 52*).

Since the ECB has started to increase its policy rates in July 2022, sovereign bond yields spreads between Germany and peripherical EU Member States have temporally widened before returning below their pre-crisis level: after

peaking at 239 bps in September 2022, the Italy-German 10 year sovereign bond yield spread declined to 169 bps in mid-July 2023, a level below the 2019 average of 213 bps. In Spain and Greece, yield spreads declined to respectively 105.4 bps, and 148 bps as of mid-July 2023, down from their peaks of 118.4 bps and 271.5 bps reached in September 2022.

As noted by R. Brooks and D. March[79], "PEPP reinvestments, by distorting Euro area capital market interest rates, appear to be obscuring the true cost of public debt in the Euro periphery". Italy's high debt-to-GDP means that the spread should rise when German and global yields rise. This has not happened recently".

CHART 52.
10 Year Government Yield of Selected Eurozone Member States over Germany, basis points

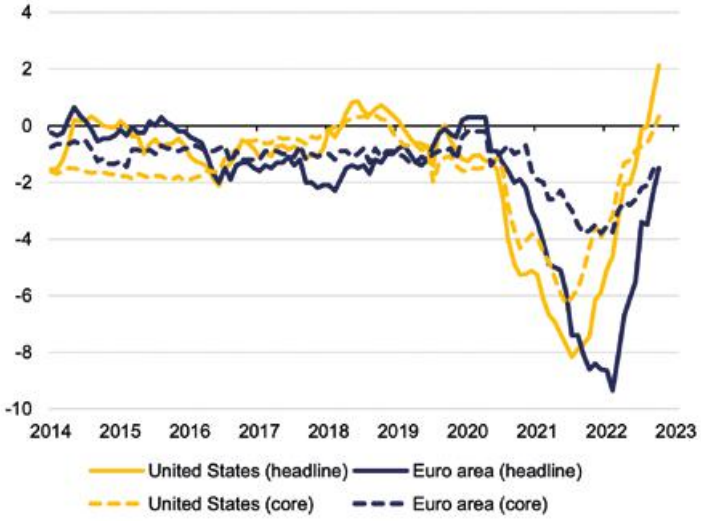


Source: Bundesbank, Banco de España, Banque de France, Banca d'Italia, Federal Reserve
Latest data from 14 July 2023

4.3.3 The rise in inflation has outpaced nominal yields increases, translating into further declines in real interest rates to negative territory in the Eurozone unlike the United States

It is often stated or written that monetary conditions have tightened in the Eurozone since July 2022. But this is not the case in real terms. It is true that central banks have raised their policy rates by 425 bps in the Euro area between July 2022 and August 2023, and by 525 bps in the US between March 2022 and August 2023. Nevertheless, real interest rates in the Euro area are much more negative than they were before pandemic (*see Chart 53*).

CHART 53.
Real Refinancing Rates in the US and Euro area
Policy rate minus annual inflation rate,% points



Source: ECB, Federal Reserve
Latest data from June 2023

As of the end of June 2023, real policy rates – *i.e.*, adjusted for current inflation – are still very negative in most advanced economies (*see Charts 54*). Real long-term interest rates also fell further into negative territory and

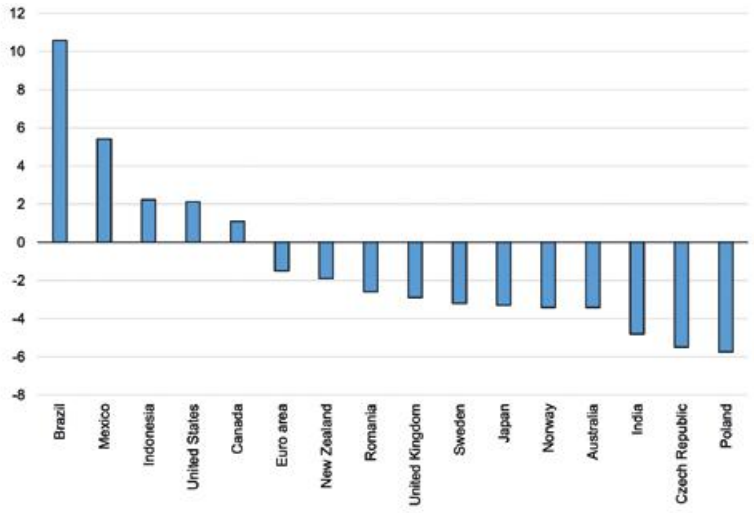
79. "ECB bond reinvestments muddy Europe's fiscal rules", OMFIF.

stood from 3 to 6 pts below their historical range over the past two decades (*see Chart 58*).

Systematically, real interest rates are significantly higher in the United States than in the Eurozone , which shows that monetary policy is markedly more restrictive in the United States than in the Eurozone.

J.P. Rathbone and V. Romei noted[80] that "the surge in inflation is leaving the world's leading economies with their lowest real interest rates in decades, as central banks delay any abrupt tightening of the extra-loose monetary policy used to help weather the coronavirus crisis".

CHART 54.
Real policy rates in selected AEs and EMEs as of June 2023, percentage points; *Nominal Policy rate minus inflation rate*



Sources: OECD, Eurostat, BIS
All data are calculated on the basis of the May or June 2023's inflation level, except for the New Zealand and Australia which date from March 2023

Real interest rates reflect the real cost of borrowing and real return on savings. The combination of accelerating inflation in Eurozone and the UK, and their central banks' decision to remain patient when it comes to rate increases, effectively raises monetary stimulus.

Real interest rates are deeply negative in developed economies and keep financing conditions very accommodative. K.-M. Yi and J. Zhang[81] have shown that the last time real rates were as negative as today was in the 1970s, when rising energy prices pushed up inflation. Real interest rates have also slumped in the wake of the 2008 financial crisis.

In June 2023, Eurozone real policy rates were effectively more negative than in December 2019, regardless of the inflation measure chosen to adjust them: -1.5% in June 2023 when deflated by total inflation (versus -1.3 in December 2019) and -1.4% when deflated by underlying inflation (versus -1.3 in December 2019).

The situation in the Eurozone is completely opposite to that in the United States, where real rates in June 2023 are not only higher than their December 2019 level, but above all positive (*see Table 2*).

TABLE 2.
Central Banks' policy interest adjusted for headline and core year-on-year inflation since December 2019

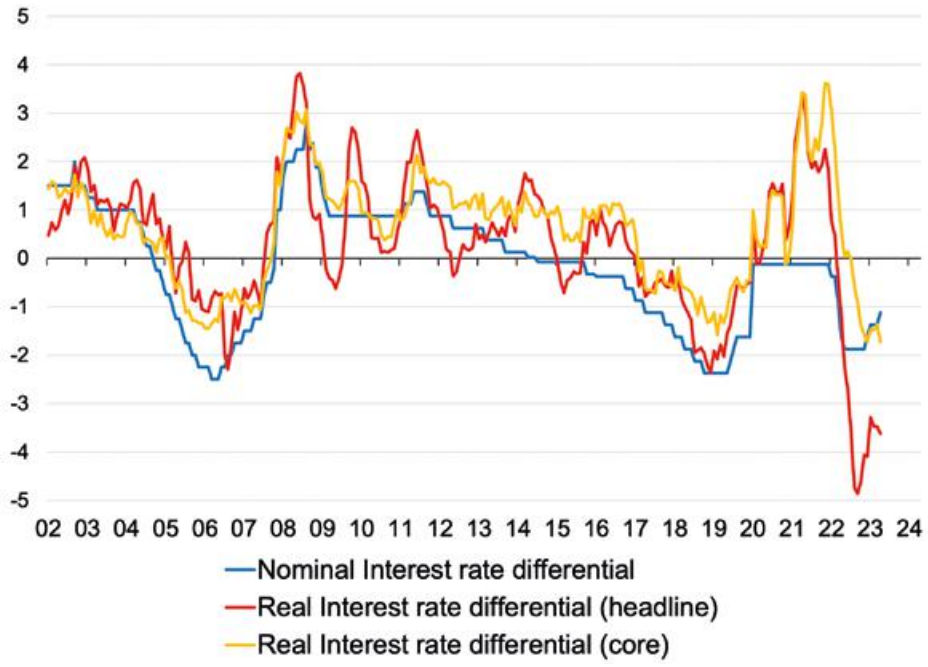
		Nominal policy rate, %	YoY Headline inflation, % (i)	YoY Core inflation, % (ii)	Real policy rate (deflated by (i)), ppts	Real policy rate (deflated by (ii)), ppts
United States	déc-19	1,6	2,3	2,2	-0,7	-0,6
	janv-21	0,1	1,4	1,4	-1,3	-1,3
	janv-22	0,1	7,5	6,0	-7,4	-5,9
	janv-23	4,4	6,4	5,6	-2,0	-1,2
	juin-23	5,1	3,0	4,8	2,1	0,3
Euro area	déc-19	0,0	1,3	1,3	-1,3	-1,3
	janv-21	0,0	0,9	1,4	-0,9	-1,4
	janv-22	0,0	5,1	2,3	-5,1	-2,3
	janv-23	2,5	8,6	5,3	-6,1	-2,8
	juin-23	4,0	5,5	5,4	-1,5	-1,4
United Kingdom	déc-19	0,8	1,3	1,4	-0,6	-0,7
	janv-21	0,1	0,7	1,5	-0,6	-1,4
	janv-22	0,3	5,4	4,0	-5,2	-3,8
	janv-23	3,5	10,0	5,3	-6,5	-1,8
	juin-23	5,0	7,9	6,4	-2,9	-1,4

