EUROFI Monetary Scoreboard

FEBRUARY 2024

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with the support of Elias Krief

Inside

- Very accommodative monetary policies in OECD countries over the past two decades
- Significant impacts in terms of indebtedness and wealth inequalities
- Negative economic and financial stability consequences
- The return of inflation: state of play and challenges ahead
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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]. 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 Covid-19 crises, central banks played a crucial role and intervened at an unprecedented scale to keep financial markets liquid and to stabilise the financial system. In addition, in Europe, the ECB's measures have avoided 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 record high of 338% of the world GDP in 2022 and have driven the monetary base of OECD economies to be multiplied by a factor of 10 since 2000. Persistent low interest rates have fostered liquidity hoarding at the expense of productive investment in Europe in particular. The total price paid in terms of over-leverage, decline in corporate dynamism, low productivity and the emergence of 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 issuance in 2020-21. In turn, this huge leverage has weakened financial system stability: the search-for-yield has fuelled swelling asset bubbles. Lasting very accommodative monetary policies have also triggered 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. Consequently, over the past two years central banks have tightened their monetary policy. They have raised their policy rates by 450 basis points in the Euro area between July 2022 and September 2023, and by 550 basis points in the US between March 2022 and August 2023. This illustrates that maintaining zero or negative interest rates for many years has contributed to the return of inflation, and that interest rates remain the essential weapon in the fight against inflation.

The good news is that inflation has continued to fall since the fourth quarter of 2022. But lower inflation is not low inflation. Inflation is still above the 2% central bank targets in most countries and needs to fall further. But inflation could remain above 2% for longer than expected. Indeed, real wages trying to catch up in a context of very low productivity in particular in the Euro area are likely to lead to higher unit labour costs; furthermore, the rise of geopolitical tensions could disrupt global trade patterns adding to transport costs; and the challenges posed by the green transition, loose fiscal policies and adverse demographic forces that limit the responsiveness of aggregate supply could also help maintain inflationary pressures.

In such a context, the fight against inflation must remain the priority of central banks despite the vulnerabilities they have created over the years. Maintaining positive real interest rates is necessary to achieve price stability and to foster long-term savings directed to productive investment. Quantitative tightening must be 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 25 January 2024. 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 due to the 2% inflation target which has become the absolute guide of monetary policy until 2022

The monetary base has increased significantly in OECD economies due to unconventional monetary policies conducted in response to the 2008 and Covid-19 crises, as well as the 2% target that has become the absolute guide of monetary policy. The balance sheets of central banks have skyrocketed over the past 20 years, following the continuous monetary stimulation from the 2008 crisis until 2022.

Monetary policy, particularly in the Eurozone, has been asymmetrical over this period: it has stimulated activity at the first signs of slowing growth, while being reluctant to tighten policy when overheating appeared. Indeed, the 2% inflation target has locked monetary policy into this systematic accommodation until 2022.

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

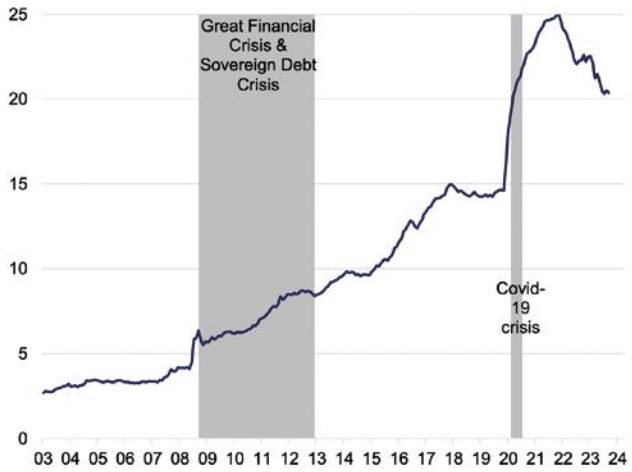
1.1.1 The monetary base of the OECD countries has increased tenfold between 2000 and 2022

Chart 1 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 risen from $2.5 trillions in 2000 to $25 trillions 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 increased 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 increased by an additional $10 trn, reaching $24.6 trn in March 2022.

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*

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

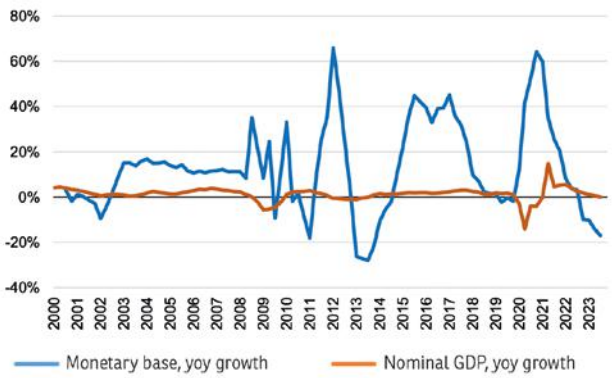
M0 has experienced extremely rapid growth between 2008 and 2019: 13.5% per year on average in advanced countries, while their GDP grew by an average of 2%, in real terms. With an annual inflation of around 1.5%, the average nominal growth of GDP in advanced economies (AEs) was around 3.5%. Thus, during these 10 years, the monetary base grew nearly four times faster than the nominal GDP.

In the Eurozone (*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, 5.8 times faster than nominal GDP growth (+2.5%).

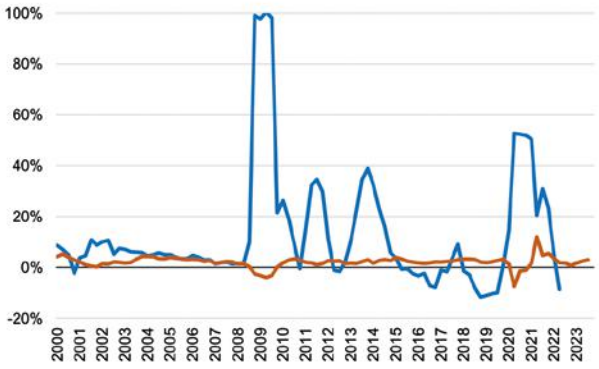
Over the same period, the monetary base in the United States grew by an average of 14.8% per year, 4.6 times faster than nominal GDP (+3.2%).

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

2a. Euro area



2b. United States



Sources: ECB, Federal Reserve, OECD. As of Q3-2023

1.1.3 The expansion of the monetary base results from the asset purchase programs of central banks, which have led their balance sheets to increase by over 500% between 2008 and 2022

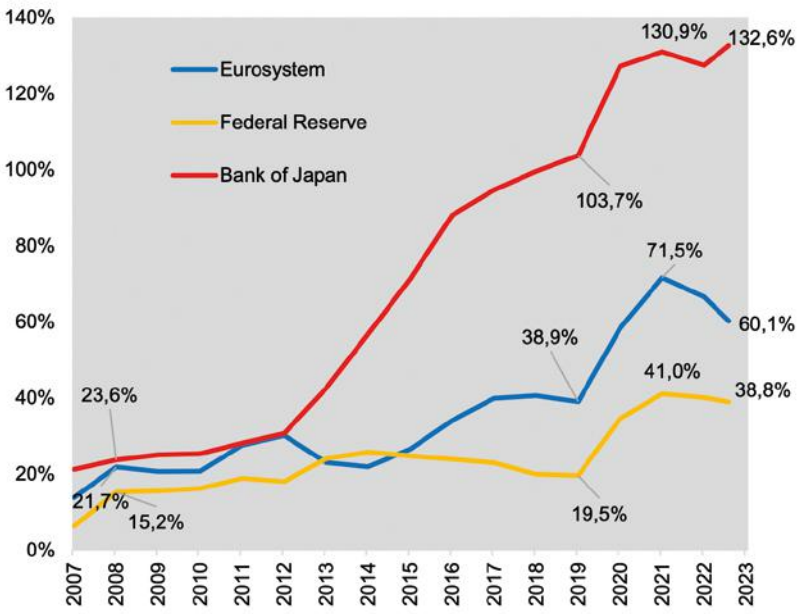
Between January 2008 and June 2022,

- The balance sheet of the Federal Reserve increased by 890%, which represents a total increase of $8 trn.
- The balance sheet of the Eurosystem increased by 560%, corresponding to an increase of €7.5 trn.
- The growth in the size of the balance sheet was 548% in Japan and 1056% in the UK.

Thus, the size of the assets held by the Fed represented 41.7% of the US GDP in June 2022, compared with 6.1% in 2008. The assets of the Eurosystem represented 73.3% of the Eurozone GDP in June 2022, compared with 13.8% in January 2008 (*see Chart 3*).

The assets of the Bank of Japan (which began its asset purchase programme in March 2001) represented 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 has decided to buy – and even, in effect, monetize – bond securities worth over 70% of Eurozone GDP gives an idea of the unprecedented scale of the explosion that has occurred since 2014 in monetary support for 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 "nationalization" 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 portion of the overall increase in the aggregate monetary base occurred outside recession 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 crises: $4.5 trn in the wake of the Great Financial Crisis and the European sovereign debt crisis between 2008 and 2013 and $8 trn in response to the Covid-19 crisis in 2020.
- The remaining $9.1 trn were issued outside of recession phases (*see Chart 1*): +$1.6 trn between 2000 and 2008, + $5.3 trn between early 2014 and late 2019 and + $2.3 trn between January 2021 and early March 2022.

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

1.2.1 The rapid and powerful intervention of Central Banks prevented the collapse of the financial system

The Federal Reserve's response to the Great Financial Crisis (2008-2010)

In response to the 2008 financial crisis, the Fed implemented several measures to support the financial system, including interest rate cuts, liquidity provision to financial institutions and large-scale purchases of private and public securities.

Starting in September 2007, the Fed **reduced the federal funds rate** from 5.25% to a range of 0-0.25% in December 2008, with much of the reduction occurring between January and March 2008 and between September and December 2008.

It also **created a number of new credit facilities that provided liquidity** to financial institutions. This included the creation of lending facilities for investment banks in March 2008[3] as well as lending facilities to address funding liquidity problems after the collapse of Lehman Brothers in September of 2008[4]. The expansion of the Fed's lending programs during the 2008–2009 financial crisis reached a peak of over $1.5 trn by the end of 2008, according to Mishkin[5] (2014).

In addition to lending programs, the Fed engaged **in large-scale asset purchase programs**, also known as quantitative easing. In November 2008, the Fed announced it would purchase Mortgage-Backed Securities (MBS) from US agencies and the debt of government-related housing. From November 2008 to March 2010, the Fed accumulated a total of $1.75 trn in securities, mutliplying the total value of its assets by 2 compared with before the crisis.

All these measures led to a significant expansion of the Fed's balance sheet. From $860 billion in May 2007, the Fed's total assets increased to $2.31 trillion in March 2010, when the first wave of quantitative easing ended end and GDP growth returned to positive territory.

The ECB intervenes multiple times between 2008 and 2012 to counter the effects of the GFC and the EU sovereign debt crisis

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

3. See the Term Securities Lending Facility –TSLF, Primary Dealer Credit Facility –PDCF in particular.

4. See Asset-Backed Commercial Paper Money Market Mutual %Fund Liquidity Facility--AMLF, Commercial Paper Funding Facility--CPFF, Money Market Investor Funding Facility--MMIFF, Term Asset-Backed Securities Loan Facility--TALF.

5. F. Mishkin & E. White, "Unprecedented Actions: The Federal Reserve's Response to the Global Financial Crisis in Historical Perspective" Dallas Fed (October 2014).

In the aftermath of the Great Financial Crisis of 2008, the emergency action of the ECB led to a less significant expansion of its balance sheets than that of the Fed. However, as the crisis period extended with the EU sovereign debt crisis (2010-2012), the Eurosystem's balance sheet increased dramatically in the following years.

In addition to lowering its key interest rates from 4.25% to 1% between October 2008 and May 2009, the ECB introduced a number of measures to provide "enhanced credit support" to banks which were extended during the Sovereign Debt Crisis. The ECB responded to financial fragmentation in the Eurozone between 2010 and 2012 in two ways.

First, it injected liquidity to compensate for market funding sources that had suddenly become unavailable. The ECB extended the maturity of its **refinancing operations** from a few months to several years[6]. It also **relaxed the collateral requirements**, adding lower-rated securities, fixed-term deposits, and subordinated debt instruments, to access these refinancing operations. According to G. Claeys[7], the cumulative take-up of these two operations exceeded €1 trn between October 2008 and February 2012.

Second, it addressed tensions in certain market segments through the **Securities Markets Program** (SMP) and the **Covered Bonds Purchase Program** (CBPP). Introduced in May 2010, the SMP involved the purchase of Eurozone sovereign bonds on the secondary market to compress the risk premium, which had been inflated by investor mistrust. Under the SMP, the ECB purchased approximatively €220 bn of Greek, Irish, Portuguese, Italian and Spanish government bonds between 2010 and 2012. It also introduced the CBPP in 2009, aiming to revive the covered bond market. After initially purchasing securities for a total volume of €60 bn between July 2009 and June 2010[8], the ECB launched a second wave of CBPP with a total volume of €40 bn in November 2011. The program was discontinued in October 2012, following the purchase of €16.4 bn worth of covered bonds.

Until mid-2012, these measures failed to ease tensions in sovereign bond markets, as yields on bond issued by vulnerable Euro area Member States soared. Financial conditions significantly eased when the ECB President Mario Draghi, in a speech on 26 July 2012, assured that the "ECB [was] ready to do **whatever it takes** to preserve the euro". A few weeks later, in August 2012, the Governing Council disclosed the design of the **Outright Monetary Transactions** (OMT) program, enabling the ECB to purchase unlimited amounts of government bonds of Member States already subject to a program of the European Stability Mechanism, provided that the concerned Member states adhered to the conditions of the ESM program. Although it was never activated, the announcement of the OMT significantly contributed to reducing the government bond yields of the troubled Member States.

These measures taken together contributed to doubling the size of the Eurosystem's balance sheet, from €1.5 trn in December 2007 to €3 trn in December 2012.

1.2.2 The Covid-19 outbreak (March 2020 – June 2021) triggered a new wave of monetary policy easing in the Euro area and the United States

Following the global outbreak of the Covid-19 pandemic in early 2020, central banks acted quickly and strongly to mitigate the economic and financial repercussions of the pandemic. In addition to reducing policy rates, central banks substantially increased their balance sheets and deployed other unconventional monetary policy tools, aiming to restore market functioning.

As a result, the size of central banks' balance sheets rapidly increased in many countries, reaching record high levels in many cases. Between December 2019 and June 2021 – when most of lockdown measures were lifted and growth returned to positive territory in both regions- the total assets of the Eurosystem increased by 70.2% while the balance sheet of the Federal Reserve increased by 97.2% (*see Chart 4.a*). Moreover, the increase in central banks' balance sheet was much stronger in response to the Covid-19 crisis than to during the Global Financial Crisis in 2008. Between December 2019 and June 2021, the size of the Eurosystem's balance sheet as a % of GDP more than doubled what it had increased over the four years of the GFC and EU sovereign debt crisis [2008-2012] (*see Chart 4.b*). In the US, the total increase in the Fed's balance sheet amounted to 18.3% of GDP in less than two years, between March 2020 and December 2021, compared to an increase of 6.7% of GDP between 2008 and 2010.

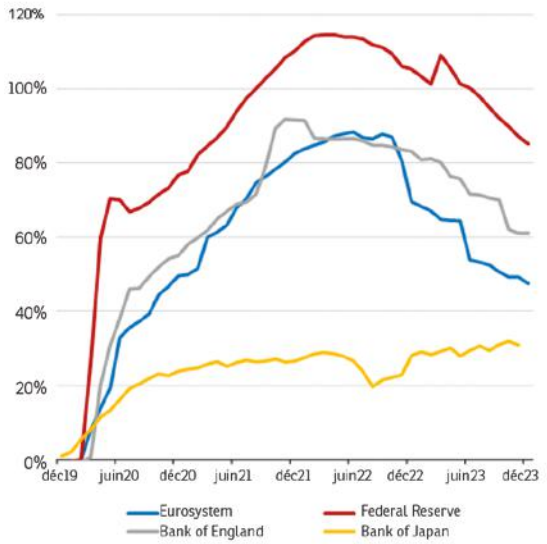
6. After 2008, the maturity of LTROs – originally of 3 months only – was lengthened, introducing operations with maturity of, first, 6 months, then 1 year and eventually by conducting two massive very long-term refinancing operations (VLTROs) with a maturity of 3 years (in December 2011 and February 2012).

7. G. Claeys, "The (not so) Unconventional Monetary Policy of the European Central Bank since 2008" EU Parliament Publications (2014).

8. Covered bond market developments and the covered bond purchase programme (europa.eu).

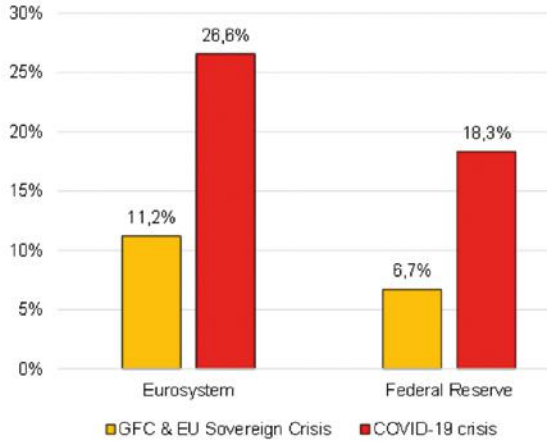
CHART 4.
Central Banks' balance sheet expansions during the Covid-19

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



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

4b. Expansion of Central Banks' Balance sheet during the Global



Source: Federal Reserve, Bank of Japan, European Central Bank
Notes : the period associated to the Eurosystem's Balance sheets extended from 2008 to 2012; and from 2008 to 2010 for the Fed ; the COVID-19 period extends from December 2019 to June 2021; data are calculated on the basis of the 2019 nominal GDP

Measures taken by the ECB in response to the pandemic

When the pandemic struck in March 2020, the ECB was already providing very accommodative financing conditions as its deposit rate was negative, at -0.5%.

In March 2020 the Governing Council decided to launch the Pandemic Emergency Purchase Program (PEPP), in addition to the existing Asset Purchase Program (APP) in place since 2015. The PEPP initially had an envelope of €750 billion, which was increased twice during 2020, reaching an overall envelope of €1,850 billion in December 2020 (corresponding to approximatively 15.5% of Euro area's 2019 nominal GDP). Regarding the APP, a temporary envelope of €120 billion in net asset purchases was added from March to December 2020.

From March 2020 to May 2021, the cumulative net purchases under the PEPP amounted to €1.18 trn. Overall, public sector security purchases accounted for 80% of all purchases, according to the BIS[9]. Unlike the APP, the range of assets included in the PEPP was expanded by broadening the eligibility criteria, allowing the Eurosystem to purchase low-rated sovereign bonds such as Greek bonds. Under the PEPP, the Eurosystem was also allowed to hold more than 33% of a country's sovereign bonds, while it was prevented from exceeding this threshold under the APP.

In addition to assets purchase programs, the Eurosystem extended lending operations to commercial banks through its LTROs programs. According to the ECB[10], the overall take-up exceeded €1.5 trn in the June 2020 and subsequent operations brought it up to €2.2 trn as of June 2021.

The combination of asset purchase programs and lending operations contributed to a significant increase in the Eurosystem's balance sheet, rising from €4.7 trn in December 2019 to €7.88 trn in June 2021.

Measures taken by the Federal Reserve in response to the pandemic

The Fed cut the federal funds rate by a total of 1.5 percentage points at its meetings on March 3 and March 15, 2020. These cuts brought the funds rate to a range of 0% to 0.25%. To support the smooth functioning of the Treasury and government-guarantee mortgage-backed securities markets (MBS), the Federal Open Market Committee (FOMC) announced it would increase its holdings of Treasury securities and MBS. On **March 15, 2020**, it stated it would purchase at least $500 bn in Treasury securities and $200 bn in MBS over "the coming months."

On March 23, 2020, it made the purchases open-ended, stating it would buy securities "in the amounts needed to support smooth market functioning and effective transmission of monetary policy to broader financial

9. "Central Bank asset purchases in response to the COVID-19 crisis", BIS (March 2023).
10. TLTRO III and bank lending conditions (europa.eu).

conditions". **By June 2020**, the Fed set its pace of purchases at $80 billion per month in Treasuries and $40 billion in residential and commercial MBS until further notice. It updated its guidance in **December 2020** to indicate it would slow these purchases once the economy had made "substantial further progress" towards the Fed's goals of maximum employment and price stability.

As of June 2021, the Federal Reserve's assets' holdings amounted to $8,08 trn, twice as much as in December 2019 ($4.17 trn).

1.3 The 2% inflation target has led to asymmetrical monetary policies by the ECB and the Fed over the past 20 years

Over the past two decades, monetary policies have been asymmetrical and have generally remained accommodative to achieve the 2% inflation target. This predominant objective has guided monetary policies since then. The massive increase in the total assets of central banks' (*Chart 3*) and the expansion of the monetary base outside of recession periods (*Chart 1*) illustrate this asymmetry.

The reality is that **monetary policy has become disconnected from the economic cycle: it has been strongly expansionary over the past two decades. Central banks have not tightened monetary conditions when the economic situation improved. This has led to the over-financialization of the economy.**

An inflation target is supposed to protect the system against excessive price increases or deflation, but not to seek an artificially higher inflation rate than that 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 magnitude that avoided both deflation and excessive inflation.

But instead of letting inflation evolve around 1%, Central Banks wanted, at all costs, to increase inflation from 1% to 2%. This misguided and doctrinal view led the Central Banks to massively and unnecessarily inflate monetary creation. The pretext was: "we have not yet reached the sacrosanct 2% target" (despite the fact that this figure of 2% 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 disadvantages of persistently low interest rates were completely underestimated.

According to J. de Larosière[11], "an illustration of this asymmetrical approach was the liquidity injection by the Fed to prevent a feared, but mistaken, deflationary trend in 2002. This overreaction produced a huge demand bubble. If, as political correctness would have it, there was no willingness to raise interest rates in the face of this widespread indebtedness, it would at least have been desirable to implement an appropriate macroprudential policy tailored to different countries and circumstances. Some countries particularly prone to inflation would have tightened regulatory constraints (*e.g.*, by increasing the minimum capital contribution required to obtain a mortgage). But these reactions to the scale of indebtedness did not took place. The lessons were not learned, and subsequent crisis episodes were not avoided as the warning signs of excessive indebtedness continue to appear..."

1.3.1 The asymmetry of the monetary stances of the Fed and the ECB over the past 20 years can be illustrated by the trajectory of their real short-term interest rates

As showed in Chart 5, the short-term real interest rate has mainly evolved in the negative territory over the past two decades, both in the Euro area and the US. With interest rates close to zero or even negative in real terms, central banks have also used QE programmes during and crises.