Sources : BIS, Eurostat, OECD
YoY = year-on-year ;
ppts = percentage points

80. John Paul Rathbone and Valentina. Romei, "Inflation surge fuels negative real interest rates for leading economies", the Financial Times, 9 November, 2021.
81. K-M. Yi & J. Zhang, "Understanding global trends in long –run real interest rates", Federal Reserve bank of Chicago, March 2017.

This contrast is reflected in the trajectory of the interest rate differential between the Eurozone and the United States: while the nominal rate differential has narrowed between the two regions since early 2023 (the Fed had a nominal rate 1.125 points higher than the ECB in June 2023, compared with 1.875 in January 2023), the real interest rate differential between the two regions has never been so large since the creation of the Eurozone (*see Chart 53*): adjusted for headline inflation, the ECB interest rate was 3.6 points lower than that of the Fed in June 2023, whereas this gap had oscillated between -2 points and +3 points since 1999. The real interest rate differential adjusted for underlying inflation was also at a historically high level in June 2023 (-1.725 points).

CHART 55.
Policy Interest rate differential between the Euro area and the United States, percentage points



Source: ECB, Federal Reserve
Interest rate differential are calculated as the difference between the ECB refinancing rate and the Fed Funds rate; Latest observation from June 2023

Negative interest rates are a source of financial instability, of misallocation of capital and less growth. In its Financial stability review (2021), the ECB stated that these lasting highly favourable monetary conditions have also led to a build-up of longer-term risks. Rising inflation and falling real interest rates have prompted investors to take greater risks in their search for yield, which has left parts of the property, debt and crypto asset markets "increasingly susceptible to corrections".

4.3.4 The analysis of interest rates over the last fifty years shows that real long-term interest rates have never been so negative over such a long period (around 10 years)

This historical analysis shows that:

- **Real long-term interest rates in advanced countries have been negative since 2013, while they always exceeded 2% on average over the previous two decades.** Since 2013, German and British real long term interest rates have remained below -1% overall, after exceeding 5% between 1984 and 1995, and fluctuating over 3% between 1996 and 2007.

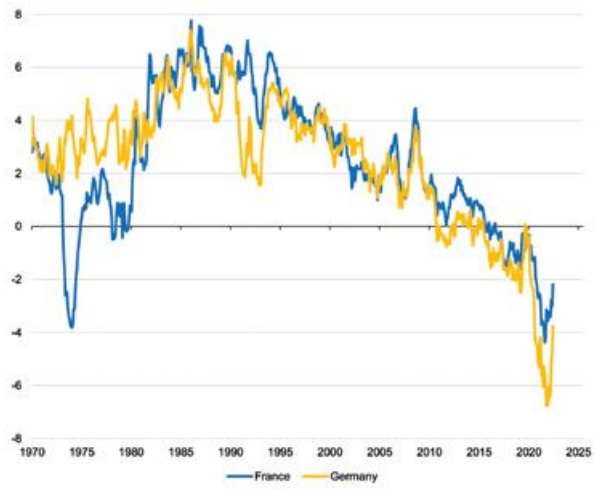
  The real yield on French bonds has averaged -0.6% since 2013, compared with 5.9% between 1984 and 1995, and 3.1% between 1996 and 2007.

- **The negative level of real interest rates observed during the current inflationary period (2021-23) contrasts sharply with the stagflationary episode of the 1970s (1973-83), when real interest rates often tended to exceed zero in the context of double-digit inflation.** After two years in negative territory (1974-75), the French real 10 year rate climbed back above 0% at the end of 1975, averaging 1.2% over the 1973-1983 decade, despite inflation averaging 10.9% per year.

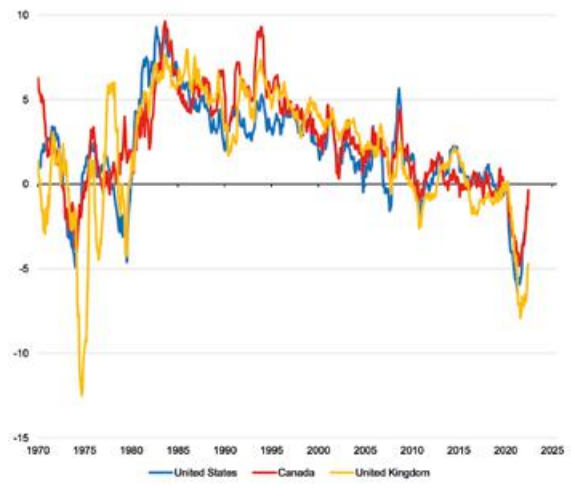
  Since 2021, the French real interest rate has fallen below -3% on average, while inflation has been twice as low as in the 1970s (4.4% on average between 2021 and 2023). In Germany, real bond yield have been fluctuating around -5% since 2021, compared with +3.4% in the 1970s.

CHART 56.
Real 10 year government bond yields since 1970 across selected advanced economies

56.a : France and Germany



56.b : United States, United Kingdom and Canada

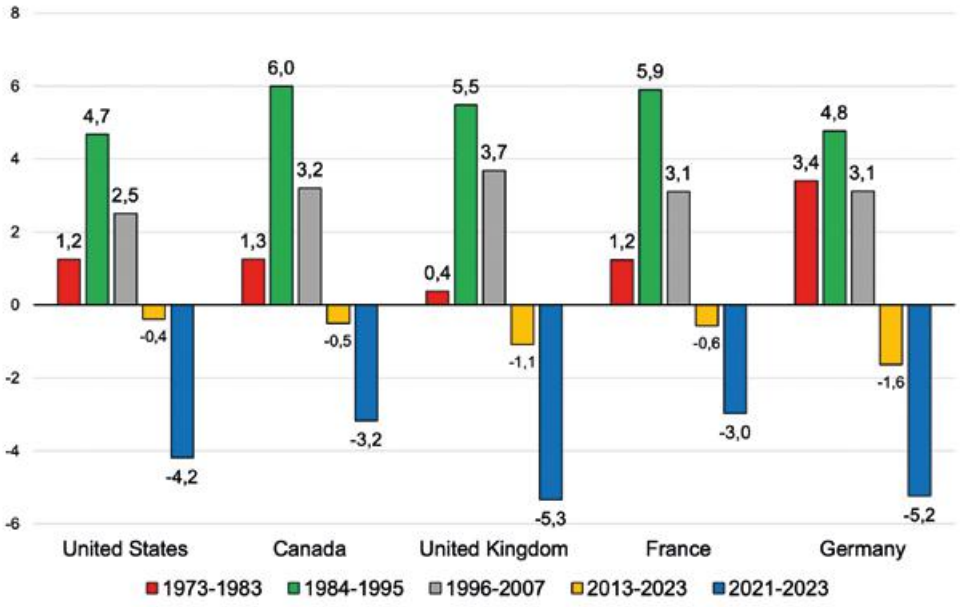


Sources: OECD
Real bond yields are calculated as the difference between 10 year nominal government observerd year-on-year inflation of the corresponding period
Last observation from May 2023

Such a long period of negative interest rates (2010-2023) explains the unprecedented credit growth during the past decade (*see Chapter 1*) and the related unprecedented increase of indebtedness (*see Chapter 3*) which increases the vulnerability of financial market players.