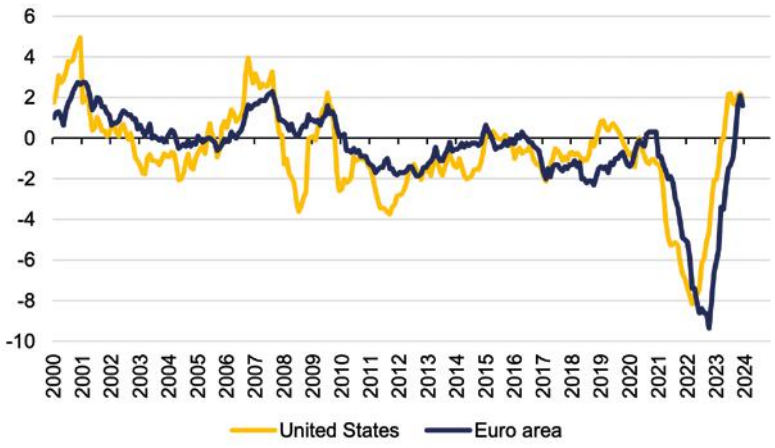
The ECB has not tightened monetary conditions when the economic situation improved thus limiting its ability to act decisively during the next economic slowdown.

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. Although the Fed began to raise its key rates in 2015, they remained broadly negative in real terms during the 2010s.

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

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

CHART 5.
Real Refinancing Rates in the US and Euro Area
Policy rate minus headline inflation rate, % points



Source: BIS
Notes: Latest data from December 2023

1.3.2 Once the economic situation improved after the sovereign debt crisis, the ECB's monetary policy was not tightened or normalised

The Global Financial Crisis and the EU sovereign debt crisis legitimately called for significant bond-buying programs. But from the end of 2013, as the Eurozone economy recovered from the recessionary years of 2011-12, the ECB monetary policy remained very accommodative.

In a 2014 speech[12] where he expressed his concerned about the "unwarranted tightening of the policy" and the "worsening of medium-term outlook for inflation", the ECB President Mario Draghi signalled the continuation of unconventional instruments to "effectively deal with the risks of too prolonged a period of low inflation".

The first action was the use of negative interest rate policy, where the deposit rate was lowered from 0% to -0.10% in June 2014. Further cuts followed until September 2019, when the deposit rate was reduced to -0.5%.

Another decision has been the launch of the asset purchase programs in October 2014. Initially designed to purchase asset-backed securities, the program was expanded to include corporate and government securities in January 2015. Combined monthly purchases reached €60 bn from March 2015 to March 2016, and were to continue "until at least September 2016" according to the Governing Council[13]. However, net assets purchases continued at a monthly pace varying from €15 bn to €80 bn between 2016 and 2019[14].

The negative interest rate policy and asset purchases continued in 2018 as inflation converged towards the 2%-target, even reaching this figure between August to October 2018. Although net purchases were stopped in December 2018, they resumed in September 2019 at a monthly rate of €20 bn.

A total of €2.6 trn euros of public and private securities were purchased as part of the APP between October 2014 and February 2020, before the Covid-19 crisis.

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

1.3.3 The Fed ended its QE policy 6 years after the end of the 2007-2009 recession

After the collapse of Lehman Brothers in September 2008, the Fed deployed its QE policy designed to deal with dysfunctional financial markets. However, this emergency policy continued until 2015, six years after the end of the 2007-2009 recession, as officially dated by the NBER[15].

After completing its first wave of security purchases from November 2008 to March 2010 (QE1), the Fed launched a second round of QE (QE2) comprising US Treasuries securities worth $600 bn. These were completed in June 2011. In September 2012, the Federal Reserve announced a third large-scale asset-purchase program, QE3, by conducting monthly purchases of $40 bn in MBS and $45 bn of long-term US Treasuries bonds which ended in October 2014.

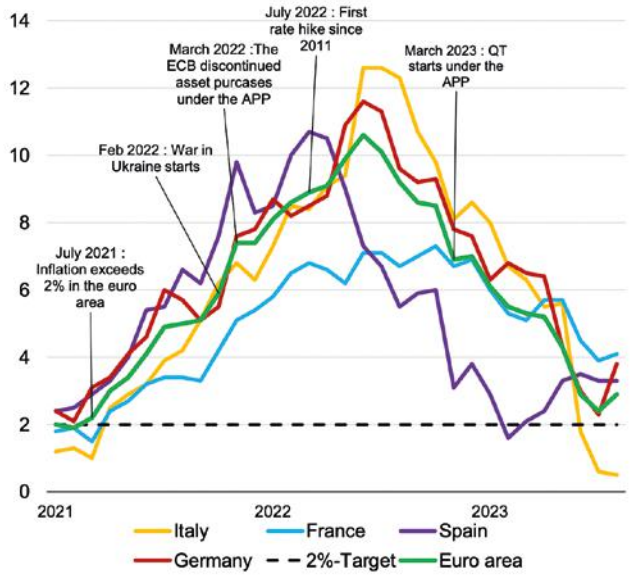
12. M. Draghi, "Monetary policy communication in turbulent times", Speech at the Conference De Nederlandsche Bank 200 years (April 2014).
13. "ECB announces expanded asset purchase programme" ECB Directorate General Communications (January 2015).
14. Business Cycle Dating - NBER (see https://www.nber.org/research/business-cycle-dating).
15. Business Cycle Dating | NBER.

These two additional waves of QE further increased the size of the Fed's balance sheet. From $2.3 trn in March 2010 at the end of the first wave, the Fed's balance sheet reached to $4.5 trn in October 2014, when the end of net purchases was announced. The FOMC reduced its asset holdings in 2017 but the quantitative tightening policy ended in 2019.

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

While inflation has consistently exceeded 2% in the Eurozone since July 2021 and reached record levels since then (*see Chart 6*), the ECB did not stop its securities purchase policy until July 2022, thus minimizing the risk of inflation.

CHART 6.
Recent inflation (HICP growth) devlopement across selected Key Eurozone Member States, annual change,%

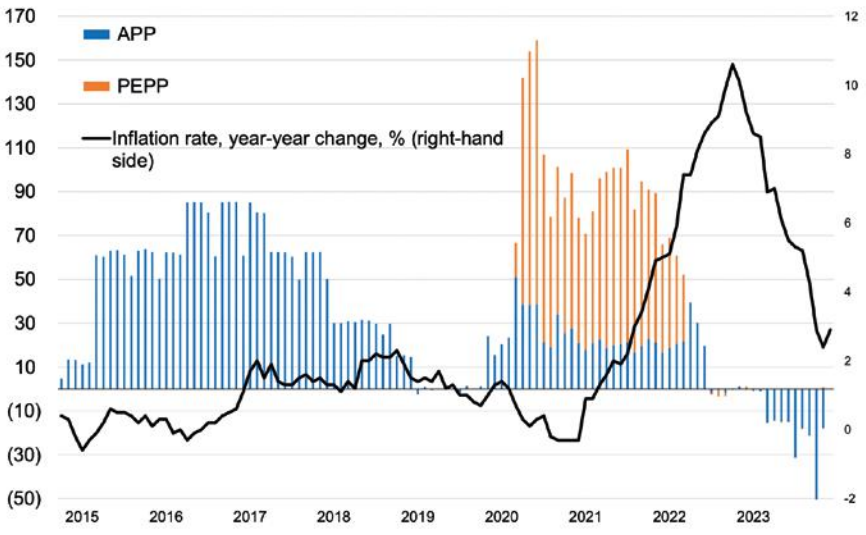


Source: Eurostat
Latest data from December 2023

After peaking at €160 bn in June 2020, the ECB's net monthly purchases of securities averaged € 91.3 bn between October 2020 and November 2021 (*see Chart 7*). The pace of purchases was then reduced to €50-70 bn per month between December 2021 and March 2022.

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

CHART 7.
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 December 2023

Thus, despite accelerated inflation, including core inflation since the third quarter of 2021, the ECB maintained an extremely expansionary stance until July 2022. This stance was based on models predicting that inflation would return below 2% regardless of 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%)"[16].

The models used by the ECB struggle to adapt to structural changes. They particularly imply that any wage pressure would be neutralized because the models explicitly assume that the ECB's 2%-target will be met, the credibility of central banks being such that the public expects it will be achieved. Wages demand have significantly increased across the whole Euro area, including with double-digit increases in minimum wages in several countries (*see Part 4.1*). This could have been anticipated: how could one imagine that European workers would accept a 7 to 10% loss in purchasing power without asking for compensation?

In a speech made in November 2021, M. King[17] highlighted 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 model only works when nothing happens…"

•

J. de Larosière points out 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 is difficult to conceive and justify. A situation of such prolonged negative interest rates defies comprehension. This is due to the fact that 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 shaping a hyper-leveraged financial system vulnerable to crises.

An inflation target is supposed to protect the system against excessive price increases or deflation, but it does not aim at seeking a price level artificially higher than that resulting from market forces. The danger of deflation has been exaggerated, while the drawbacks of persistently low interest rates have been seriously underestimated".

Instead of correcting structural weaknesses, most countries have refrained from implementing structural reforms over the last decade. Accommodative monetary and fiscal policies should normally only aim to manage the economic cycle.

A. Weber in his article for the Eurofi magazine[18] emphasized that "even if monetary policy was 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 largely operated through the exchange rate channel and the asset price channel, while the traditional interest rate channel and the credit channel of monetary policy transmission had become ineffective. Policymakers were trying to solve huge structural problems by increasing debt to unprecedented levels and using cheap money to devalue their currencies and artificially inflating stock and real estate prices. The longer the underlying structural problems are not addressed, the more significant they become."

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

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

18. 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 contributed to the expansion of indebtedness

Central banks have failed to control credit growth, thereby contributing to the over indebtedness of economies. In fact, credit expansion has not attracted their attention over the last two decades.

The growth of the money supply has continually outpaced that of the real economy between 2008 and 2022. Lasting low interest rates have contributed to this massive expansion of debt in over the past two decades.

Against this backdrop, central banks have come to hold an increasingly large share of national government debt and have become de facto fiscal agents.

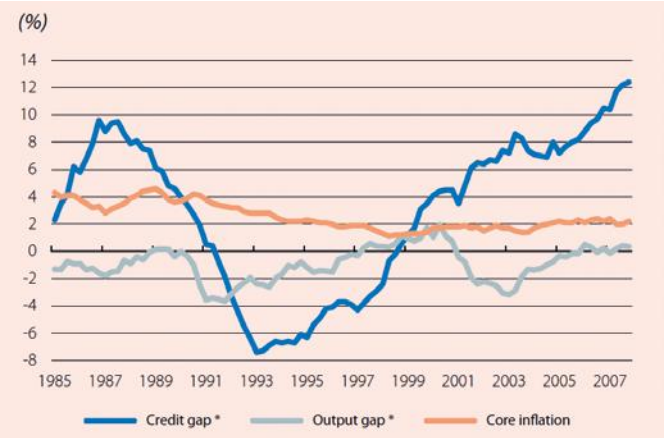
2.1 Lessons on the causes of the 2008 crisis have not been learned by policy makers : financial crises are always the result of excessive debt

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

J. de Larosière explained in 2010[19] that the credit boom – which is a monetary phenomenon – was a major factor in the Global Financial Crisis[20]. Certainly, 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 kept real interest rates near zero for several years fueled the expansion of credit which, in turn, stimulated the monetary aggregates.

In the period leading up to the 2007-2008 crisis, debt rose much faster than the economy (*see Charts 8 and 9*).

CHART 8.
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 do not 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 a repeat of such events, central banks will have to resume their monitoring of credit expansion and thus 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..."

Unfortunately, these 2010 analyses and proposals have not been followed up. Worse, the financialization[21] of economies has only increased since then.

19. See J. de Larosière, "Monetary policy has played a major role in the run up to the financial crisis", Columbia University, December 2010.

20. 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 %).

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

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 end of the financial crisis. Even worse, "the debt engine shifted into a higher gear"[22]. Global debt is now at its highest level in peacetime:

- At the end of 2006 the global debt level – both private and public debt – stood at $150 trn. By the second quarter of 2023, the figure had exactly doubled in value ($307 trn) compared to 2006, according to the IIF[23].
- As percentage of GDP, the world debt ratio increased from 270% in 2006 to 336% in Q2 2023.

Has productive investment at least benefited from low interest rates? Unfortunately, the answer is no.

For 20 years, debt has exceeded investment.

Mc Kinsey[24] 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.

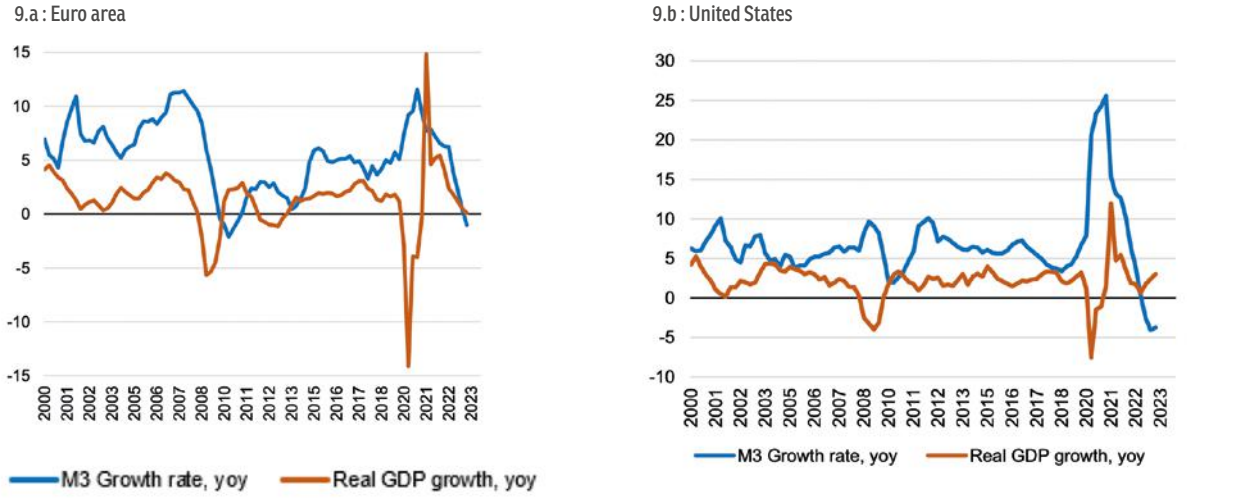
Although there are significant disparities between countries in this area, the fact remains that this multiplier of 4 indicates considerable leverage – an all-time high – which raises concerns about debt sustainability in the future.

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

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

The growth of M3[25] has continuously exceeded real GDP growth both in the US and in the Eurozone (*see Chart 9*). 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%.

CHART 9.
M3 Growth Rate Against Real GDP growth rate,% annual change



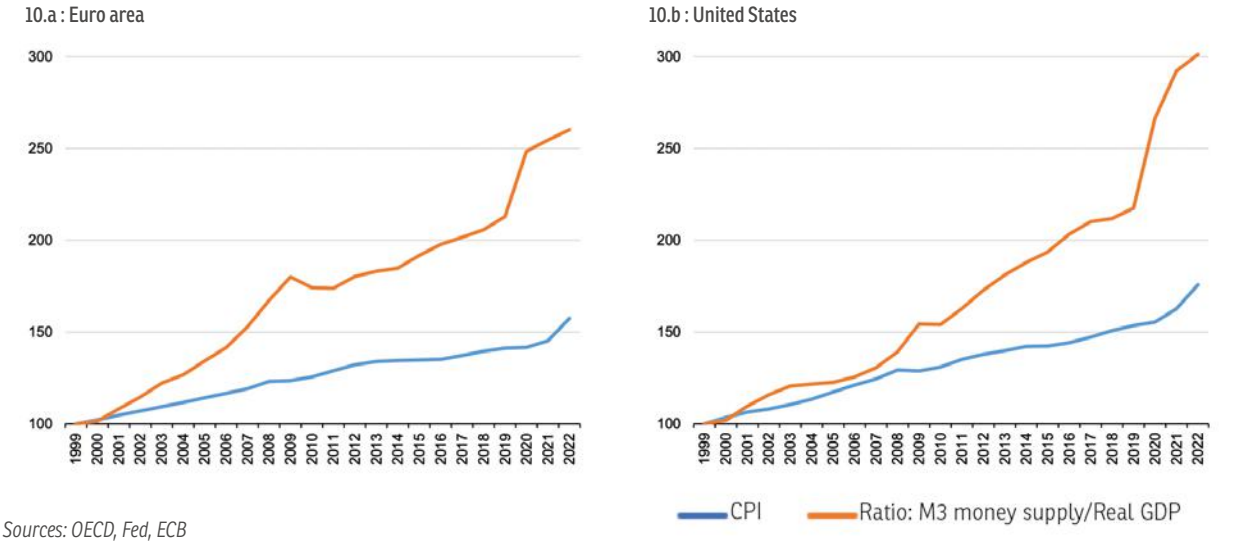
Source: OECD. As of Q3-2023

Admittedly, these figures must be taken with caution, as the relationship between money creation and inflation is complex and non-linear (the velocity of circulation, as well as the irregularity of economic agents' need for money, are difficult to model). But the continuity and scale of this "excess" of money should, at the very least, have prompted to question the wisdom of such a policy... Traditionally, growth in financing was proportional to growth in the economy. Over the past 20 years, this link has disappeared: financing exceeds economic needs.

The increase in credit in the years 2013-19 was not accompanied by a rise in inflation in the prices of goods and services, but in the prices of financial and real estate assets, creating considerable instability in the financial system.

22. J. Van Overtveldt, "The Mystic Hand", Agate, 2022.
23. E. Tiftik & al, "In Search of Sustainability", Global Debt Monitor, Institute of International Finance (September 2023).
24. Mc Kinsey Global Institute, "The rise and rise of the Global balance sheet", November 2021.
25. 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.

CHART 10.
Money supply, real GDP and inflation, 1999 = 100

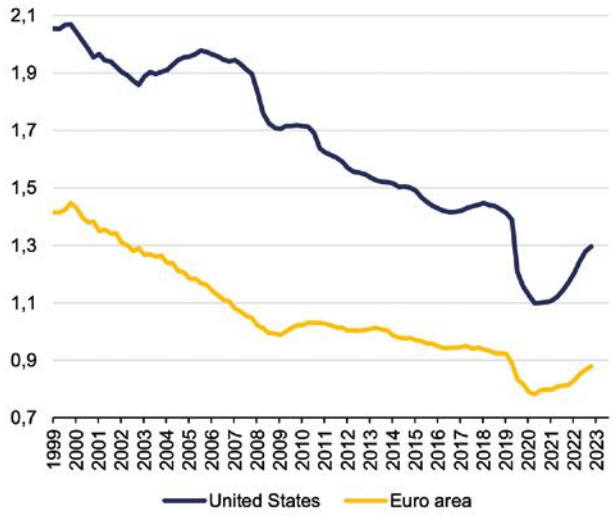


Sources: OECD, Fed, ECB

One way to understand the divergent paths of money supply growth and economic growth is to look at the velocity of money[26]. Money creation has not been reflected in the real economy because its transactional power and speed of circulation have weakened.

According to the Banque de France, the velocity of money declined by 53% in the Euro area and by 46% the United States between 1999 and end-2019 (*see Chart 11*).

CHART 11.
Velocity of Money in Circulation in the United and the Euro area, in units



Source: ECB, Federal Reserve
Last data from 2023 Q3

After the Covid-19 crisis, the growth of the money supply driven by central banks asset purchase significantly accelerated until mid-2022

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 about 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 was more moderate, peaking at 12% in January 2021 and then fluctuating around 6-8% between May and December 2021. The annual growth of M3 was close to 6% between April 2021 and September 2022, although it remained well above its pre-pandemic trend of 4.5% per year on average between 2014 and 2019.

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

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

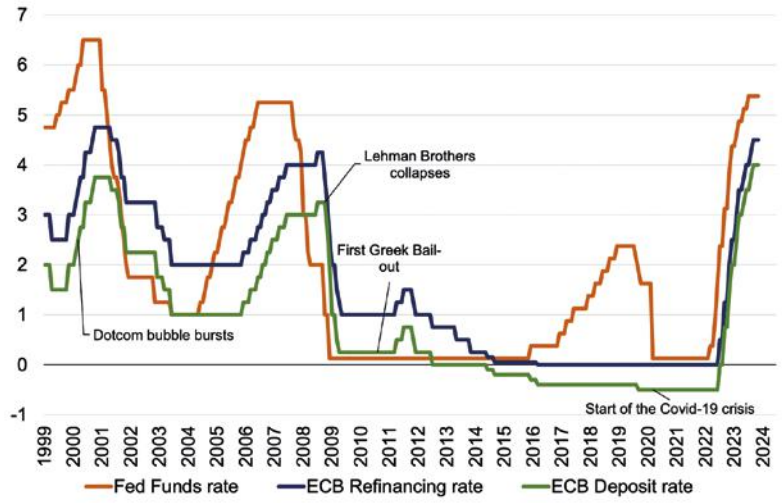
Because the increase in money supply being much greater than GDP, the quantity of 'excess money' resulted in inflation, which is a monetary phenomenon (*see Section 4.1*).

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 drop 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 increased slightly in both regions, indicating that the excess money initially hoarded by households and businesses has been used to purchase goods and services, resulting in strong demand. This, combined with supply constraints, led to a high degree of inflation.

2.3 Lasting easy monetary policies have contributed to the decline in interest rates

The long lasting accommodative monetary policies has led to a decrease in interest rates. Notably, the ECB deposit facility rate – one of the key policy rates of the ECB – remained negative in nominal terms between 2014 and 2022 (*see Chart 12*).

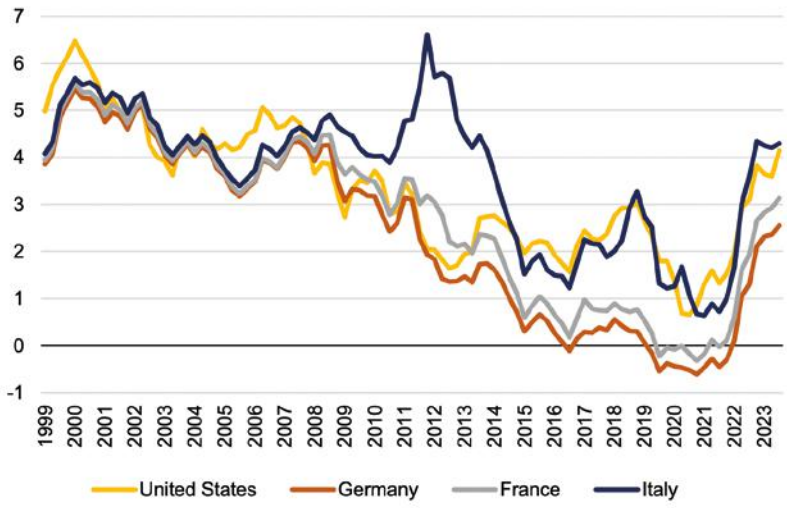
CHART 12.
Key Nominal Short-term Interest Rates for the US and the Euro Area



Source: BIS, ECB
Latest data from November 2023

The following chart (*Chart 13*) shows the downward trend of long-term interest rates in some of the major advanced economies over the last 20 years. The German 10-year interest rate was the first to turn negative at the end of 2016, while the French 10-year interest rate was close to zero. From the end of 2019 to the end of 2021, both were negative. Since the start of 2022, the yields on French and German long-term bonds have returned above zero (*see Part 4*).

CHART 13.
10 Years Nominal Interest Rates of Selected Advanced Economies, quartely data,%



Source: OECD
Latest data from Q3-2023

An abundant academic literature shows that the natural interest rate has been declining for several decades. This may due to secular reasons (ageing population, globalisation…) but zero or negative nominal interest rates are not a natural phenomenon. They are largely the result of massive asset purchases by central banks.

Expansionary monetary policies partly influence risk-free rates and reduce the interest rate risk premium. Without central bank intervention, risk-free rates might not be significantly higher as they partly depend on growth potential, which has been remarkably low in the past few years. Indeed, QE affects long-term yields through the signalling and portfolio rebalancing channels; The IMF reminds us[27] 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 occurs because QE reduces the net supply of long-term assets held by the private sector. Private sector agents, in turn, will agree to reduce their holdings of such assets if their prices increase (or if yields decrease).

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 only started its asset purchase programs in 2015".

Furthermore, the massive liquidity and quantitative easing programmes implemented by the AEs' central banks (such as the ECB, the Fed, the BoJ) have blurred the meaning of long-term interest rates that 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 taken control of traditional functions of markets.

Finally, asset purchase programs have 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 have brought 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".

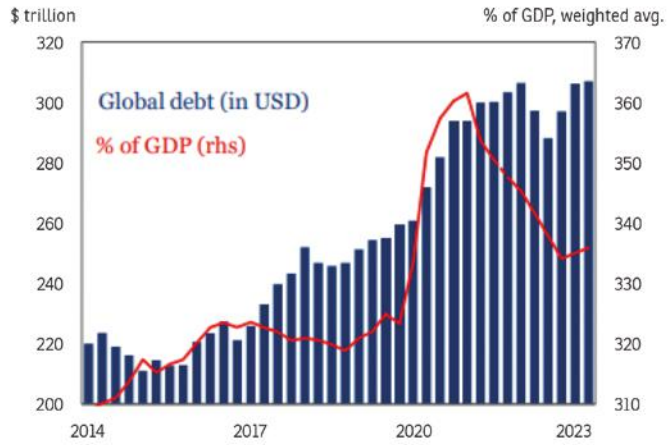
2.4 Lasting low interest rates contributed to the over-indebtedness of advanced economies

Lasting very low interest rates have pushed global debt to records levels in peace time, even before the Covid-19 crisis. According to the IIF, global debt reached a record of 360% of GDP at the end of June 2021, compared to 320% in 2019 and 200% in 2011.

Public deficits have exploded, and the public debt-to-GDP ratio has risen from 100% to 120% in advanced countries over five years (2015-2020). Private debt has also skyrocketed.

Admittedly, the global debt-to-GDP ratio declined by more than 15 points from its peak in 2020 to the end of 2022, mainly due to the reopening of economies, which led to strong GDP growth and inflation. However, in the context of global economic slowdown, disinflation and rising interest rates, the global debt-to-GDP ratio resumed its upward trajectory in the first two quarters of 2023, now hovering around 336% – up from 334% in Q4-2022 (*see Chart 14*).

CHART 14.
Global debt



Source: Institute of International Finance
Last observation from 2023-Q2

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

Financial crises are always the result of excessive debt.

The higher the debt, the more borrowers – some of whom are overexposed – become indebted, and the more likely and severe future crises are. Some of the indebted states (especially those in the developing world) will not be able to meet the costs of their commitments[28]. This means that our – over-exposed – financial system is vulnerable.

According to the BIS, the global debt to GDP ratio increased by 54.7 percentage points between the end of 2008 and mid-2023.

According to BIS data (*see Table 1*), which unlike the IIF excludes financial debt, global debt[29] rose from 186.2% of GDP in 2008 to 240.9% in Q2-2023. It is worth noting that global debt had already increased by 37.7 ppts between 2008 and 2019 to reach 223.7% of GDP before the onset of the pandemic.

The public sector and non-financial corporations were the main contributors to the increase in global debt between 2008 and 2023.

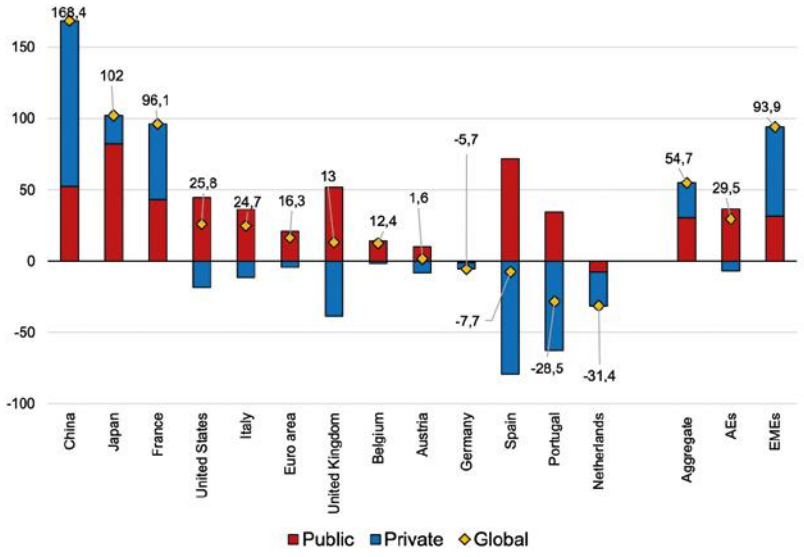
- Between 2008 and mid-2023, global public debt increased by 30.4 ppts, from 55.7% in 2008 to 85.9% of GDP in Q2-2023.
- Private sector debt increased by 24.3 ppts, from 130.7% of GDP in 2008 to 155% of GDP in Q2-2023.
- Non-financial corporate debt largely contributed to this (+20.9 ppts, from 76.8% of GDP in 2008 to 97.7% in H1-2023), while the increase in households' debt was more limited (+3.4 ppts, from 53.9% of GDP in 2008 to 57.3% in Q2-2023).

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	Q2-2023	2000	2008	Q2-2023	2000	2008	Q2-2023	2000	2008	Q2-2023
United States	48,6	66,1	110,4	135,2	168,7	150,2	64,3	72,6	76,5	70,8	96,1	73,7
United Kingdom	37,7	50,8	102,4	136	185,3	146,7	70,7	90	66	65,3	95,3	80,7
Japan	114,6	145,1	227,2	187,5	163,8	183,7	117,7	103,5	116,2	69,8	60,3	67,5
China	22,9	27,1	79,4	109,3	111,9	228	n.a	93,9	166	n.a	17,9	62
Euro area	69	69,6	90,4	126	156,7	152,2	76,5	96	97	49,6	60,8	55,2
France	58,8	68,8	111,8	137,7	164,2	217,3	104	115,6	152,6	34,2	48,6	64,7
Germany	59,3	65,8	64,7	140,6	129,9	125,3	69,4	70,1	71,8	71,2	59,8	53,5
Italy	108,8	106,2	142,3	79,3	116,5	105,1	56,6	77,5	65,6	22,6	39	39,5
Spain	57,8	39,7	111,3	117,9	214,2	134,9	72,5	131,6	85	45,4	82,6	49,9
Netherlands	52,2	54,7	46,9	219,7	234,7	211,1	130,1	123,2	121	89,6	111,5	90,1
Austria	66,1	68,7	78,6	127,8	142,5	134,2	83	90,5	88,3	45,3	52	45,9
Portugal	54,2	75,6	109,7	142,8	206,3	143,7	83,9	117,4	86,4	58,8	88,9	57,3
Belgium	109,6	93,2	107,1	146,2	192,1	190,6	105,4	142,2	130,9	40,8	49,9	59,7
Aggregate	n.a	55,5	85,9	n.a	130,7	155	n.a	76,8	97,7	n.a	53,9	57,3

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

CHART 15.
Change in global debt between 2008-Q4 and 2023-Q2
Percentage points



Source: Bank For International Settlements

28. W. Rhodes and J. Lipsky, "Act now to prevent a new sovereign debt crisis in the developing world", 23 March 2022.

29. Global debt is aggregated using data from 45 advanced and emerging economies.

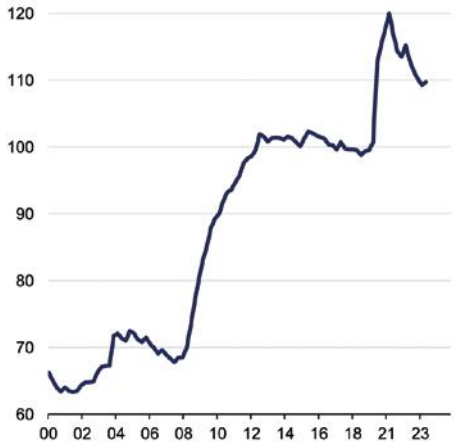
2.4.1 Loose credit conditions have entailed a huge public debt overhang

Over the past two decades, the level of public debt of advanced economies has continuously increased, rising from 63.4% of GDP in 2000 to 99.7% in 2019, according to the BIS. Following the Covid-19 crisis, public debt in advanced economies jumped to 113.5% of GDP in 2021. Helped by higher growth and inflation, it slightly decreased to 109.7% of GDP in 2023-Q2, although it remains 10.2 ppts above its pre-pandemic level.

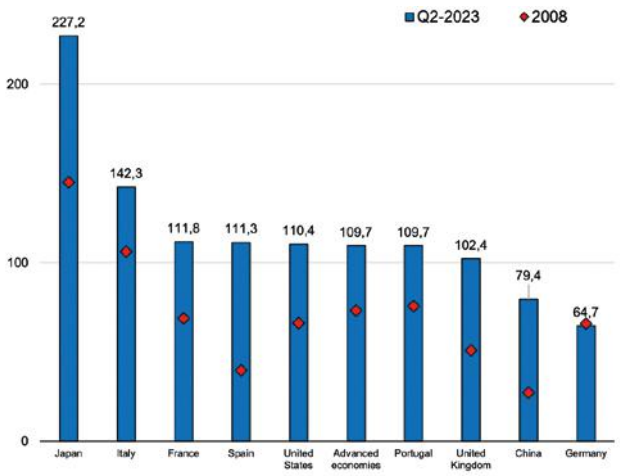
Among the main advanced economies, the US, the UK, France, Italy and Spain have seen their public-debt-to GDP ratio increase by more than 30 ppts between 2008 and 2022. Only Germany experienced a change not exceeding 10 ppts during this period (*see Chart 16.b*).

CHART 16.
Gross Public Debt, as % of Nominal GDP

16.a : Advanced economies



16.b : Main Advanced Economies



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

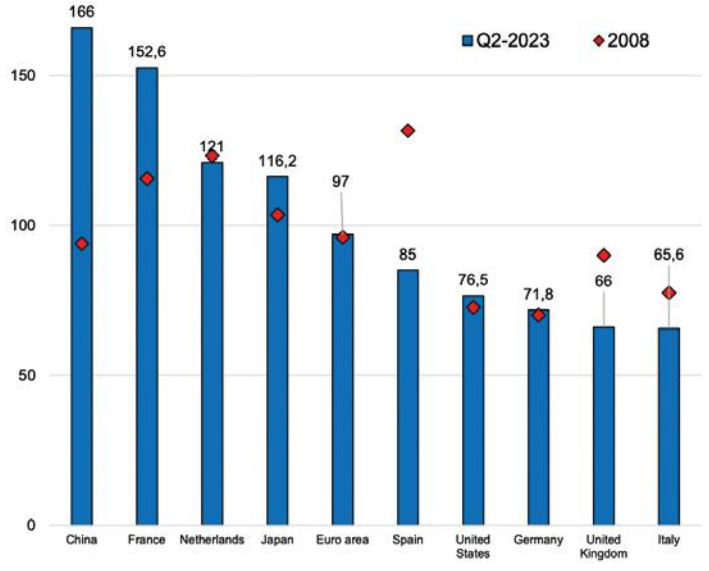
2.4.2 The corporate sector entered the Covid-19 crisis with high levels of debt

In such a context, the amount of non-financial corporate debt in advanced economies (loans + bonds) stood at $43.8 trn at the end of 2019, compared to $20.2 trn in 1999 (*see Chart 17*). Expressed as a percentage of GDP, it reached 91.4% in Q4 2019, compared to 76.2% in 1999 (*see Chart 17.a*). By June 2023, the debt of non-financial corporations has increased to $48.7 trn, or 89.9% of GDP.

CHART 17.
Credit to private non-financial corporation, as% of Nominal GDP

17.a : Advanced economies aggregate

17.b : Selected Advanced Economies



Source: BIS
Last observation from 2023-Q2

The global stock of non-financial corporate bonds outstanding at the end of 2019 reached a record level of $13.5 trn. Notably, since 2010, around 20% of the total amount of all bond issues has been consistently non-investment grade, indicating a long-lasting issue in the overall quality of bonds[30].

This decline in the quality of the corporate bonds also affected the global investment-grade segment: while between 2000-2007, BBB rated bonds accounted for an average of 38.9% of global investment-grade issuance[31], they reached an average of 44.1% in the period 2008-2018 and 53.8% in 2018. This shift in the share of BBBs occurred at the expense of AA and AAA – rated bonds: the annual average share of AA rated bonds decreased from 16.7% to 13.7% between the 2000-2007 and 2008-2018 periods and that of AAA rated bonds declined from 5.4% to 2.3%.

Thus, as the OECD stressed 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".

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

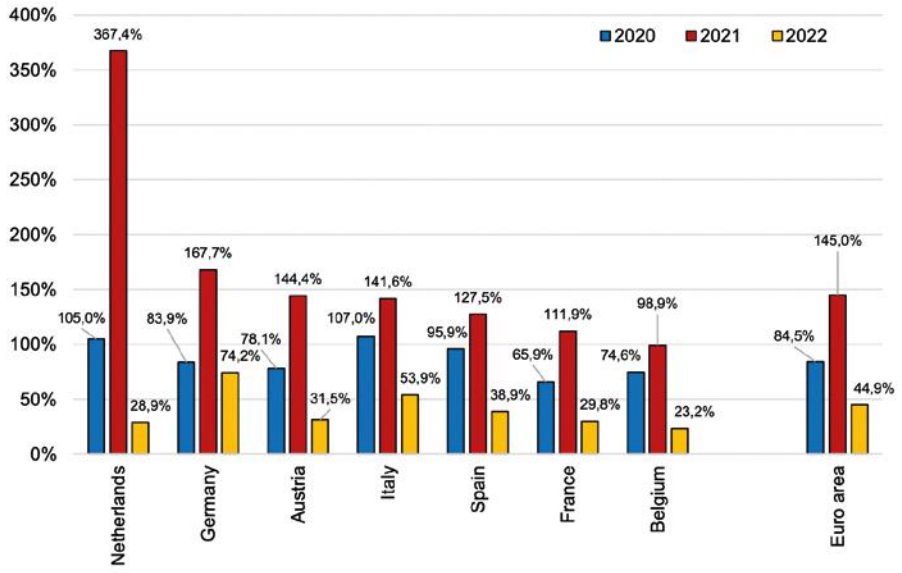
As explained by J. de Larosière in Chapter 1 of his latest book[32], "the policy of low interest rate has played an important role for a long time in this deterioration of credit quality. Indeed, an environment of persistent very low interest rates leads financial actors to seek yields and therefore 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).

2.5 Central banks have de facto become fiscal agents

National Central Banks hold an increasing and significant share of their country 's general government debt.

The Eurosystem played a leading role in the monetisation of public debt during the Covid-19 crisis, as its purchases of government securities represented the majority of government borrowing needs (*see Chart 18*). The scale of these interventions was a considerable advantage for borrowing governments (*i.e.* "fiscal dominance").

CHART 18.
Share of Public Debt purchased by the Eurosystem



Sources: ECB, Eurostat, Eurofi Calculations

In 2020, Euro area governments issued an additional €1067.3 bn of public securities of which €901.4 bn of bonds were absorbed by the Eurosystem, *i.e.* 84.5% of new issuances[33].

In 2021, Euro area governments issued €624.6 bn (a decline of €400 bn compared to 2020). However, the amount of asset purchased by the Eurosystem slightly increased from 2020, reaching €905.7 billion in 2021 (*i.e.* 145,7 % of public debt issuance). In other words, in addition to absorbing all new issuances in 2021, the Eurosystem also repurchased part of the rolled-over debt maturing in 2021.

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

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

32. See footnote n°5.

33. 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 entirety of the debt issued in 2021 by the French, German, Spanish and Italian governments was also acquired by the Eurosystem (*see Chart 18*)[34].

In 2022, net purchases of securities by the Eurosystem amounted to 44.9% of the Euro area debt issuances. 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.

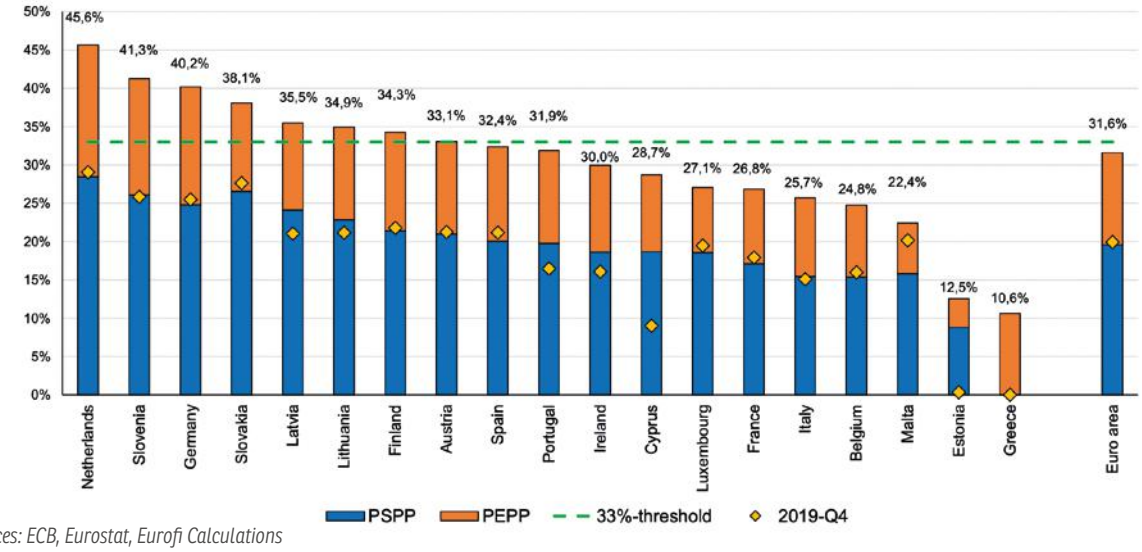
The purchase of sovereign bonds since 2015 has led the Eurosystem to hold more than a third of the Euro area's public debt outstanding in 2023.

Charts 19 & 20 show the increasing share of government debt held by National Central Banks. This share has continuously risen 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 increased from 4,4% to 19.5%.

By December 2022, six months after the ECB officially ended its net purchases under the APP (*see Section 4*), this proportion had risen to 32.9%. Despite the ECB's quantitative tightening policy which began in March 2023, the stock of debt held has decreased marginally: in June 2023, the Eurosystem held 31.6% of the public debt issued by Eurozone governments.

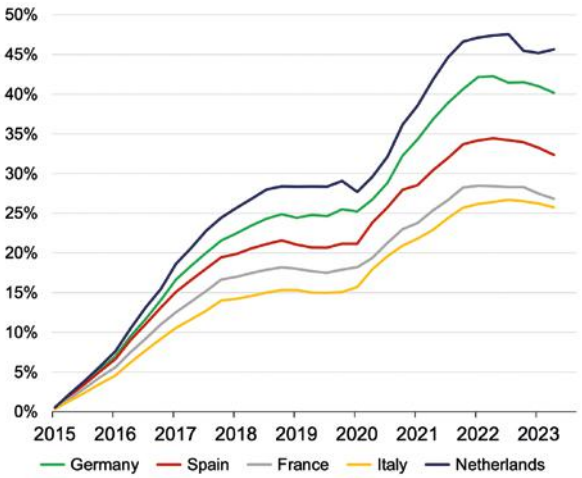
26.8% of the stock of French public debt and 25.7% of the Italian debt stock were held by the Eurosystem in June 2023. The share of Dutch and German government debt has consistently exceeded the 33% threshold, initially set under the APP but suspended under the PEPP.

CHART 19
Share of Government Debt held by the Eurosystem as of June 2023, %



Sources: ECB, Eurostat, Eurofi Calculations

CHART 20
Share of public debt held by the Eurosystem

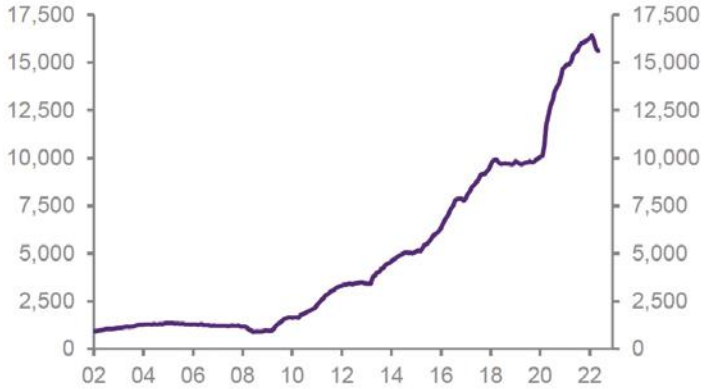


Sources: ECB, Eurostat, Eurofi Calculations
Last observation from 2023-Q2

34. 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.

Strengthening the link between sovereign states and central banks.

CHART 21.
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 21*) illustrates the strengthening of the link between sovereign states and central banks. Advanced economies have seen their central banks assume more significant responsibilities, reinforcing the sovereign-central bank link between 2008 and 2022.

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 sovereign bonds should not pave the way for governments to finance significant stimulus plans unconditionnaly. Increasing the efficiency of public spending and prioritising public investment over current expenditure should also have been considered.

This "fiscal dominance" which took place until 2022[35] poses two big dangers. First, it raises doubts about the independence of central banks. Second, it has been a major disincentive for governments to replace current expenditures with productive public spending and engage in the structural reforms that are essential to meet fundamental challenges of the green transition that cannot be solved 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 boost potential growth. Indeed, with interest rates at ultra-low levels, governments were under no pressure to reduce their debts. Negative real interest rates encouraged 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).

In other words, the reassurance of low rates, given political imperatives, encouraged governments to increase debt further. But thinking that monetary creation can solve the problems arising from excessive debt is an illusion[36]. 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 presents a major drawback: it weakens the financial system by multiplying bad risks, causing defaults, or artificially sustaining zombie firms that survive on the subsidy of low interest rates and prevent the development of new

35. 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.
36. See the Eurofi note, "Addressing the dangers of the monetary policy deadlock" (September 2020).

competitors. The extreme increase in global indebtedness demonstrates the over-financialization of our system and the danger of a financial crisis as soon as monetary conditions reverse.

"The productive potential of the economy decreases with increasing debt levels, because the interest burden associated with servicing higher public debt has again become a significant government expense with higher interest rates. This will lead to further increases in taxes and duties, with all their negative 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"[37].

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

3. The persistence of ultra-loose monetary policies has had negative consequences on the real economy and financial stability

Lasting ultra-accommodative policies (2008-2021) have been detrimental to productive investment and growth, with a preference for liquidity prevailing over investment, particularly in Europe. These policies have fuelled capital misallocation, encouraged the proliferation of zombie firms and increased share buybacks operations.