This is mysterious: how is it that the major central banks have allowed credit to increase so massively without reacting? Historically, the explosion of credit (to governments and companies) has been considered a leading indicator of inflation to be watched very closely. Yet the credit boom of the past 20 years seems to have aroused no concern on the part of central banks.

CHART 57.
Real 10 year government bond yields: comparaison across decades and countries

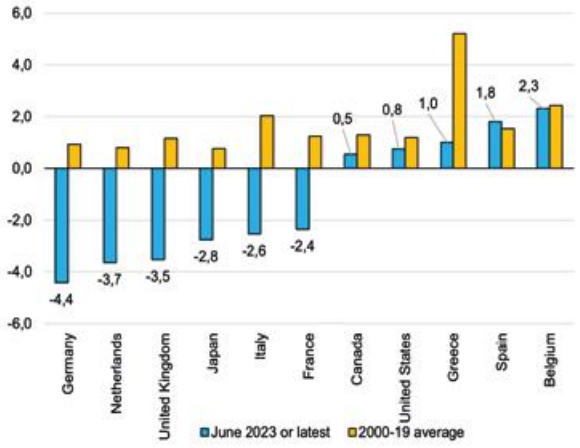


Source: OECD
Real bond yields are calculated as the difference between 10 year nominal government yield and observerd year-on-year inflation of the corresponding period

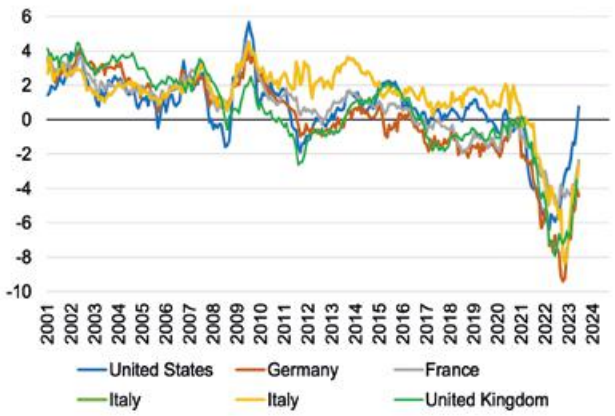
4.3.5 Real long term interest rates are now markedly more negative in the Eurozone than in the United States

CHART 58.
Nominal Long-term government bond yields adjusted for CPI, percentage points

58.a : Real 10-Government Bond-Yields as of February 2023, percentage points



58.b : Real 10-Government Bond-Yields, percentage points



Sources : OECD, Eurostat
All data are calculated on the basis of the June 2023's inflation level, except for Japan which is from May 2023
For Chart 60.a, the labels correspond to the level of real interest rates in June 2023 or latest

This low real interest rate environment has existed for more than 20 years in Europe: it has not only favoured indebtedness, but also degraded its quality. It has contributed to the decline of productive investment due to zero or even negative returns, in favour of liquid investments, which are certainly non-interest-bearing, but risk-free. It has also contributed to the rise in asset valuations, boosting wealth inequalities.

We are told that central banks are determined to fight inflation. But as long as real interest rates remain negative in the EU (3,5% key rates, 5% inflation resulting in a real rate of -1,5%), doubts remain. Moreover, the current rise in stock market values and the restraint of long rates show that the market believes that the present policy – where negative real interest rates continue to push people into more debt –, is not going to succeed fighting against inflation.

All in all, we arrive at the following conclusion:

- Easy money encourages indebtedness and therefore increases the vulnerability of financial market players;
- Easy money always explains the inflationary surges that are normally observed after a sufficiently long period of easy money.

The only possible answer to fight persistent inflation and avoid a stagflationary environment is to further raise nominal interest rates and to reduce the Eurosystem's balance sheet.

5. Quantitative tightening (QT): challenges and way forward

This section explains what excess liquidity and QT mean, and what is at stake. We then present the rationale and arguments in favor of QT, its intended effects as well as the risks and side effects associated with this policy. We conclude with the necessary adjustments to the monetary policy framework in the Euro area.

5.1 What are QT and excess liquidity and what does it matter?

5.1.1 Some reminders

Quantitative tightening (QT), also known as balance sheet normalization, is an unconventional monetary policy through which central banks reduce their balance sheets. QT means that the bond holdings of the central bank decline. This can be achieved either by halting the reinvestment of maturing bonds and other assets on the balance sheet of the central bank, 'passive tightening', or by selling the assets, which is called 'active tightening'.

As D. Gros explains[82], "in assessing the effects of QT, one must thus be careful to distinguish between the (flow) effects of asset purchases or sales and the impact that large asset holdings can have on (long-term) interest rates and the term premium, *i.e.*, the stock effect. Active QT, meaning asset sales by the central bank, should be equivalent to increases in the policy rate. However, merely keeping asset holdings constant maintains a constant downward pressure on long-term rates".

Excess liquidity is defined as the amount of liquidity provided by the central bank over and above the strict needs of commercial banks[83]. In the Euro area, it corresponds to the funds held by banks with the Eurosystem, either on their current account (excess reserves) or via the deposit facility. An individual bank can reduce its excess liquidity, for example by lending to other banks, purchasing assets or transferring funds on behalf of its clients, but the banking system as a whole cannot: the liquidity always ends up with another bank and thus in an account at the central bank. It is a self-contained or, in other words, closed system. The liquidity cannot even leave the Euro area, unless physically in the form of banknotes. Only the central bank can reduce excessive liquidity by reducing its balance sheet.

The rise in the ECB's balance sheet is the product of non-standard measures – *i.e.*, massive lending to the banking sector, in particular via Targeted Longer-Term Refinancing Operations (TLTROs), and – predominantly – the purchases of securities through the various Quantitative Easing (QE) programs. The corollary on the liability side is the accumulation of a huge pile of bank deposits on the ECB books.

Quantitative policies, particularly in the Eurozone , have resulted in the purchase of long-term securities with the issuance of bank reserves. This explains the ALM mismatch the Eurosystem is facing and the losses recorded and to come by central banks.

The ECB is currently relying on three tools for monetary policy tightening: i) interest rate hikes, ii) quantitative tightening (QT) and iii) TLTRO repayments.

5.1.2 Amounts at stake

In such a context, at December 31, 2022 and June 30, 2023, the Eurosystem balance sheet stood at € 7.9 trn and € 7.2 trn respectively, or 66.5% and 60,2% of 2019 GDP[84]. Bank reserves held by credit institutions at the national central banks and the ECB amounted to € 4.8 trn in October 2022, and € 3.7 trn at the end of June 2023.

The ECB started quantitative tightening on 1 March 2023. The decline in bank reserves since October 2022 is mainly due to the repayment by banks of TLTRO launched in 2019 corresponding to € 1.5 trn of the € 2.2 trn's program. € 600 bn remain, with a final maturity in December 2024.

The non-reinvestment of all of the principal payments from maturing securities purchased under its Asset Purchase Program (APP), averaging to € 15 bn per month between March and June 2023, and € 25 bn since July,

82. D. Gros and F/ Shamsfakhr, "Quantitative tightening in homeopathic dioses: the ECB and the long shadow of the PSPP and the PEEPP", March 2023.

83. Euro area banks are required to hold a certain amount of funds as reserves in their current accounts at their national central bank. These funds are called minimum reserves. Banks are currently required to hold a minimum of 1% of specific liabilities, mainly customers' deposits, at their national central bank. As of 21 December 2022, minimum reserves are remunerated at the rate applicable to the deposit facility. Moreover, the Liquidity Covered ratio (LCR) has resulted in a measurable increase in the demand for high-quality liquid assets (HQLA) – which include reserve balances held at the central bank – that banks need to hold to comply with this ratio.

The Governing Council of the European Central Bank (ECB) decided on 27 July 2023 to set the remuneration of minimum reserves at 0%. The change will become effective as of the beginning of the reserve maintenance period starting on 20 September 2023.