Furthermore, persistent low rates have exacerbated financial vulnerabilities, leading to mispricing of risks and asset bubbles. They have favoured financial valuations at the expense of growth and have been accompanied by a significant increase in wealth inequalities.

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

Ultra-loose monetary policy has undermined the Eurozone growth potential. Abundant liquidity and low interest rates have not led to increased productive investments but to liquidity hoarding. With interest rates set to remain at zero for an indefinite period, investors have been discouraged from investing in risky projects, turning instead to high yielding speculative assets. Besides, the savings of household and non-financial corporations had shifted to liquid and non-risky assets, as the return on investments were insufficient in relation to the risk taken – particularly true in Europe.

Furthermore, low or negative interest rates induce a fatalistic state of minds that decrease – and not increase – the propensity to invest. In what John Maynard Keynes[38] called the 'liquidity trap', investors play safe by placing their savings in very short-term instruments rather than deploying them over longer term, where low interest rates generate inadequate returns for higher risks.

As the BIS[39] has stated, "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 combined with the expectation of low returns on earnings, lead to a preference for liquidity.

Charts 22 & 23 show that, from 2008 to 2021, the purely liquid component (currency and sight deposits) of the financial portfolio of households' and non-financial corporations rose sharply across the main Euro area countries across the Euro area countries, while interest rates decreased. Once the investor's risk is no longer rewarded, investors turn away from riskier long-term projects.

Indeed, the liquid share of financial assets held by households and non-financial corporations rose from 10.2% in 2007 to 20.1% in 2021 in Germany and from 5.3% in 2007 to 7.8% in 2021 in France. The increase was also important in Spain and Italy over the same period (respectively +10.2 ppts and +6.6 ppts). This trend continued during the Covid-19 crisis and even intensified afterwards.

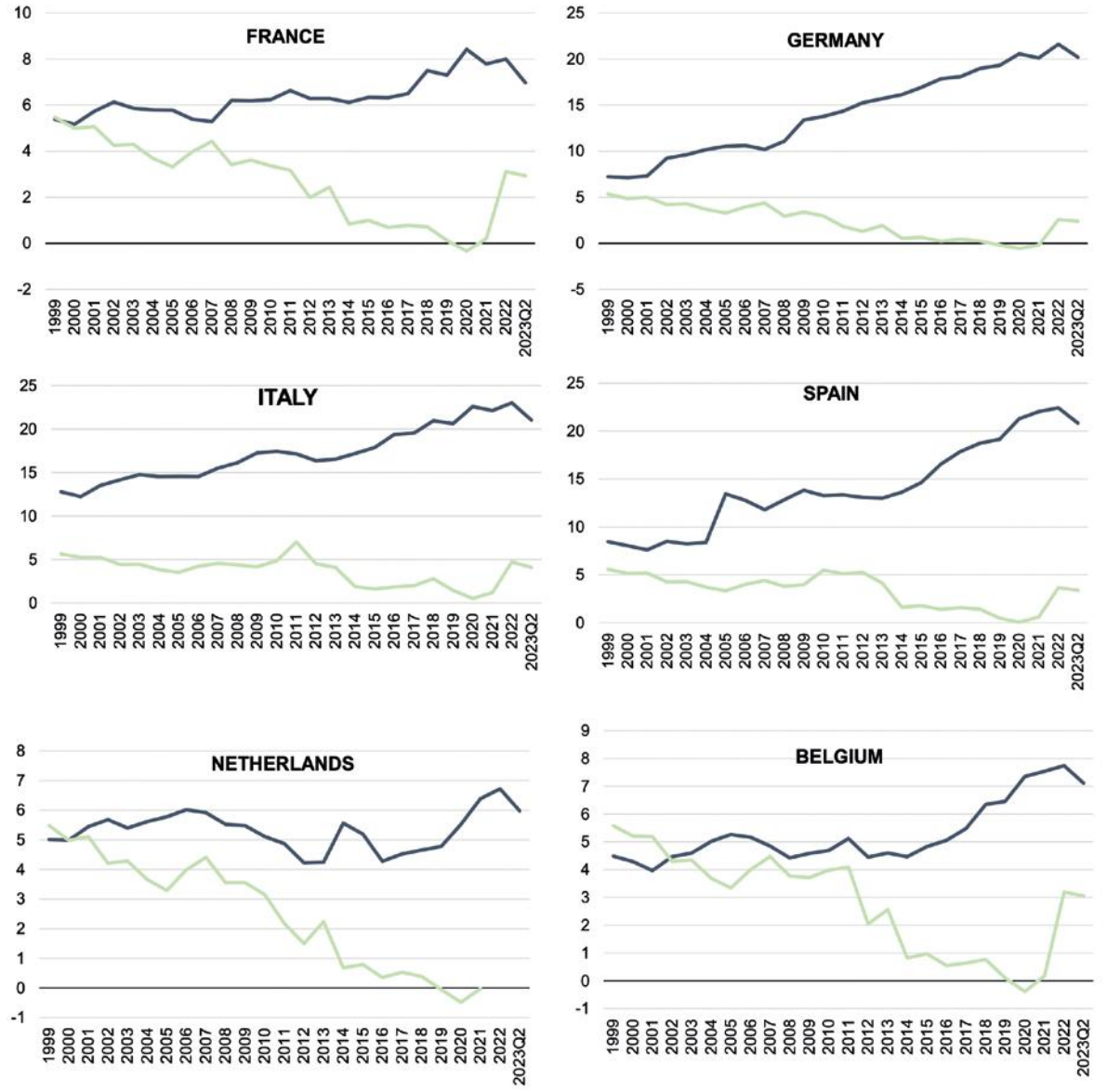
It should also be noted that the flight to liquidity measured by this liquidity ratio between 2008 and 2021 is underestimated due to stock markets valuation effects. Over the same period, the STOXX Europe 600 index rose by 146%. Strong stock market valuation effects have had a significant impact on the denominator (total financial wealth) but not on the numerator (liquid assets). This preference for liquidity has distracted savers away from long-term investments.

In 2022, rising inflation led the Central Banks to intervene by increasing their policy rates, from March 2022 for the Fed and from July 2022 for the ECB, throughout 2023. The ECB's refinancing rate reached its highest level (4.5% since October 2023) since the creation of the monetary institution. Despite rising long-term interest rates, financial investments remain highly concentrated in liquid and risk-free assets in Europe, as the following charts show. However, one can observe that the liquid share of financial assets held by households and non-financial corporations began to decline throughout 2023 to reach 20.2% in Germany, 21% in 21% in Italy, 21.8% in Spain and 7% in France at the end of the second quarter. This confirms the phenomenon of negative correlation between the level of interest rates and the share of liquid assets in financial portfolios that had been observed from 2008 to 2021.

38. 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.

39. BIS, Annual economic report – June 2021.

CHART 22.
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)

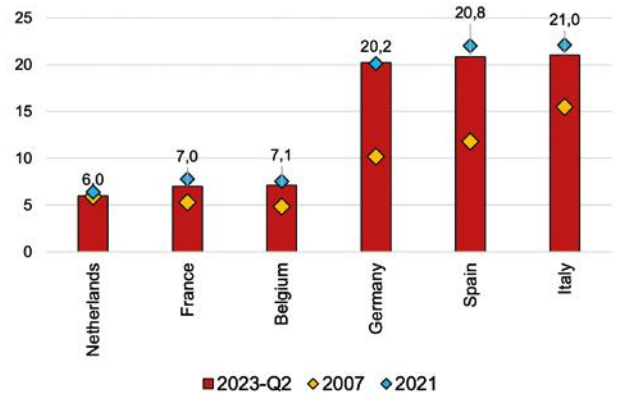
In a context still marked by high inflation and concerns about the international economic and geopolitical environment, European economic agents remain cautious when it comes to investment decisions. Despite the loss of purchasing power due to inflationary wave, European households have preferred to restrain their consumption, and their savings rates remained at high levels, above pre-Covid-19 crisis in most countries in June 2023: 20.6% in Germany (+1.1 ppts compared to pre-Covid-19 crisis), 17.8% in France (+2.2 ppts), 9.6% in Spain (+0.5 ppt).

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 the time to think about the optimal way to allocate their long-term saving. For example, as G. Naacke and L. Gabaut noted[40], 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 excess savings remained on non-interest-bearing current accounts. In a study by L. Calvet[41] commissioned by the European Savings Institute (OEE), it is also shown that only a small proportion of wealthiest economic agents adapt their savings behavior according to changes in the economic context.

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

41. "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/#

CHART 23.
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)
Notes : Labels refer to 2023-Q2

Moreover, the "monetary illusion" is present. In France, we have recently seen an increase in the flows of money invested in regulated saving products following the increase in nominal interest rates on these products. However, with high inflation rates, the real interest rates became significantly negative in 2022 and 2023. By doing so, households caused their financial assets to lose value. With interest rates rising again since 2022, after 10 years of exceptionally low rates, investors are faced with a major liquidity trade-off. The outstanding amounts of sight deposits are now impacted by the opportunity cost of holding non-remunerated deposits, as interest rates are increasing. The phenomenon of reallocation of funds previously held on sight deposits was observed in all major European economies. However, it is worth noting that these arbitrages benefited to different types of products depending on the country, particularly due to the heterogeneous offer of savings products. France was characterised by a strong reallocation towards non-transferable deposits due to the attractiveness of regulated savings and the development of term accounts.

The OEE recently launched an index[42] measuring the performance of households financial investments. Variations in the weight of each asset class in household portfolios remain small, and therefore have little impact on the overall 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 has been 1.96%;
- with an annual average nominal performance of 4.21%, equity products contributed almost half of the global index performance (43%), whereas their weight in the latter was only 20% on average;
- over the same period of time, the annual average nominal performance of fixed income products was 1.39%;
- there have been relatively few quarters in which the annual growth rate of the index has been lower than inflation, but, this has been the case since the beginning of 2022.

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

It is long term productive investment that enables an economy to progress, increase its productivity and face up to the necessary transitions (green, digital…). Long-term investment means 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 where interest rates remain low, meaning that growth prospects are weak. 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 24 highlights that in advanced countries, the level of gross non-residential investment in tangible assets has fallen significantly over the past two decades, from 14.5% of GDP in 2000 to 10.8% in 2021. Half of this decline occurred between 2008 and 2019.

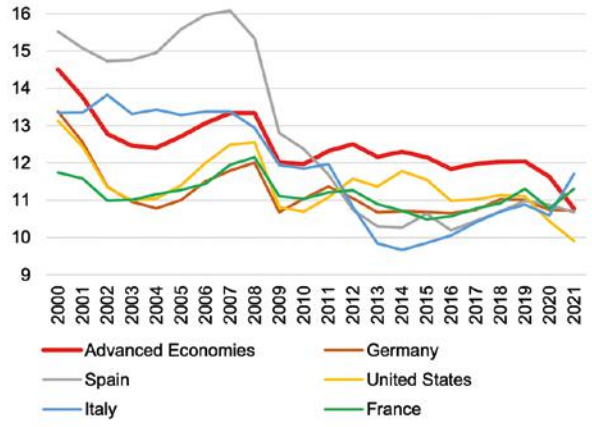
The rise in intangible investment over the same period was less than the fall in tangible non-residential investment (*see Chart 24.b*). Indeed, non-residential intangible investments which include patent, brand, trademark, copyright and software have stagnated or risen slightly over the past two decades, reflecting the digitalisation of advanced economies. In AEs, they increased from 4.3% of GDP in 2000 to 5.2% in 2021. But this did not offset the decline of total non-residential investment, that went from 18.8% of GDP in 2000 to 15.9% in 2021.

As a major source of long-term growth, non-residential investment in tangible assets results from spending on such items as infrastructures, commercial real estate, machinery, and industrial plans.

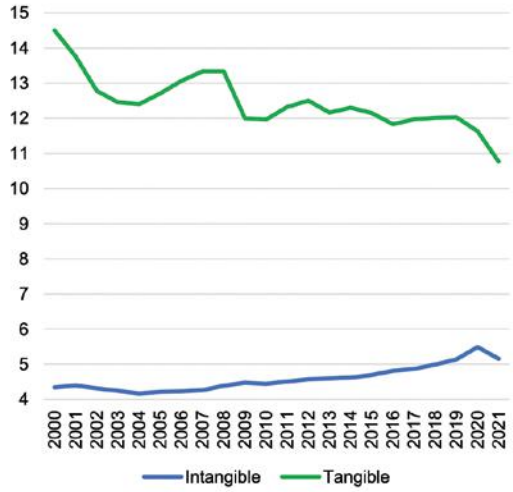
42. https://www.oee.fr/performance-of-financial-saving-index/?lang=en

CHART 24.
Non-Residential Investments in Advanced economies,% of GDP

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



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



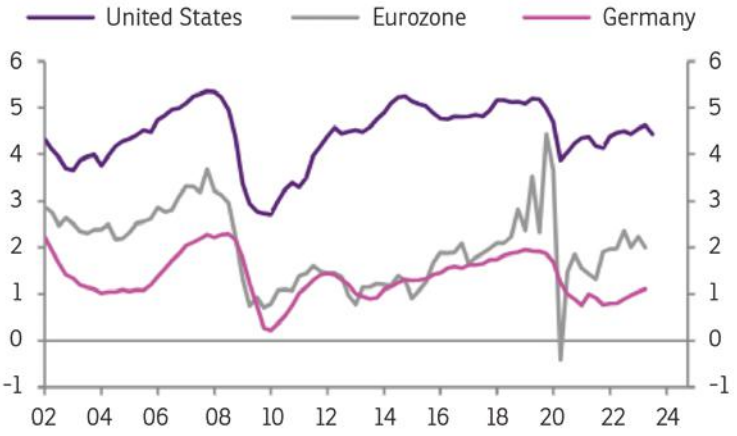
Sources: OECD, IMF Staff Calculations
Notes: Advanced economies = Australia, Canada, France, Germany, Italy, Japan, Korea, Spain, United Kingdom, United States ; the series include government and corporate investment

This gradual decline has been widespread across major advanced economies. In the US, it fell by 3.2 ppts since 2000, reaching 9.9% of GDP in 2019. In Germany, it fell by 2.6 ppts since 2000, to 10.7% of GDP in 2019. Italy and Spain also experienced important declines, with investment falling by 1.6 ppts and 4.8 ppts respectively since 2000, to 11.7% of GDP and 10.6% of GDP in 2019. French non-residential tangible investment recorded one of the smallest variations in the past two decades (-0.4 ppts).

An article in the Financial Times[43] citing World Bank data indicated that "France and the US have invested nearly two percentage points of GDP less since 2000 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 Natixis note[44] analyzed the rate of net corporate investment (*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 25*) highlights the shortfall in net corporate investment since the GFC. This note also highlights that net corporate investment relative to GDP has been fallen in both the US and the Eurozone, over the last twenty years or more, despite the fact that corporate profitability has risen in both areas over the same period[45]. Moreover, in the Eurozone, net corporate investment has always been lower than in the US.

CHART 25.
Net corporate investment (as% of nominal GDP)



Source: Natixis, with Refinitiv, BEA and Eurostat data

43. M. Sadbu, "The investment drought of the past two decades is catching up with us", Financial Times, 20 July 2022.

44. P. Artus, "Since the subprime crisis, OECD countries have suffered from a shortfall in corporate investment", Flash Economics, Natixis, 25 January 2022.

45. 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)).

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

If we are 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 makes us more confident about the future (while inflation blurs the horizon),
- Adequate remuneration for the risks incurred in long-term financing.

3.1.2 'Too low for too long' policies have favored the survival of weak firms, thereby increasing capital misallocations

The inability of monetary policies to boost economic activity can also be attributed to capital allocation choices. Favourable borrowing conditions ensured the survival of non-productive firms *i.e.* 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 hampered the process of creative destruction, securing the survival of zombie firms that should have gone bankrupt. This has further compromised the aggregate productivity growth, and this excess supply perpetuated the disinflationary pressures that prevailed in the run-up to the Covid-19 crisis. Acharya et al. (2020)[46] have detailed the process: in sectors where zombie firms predominate, prices fall (so do profits). However, increased competition for factors of production raises costs and further lowers profits for all. This reduces investment, particularly for healthy firms, and decreases future productivity growth. The level of productivity in the sector also falls arithmetically as it includes low-productivity zombie firms. In short, zombie firms increase short term disinflationary pressures as excess capacity is maintained; but they also reduce the level and the growth of productivity.

Chart 26 illustrates that the share of zombie firms in OECD economies has risen from 1% in 1990 to 15% in 2017. According to the CGFS Working Group[47], the share of public firms classified as zombies spiked in 2020. This CGFS 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".

Productivity is thus hampered by zombie firms, preventing the reallocation of resources needed for innovation and growth.

CHART 26.
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 is said to have contributed to the downward trend in potential growth in OECD countries during the 2010s: as the share of zombie firms in an economy increases, total factor productivity growth declines[48].

According to W. White, the sharp reduction in corporate default rates through 2022 also testifies the growing zombification of many economies. Since the pandemic, the drawing down of bank lines and heavy recourse to

46. V. Acharya, M. Crosignani, T. Eisert & C. Eufinger, "Zombie credit and dis-inflation: evidence from Europe", National Bureau of Economic Research, May 2020.

47. Malikamas *et al*, "Private sector debt and financial stability", CGFS Paper (May 2022).

48. R. Banerjee et B. Hofmann, The rise of zombie firms: causes and consequences, BIS (September 2018).

bond market have probably exacerbated this problem. In fact, Insolvencies have fallen further in many countries over this period.

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

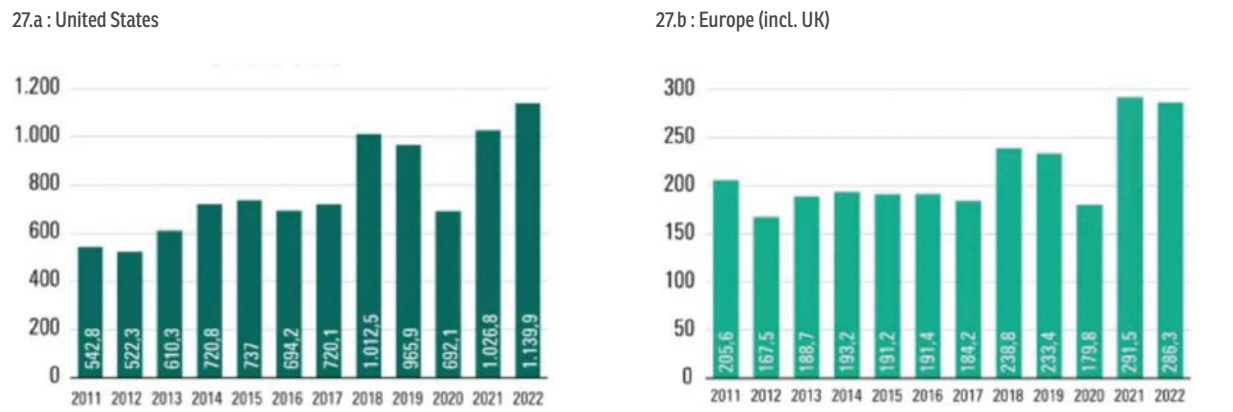
The evolution of share buybacks cannot be dissociated from monetary policy (*see Chart 27*).

An OECD's 2021 report[49] points out 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, around 83% was attributable to US corporations. A significant proportion of US share buybacks took place in the financial sector, whose profitability was boosted by lasting low interest rates. In 2018, share buybacks by US companies amounted to around $1.1 trn, more than double the amount in 2010.

In 2019, 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 exceeded the amount of equity issuance every year from 2016 to 2019[50].

CHART 27.
Share buybacks by non-financial corporations (USD)



Sources: S&P Global Market Intelligence, via AGEFI

A significant 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 27.a*), according to the S&P Global data[51].

In Europe, $286 bn buybacks (1.4% of GDP) occurred in 2022, down from $291.5 bn in 2021 (*see Chart 27.b*).

In the 11 largest European markets, the value of shares repurchased by listed corporates amounted to €161 bn, almost double the €84bn of share buybacks executed in 2021, according to BNP Paribas Exane[52]. 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 a recent study by Natixis points out[53], "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".

49. "Trends in the corporate sector and capitals markets pre-covid 19", OECD - July 2021.
50. Idem.
51. "Un millésime 2022 record en Europe et aux États-Unis pour les "buybacks"", AGEFI (17 March 2023).
52. "European corporate share buyback volumes almost doubled in 2022", Global Markets (February 2023).
53. P.Artus, "What about share buybacks?", Natixis Economic Research (February 2023).

These share buybacks did not help transfering of savings to finance more efficient investments by companies, and therefore that the Schumpeterian reallocation of capital to more efficient companies did not really materialized. Indeed, share buybacks have coincided with a decline in capital accumulation (*see Charts 24 & 25*) and a rise in share prices over the past decade (*see Chart 26*).

This situation is worrying, as companies will have to invest massively to achieve decarbonization, and the return on such investment is quite low. As noted by P. Artus[54], "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 grew much faster than income and asset prices were massively distorted. High leverage has significantly increased market valuations, stimulating 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[55]

As a result of highly accommodative monetary policy, financial and real asset prices have risen disproportionately relative to incomes. This represents a break with historical precedents.

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

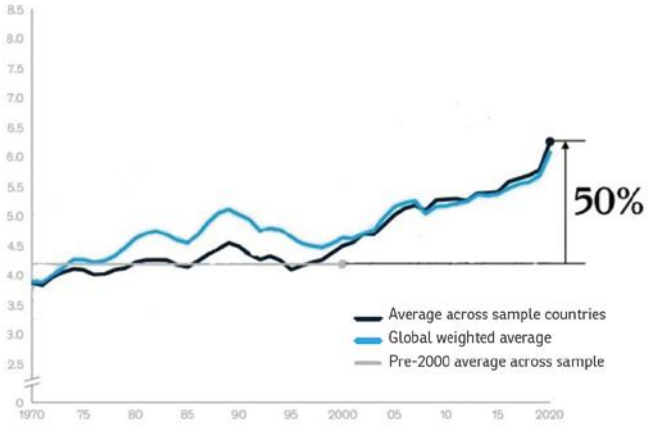
Since 2000, net worth has exploded (the ratio of net wealth to GDP has increased by 50%) while GDP has grown only moderately. Chart 29 illustrates the break that occurred around the year 2000.

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

The main conclusion of McKinsey's report is that, at the level of the global economy, 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 soared. The pace of valuations – which traditionally followed that of GDP – is now 50% higher than the historical relationship.

Two systems: before 2000 net worth follows GDP; after 2000 it takes off (*see Chart 28*).

CHART 28.
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 in net worth between 2000 to 2020 comes from higher asset prices (and only 23% from real resource creation).

In the environment of monetary easing and low – or negative – interest rates maintained by central banks for almost 15 years, the valuation of financial assets has soared, enabling equity holders in particular to realize gains in excess of normal remuneration ("operating returns").

54. Idem footnote 17.

55. 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.

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

This is an important observation. 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 projects.

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

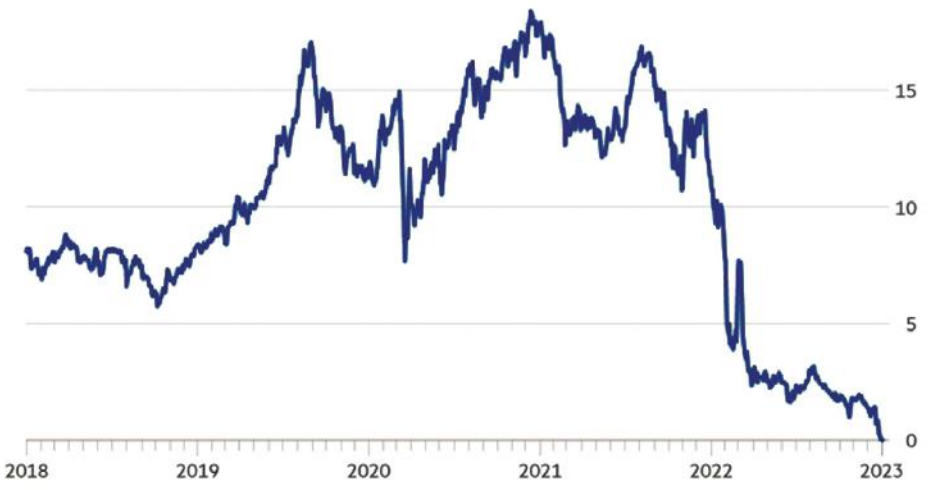
In a market-based economy, financial markets should discriminate between signatures on the basis of their quality, and not be dominated by the setting of interest rates by central banks. Yet, as we have seen in Section 1, central banks in OECD countries have controlled the prices of an increasing number of assets through their large-scale purchases : not only short-term interest rates, but longer-maturity rates, targeted by quantitative easing programs, leading to the control of 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 transformed from market prices to administrated prices.

How can free markets assess fundamental value in these conditions? Let's not underestimate the importance of this loss of benchmarks as zero interest rates blur risk premia. This reduction of risk premia had already been 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. By the end of 2020, almost 40% of the global government debt was offering negative returns, equivalent to $18.4 trn (see chart 29), according to The Economist[56].

By 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 29.
Amount of Global Negative Yielding Bonds, $ tr



Source: Wall Street Journal/Bloomberg
As of January 2023

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

The pandemic-related measures 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 consequence of pushing Treasuries and MBS yields to the downside across all maturities and leading to a classic "search for yield" by investors, as Better Markets reports[57].

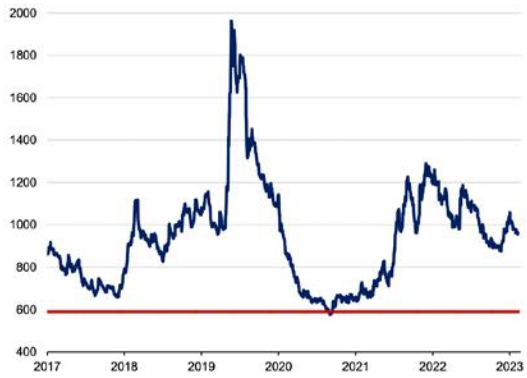
According to their report, "because financial returns had been lowered, investors were willing to take on more risk to potentially make the financial returns they wanted. As a result, the cost of credit was greatly reduced, and the availability of credit was greatly increased." For example, in 2021, junk bond spreads reached lows not seen since 2007 (*see Chart 31.a*). The lower credit cost led to a doubling of average of high yield debt issuance in the six quarters following the 2020 Pandemic Stress, compared with the average of issuance in the previous three years (*see Chart 30.b*).

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

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

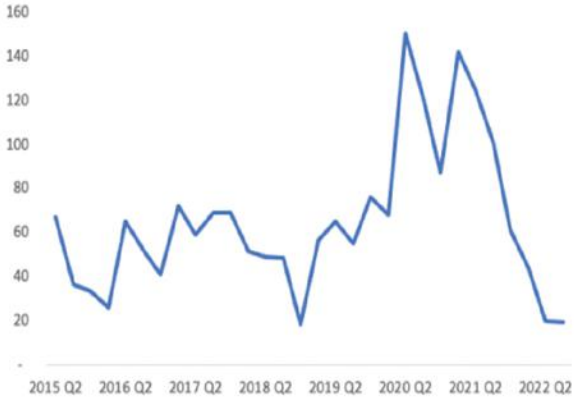
CHART 30.
Corporate bond Spreads and High-Yield debt issuance in the United States

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



Source: St. Louis Fed
Last observation from 12 December 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

30.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 but has failed to generate commensurate economic growth. This massive wave of money supply failed at achieving the 2% inflation target until 2021 but has been reflected in the prices of financial and real estate assets. High leverage has led to a massive increase in market valuations, jeopardizing financial stability, particularly in a context of inflation and rising interest rates.

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

This can be illustrated by the inflation of equities and real estate assets, and more recently by the volatility of the bitcoin price.

In recent years, stock markets have been governed mainly by central banks and their monetary expansion.

Chart 31 highlights the widening gap between stock prices and real GDP growth in OECD economies, indicating a clear disconnect between financial markets and fundamentals. Between early 2013 and early 2020, stock prices in the OECD countries increased by 45.5%, three times more than real GDP (+15.4%). Their disconnection from the economy was also illustrated by the 16.26%[58] rise in the S&P500 and 43.6% in the Nasdaq in 2020, while the world experienced a 4.2% recession that year.

Stock markets rose even further in 2021, with the S&P 500 and the Nasdaq indices increasing by 27.2% and 20.1% respectively.

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

In 2022, the year in which central banks began to raise interest rates in most OECD countries, stock market indices fell worldwide. For example, the S&P500 lost 19.4% over 2022 as a whole. This decline was temporary, however, as these indices rebounded from the end of 2022 and globally continued to rise throughout 2023.

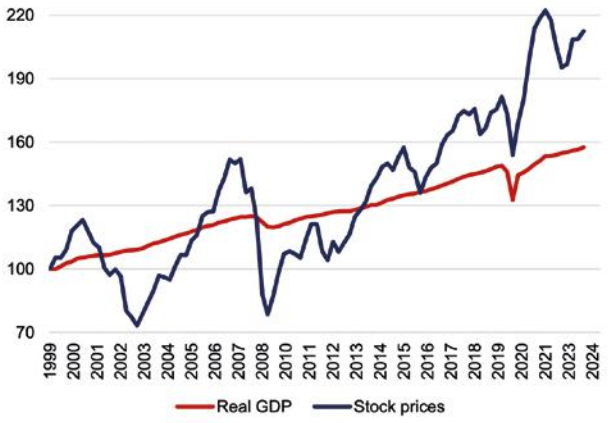
This 'rally' coincided with market's expectations that the major central banks would cut interest rates in the coming months. Indeed, the S&P 500 rose by around 24% in 2023, its best year since the 27%'s return of 2021 and well above its median annual gain of around 10% observed since 2000.

58. Excluding dividends for S&P500 and Nasdaq.

A sharp rise in house prices due to the overwhelming influence of central banks liquidity.

The associated chart (*Chart 32*) illustrates the sharp rise in house prices, both in the United States and the Euro area, which has been stimulated by abundant money supply growth in recent years. Between 2015 and 2019, house prices rose by roughly 27% in OECD economies (*see Chart 32.a*). They rose by 31% in the United States and 22% in the Euro area.

CHART 31.
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-Q3*

After the Covid-19 crisis and central banks actions that pushed interest rates to even lower levels, house prices were 78.2% higher than their 2015 level as of June 2023 in OECD economies, up to 44.3% up in the Euro area and to 92.4% for the US.

We note that the increase in real estate values since 2014 at OECD level is higher than that observed between 2000 and 2007, which led to the so called subprime crisis of 2008[59]. This comparison should be a cause of concern.

Since the end 2022, house prices have continued to rise at lower pace, as they adjust to rising borrowing costs. In the first quarter of 2023, Eurozone house prices increased by 0.4% in 2023-Q1 year-on-year, down from 3.6 % in the previous quarter. In the United States, prices rose by 4.7% in 2023-Q1, half the previous quarter figure(8.4%).

Rising borrowing costs since mid-2022 have had a negative impact on demand for mortgages, leading to a sharp drop in new lending. The increasing level of interest rates, the reduction in consumer confidence and deteriorating housing market prospects were the main drivers of the decline in demand for housing loans.

Rising interest rates have contributed to the contraction of property prices in some European countries, particularly those that experienced very strong growth up to mid-2022. These include Germany and the Netherlands, where residential property prices fell by 9.9% and 4.3% respectively between June 2022 and June 2023. Property prices continued to rise in France (+0.5%), Italy (+0.7%) and Spain (+3.7%), but at a much slower pace than before 2022.

Despite falling prices in some Eurozone countries, valuations remain high, making access to housing more difficult than ever for certain segments of the population. A measure of the affordability of homes for households is the price-to-income ratio (*see Chart 33*). Its increase indicates that housing prices are rising faster than the disposable income.

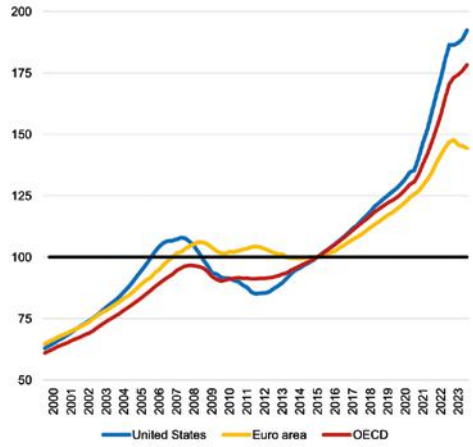
From a level of 100 in 2015, the ratio increased to 107 at OECD level in December 2019. Following the Covid-19 crisis, the index rose again to 122.7 at the end of 2022. In the second quarter of 2023, the price-to-income ratio remained 18% above its 2015 level on average in OECD countries (*see Chart 33.a*)

Already 9.7% higher in 2019 than in 2015, the ratio was 30% higher in June 2023. than in 2015 in the United States. Although no indicator is available for the Eurozone, the trend is similar in some Member States. Between 2015 and 2019, Germany and the Netherlands experienced the biggest increase in the price-to-income ratio, with a jump of 17.8% and 18.6% respectively. Four years later, in June 2023, these figures have risen by a further 11% in the Netherlands. In Germany, the price-to-income ratio fell below its 2019 level in June 2023, but was still 16.3% above its 2015 level, when the ECB started its QE policy.

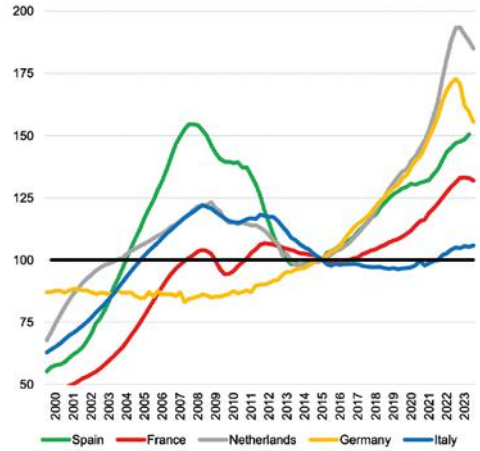
59. For OECD at the whole, the increase in house prices between 2014 and 2022 was 19 ppts higher than in 2000-2007. This is also the case for the US, where the increase in 2014-22 was 26 ppts higher than in 2000-2007. In the Eurozone, house price increases, by 47% between 2014 and 2022, and are still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

CHART 32.
Residential House Prices development, Q4-2014=100

32.a : At the OECD level



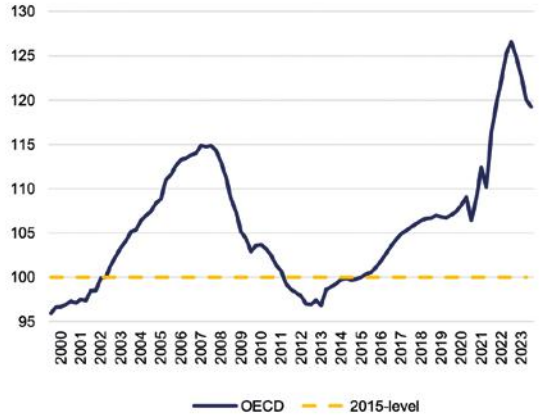
32.b : Across Euro area Member States



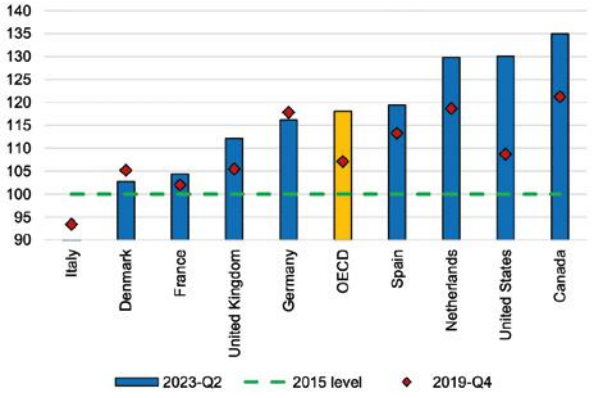
Source: OECD, Last data are from 2023-Q2

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

33.a : At the OECD level



33.b : Across OECD Member States



Source: OECD

As mentioned in the final chapter of his latest book, J. de Larosière points out 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

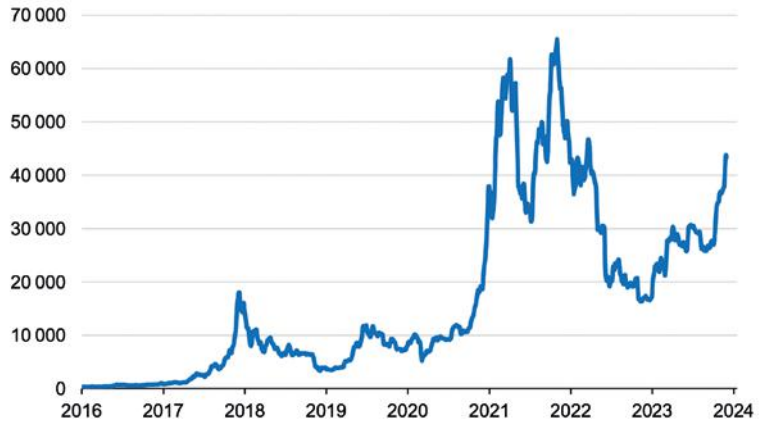
The search-for-yield attitude caused by excess liquidity and low interest rates has also increased volatility on the crypto-currency markets . Bitcoin, whose price soared by more than 4 000% between 2016 and January 2022, is a stunning example. After reaching $60 000 in the first few months of 2020, the price of Bitcoin has fallen by 50% in a matter of weeks (*see Chart 34*).

Rising interest rates have led the bitcoin price to fall by 65% for the full year 2022. But, like equities, the bitcoin quickly rebounded with the prospect of future rate cuts priced by money-markets for the months ahead.

As chart 35 shows, gold is the ultimate safe haven in times of crisis. Its price has risen sharply since the Covid-19 crisis. Recent geopolitical uncertainty, including the Ukraine war and the situation in the Middle East have increased its attractiveness for savers. Nevertheless, the rise in gold price observed in Q4-2023 is also part of a general "everything rally", that many commentators are attributing to the prospect of central banks rate cuts in the months ahead[60].

60. B. Henderson, Y. Khan, "Why Gold Prices Are Hitting Records", Wall Street Journal (December 2023); C. Grant "When Bond Yields Dropped, the Everything Rally Kicked Off", Wall Street Journal (December 2023).

CHART 34.
Price of Bitcoin, USD



Source: Yahoo Finance
Last data from 12 December 2023

CHART 35.
Gold price, USD/ounce

Source: Yahoo Finance
Last data from 12 December 2023

As a result, monetary policy widened 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 boost asset prices (particularly housing, equity, as well as government and corporate bonds) and have therefore particularly benefited the wealthiest segment of society.

Ultra-accommodative monetary policy also has cross-generation distributional consequences. Since older people tend to have higher savings (accumulated from their families and during their working time), they are able to sell their assets whenever it is appropriate for them and smooth out their consumption levels. They therefore really benefit from upward price variations. Younger households, on the other hand, are generally those who buy these assets at a relatively high price for housing or to save for retirement. This absorbs a larger share of their incomes at the time when they start work.

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

A report issued by the McKinsey Global Institute[61], 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 drive the global "balance sheet" to high levels, far outstripping underlying economic growth and raising questions about its sustainability.

In addition, "asset values are now almost 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?".

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

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

McKinsey has calculated that 77% of the net worth growth between 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 most from the rise in stock prices are among the wealthiest 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*

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 rising stock market value casts 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. 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 allowing wage income to stagnate 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 who live from their work"[62].

•

The persistent cheap money between 2008 and 2021 has undermined financial stability. Here we can quote A. Weber, who writes in this regard 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. 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."

•

After 15 years of zero or negative real interest rates, the need to raise rates to combat inflation created the ingredients for a major financial crisis: the bond portfolios built up during this period of persistent very low interest rates have seen their value plummet since then. This lasting zero-interest rate policy therefore played a major role in the genesis of the current crisis.

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

This financial environment is extraordinarily uncertain. Indeed, opinions are divided: the markets, which never like rate rises, are on the lookout for the slightest clue to provoke them or encourage them to fall. But the central banks know that the situation is fragile, that inflation is not yet under control and that caution is called for.

These dilemmas are made all the more difficult by the fact that public and private debt in many countries is at record levels. The considerable excess liquidity held by banks at central banks is another reason for caution.

In such a context, the global financial system continues to face a challenging outlook. In its ongoing surveillance, the Financial Stability Board (FSB) has been highlighting vulnerabilities associated with elevated public and private debt levels, stretched asset valuations, and the combination of leverage and liquidity mismatches in non-bank financial intermediation (NBFI). Each of these vulnerabilities is sensitive to a tightening of financial conditions and a slowing of economic activity.

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

The damage caused by high inflation is well known: it reduces consumer purchasing power, increases uncertainty and therefore investment. The longer inflation persists, the more likely it is to become entrenched and the more costly it will be to curb.

The good news is that inflation has continued to fall since the fourth quarter of 2022. The rise in inflation was a global phenomenon and its decline has also been similar across countries.

But disinflation seemed to stall at the end of 2023 in major western economies. Lower inflation is not low inflation: Inflation is still above central banks targets in most countries and needs to drop further. But inflation rates may not return to target levels as quickly and as firmly as most forecasters expect. The last mile could still be the hardest.

In January 2024, A. Carstens[63] expressed some concerns in this respect. He stated that "Services price growth, in particular, may continue to be much higher than good price growth for some time… Furthermore it is quite reasonable to exepct that real wages will try to catch up. If productivity does not pick up and rather goes back to the sluggish pre-pandemic trends, it will imply higher unit labour cost for a given level of wage inflation, raising the risks of further price pressures. Upward pressure on prices could also reemerge if geopolitical tensions continue to rise, with negative repercussions for commodity markets and global trade flows… Finally, another key risk to the inflation outlook is that financial markets may start to price in sharper and faster monetary easing than warranted… This would lead to a premature easing of financial conditions that could rekindle inflationary pressures… reducing fiscal deficits would also support the ongoing process of disinflation".

This section explains why inflation could remain above 2% for longer than expected (*4.1*). It provides an update on the progress of the monetary policy normalisation process at the end of December 2023 across the main advanced and emerging economies (*4.2*). Finally, this chapter shows that the recent return of real interest rates to positive levels (most often since the second semester 2023) needs to be put into historical perspective, as it follows several consecutive years of negative real rates. They are in any case needed to pursue the fight against inflation (*4.3*).

4.1 Inflation could remain above 2% for longer than expected

We have experienced an episode of inflation since March 2021, breaking with the trend of slow prices growth that prevailed during the decade preceding the Covid-19 crisis. Inflationary pressures have intensified in 2022, following the war in Ukraine. Inflation has reached levels not seen in decades.

The causes are numerous and complex, driven by a mix of cyclical and structural factors. Soaring energy prices, which spread to a wide range of commodities as food and raw materials, were one of the main drivers of the inflationary shock. Disruptions to the global supply-chains exacerbated price pressures. But there are other sources of pressure too: the acceleration of inflation in 2022 may also be the result of the substantial excess of broad money growth over the past years (*see Section 2*).

Since the fourth quarter of 2022, headline consumer price inflation has significantly fallen in most economies mainly due to lower energy and food prices. However, core inflation remains high, supported by strong increases in services prices, higher margins in some sectors and cost pressures due to tight labour markets.

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

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

At OECD level, inflation increased from 2.4% in March 2021, to 4% in June 2021 and 7.8% in February 2022 (*see Chart 36*).

In the Euro area, 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 rose to 7.9% until February 2022.

In a speech delivered in August 2022, the President of the Bundesbank[64] explained this return of inflation: "One major factor driving this momentum was the global economy's unexpectedly swift recovery from the pandemic-

63. A. Carstens, "Where are we on the journey towards price stability?" Speech at the Statistisch-Volkswirtschaftlichen Gesellschaft, BIS (January 2024).

64. J. Nagel, "Monetary policy in times of geopolitical crises and high inflation", Speech at European School of Management and Technology (August 2022).

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 shock on the global commodity market, pushing inflation to higher levels in OECD economies in 2022

At the **OECD** level, the aggregated consumer price index rose by 9.6% in 2022 compared to 2021, its highest level since 1988.

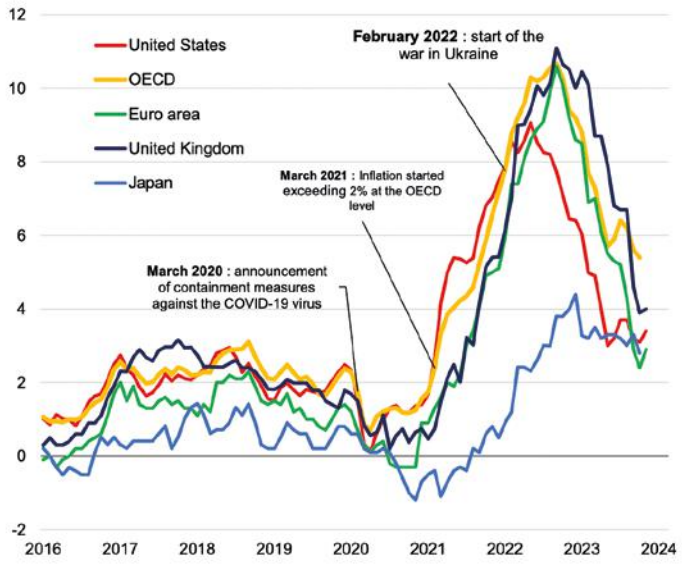
In the **US**, year-on-year headline inflation averaged 8.1% for 2022.

The war in Ukraine, and the associated pressures in energy and food supplies pushed the **Euro area** headline inflation into unprecedented double-digit territory in October (10,6%) and November 2022 (10.1%), and to 8,4% for 2022 as a whole, the highest level recorded since the creation of the monetary union in 1999.

As explained by P. Hernandez de Cos[65], "in the case of the Euro area, higher energy and food prices have added to the effect of other supply-side factors related in particular to supply-chain disruptions. The increased demand, mainly due to the reopening of the economy, met an inelastic supply. This and the depreciation of the euro have also played a role in the increase in inflation."