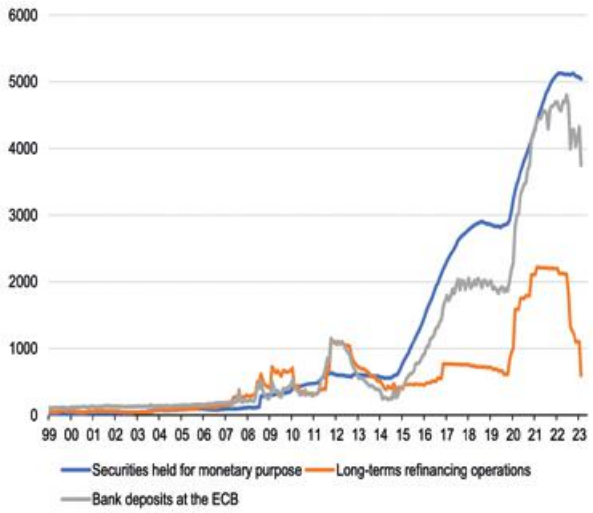
84. It seems more appropriate to use 2019 GDP in the denominator of the ratio, to avoid fluctuations in 2020-22 GDP affecting this ratio (with a fall in GDP in 2020, the 2020 balance sheet/GDP ratio would have exploded more, whereas it would have fallen in 2021 following strong GDP growth that same year).

has had a limited impact on the stock of securities and therefore on bank reserves so far[85]. Between March and June 2023, Eurosystem's securities holding dropped by € 42 bn to reach € 5.45 trn in June, from € 5.9 trn in March.

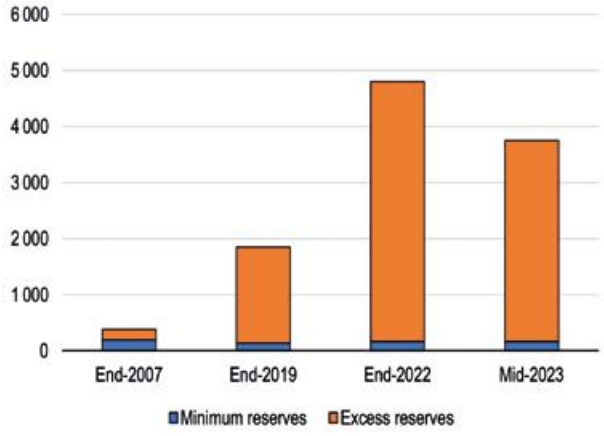
99% of these reserve balances are reserves in excess of minimum reserve requirements according to P. de Grauwe and Y. Li[86].

CHART 59.
Eurosystem's selected assets and liabilities

59.a : Bank reserves versus selected assets of the Eurosystem, EURO bn



59.b : Mandatory versus excess reserves

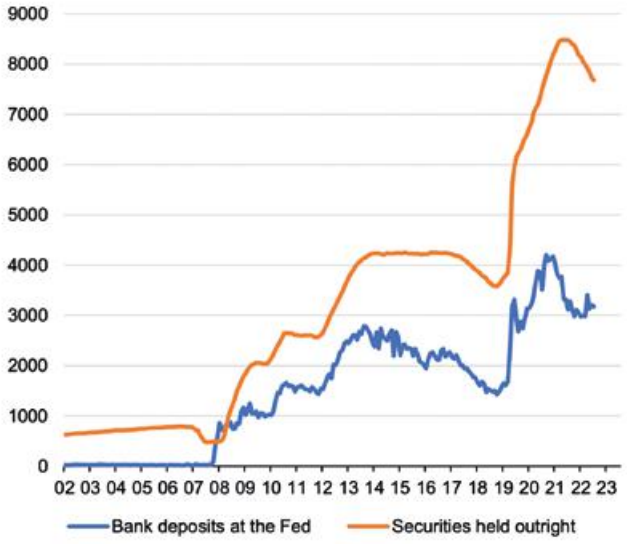


Sources: ECB

The ECB has been more gradual than its peers, especially compared to the Fed both in the normalization path of its policy rate and in terms of timing and pace of QT.

The purchase of public and private securities during the pandemic have doubled the amount of bank reserves compared to 2019, which peaked at $ 4.2 trn in August 2021. Since the Fed began its QT in June 2022, this amount has been reduced to 3.1 trn in June 2023 (*for more details on the current stance of the Fed and ECB monetary policies, see Part 4.2.1*).

CHART 60.
Fed's holding of securities versus bank reserves, USD billion



Source: Federal Reserve

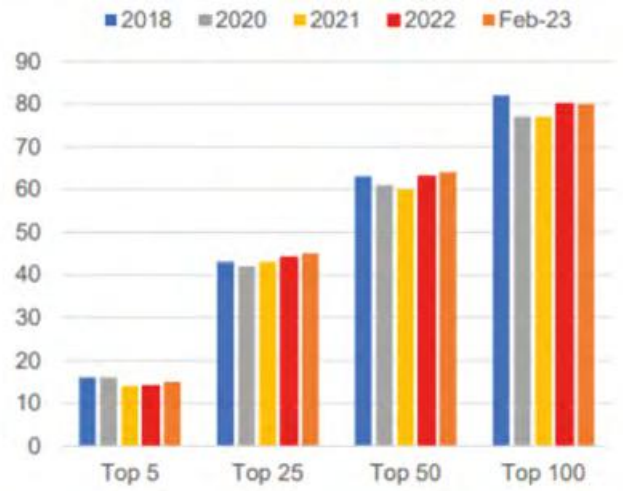
85. By way of comparison, it should be remembered that the public sector purchase programme (PSPP) started with purchases of € 60 billion per month (from March 2015 to March 2016). After the Covid-19 crisis purchases rapidly increased throughout 2021 and continued at closed to an average of € 90 billion per month (PSPP and PEPP together) at a time where inflation was already clearly above the target.

86. P. de Grauwe and Y. Ji, "Monetary policies that do not subsidize banks", CEPR, 9 January 2023.

I. Schnabel underlined[87] that in the Euro area, "25 banks alone currently hold over 40% of excess liquidity, with little change over time. Moreover, excess liquidity tends to be concentrated in a few countries that are financial centres (mainly Germany, France and The Netherlands)[88].

CHART 61.

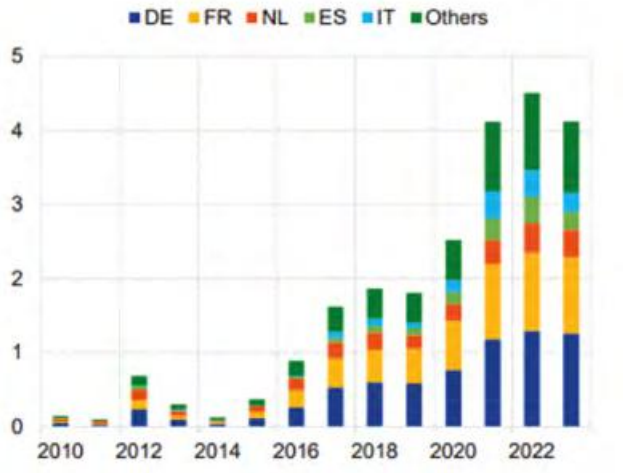
Concentration of excess liquidity in Euro area banks (%)



Sources: ECB, chart extracted from I. Schnabel, "Back to normal? Balance sheet size and interest rate control", 27 March 2023

CHART 62.

Excess liquidity across Euro area countries (Eur trn)



Sources: ECB, chart extracted from I. Schnabel, "Back to normal? Balance sheet size and interest rate control", 27 March 2023

5.1.3 From corridor to floor: the role of excess reserves

Before the global financial crisis (2008), the Eurosystem implemented monetary policy in a "corridor" system[89]: It estimated the liquidity needs every week and met almost exactly the liquidity needs of Euro area banks, via refinancing operations conducted as competitive tender procedures. Once injected into the system, liquidity was redistributed among banks according to their need to make payments or cover their reserve requirements via the interbank market. In matching supply and demand in aggregate terms, the ECB steered overnight rates to the middle of the corridor. As a result, excess liquidity was negligible.

In October 2008, in response to the severe financial crisis following the collapse of Lehman Brothers, the ECB switched to a system of full allotment at fixed rates. This means that banks can borrow as much liquidity as they want, as long as they have sufficient eligible collateral. The reason for this switch was that banks were no longer redistributing liquidity among themselves via interbank lending, as they did before the crisis. The deposit facility rate (DFR) became the floor of the interest rate corridor. This floor rate has become the key policy rate.

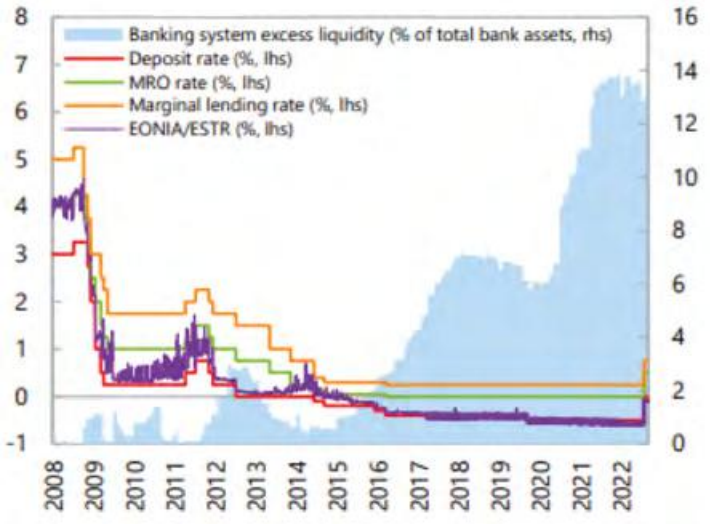
87. I. Schnabel, "Back to normal? Balance sheet size and interest rate control", 27 March 2023.

88. Indeed, roughly 80% of purchases were from nondomestic counterparties, and 50% of total purchases from counterparties outside the Euro area, most of them in the United Kingdom. The majority of these nondomestic counterparties transit through subsidiaries in Germany, the Netherlands or France in order to access the TARGET2 transfer system, which resulted in uneven cross-border financial flows within the Euro area, which in turn had an impact on the TARGET2 central account and the balance sheets of the NCBs. For more information on this issue, see C. Debever & N. Toulemond, "TARGET2 Imbalances in the Euro area", Tresor Economics, May 2021.

89. A corridor system sets bounds around the policy rate, with a deposit facility forming the floor of the corridor (deposit facility rate for the ECB) and a lending rate the ceiling (Marginal lending facility rate for the ECB). By adjusting the amount of liquidity in the system, the central bank aims at keeping actual rates (EONIA/ESTR in the Euro area) close to the policy rate (Main refinancing operation rate for the ECB). The corridor ensures sudden changes in liquidity conditions do not lead to large swings in market rates.

The implementation of asset purchases led to the creation of reserve balances which overtime shifted the unsecured overnight lending rate close to the Deposit Facility rate, resulting in a shift from a corridor to a floor system. Since 2016, and in aggregate terms, banks were demanding more liquidity than they immediately needed. As noted by J. Nagel[90], the Eurosystem subsequently kept offering refinancing operations with maturities of multiple years. Thanks to extremely favorable terms, these operations met with very brisk demand. And that's why short-term interest rates in the Euro area have, for some time now, been geared around the deposit rate. This is talked about as a de facto floor system.

CHART 63.
Euro Area: Excess Liquidity, ECB Policy Rates, and EONIA/ESTR



Source: IMF

The IMF[91] underlines that "While there are merits to both a corridor and a floor system, the latter comes with a high level of excess reserves that eliminates the need for unsecured interbank transactions. As a result, banks have become less vigilant about their counterparty risk and over time, accustomed to the abundant liquidity, which might make it difficult to exit the system, should there be a desire to do so".

5.1.4 The Eurosystem is faced with an ALM mismatch

The legacy of QE – massive deposits at the Eurosystem now paid a substantial rate – is also taking the form of significant income loss for the central bank, and ultimately governments.

G. Moec[92] explained that "when the Deposit Facility Rate was negative, this was painful for banks – although this was partly alleviated by making the TLTROs very generous and then "tiering" the quantum of excess reserves subject to the negative Deposit Facility Rate.

Symmetrically, now that the DFR is very positive and rising, it's affecting the Eurosystem income. Paying 3.5% on nearly EUR 4 trn of bank deposits comes at a cost of EUR 140 bn annually, *i.e.*, 1% of the Euro area GDP, unmatched by the revenues on the asset side, since the bonds bought under QE mostly came with a low, or often zero or even negative yield".

Such an ALM mismatch is in principle unproblematic for the central bank – at worst they could operate in negative equity – but this still results in a lower dividend paid to governments which are already struggling to put back their finances in order...; Central banks are always concerned with the risk of seeing their independence from governments eroded. Becoming a "cost center" would not help in this respect.

The mistake of the Quantitative Easing policies carried out was to buy long maturity securities financed by short term money which maximizes the risk of market reversal and leads central banks to keep on their balance sheet a legacy that dissolves only in the long term. This strategy explains the magnitude of the losses recorded and to come by central banks.

In monetary theory, it is better to use the purchase of short securities (punch effect) as already demonstrated by the economist Bagehot[93].

90. J. Nagel, "Challenges for monetary policy", Frankfurt, 4 July 2023.

91. IMF, "Quantitative tightening by the ECB: why and when", Euro area policies, selected issues, July 2023.

92. G. Moec, "Leaky pipes", Macropast, AXA Investment managers, 10 July 2023.

93. The Bagehot rule ("Lombard Street" 1873) is that the Central Bank must, in a crisis, "lend freely against good collateral and at high rates".

Is the remuneration of bank reserves necessary to conduct monetary policy?

The standard answer of many economists is positive. There is an oversupply of reserves due to the large-scale quantitative easing (QE) operations of the past. In order to fight inflation and to raise the interest rate in this reserve abundance regime, the Eurosystem remunerates bank reserves, which is then transmitted into an increase of the money market interest rate.

P. de Grauwe and Y. Ji[94] suggest that alternative policies to raise interest rates to reduce inflation without having to transfer parts of their monopoly profits to commercial banks (and making large interest payments to banks) can be envisaged. They suggest that a combination of sustained sales of government bonds and an increase of minimum reserve requirements that could be raised to encompass the whole of these bank reserves...

5.2 The reasons for quantitative tightening

I. Schnabel explained last March that reducing the size of our balance sheet is warranted for three main reasons?[95]

First, to regain valuable policy space in an environment in which the current large volume of excess liquidity is not needed for steering short-term market interest rates; second, to mitigate the negative side effects associated with a large central bank balance sheet and footprint in financial markets; and third, to withdraw policy accommodation to support our intended monetary policy stance.

Regaining policy space when excess liquidity is more than needed.

ECB current estimates suggest that the amount of central bank reserves currently held by the banking sector exceeds, by a significant margin, the level necessary to steer short-term market rates close to our key policy rate even under a floor system.

This implies that the current size of our balance sheet is larger than necessary to effectively implement our monetary policy stance. As such, maintaining a large bond portfolio absorbs valuable policy space that may be needed if policy rates were to become constrained again by the effective lower bound. Shrinking the balance sheet, to the extent possible, is therefore both prudent and efficient.

Mitigating negative side effects of a large balance sheet.

The second reason for QT is related to the side effects of running a large balance sheet. It is well documented that bond purchases can cause asset price valuations in financial and real estate markets to diverge from their economic fundamentals, thus raising both financial stability risks and wealth inequality.

Maintaining too large a balance sheet may also have undesirable side effects. One is that it could jeopardise central bank's credibility by giving rise to accusations of financial and fiscal dominance. A second side effect is that maintaining a larger balance sheet than necessary increases the Eurosystem's exposure to credit and duration risk. The probability and extent of net losses are significantly higher the larger the amount of long-term fixed-rate assets the central bank holds on its balance sheet.

A third side effect relates to the functioning of financial markets. The APP, together with the pandemic emergency purchase programme (PEPP), has left a visible footprint in Euro area financial markets. The Eurosystem's outright holdings of Euro area sovereign bonds currently amount to more than a third of the outstanding market. Mobilized collateral for longer-term refinancing operations further increases the encumbrance of government bonds through monetary policy operations. As a result, the "scarcity premium" that market participants must pay to obtain these assets has often been considerable, both in the repo and the bond market. The inception and expansion of the Eurosystem's securities lending facility have been able to partly alleviate these strains.

The third consideration relates to the effect of the stock of our monetary policy bond holdings on the policy stance.