In the **UK**, inflation averaged 9% in 2022, a level not seen since 1982. 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.

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



Sources : OECD, Eurostat
Latest data from December 2023 for the Euro area, US & UK and November 2023 for the OECD and Japan

4.1.3 Since the fourth quarter of 2022, headline inflation has fallen but core inflation remains well above central bank targets in OECD economies

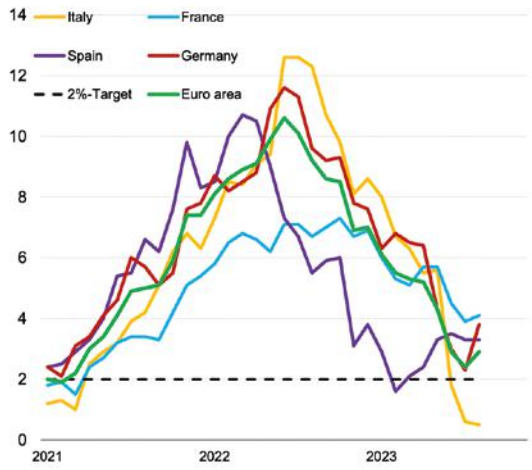
Headline inflation has fallen almost everywhere over the past year, mainly due to the partial reversal of the sharp rise in energy prices over the previous two years, according to the OECD[66].

At OECD level, headline inflation has more than halved, from a peak of 10.7% in October 2022 to 5.4% in November 2023. The decline was even more pronounced in the United States, where headline inflation fell to 3.4% in December 2023, from peak of a 9,1% its June 2022.

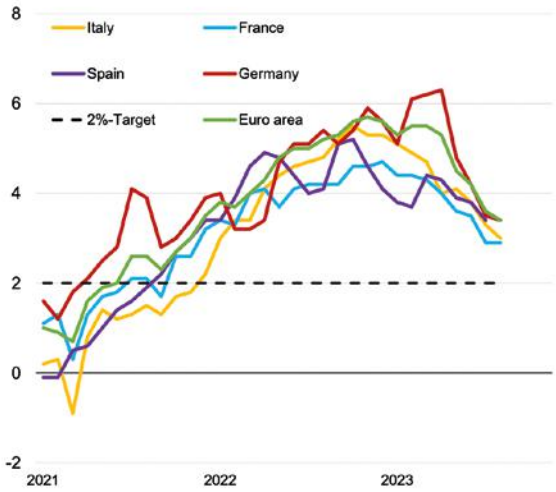
65. P. Hernandez de Cos, "Consistent economic policies – a prerequisite for macroeconomic stability", Madrid, 16 January 2023.
66. OECD, "Economic Outlook" (November 2023).

CHART 37.
Headline versus Core Inflation across the main Euro area Member States, annual% change

37.a : Headline inflation



37.b : Core Inflation



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

The Euro area also experienced a sharp fall, with headline inflation settling at 2.9% in December 2023a fifth of the 10.6% peak reached in October 2023.

Headline inflation remained higher in the United Kingdom, reaching 4% in December 2023, although it has been falling since peaking at 9.6% in October 2022. After peaking at 4.3% in January 2023, inflation in Japan has fluctuated between 2.8% and 3.5% since then.

Nevertheless, the persistence of core inflation has proved more difficult to combat. In the major advanced economies, core inflation remains well above central bank targets, and unlike headline inflation, has fallen more slowly since its peak. In the Euro area for instance, core inflation peaked at 5.8% in March 2023. In December 2023, it remained at 3.4%. In the United States, core inflation stood at 3.9% in December 2023, having peaked at 5.6%. in March 2023.

According to I. Schnabel[67], this slow disinflation process is linked to the way in which wages and prices are set: in the context of rapidly rising input costs last year, "firms raised their selling prices, sometimes beyond the increase in costs, bolstering unit profits last year in the context". [...] But when input costs are falling, or when conditions are broadly stable, most firms behave differently. They then revise their prices more reluctantly, which makes underlying inflation stickier and disinflation slower".

Wages also help to keep inflationary pressures high. In the Euro area, wage growth has accelerated sharply over the past year as employees attempt to compensate for the loss of purchasing power. Given that the share of labor in total costs is twice as high in services as in manufacturing, higher labor costs have a more direct impact on companies 'pricing behavior. This tightens the link between prices and wages, and suggests that wage pressures are becoming an important source of inflation (*see Part 4.1.4*).

These rigidities make the current disinflation process more "uncertain, slower and bumpier" in Schnabel's words. Domestic price and wage dynamics are taking place in a new international environment, characterized by the resurgence of geopolitical tensions and the associated increased volatility of energy and shipping costs. In addition to these recent external forces, ongoing structural changes, such as the energy transition, the fragmentation of world trade and industrial relocations could keep inflation durably above pre-Covid-19 levels in the years ahead.

Therefore, from a monetary policy point of view, the current fall in inflation should not be considered as a victory yet, at the risk of celebrating it prematurely.

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

Nominal wages rose sharply in 2022 and 2023 in the US and Europe, in the context of high inflation and tight labour markets. However, nominal wages rose less rapidly than prices on both sides of the Atlantic, causing real

67. I. Schnabel, "The last mile", Speech at at the annual Homer Jones Memorial Lecture (November 2023).

wages to decline in 2022. As inflation began to fall at the end of 2022, real wage growth returned to positive territory in 2023 in the US and most Eurozone countries.

Attempts to recover lost purchasing power, combined with the structural decline in the available workforce suggest that wage growth may remain robust for some time. As a result, the ECB expects nominal wage increases to remain high in 2024. Combined with falling labour productivity, these nominal wage rises are likely to further raise unit labour costs, which could further exacerbate inflationary pressures in the Euro area.

Nominal wages rose significantly in 2022 and 2023 both in the United States and Europe

It's important for people to recover the losses from high inflation. In the US, nominal wages for US private-sector workers rose by 5.3% in 2022, a record-high number in a decade, according to the Bureau of Labor Statistics. An alternative measure of wage dynamics provided by the Fed of Atlanta indicates that private wages peaked at 7.1% year-on-year in June 2022. The latest data of November 2023 suggests that wage growth has slowed to 5.2% (year on year), although it remains markedly above its historical annual average of 3.3% (*see Chart 38.a*).

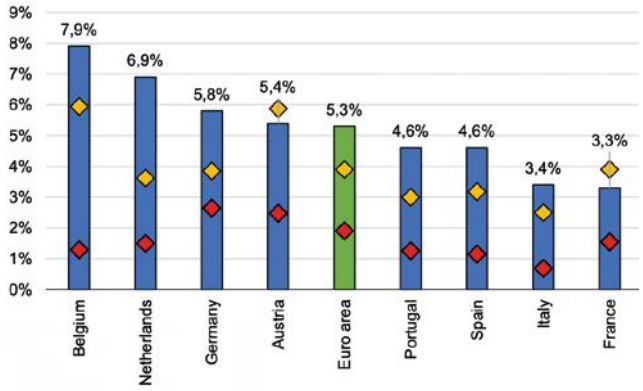
In the Euro area, hourly wages rose by 3.9% in 2022 according to Eurostat, twice as much as the average annual growth of 1.9% recorded between 2014 and 2019 (*see Chart 38.b*). In 2022, nominal wages rose by 3.9% in Germany, and France in particular. The most recent data (2023-Q3) suggest that wages have accelerated further, rising by 5.3% in the Euro area and 5.8% in Germany.

CHART 38.
Wage growth development in the United States and across key Eurozone Member States

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

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

38.b : Wages and salaries of the business sector, as for 2023-Q3, % annual change



Source: Eurostat

Nominal wage increases have taken place in a context of tight labour markets and staff shortages on both sides of the Atlantic

When the crisis hit in March 2020, many workers lost their job but never returned to the labour market. Persistent staff shortages have 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. By October 2023, the ratio had decreased to 1.3, but remained well above its pre-pandemic level (*see Chart 39.a*).

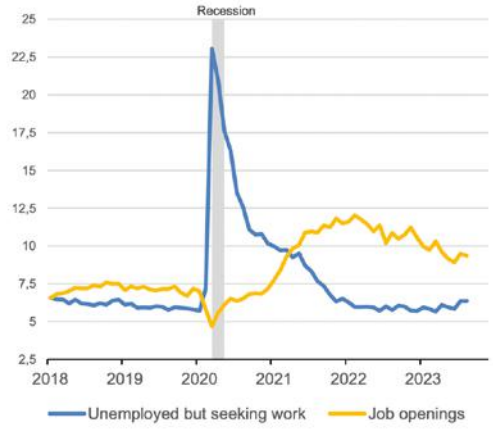
In Europe, the labour market has continued to improve, with unemployment remaining at its historical low of 6.4% in November 2023. Many firms are reporting staff shortages across Member States, and the vacancy rate[68] reached 3% in 2023-Q2 in the Euro area according to Eurostat, one of highest since data were first collected in 2006 (see Chart 39.b). Still in November 2023, the EU Commission[69] noted that labour shortages continue to be acute in some sectors and occupations such as healthcare, hospitality, construction, and ICT. Accordingly, the EU Commission highlights that "the coexistence of low unemployment and high shares of vacancies and labour shortages points to a still tight labour market, despite the slowdown in economic activity."

68. 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).

69. EU Commission's Autumn Forecast (November 2023).

CHART 39.
Labour Market Tighteness across advanced economies

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



Source: US Bureau of Labor Statistics

39.b : Job vacancy rate in the Eurozone

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

Source: Eurostat. As of 2023-Q2

According to the OECD[70], "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, this mismatch between labour demand and supply has been strengthened employees' bargaining power who consequently demand wage increases high enough to compensate for rising cost of living.

By 2022, however, nominal wages had risen less rapidly than prices in the advanced economies, so that real wage growth turned negative that year.

Since the start of 2021, wage inflation has been below consumer price inflation in most advanced economies, leading to a decline in real consumer wages. In 2022, most OECD economies experienced a decline in real wage. In the United States, for instance, real wages fell by 3%. However, this was relatively less than in the Eurozone, which saw a more pronounced drop of 4.5%. Within the Union, several Member States suffered significant declines, including Germany (-4.8%), the Netherlands (-8%), Spain (-5.2%), and Italy (-6.2%).

One of the main reasons for low real wage growth was the imperfect indexation of wages to prices. According to the ECB[71], only around 3% of private sector employees in the Euro area have their wages and minimum wages automatically indexed to inflation. It also points out that, since the Great Financial Crisis, indexation regimes in which inflation plays a formal role in wage-setting have become less common.

According to the BIS[72], global institutional changes, such as the decline in workers' unionisation, also point out to an environment less conducive to wage-price spirals than in the past. At the OECD level, the union rate – 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 prevailing 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.

With inflation falling since the end of 2022, nominal wages have started to grow faster than prices in 2023 in the United States, and most Eurozone Member States.

Since June 2023, real wage growth has returned to positive territory in the US, mainly due to the rapid decline in headline inflation, which stood at 3% in June. As a result, real wages rose by 0.4% year-on-year in 2023-Q2 and, by a further 0.8% in 2023-Q3.

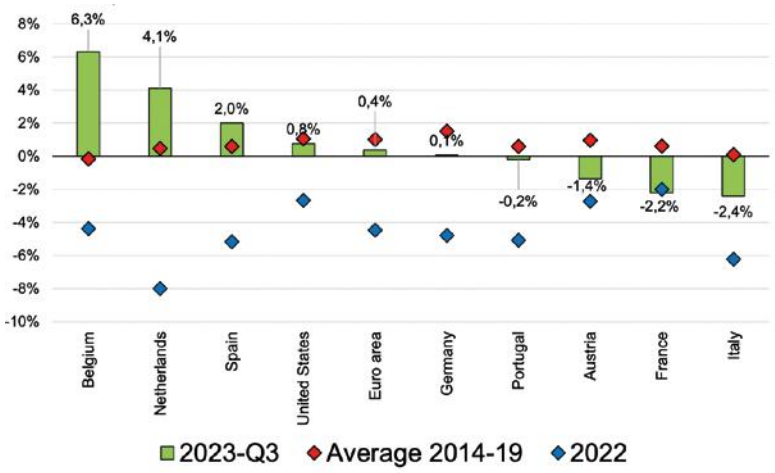
In the Eurozone, real wage growth returned to positive territory in September 2023 (+0.4%), even though this dynamic masks significant differences between Member States. While real wages rose in Germany (+0.1%), Spain (+2.2%), the Netherlands (+4.1%) and Belgium (+6.3%), employees in France (-2.2%), Italy (-2.4%), Austria (-1.3%) and Portugal (-0.2%) were still suffering the consequences of excessive inflation on their wages in September 2023 (*see Chart 40*).

70. OECD Economic Outlook, Interim Report March 2023.

71. 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).

72. F. Boissay *et al*, "Are major advanced economies on the verge of a wage-price spiral?" BIS Bulletin No 53 (May 2022).

CHART 40.
Real hourly wages, annual growth (%), as of 2023-Q3



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

Attempts to recover from lost 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 BIS Annual Economic Report[73] of June 2023 points out 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 high is the attitude of workers and unions, who are trying to compensate for the loss of purchasing power in wage negotiations. According to the BIS[74], the inflation surge has severely eroded the purchasing power of households even more so than in past episodes of inflation. Increased wage pressures can be seen in the growth rate of negotiated wages in the Eurozone, which rose by 4.6% in the third quarter of 2023, compared with an average growth of 2.9% in 2022.

In 2022, German public-sector unions negotiated a double-digit pay rise and Dutch unions are accepting pay rises of 5-6%, well above historical norms, according to the Financial Times[75]. 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 wage floors at industry levels between the first quarter of 2022 and the first quarter of 2023 was 4.9%. At firm level, the negotiated wage increases for 2023 averaged 4.4% (versus 2.8% in 2022 and 1.4% in 2021)[76].

Many governments have responded to trade unions, by raising minimum wages. In 2022, statutory minimum wages rose by an average of 12% across the EU, twice as much as the previous year. As the Financial Times reports, this increase is 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 by P. Hernández de Cos[77], "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".

Moreover, the wage agreements are taking place in a context of tight labour markets and staff shortages, as employees' greater bargaining power could lead to strong wage growth and thus ongoing inflationary pressures. According to J. Nagel[78], "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."

73. Annual Economic Report, Bank for International Settlements (June 2023).
74. Annual Economic Report (June 2023).
75. D. Strauss, "Global economy: will higher wages prolong inflation?", FT (March 2023).
76. L. Baudry, E. Gautier & S. Tarrieu, "Wage negotiations in a context of rising inflation", Bulletin, Banque de France (May 2023).
77. "The European Central Bank's monetary policy in response to the price stability challenge" (May 2023).
78. "Anchoring monetary stability in people's minds", Speech (June 2023).

As C. Goodhart and M. Pradhan stressed[79], '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". As a result, labour shortages 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."

The ECB forecasts further strong wage increases for 2024

In its latest macroeconomic projections of December 2023, the ECB[80] expects nominal wage growth in the Euro area will "remain strong supported by still tight labor markets", although it should" gradually decline over time, as pressure linked to inflation compensation and increases in minimum wages fades." Growth in compensation per employee thus should fall from 5.3% in 2023 to 4.8% in 2024, 3.8% in 2025 and 3.3% in 2026. Nevertheless, nominal wage growth would remain well above the average pace of 1.9% recorded between 2014 and 2019.

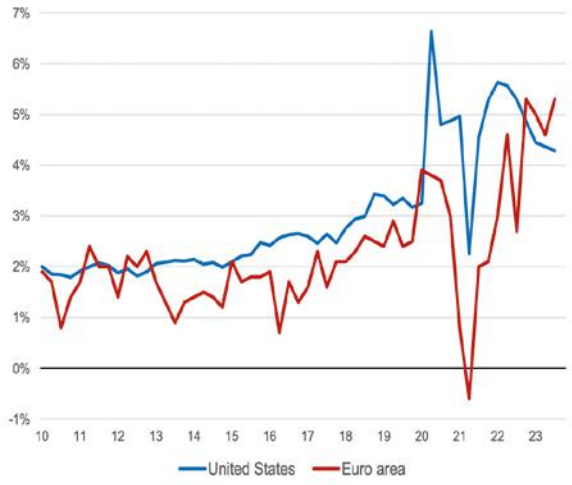
These wage increases, combined with declining productivity, should further increase unit labor costs, which could exacerbate inflationary pressures

Higher wages are a source of inflationary pressures if they are not accompanied by a commensurate increase in productivity. In the United States, productivity per hour stood at 5.3% as of Q3-2023, above its pre-Covid-19 level. According to G. Moëc[81], these productivity gains "allowed unit labour costs[82] to start decelerating, hitting 3.1% in Q3-2023 against a peak at 7.2% at the end of 2022."

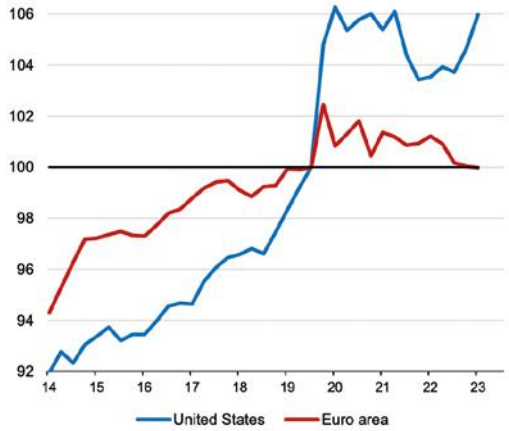
Unfortunately, none of this is happening in the Eurozone, where, by contrast, productivity in 2023-Q3 is barely above its pre-pandemic level and has started to decline again[83]. As G. Moëc points out, "the Euro area is dealing with a twin problem: wage growth continues to be very robust and the institutional features of the European labour market could make it more prone to lengthy price/wage catch-up behaviour, while the declining productivity would further add to the inflationary pressure by lifting unit labor costs even faster than wages." This view is supported by I. Schnabel[84], who asserts that "meagre productivity growth is putting additional pressure on firm's unit labour costs, which could reinforce inflationary pressures".

CHART 41.
Wages and productivity dynamics : Euro area versus United States

41.a : Average nominal hourly wage, year-on-year change (%)



41.b : Hourly productivity, Q4-2019=100



Source: Eurostat, Bureau of Labour Statistics. Last observation from Q3-2023

79. C. Goodhart & M. Pradhan, "The Great demographic Reversal", Palgrave (2020).
80. Eurosystem staff macroeconomic projections for the Euro area, December 2023 (europa.eu).
81. G. Moëc, "Probing the last Mile", Axa Macrocast (January 2024).
82. Unit labour costs = total nominal costs per employee / nominal labour productivity.
83. For detailed explanations on the recent decline in productivity gains in Europe, see the Macroeconomic Scoreboard (February 2024), part 4.
84. I. Schnabel, "The last mile", Speech at the annual Homer Jones Memorial Lecture (November 2023).

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

With the exception of a few emerging markets economies, central banks reacted belatedly in the face of rising inflation in 2021. Initially seen as a "transitory" phenomenon, inflation began to concern central bankers from the end of 2021. This change in attitude was reflected in the normalization of monetary policies, initially marked by a gradual reduction in the pace of asset purchases and followed by interest rates increases and quantitative tightening measures aimed at reducing the size of central banks' balance sheets.

Between early 2022 and late 2023, three phases can be distinguished to characterize the extent of monetary tightening. **The first phase focused on the pace of interest rate hikes**, which accelerated sharply at each Central banks' meeting throughout the second half of 2022. After raising the federal funds rate by 25 bps in March 2022, the FOMC accelerated the pace of rate hikes considerably at subsequent meetings, increasing it by 50 bps in May 2022 and by 75 bps in each of the four meetings held between June and November 2022. In the Euro area, key policy rates were increased by 75 bps at each meeting in September and October 2022, by 50 bps in December 2022, February 2023 and March 2023. In July 2022, the Bank of Canada lifted its key rate by 100 bps, the biggest rate hike since 1998.

Rate hikes continued in the first half of 2023, albeit at a more moderate pace than in 2022. The new challenge in the second half of that year was **to determine the level of the terminal interest rate**, *i.e.* that which central banks consider sufficiently "restrictive" to curb inflation, and therefore no longer requires further rate hikes. Since July 2023, the Fed has left its key rate unchanged at 5.5%. The ECB last raised its policy rates in September 2023, leaving it unchanged at 4.5% since then. In the United Kingdom, the Bank rate has been left unchanged at 5.25% since July 2023.

TABLE 2.
Central Banks' policy rates decisions between January 2021 and December 2023

	Central Bank	First rate hike	Last rate hike	Cumulative rate hike (basis points)	Current policy rate (%)	Latest interest rate decision*	Future rate trajectory
Advanced economies	United States	mars-22	juil-23	525	5,375	Unchanged	*"If the economy evolves as projected, the median participant projects that the appropriate level of the federal funds rate will be 4.6% at the end of 2024, 3.6% at the end of 2025, and 2.9% at the end of 2026."*
	Euro area	juil-22	sept-23	450	4,5	Unchanged	*"Based on our current assessment, we consider that rates are at levels that, maintained for a sufficiently long duration, will make a substantial contribution to the timely return of inflation to our target."*
	United Kingdom	nov-21	août-23	515	5,25	Unchanged	*"[…] the Committee continues to judge that monetary policy is likely to need to be restrictive for an extended period of time. Further tightening in monetary policy would be required if there were evidence of more persistent inflationary pressures."*
	Japan	na.	na.	0	-0,1	Unchanged	*"With extremely high uncertainties surrounding economies and financial markets at home and abroad, the Bank will patiently continue with monetary easing while nimbly responding to developments in economic activity and prices as well as financial conditions."*
	Norway	sept-21	déc-23	450	4,5	Hike	*"We see that the economy is cooling down, but inflation is still too high. An increase in the policy rate now reduces the risk of inflation remaining high for a long period of time. The policy rate will likely be kept at 4.5 percent for some time ahead"*
	Australia	mai-22	nov-23	425	4,35	Unchanged	*"Whether further tightening of monetary policy is required to ensure that inflation returns to target in a reasonable timeframe will depend upon the data and the evolving assessment of risks."*
	Canada	mars-22	juil-23	475	5	Unchanged	*Governing Council is still concerned about risks to the outlook for inflation and remains prepared to raise the policy rate further if needed.*
	New Zealand	oct-21	mai-23	525	5,5	Unchanged	*The Monetary Policy Committee agreed that interest rates will need to remain at a restrictive level for a sustained period of time, so that consumer price inflation returns to target and to support maximum sustainable employment.*
	Sweden	mai-22	sept-23	400	4	Unchanged	*"The forecast for the policy rate is that it may be raised further at the start of next year and that monetary policy needs to be contractionary for a relatively long period of time for inflation to fall back and stabilise close to the target of 2 per cent"*
Emerging markets economies	Czechia	juin-21	juin-22	675	6,75	Cut	*"[…] the Bank Board considers it necessary to persist with tight monetary policy and approach potential further rate cuts with caution."*
	Poland	nov-21	août-22	600	5,75	Unchanged	*The Council judges that the current level of the NBP interest rates is conducive to meeting the NBP inflation target in the medium term*
	Romania	oct-21	janv-23	575	7	Unchanged	*The NBR closely monitors developments in the domestic and international environment and will continue to use the tools at its disposal to achieve the fundamental objective of price stability in the medium term.*
	Hungary	juin-21	sept-22	1240	10,75	Cut	*The positive real interest rates support the continuation of disinflation. As inflation approaches the central bank tolerance band, real interest rates are expected to decline.*
	Brazil	mars-21	oct-22	1175	11,75	Cut	*If the scenario evolves as expected, the Committee members unanimously anticipate further reductions of the same magnitude in the next meetings, and judge that this pace is appropriate to keep the necessary contractionary monetary policy for the disinflationary process.*
	Mexico	juin-21	mars-23	725	11,25	Unchanged	*"It considers that, in order to achieve an orderly and sustained convergence of headline inflation to the 3% target, the reference rate must be maintained at its current level for some time."*

Source: National Central Banks
Notes: Data for the "cumulative rate hike" column are calculated as the difference between the interest rate level at the last rate hike date and the level at the first rate hike date

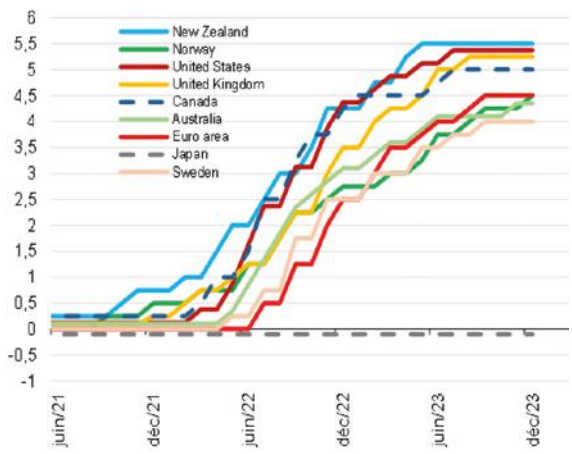
While rates have remained unchanged for several consecutive meetings in most advanced economies, **the debate now turns to the timing of the first rate cut**. While the first-rate cuts have already been decided in several emerging economies since the second half of 2023 (Brazil, Hungary, Czech Republic...), the future path of interest rates in advanced countries remains more uncertain. At their December's meeting, the ECB and the Bank of England pledged to keep interest rates unchanged at "restrictive levels" for a "sufficiently long period". By contrast, the Federal Reserve has become more explicit, signalling three rate cuts for 2024. The decision to leave rates unchanged or start considering future cuts may be jeopardized by an unexpected return of inflation, as was the case in Norway. After leaving it unchanged at its November meeting, the Norges Bank was forced to raise its key rate by a further 25 bps in December 2023, in order to "reduce the risk of inflation remaining high for a long period of time".

Among the main central banks of the advanced countries, the Bank of Japan remains an exception, maintaining its ultra-accommodative stance, despite the resurgence of inflation at above-target levels. This is characterized by a negative nominal interest rate (-0.1% as of December 2023), and the pursuit of a yield curve control policy which aims to cap the 10-year rate at around 0.5%.

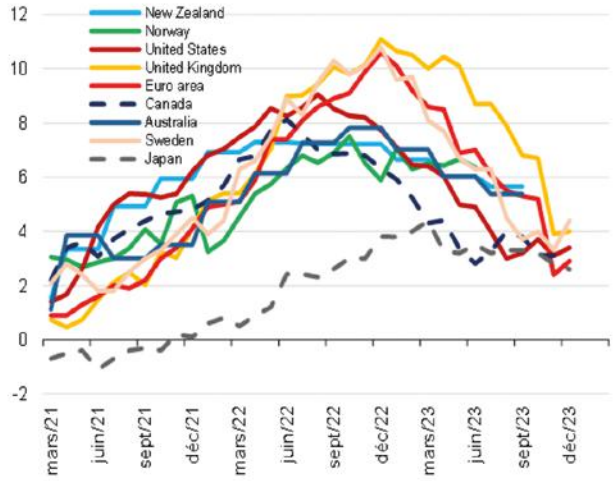
In addition to rate hikes, many central banks are reducing their holdings of securities, either by not (or not fully) reinvesting the proceeds of maturing bonds (passive quantitative tightening, QT) or by selling bonds (active QT).

CHART 42.
Recent Development in nominal policy rate and headline inflation across selected advanced economies

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



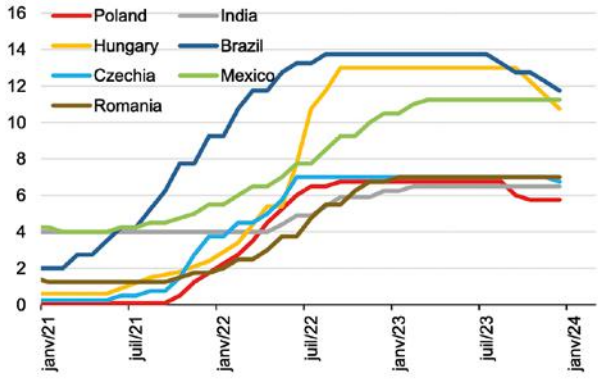
42.b : Headline CPI growth, annual change (%)



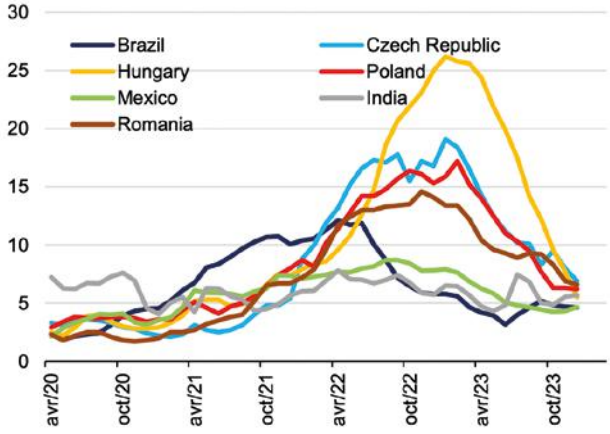
Sources: Bank for International Settlments, national Central Banks

CHART 43.
Recent Development in nominal policy rate and inflation across selected emerging markets economies

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



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



Sources: Bank for International Settlments, national Central Banks

4.2.1 *The Federal Reserve has gradually increased the federal funds rate since March 2022, reaching 5.5% in July 2023, but considers three rate cuts for 2024. Since June 2022, the Fed has also reduced its bond holdings*

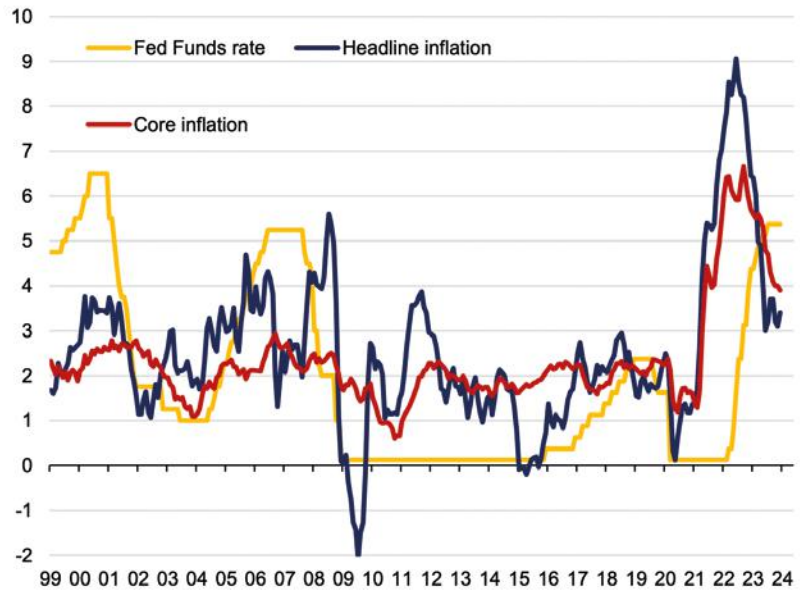
Until November 2021, Jay Powell considered inflation as a "transitory" phenomenon. This is why many FOMC Members, justified the pursuit of an accommodative monetary policy: indeed, between December 2020 and November 2021, the Fed continued to purchase US Treasures and Mortgage-Backed Securities (MBS) at a monthly pace of $120 bn, and left the federal funds rate unchanged at their bottom range of 0.25%.

From **December 2021**, the Fed gradually reduced the pace of net asset purchases, which ended in March 2022. **In March 2022**, the FOMC raised the federal funds rate by 25 bps, for the first time since 2019, and officially ended purchases of public and private securities.

The pace of rate hikes accelerated considerably at subsequent meetings, with the FOMC raising the Fed Funds rate by 50 bps in May 2022 and by 75 bps at 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 **at each of three meetings from February to May 2023.**

After leaving its policy rate unchanged in June 2023, the Committee raised it by another 25 bps, to a level of 5.5% since July 2023. In December 2023, Chairman Powell indicated that the "restrictive stance of monetary policy is putting downward pressure on economic activity and inflation", after acknowledging that "inflation is still too high, ongoing progress in bringing it down is not assured, and the path forward is uncertain." The FOMC's decision to hold rates at 5.5% came alongside the release of the Fed's "dot plot", which showed that most Fed officials expected three rate cuts by the end of 2024.

CHART 44.
Fed funds rate versus headline inflation in the United States



Source: Federal Reserve
Last observation from December 2023

In June 2022, the FOMC began its quantitative tightening (QT) by reducing its holdings of US Treasury and Mortgage-Backed securities (MBS). At this date, the Fed held $5.8 trn in US Treasuries, *i.e.* a quarter of the government debt. It also held $2.7 trn in MBS.

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

According Caixa Bank[85], this pace of reduction is much more aggressive than in 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 have dropped by more than $1.6 trn in December 2023.

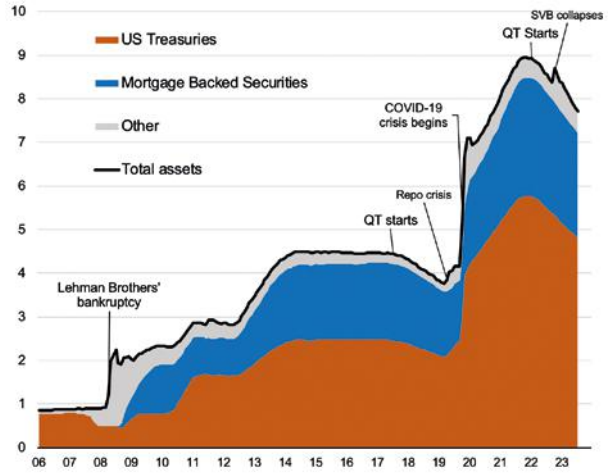
85. A. Montilla, R. Gili, "On the reduction of the central banks' balance sheets" Caixa Bank Monthly Report No.468 (June 2022).

However, the banking turmoil induced by the SVB bankruptcy in March 2023 has led the Fed's balance sheet to increase again since mid-March 2023. Indeed, in collaboration with the Treasury Department, the US Central bank set up a "bank term funding program" to provide short-term liquidity assistance to U.S. banks. In the 10 days following the SVB bankruptcy, the 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.

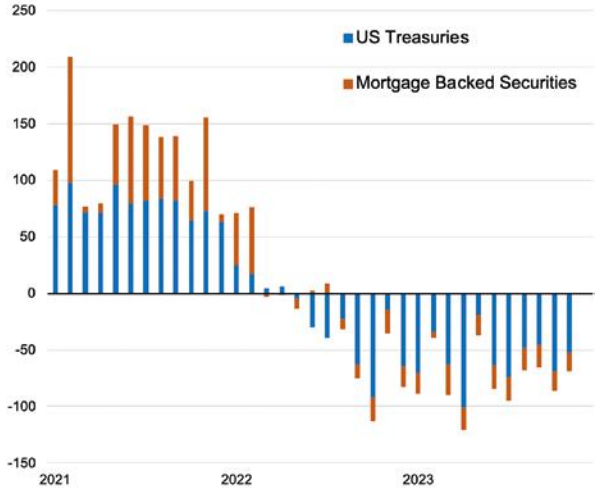
After SVB's bankruptcy, the Fed has continued to reduce its holdings of securities. As a result, its balance sheet fell back below its pre-banking crisis level of March 2023. At the end of December 2023, Fed's total assets stood at $7.7 trn, compared with $8.4 trn in February 2023. After 18 months of QT, the Fed has almost sold a third (29.5%) of the Treasury securities it had bought during pandemic QE.

CHART 45.
Federal Reserve balance sheet, stock and flows

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



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



Source: Federal Reserve; Last data from 31 December 2023

4.2.2 After a cumulative increase of 450 bps between July 2022 and September 2023, the ECB has kept its rates unchanged since October 2023. In addition, it has continued to reduce its holding of securities since March 2023

Until December 2021, the ECB Governing Council still considered 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 the maintenance of key interest rates at their current level. Between December 2021 and March 2022, net monthly purchases 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 planed to reinvest the principal payments from maturing securities purchased under the programme "until at least the end of 2024". According to ECB President, C. Lagarde, the reinvestment package totaled €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.

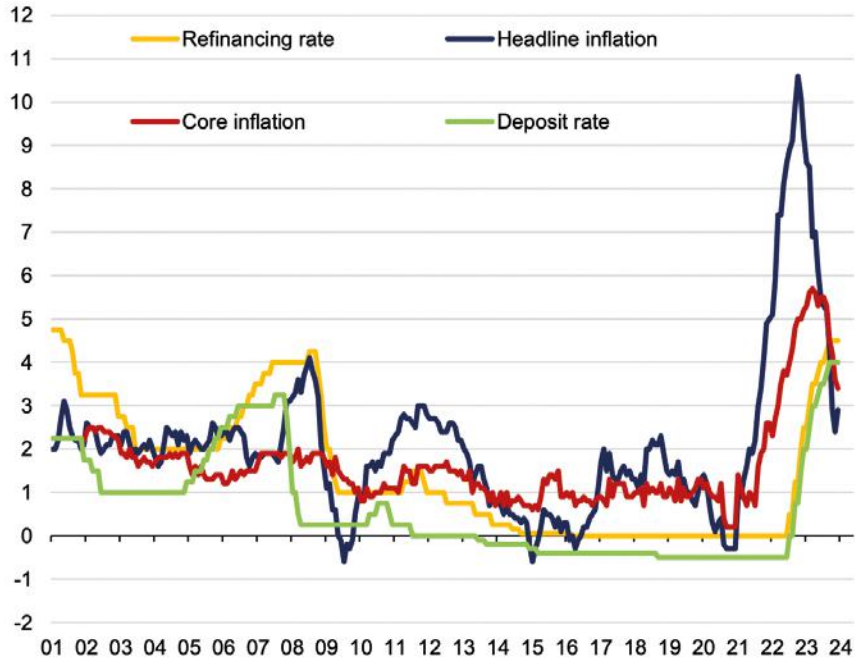
Separately, it approved the creation of the Transmission Protection Instrument (TPI), a new tool designed to support the effective transmission of monetary policy across all Euro area countries. Indeed, it "can be activated to counter unwarranted, disorderly market dynamics that pose a serious threat to the transmission of monetary policy across the Euro area"[86].

86. 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 2022, 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 following four meetings in **May, June, July and September 2023**. The refinancing rate has then been kept unchanged at 4.5% since October 2023. In December 2023, the Governing Council confirms that stance, expecting inflation to decline gradually to 2.7% in 2024, before approaching the 2%-target in 2025.

Unlike the Federal Reserve, the Governing Council gave no explicit indication of its future interest-rate path and reiterated its "data-dependant" approach based on the "assessment of the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation and the strength of monetary policy transmission". At the press conference held in December 2023, President Lagarde nevertheless signalled that "future decisions will ensure that our policy rates will be set at sufficiently restrictive levels for as long as necessary."

CHART 46.
Policy rate versus headline inflation in the Euro area



Source: European Central Bank
Last observation from December 2023

This cumulative increase of 450 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 November 2023**, European banks have repaid more than €1.8 trn borrowed from the ECB, out of €2.2 trn of worth of cash from the LTROs. Repayment of refinancing operations have been the main reason for the decline in the €1.6 trn's of total assets of the Eurosystem since November 2022 (*see Chart 45.a*).

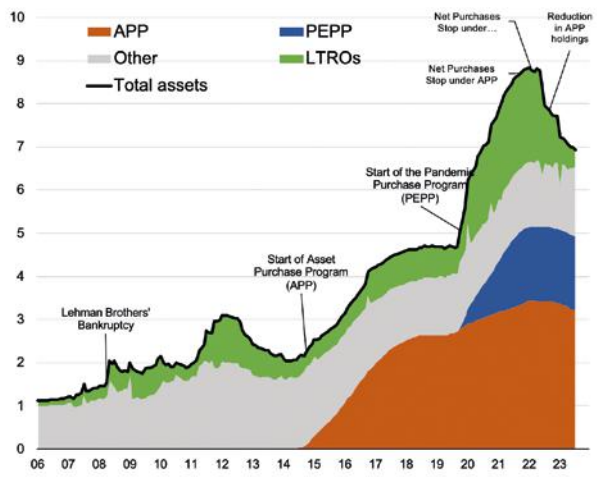
Additionally, the Governing Council has started reducing its APP holdings. From the beginning of **March 2023 to the end of June 2023**, the APP portfolio declined **by €15 bn per month** on average, as the Eurosystem did not reinvest all of the principal payments from maturing securities. Since July 2023, the Eurosystem has 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** (*see Chart 47.b*).

Securities purchased under the PEPP have not been subject to QT to date; maturing securities purchased under the programme are still reinvested. But in **December 2023**, the ECB announced that it intends to reduce its PEPP portfolio by €7.5 bn per month on average over the second half of 2024. It also intends to discontinue reinvestments under the PEPP at the end of 2024.

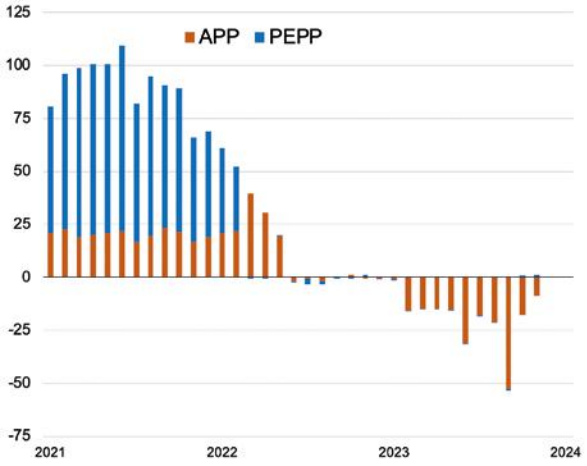
These measures have contributed to reduce the size of the Eurosystem's balance sheet. In December 2023, total assets stood at €6.9 tr, down from their peak of €8.84 tr in June 2022 (*see Chart 47.a*).

CHART 47.
Eurosystem's balance sheet, stock and flow

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



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



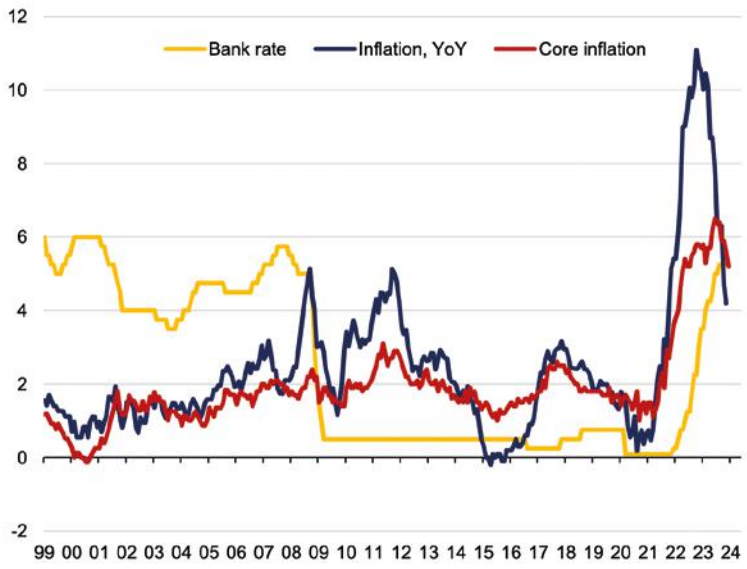
Source: European Central Bank; Last data from 31 December 2023

4.2.3 After raising its policy rate for fourteen consecutive meetings since 2021, the Bank of England has kept it unchanged at 5.25% since July 2023. Additionally, it has been selling 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 fourteen consecutive times to reach 5.25% in **July 2023**. Since then, the Bank rate has been kept unchanged. Compared to the United States and the Euro area, wage inflation was considerably higher in the United Kingdom, growing by 7.3% in October 2023 compared to a year earlier. Wage development pushed most MPC Members to reiterate the need for monetary policy "to be sufficiently restrictive for sufficiently long to return inflation to the 2% target sustainably in the medium term, in line with the Committee's remit."

In addition to rate hikes, the BoE has been reducing its holding of UK government bonds. At the end of 2021, well ahead of the Fed and ECB, it stopped reinvestments of maturing bonds as early 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 December 2023, the total amount of government securities held by the BoE had fallen to £744 bn, having peaked at £875 bn.

CHART 48.
Policy rate versus inflation in the United Kingdom



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

4.2.4 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

The "patient" monetary accommodation thus 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. In June 2022, BoJ Members reaffirmed their 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-year 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 have resulted in the purchase of long-term securities with the issuance of bank reserves during a long period of very low interest rates. At a time of market reversal due to persistent inflation, 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[87]. At the Euro area level, total loss suffered by the Eurosystem would amount to €700 bn[88], *i.e.* 5% of the GDP of the Eurozone between 2023 and 2034.

4.3 Maintaining positive real interest rates is necessary to achieve price stability

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.

As a result, in 2023 the real interest rates returned to positive territory in most economies including the US and the Eurozone. They are necessary to complete the disinflation journey.

However this recent return of real interest rates to positive levels needs to be put into historical perspective, as it follows several consecutive years of negative real rates.

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

From January 2022 to mid-January 2024, 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 2.1% in mid-January 2024. In France, it rose to 2.6% as of July 2023, from 0% in January 2022.