The ECB has clarified that our key interest rates are currently the primary tool for restoring price stability. At the same time, the large stock of assets acquired under QE continues to provide significant monetary policy accommodation that may run counter to our efforts to bring inflation back to our 2% target in a timely manner. QT will gradually unwind this accommodative impact. Therefore, as I. Schnabel writes, "the size of the balance sheet of the Eurosystem should only be as large as necessary to ensure sufficient liquidity provision and effectively steer short – term interest rates towards levels that are consistent with price stability over the medium term".

Two additional arguments in favor of QT are also worth mentioning:

94. Already quoted in footnote 3.

95. We have largely reproduced here the content of the speech delivered by I. Schnabel, "Quantitative tightening rationale and market impact", 2 March 2023.

The first one has been recently stressed by the Bank for International Settlements' chief economist Claudio Borio[96]: the smaller the balance sheet, **the less exposed a central bank leaves itself to political pressure or criticism, *e.g.*, with respect to its independence.**

In addition, in an open market economy, it is not the role of a central bank to influence the entire yield curve: only an effective quantitative tightening would allow medium and long-term interest rates to return to being determined by market forces and not by central banks.

5.3 Possible risks and side effects of QT

G. Claeys[97] agrees that QT is justified in the Euro area notably. Indeed, it can provide some additional tightening to complement rate hikes and steepen the yield curve. It is also a way to reduce the risk of fiscal dominance and reaffirm monetary dominance in the Euro area. But the author points out possible risks and side effects of QT. even if they are not easy to map out given the policy's novelty. One risk linked to QT is the re-emergence of a fragmentation risk, with rising spreads between Euro area countries. Such a possibility exists. However, according to the author, for the moment, this risk is under control thanks in large part to the ECB's Transmission Protection Instrument (TPI), announced in July 2022.

But the ECB should also think more carefully about the risks that could arise from reducing the liability side of its balance sheet. When designing its QT policy, the ECB should avoid creating any central bank reserve scarcity according to G. Claeys. This can lead to market stress episodes and a loss of control of short-term market rates by the central bank, which is what happened to the Fed in September 2019. Nevertheless, this risk is greatly exaggerated at this stage, since the banks' excess reserves far exceed their requirements (*see Chart 58.b*).

G. Claeys thinks that QT's objective cannot be to return to a balance sheet similar to that prevailing before 2007, as too much QT could lead to frequent financial stability incidents. So how much QT is feasible? "To calibrate how much can be done without risking loss of central bank control over short-term rates". Or without endangering financial stability, it is crucial to understand what the demand for central bank reserves is exactly, given that it is not directly observable.

5.4 What adjustments to the monetary policy framework under discussion?

5.4.1 State of play in the Euro area: an easing of quantitative easing?

J. Nagel[98] pointed out that "on average, APP assets worth around € 25 bn are maturing each month. However, measured against asset holdings totaling just under € 5 trn, the pace of decline remains modest". For him the phasing out of the TLTRO is also a signal that financial markets are ready for a normalization of liquidity conditions.

- D. Gros and F. Shamsfakfr[99] underlined that the time path announced by the European Central Bank (ECB) for reducing the bond holdings accumulated under the asset purchase programme does not amount to a real tightening. "Easing of Quantitative Easing" might be more appropriate. They explained that:
- "One reason why the ECB is not considering bond sales might be concerns about the stability of the bond markets for highly indebted countries. This would mean that monetary policy is at least partially subject to "fiscal dominance", *i.e.*, the desire to provide governments with favorable financing conditions.
- The fear of market fragmentation does not apply to the private sector bonds acquired under the asset purchase programme (APP). The approximately € 650 bn of corporate and covered bonds could, and should, be sold quickly.
- Without bond sales the Eurosystem can reduce its bond holdings only at a glacial speed, remaining above the pre-pandemic level until mid-2028, implying a continuing strong expansionary effect (because long-term interest rates would remain lower for longer)...
- The ECB is thus effectively keeping one foot on the accelerator (retaining an extensive portfolio of bonds) while the other foot (increasing policy rates) is on the brake. As long as the Eurosystem keeps large holdings of bonds on its balance sheet, the restrictive effect of higher interest rates will be muted and is likely to complicate the fight against inflation.

96. C. Borio "Getting up from the floor", BIS Working Paper n°1100, May 2023.

97. G. Claeys, "Finding the right balance (sheet): quantitative tightening in the Euro area", March 2023.

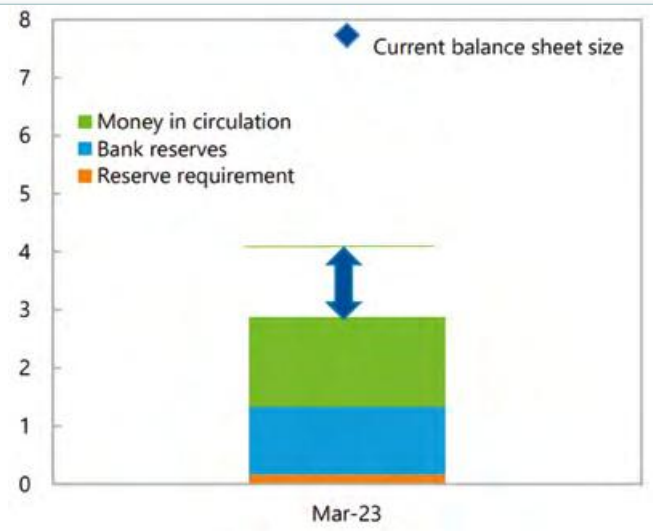
98. J. Nagel, "Challenges for monetary policy", 3 July 2023.

99. D. Gros and F. Shamsfakfr, "Quantitative tightening in homeopathic doses: The ECB and the long shadow of the PSPP and the PEPP" March 2023.

- The ECB currently has two, fungible, policy instruments (policy rates and balance sheet operations), which make it impossible to determine the impact of quantitative tightening separately.
- The ECB should also announce a program to sell its holdings of private sector securities (corporate and covered bonds) over the next 12-18 months. There is no justification for keeping them on the balance of the Eurosystem as the market is working perfectly well.

The IMF stressed that a significant reduction of the ECB footprint would require an acceleration of the QT pace, all else the same. Beyond the minimum reserve requirements and currency in circulation (about 13% of 2022 GDP or € 1.7 trn), the demand for bank reserves has increased since 2009. This is due to precautionary motives, prudential considerations, and changing business models.

CHART 64.
Euro Area: Minimum Eurosystem Balance Sheet (Eur trillion. March 2023)



Source: IMF

"To determine a terminal balance sheet size requires knowing the steady state banks demand for reserves, which is an ongoing productive research area. For a back-of-the-envelope calculation, one can use the average excess reserves after the GFC and prior to the implementation of QE (2010-2022), amounting to € 1.1 trillion, an average throughout the QE period (2015-2022) of €1.7 trn, or a more recent average (2017-2022) of € 2.1 trn which covers more firmly the floor system period. This would result in a total Eurosystem balance sheet of between € 3 and 4 trillion or 20-30 percent of 2022 GDP. Reaching this level over the next 7 years would mean an annual reduction of € 554-694 bn, which corresponds to at least three times the current monthly QT pace. If continued beyond June 2023, the current QT pace would keep the Eurosystem balance sheet twice as large as the Fed's or the Bank of England by end 2024 even though the Eurosystem's has historically been larger than that of its peers".

5.4.2 Quantitative tightening hasn't really happened yet in the Euro area

Sometimes experts say that this is not a bad thing. QE created a lot of liquidity. Much of this has ended up in reserves held by commercial banks with central banks. Insofar as these reserves are not transformed into loans, the inflationary effect of money creation would be nil. It is argued that abundant reserves and liquidity enable banks to strengthen their resilience in the event of a shock.

But, according to J. de Larosière[100] "this reasoning fails to take into account the fact that unless the mass of liquidity created by QE is significantly reduced (central bank balance sheets have reached astronomical figures, more than 50% of Eurozone GDP), we will maintain a degree of ease in financing the economy that seems hardly compatible with the fight against inflation.

The question is an important one. How do we purge the system of 15 years of monetary accommodation?

The majority of specialists believe that we need to proceed on two lines:

- First, higher interest rates for a while (at least until mid-2024);
- accompanied gradually by a reduction of the stock of liquidity created, without going as far as restoring pre-QE between balance sheet amounts.

100. J. de Larosière, "Monetary policy and inflation prospects in June 2023", GOIC, June 2023.

5.4.3 Principles for adjusting the monetary policy framework under discussion

Leaning the Eurosystem balance sheet is required for many reasons:

- The current size of balance sheets is unnecessarily large.
- Large central bank's sovereign holdings distort the price of information of underlying risks in the Euro area.
- Inflation is persistent and still too high. An effective QT is a powerful message from central banks that they are dedicated to bring inflation back to the target.
- A large portfolio may affect liquidity conditions in financial markets.
- Future monetary policy challenges may mean central banks need greater room for manoeuvre again.
- Once some major central banks, like the Fed, undertake QT, other central banks may have no choice but to follow suite. If they do not keep up, capital flows may surge and provoke exchange movements that stand to disturb trade and undermine monetary policy[101].
- The smaller the balance sheet, the less exposed a central bank leaves itself to political pressure for criticism, *e.g.*, with respect to independence.
- The market should be given more space again. ECB should act in accordance with the principle of an open market economy where prices and quantities are determined by competitive market force.

5.5 Implementing QT firmly and intelligently

The reason why experts wish to moderate the QT is essentially the fear of a liquidity crisis.

But there remains a fundamental and unresolved question: can we fight inflation while maintaining a monumental stock of liquidity?

We need to proceed with caution. But the subject is relatively little studied, whereas in periods of high inflation, it should be absolutely essential to be concerned about the relationship between price trends on the one hand, and balance sheet inflation on the other. So, we must call for more studies and transparency on this fundamental issue.

There are practical recommendations for overcoming the crisis and the danger of stagflation.

- We need to put an end to recipes that have not worked, such as:

  The belief that interest rates can remain at zero indefinitely. This is absurd for two fundamental reasons:

  - Money is used to measure the value of any product or service. If it is itself worthless, *i.e.*, if it can be produced at no cost and with no remuneration, the economy cannot function properly. Thus, the gauging of risks and the allocation of resources is flawed.

  - Long-term savings tend to dwindle (yet 95% of productive investments are normally financed by household savings).

  Expropriating or overtaxing savers can only have deleterious effects on long-term savings and the growth of productive capital (which has actually fallen for the first time during the last 20 years).

  The bureaucratic and arbitrary setting of long-term low interest rates by central banks must be replaced by the free play of the market: the supply and demand of capital must determine the value of money.

- Fighting inflation

  We are told that central banks are determined to fight inflation. But as long as real rates remain negative in the EU: (3.5% key rates -5% inflation. resulting in a real rate of -1.5%), we can doubt this determination.

  What's more, the current rise in stock market values and the restraint of long rates show that the market believes that the present policy – where negative rates in real terms continue to push people into more debt –, is not going to succeed fighting against inflation.

  Lastly, the persistence of lax fiscal policies is not compatible with the fight against inflation, unless monetary policy were to be tightened even further.

101. C. Wyplosz, "Finding the right balance sheet: quantitative tightening in the Euro area", March 2023.

Conclusion

During the Lehmann Brothers, EU sovereign debt and Covid-19 crises, central banks and fiscal policies played a crucial role as they intervened on an unprecedented scale to keep financial markets liquid and stabilise the financial system.

However, central banks have been overly involved during the past years. The 2% inflation target has trapped monetary policy in a systematic and asymmetric accommodative stance for the past two decades. The danger of deflation was exaggerated while the drawbacks of lasting low interest rates were completely underestimated. No well-functioning economy should operate with real interest rates that remain negative for too long: risk is mispriced, capital is then misallocated and growth impaired.

As this Eurofi monetary scoreboard demonstrates, pushing too hard and too long on the monetary pedal has severe negative consequences: the lasting excessively accommodative monetary policy over the last decade has enhanced incentives to borrow more, increased financial leverage and undermined financial stability. It also discouraged governments from undertaking structural reforms since borrowing "cost nothing" and undermined growth potential.

Thinking that monetary creation can solve the problems arising from excessive debt is an illusion. In other words, supply-side obstacles cannot be overcome by throwing money at problems or by using cyclical policy instruments. Yet this is what has been done too often by pursuing lax fiscal, monetary and economic policies that will inevitably pose systemic risks to financial stability and therefore to future growth. Actually, the huge monetary and accommodative fiscal stances of the last decades have not led to sufficient productive investment or growth. Persistent low or negative interest rates induce a fatalistic mindset that lowers, not raises, propensity to invest. Under what J.M. Keynes called the "liquidity trap", investors play safe by placing savings in very short-term instruments rather than deploying them over longer term when low interest rates bring them inadequate returns for higher risks.

The social significance of persistent very accommodative monetary policies should not be underplayed. Do they help reduce social inequalities? In fact, the opposite is true; they tend to increase wealth inequalities because the beneficiaries have been those who have the income and capital to profit from inflated financial and real estate asset markets. Not poor people.

Formerly attempting to "look through" what they considered to be "transitory" higher inflation, many Central Banks across Advanced Economies responded late and slowly. Inflation must remain the priority of central banks despite the vulnerabilities they have created over the years.

Since the resurgence of inflation, a number of approximations and untruths have emerged.

- **"The war in Ukraine with its consequences on energy prices was the main factor in the return of inflation".** However, this is not the case: in January 2022, inflation in the Eurozone was 5.1% and has been above 2% since July 2021 – well before the outbreak of the war in Ukraine – since when it has been rising.
- **"The high levels of inflation since February 2022 are mainly the result of the supply shock (bottlenecks in production chains, rising commodity prices)".** The situation was in fact more complex because demand, driven by expansionary monetary and fiscal policies, ran up against the long-standing structural problem of inelasticity of the productive capacities, which is largely due to insufficient productive investment over the last decade.

  Instead of stimulating money creation and public debt, it would have been better to undertake structural reforms capable of increasing productivity, labor participation and thus potential growth. The mistake that has been made for a very long time is to believe that the deficiency in potential growth lies mainly in the insufficiency of demand, whereas this deficiency was and remains above all a problem of supply. When monetary policy is too loose, it damages aggregate supply.
- **"Since we had a partial view of the causes of inflation last year (oil price rises, the exit from Covid-19 and the war in Ukraine), we thought that it would be transitory":** in fact, the rise in the price of commodities was only supposed to be a shock limited in time. This was to forget that a significant rise in energy and food prices inevitably spreads throughout the economy. Moreover, given that the inelasticity of the productive capacities largely explains the inflationary problem, the shock could not be transitory because it is the supply side that is in question and the insufficiency of investments cannot be corrected overnight.

This explains why core inflation – excluding changes in energy, food and other volatile components – remains very high in the US and Europe. In June 2023, core inflation reached 5.4% in the Euro area and 5.3% in the US.

In addition, we are facing a more persistent inflation process: the costs of decarbonization are expected to increase with the rise of renewable energies, the increase in the price of carbon, the upward pressure on the prices of precious metals (lithium, cobalt, nickel, etc.) needed for the equipment required for the energy transition (electric batteries, etc.), which should contribute to making inflation structurally higher.

Moreover, as the ECB itself points out, we should face several years of nominal wages increases, with pressures on unit labor cost exacerbated by moderate productivity growth and tight labor markets in a context where companies are now more reluctant to accept profit squeezes, which can only increase inflationary pressures.

It is therefore necessary not only for monetary policy to normalize but also for governments to undertake reforms to encourage productivity instead of pursuing expansionary fiscal policies which often seek to preserve household purchasing power, but which thereby accelerate inflation and thus complicate the action of central banks.

- **"The evolution of monetary aggregates does not impact on inflation".** One thesis, particularly in the US, tends to show that the Fed's easy money policy has not led to an increase in bank lending insofar as the banks have maintained their reserves with the central bank instead of granting credit to the economy. Nevertheless, the truth of the Quantity Theory of Money should not be denied. What is difficult is to establish precise links between the evolution of the money supply and inflation (the velocity of money is volatile, investment and savings decisions are motivated by multiple factors...).

But just because these relationships are difficult to formulate does not mean that reality does not exist. The simple fact that we continue to be interested (albeit insufficiently) in the evolution of credit shows that quantitative theory cannot be ignored. Indeed, the increase in the money supply (M3 or M2) is strongly determined by the evolution of credit (a large part of M3 is the counterpart of bank credit), so indirectly it is indeed a money supply problem that is at stake.

In any case, central banks have not been very interested in the explosion of credit over the last 20 years and their permanently accommodating monetary policies have contributed to the real estate and stock market bubbles which have accentuated social inequalities.

The willingness to use the monetary weapon continuously to stimulate the economy has led to the vulnerability of the financial market which now dominates the economic cycle.

- **"Inflation reduces debt and should be tolerated at levels above the 2% target":** in the short term, inflation does reduce debt. But we need to look at the longer-term consequences of sustained high inflation: lenders are being misled, which is detrimental to the future of savings and investment. A prolonged period of inflation has never been shown to result in a revival of investment and strong economic growth. To base a system on the plundering of some would, in fact, represent a major social danger. Inflation is a surreptitious tax, not voted by Parliament, which hits the poorest first. Its persistence increases social risks and the development of populism.
- **"Monetary conditions have tightened in the Eurozone since July 2022".** But this is not the case in real terms. It is true that central banks have raised their policy rates by 400 basis points in the Euro area between July 2022 and July 2023, and by 500 basis points in the US between March 2022 and July 2023. Nevertheless, real interest rates in the Euro area are more negative than they were before the pandemic. It seems difficult to fight inflation with such a debt premium.

The ECB bases its policy not on realized and observable inflation but on the expectations of economic agents. Market expectations seem reassuring. They are of the order of 3% over 3 years, which, with nominal rates of 3%, suggests that the ECB has reached the neutral zone.

However, there is a risk in relying on these expectations. Just because inflation expectations are limited does not mean that they are accurate. These expectations are always subjective and rarely based on a rational forecast of future price increases.

The investors interviewed are often tempted to play down their expectations in order to reduce or hide the disadvantages that could arise from too much inflation. Having suffered only a part of the losses caused by the rise in rates (central banks having borne a third of them), investors even if they feel relatively "serene", want to stop the rise in rates. Investors are also influenced by the emblematic centrality of the 2% target, as created by central banks.

- **"When a country has little private debt, the consequences of monetary easing policies are less penalizing thanks to the low debt and the solidity of the balance sheet of private actors".** This is true but according to the BIS, if the debt of non-financial companies alone was only 78.1% of GDP in December 2022 in the US, in the Eurozone it was 104.9% (in France 162%, an absolute record). This excess of private corporate debt in Europe is a factor of increased fragility in the event of a rise in interest rates.
- **"Positive real interest rates would be nightmarish".** It can also be shown that they would force over-indebted states to reduce their deficits and debts; savings would no longer be taxed but remunerated and medium and long-term investments would be encouraged because they would be remunerated. Zero or very low interest rates foster the "liquidity trap" as Keynes taught: they push households to choose increasingly liquid forms of savings and to move away from long-term investments whose risk is not properly remunerated.
- **"The reduction of the balance sheet of central banks should be normalized at a very slow pace".**

Sometimes, it is said that a slow reduction of the balance sheet, would be appropriate. QE created a lot of liquidity. Much of this has ended up in reserves held by commercial banks with central banks. Insofar as these reserves are not transformed into loans, the inflationary effect of money creation would be zero.

It is also argued that abundant reserves and liquidity enable banks to strengthen their resistance in the event of a shock. But this reasoning fails to take into account the fact that unless the mass of liquidity created by QE is significantly reduced (central bank balance sheets have reached astronomical figures, at around 60% of Eurozone GDP in June 2023), we will maintain a degree of ease in financing the economy that seems hardly compatible with the fight against inflation.

In addition, the rise in medium and long-term interest rates, the fall in inflation and the return to an economy where interest rates are the result of the supply and demand of capital, would move away.

The question is an important one. How do we purge the system of 15 years of monetary accommodation?

The reason why these experts wish to moderate the Quantitative Tightening, i.e.the balance sheet normalization, is essentially the fear of a liquidity crisis. But there remains a fundamental and unresolved question: can we fight inflation while maintaining a monumental stock of liquidity?

We do not have a precise answer to this question. But we note that the subject is relatively little studied, whereas in periods of high inflation, it should be absolutely essential to be concerned about the relationship between price trends on the one hand, and balance sheet inflation on the other. In other words, QT must be studied carefully but implemented firmly and intelligently. It is not the role of a central bank to influence the entire yield curve: only effective quantitative tightening would allow short-, medium- and long-term interest rates to return to being determined by market forces and not by central banks.

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It is imperative to revive productive investment. Therefore, long term interest rates should no longer be determined by central banks. QE has been used and abused to reduce artificially long-term yields while this should be the result of demand and supply on the financial markets.

A gradual, but determined, return to a more traditional and sensible monetary policy is of the essence. It should:

- Restore the oversight of credit expansion.
- Reintroduce symmetry in monetary policy and not stimulate continuously.
- Not give the market a form of free insurance against possible losses; moral hazard has plagued the system, upset the risk-reward relation and encouraged short term speculation.
- Be more careful on the risk of fiscal dominance; having created money to buy more than 60% of GDP in the Euro area, the central bank is getting so deeply involved in fiscal affairs that its independence is questionable.
- Should refrain central banks from the temptation of being "popular" and having too many goals (green, social inclusion…) that are not at the heart of their primary mission which should be monetary and financial stability.

Finally, monetary policy makers should accept that any victory against inflation comes at a cost (less growth and fewer jobs) for a time. If we do not accept to pays the price, it is likely that the specter of stagflation will reappear.

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The fear of the reappearance of spreads in Europe should not dominate the decision-making process of the monetary policy. Indeed, sooner or later, structural spreads – based on the past accumulation of fiscal and structural deficiencies – in Europe will appear on the markets. The ECB is certainly concerned with moderating "excessive" market rate differentials between European countries. But central banks do not have an obligation to systematically erase all traces of interest rate differences in the appreciation of the markets. The elimination of all spreads would be difficult to reconcile with the Maastricht Treaty, as some member states – known for their fiscal discipline – place greater emphasis on the objective of monetary stability (believing that the ECB should not monetise public debt).

Monetary policy can erase spread differentials in the Euro area but cannot relaunch capital flows from the North to the South. Indeed, since the EU sovereign debt crisis, Member States with excess savings (Germany and the Netherlands in particular) no longer finance investment projects in lower per-capita GDP countries (Spain, Italy, Portugal, Greece). This is notably due to the interest rate differential between the US and Europe (the risk is better remunerated in the US than in Europe), the limited financial flows between the Eurozone countries and the insufficient number of investment projects. These limited cross-border capital flows in the Euro area reflect the persistent doubts of investors in Northern Europe about the solvency of states and companies in other countries, as well as the lack of a genuine Banking Union and integrated financial markets.

If fiscal policies were to remain expansionary to address ingrained structural problems unrelated to the crisis, central banks would have to tighten monetary policies even further to curb inflation and reduce inflationary expectations exacerbated by this fiscal stimulus. In this respect, the issue of revising the Stability and Growth Pact appears central and urgent.

Fostering a sustainable path to stronger growth is essential, notably in the current indebtedness environment. Raising long term potential growth requires structural reforms, an appropriate remuneration of risky investments and sustainable fiscal policies designed to deliver a flexible and competitive economy. Lost competitiveness due to postponed reforms in many EU countries, has led to the deterioration of the potential growth which cannot be improved by cyclical policies. Monetary policy cannot do everything, and more productive investment does not require more redistribution by budgets: only domestic structural – supply side oriented – reforms can resolve structural issues and foster productivity and growth. The Next Generation EU package, if well implemented, should be useful in this respect.

In over-indebted countries, governments must take corrective actions to ensure a path of primary fiscal balances and reduce unproductive and inefficient public spending. Reforming the Stability and Growth Pact is an urgent necessity.

Only productivity enhancing, and productive investment can create sustainable increases in productivity, neither negative real interest rates, nor QE.

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Ultimately, the paradox of the Euro is that a single currency and 27 national economic policies coexist without a strong cement of coordination. Ultra-accommodating and asymmetric monetary policies have been used to overcome this paradox, but the price of this permanent rescue is costly. It is essential to ensure convergence of fiscal and structural policies. An intelligent revision of the Stability and Growth should help to resolve these contradictions and thus make the euro sustainable.

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