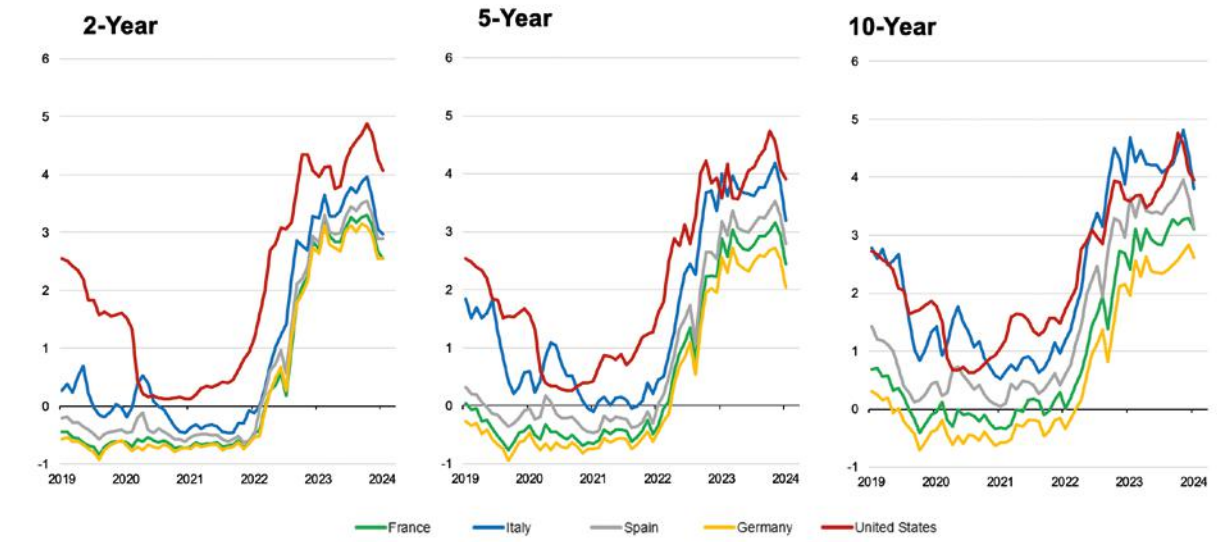
Sovereign bond yields have also increased significantly across Southern Member States. The Italian 10-year government yield soared by 230 bps since January 2022, approaching 3.7% in January 2024, its highest level since 2013. In Greece, long-term interest rate rose by 170 bps over this period, to reach 3.3% in mid-January 2024.

It should be noted that most 10-year government bond yields have recently fallen from their peak reached in October 2023, in the context of disinflation and the expectations of future interest rate cuts by Central banks. In the United States, for example, the 80-bps drop recorded between October 2023 and mid-January 2024 coincided with market expectations that the Fed would cut its key rate 7 times in 2024.

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

88. 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."

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



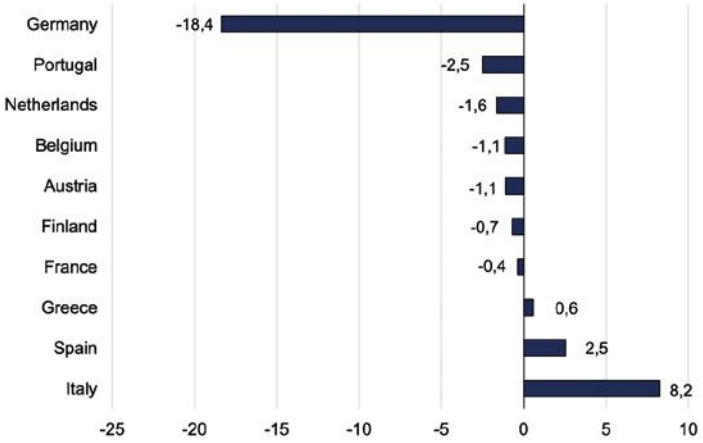
Source: Bundesbank, Banco de España, Banque de France, Banca d'Italia, Federal Reserve. Latest data from 18 January 2024

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.

Despite the end of net asset purchases under the PEPP, the Eurosystem continues to reinvest the principal payments from maturing securities purchased under the €1.684 bn's program, 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 2022 and November 2023, the ECB purchased additional €10.8 bn of Italian and Spanish government securities, while allowing its portfolio of German and Dutch debt to fall by €20.8 bn (*see Chart 50*).

CHART 50.
Cumulated Net Purchases of public debt securities under PEPP between June 2022 and November 2023 (EUR bn)



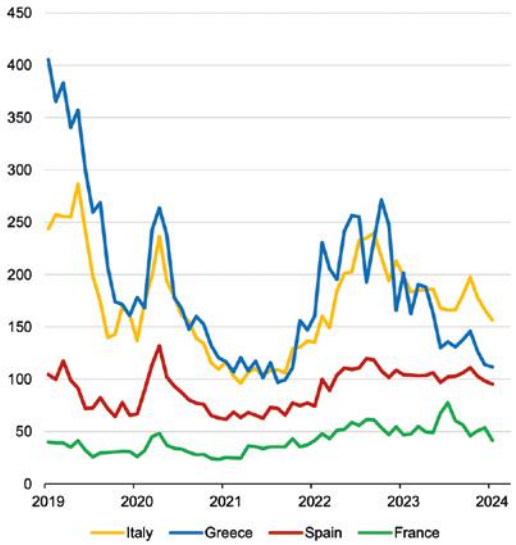
Source: ECB

Reinvestment policy from the 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 51*).

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 156 bps in mid-January 2024, a level below the 2019 average of 213 bps. In Spain and Greece, yield spreads declined to respectively 95.3 bps, and 111.8 bps as of mid-January 2024, down from their peaks of 118.4 bps and 271.5 bps reached in September 2022.

As noted by R. Brooks and D. March[89], "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 51.
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 19 January 2024

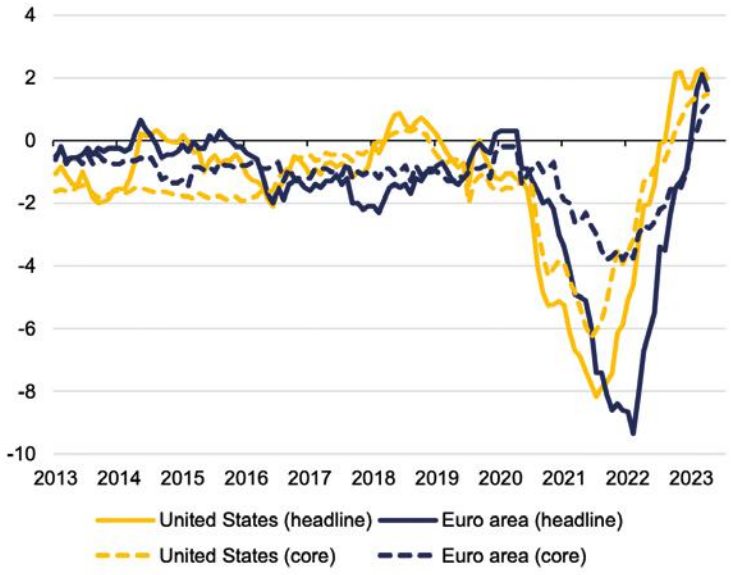
4.3.3 Disinflation and rising nominal rates have enabled short and long-term real interest rates to return to positive territory in 2023 in most advanced and emerging economies

In the United States, the policy rate, adjusted for headline inflation, rose back above 0% in April 2023. In December 2023, it reached 2%, well above its 2000-2019 average, when it was negative overall (-0.37%).

In the Eurozone, the real policy rate returned to positive territory a few months later, from August 2023. In December 2023, it reached 1.6%, still below the US level, but above its historical average of -0.07%.

The return of real rates of central banks to positive levels has been helped overall by the rise in nominal rates, to 550 bps in the United States and 450 bps in the Eurozone respectively, as well as by significant disinflation in 2023.

CHART 52.
Real Refinancing Rates in the US and Euro area
Policy rate minus annual inflation rate,% points



Source: ECB, Federal Reserve
Latest data from December 2023

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

TABLE 3.
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
	déc-23	5,4	3,4	3,9	2,0	1,5
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
	déc-23	4,5	2,9	3,4	1,6	1,1
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
	déc-23	5,3	4,0	5,1	1,3	0,2

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

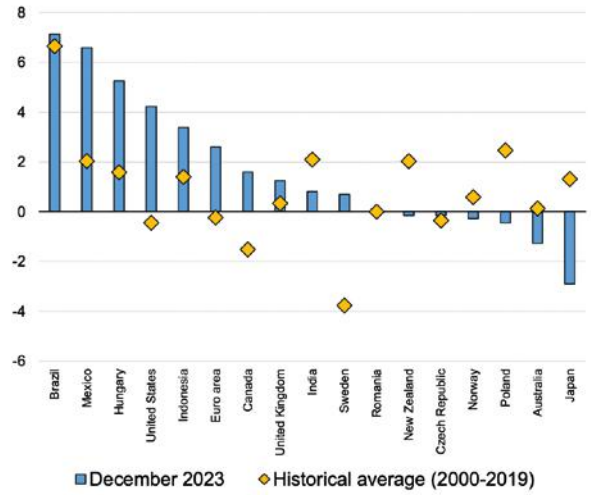
Most advanced and emerging countries saw their real interest rates return to positive territory in 2023. In addition to the Eurozone and the United States, this is notably the case in the UK, where real rates returned to positive territory from September 2023, Canada (April 2023) and Sweden (October 2023).

Nevertheless, the trajectory of real rates remains highly heterogeneous across countries. For example, Brazil, which began normalizing its monetary policy as early as 2021, returned to positive real rates as early as April 2022, and today finds itself with real rates in excess of 7 points, well above other emerging countries such as Poland (-0.45%) or the Czech Republic, where policy rates were still negative in real terms in December 2023.

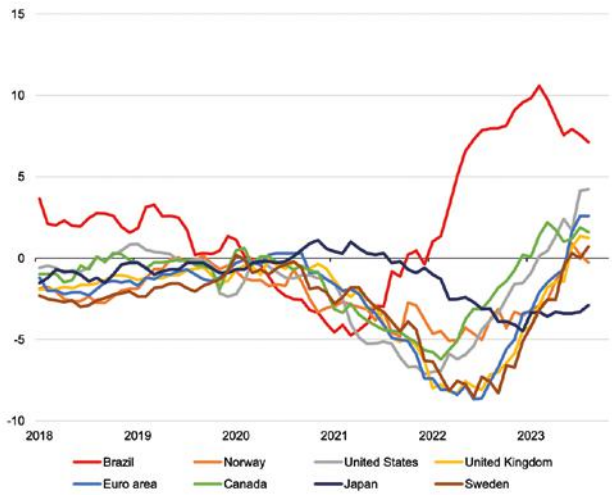
Only Japan has not adjusted its monetary policy in response to the resurgence of inflation, leading to the lowest real interest rates among developed countries. Finally, just because real interest rates can cross the 0%-threshold, it does not mean that they are truly positive. Positive until November 2023, Norway's real rate has since fallen back below 0, due to an unexpected rise in inflation in December 2023.

CHART 53.
Real policy rates in selected AEs and EMEs as of December 2023, percentage points ; *Nominal Policy rate minus inflation rate*

53.a : Real Policy Rates as of December 2023, percentage points



53.b : Recent Real Policy Trajectory since 2018



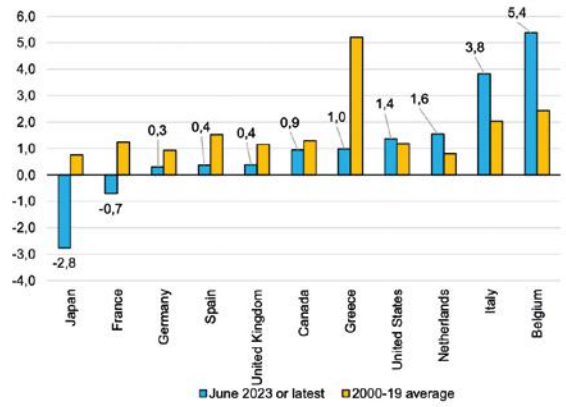
Sources: OECD, Eurostat, BIS
All data are calculated on the basis of the November or December 2023's inflation level, except for the New Zealand and Australia which date from October 2023

Long-term interest rates have also returned to positive territory in real terms, despite significant differences across countries.

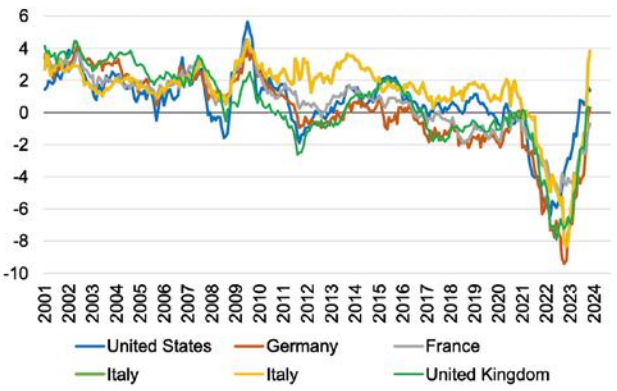
With the exception of Japan and France, 10-year government bond yields were higher than inflation in all G7 countries at the end of 2023. It should be noted, however, that despite their return to positive territory, real long-term yields remained below their long-term average in most advanced countries.

CHART 54.
Nominal Long-term government bond yields adjusted for CPI, percentage points

54.a : Real 10-Government Bond-Yields as of November 2023, percentage points



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



Sources: OECD, Eurostat
All data are calculated on the basis of the November 2023's inflation level
For Chart 54.a, the labels correspond to the level of real interest rates in November 2023 or latest

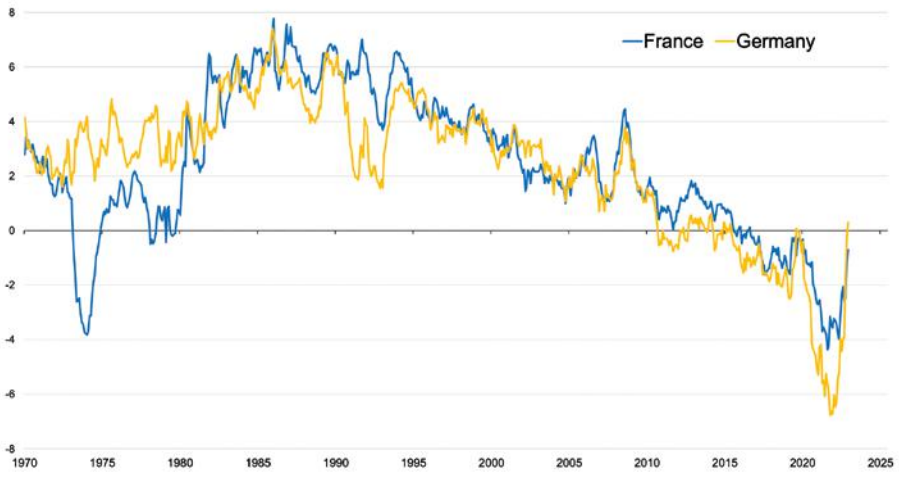
4.3.4 The recent return of real interest rates to positive territory needs to be put into historical perspective, however, as it follows several consecutive years of interest rates below 0%

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

This historical analysis shows that:

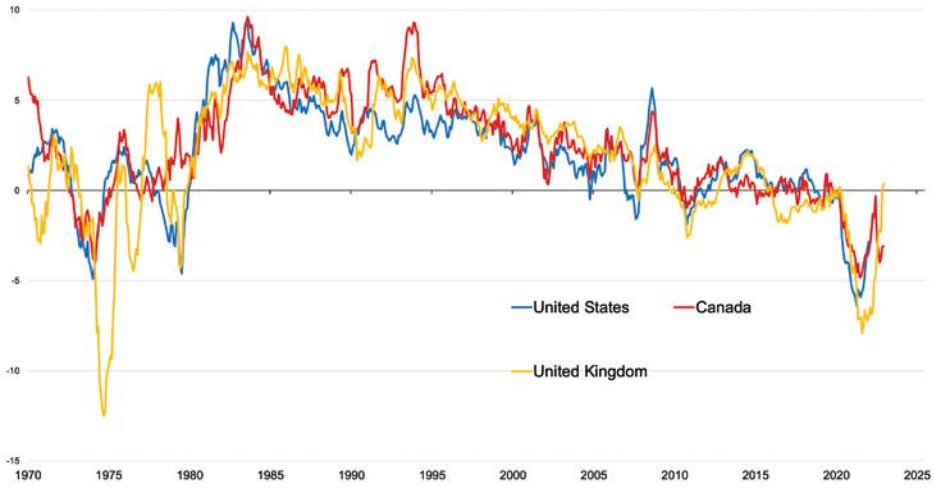
- **Real long-term interest rates in advanced countries have been negative since 2013, while they always exceeded 2% on average over the previous two decades.** Since 2013, German and British real long term interest rates have remained below -1% overall, after exceeding 5% between 1984 and 1995, and fluctuating above 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.
  Between mid-2021 and mid-2023, the French real interest rate fell 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% between mid-2021 and mid-2023, compared with +3.4% in the 1970s.

CHART 55.
Real 10-year government bond yields since 1970 – France and Germany



Source: OECD
Real bond yields are calculated as the difference between 10-year nominal government yield and obseverd year-on-year inflation of the corresponding period
Last observation from November 2023

CHART 56.
Real 10-year government bond yields since 1970 – United States, United Kingdom & Canada

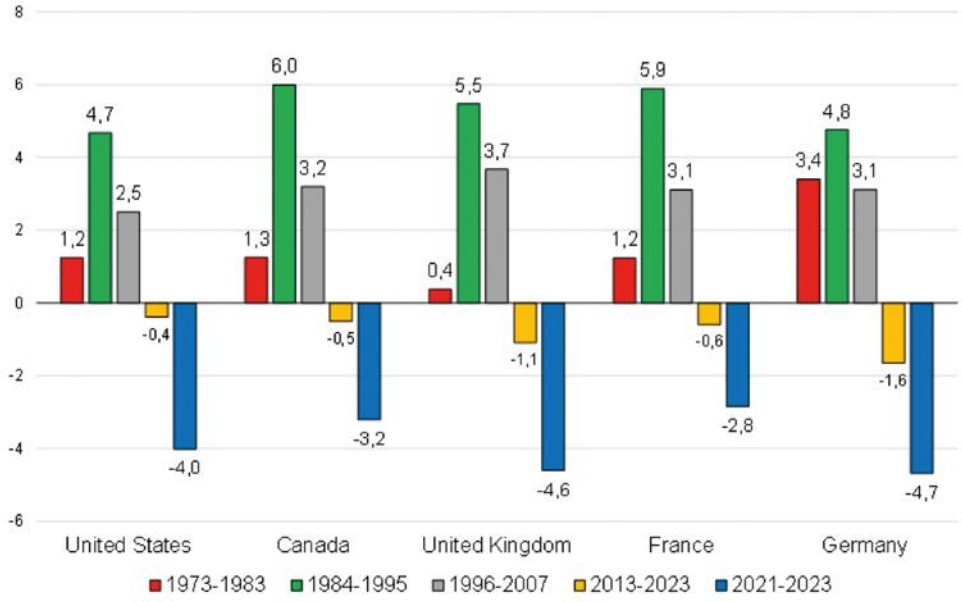


Source: OECD
Real bond yields are calculated as the difference between 10-year nominal government yield and obseverd year-on-year inflation of the corresponding period
Last observation from November 2023

Such a long period of negative interest rates (2010-2023) explains the unprecedented credit growth during the past decade and the related unprecedented increase of indebtedness (*see Section 2*) 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 does not seem to have aroused any 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

Real interest rates reflect the real cost of borrowing and the real return on savings. The acceleration in inflation, combined with the decision by central banks to remain patient in raising interest rates, has reinforced monetary stimulus until 2023.

Negative interest rates are a source of financial instability, of misallocation of capital and low 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 made parts of the property, debt and crypto asset markets "increasingly susceptible to corrections".

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[90], "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[91]. 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, in December 2022 and December 2023, the Eurosystem balance sheet stood at €7.9 trn and €6.9 trn respectively, or 66.4% and 57.7% of 2019 GDP[92]. Bank reserves held by credit institutions stood at €4.8 trn in October 2022, and €3.6 trn at the end of December 2023.

The ECB began its quantitative tightening policy in March 2023. The fall in bank reserves since October 2022 is mainly due to the repayment by banks of LTROs' programs launched in 2019 amounting to €1.6 trn euros of the €2.2 trn's programs. In December 2023, a total of €392 billion in loans remained, with a final maturity in December 2024.

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

91. 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.

92. 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).

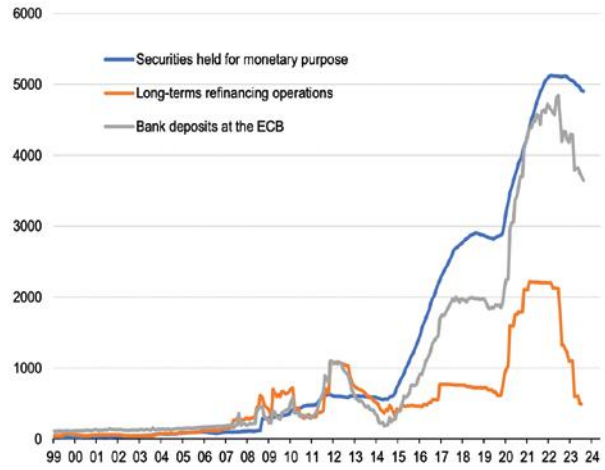
The non-reinvestment of all of the principal payments from maturing securities purchased under its Asset Purchase Program (APP), averaged to €15 bn per month between March and June 2023, and €25 bn since July and has had a more limited impact on the stock of securities and therefore on bank reserves so far[93]. Between March and December 2023, Eurosystem's securities holding dropped by €202 bn to reach €4.9 trn in December 2023, compared with €5.9 trn in March.

These balance sheet reduction measures by the ECB have led to a reduction in the stock of reserves of €950 bn, from €4.6 trn in March 2022 to €3.6 trn in December 2023 (*see Chart 58.a*)

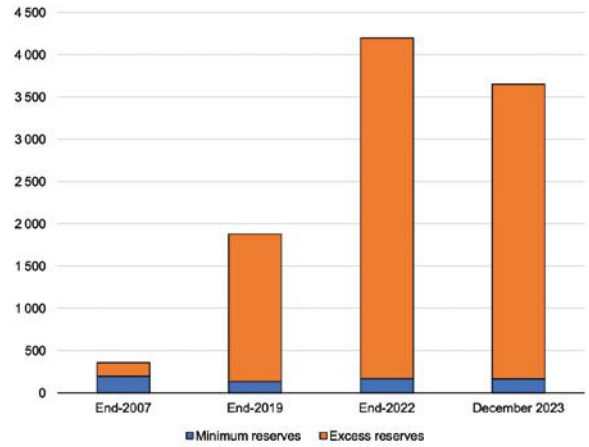
In December 2023, 95% of these bank reserves deposited within the Eurosystem were in excess of reserve requirements (*see Chart 58.b*).

CHART 58.
Eurosystem's selected assets and liabilities

58.a : Bank reserves versus selected assets of the Eurosystem, EUR bn



58.b : Mandatory versus excess bank reserves, EUR bn

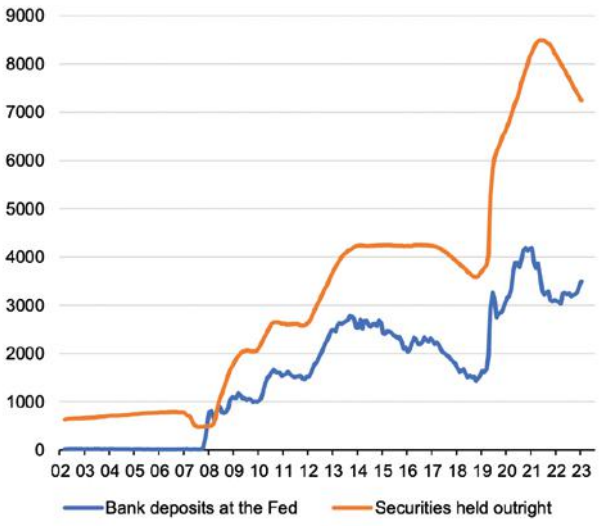


Source: ECB
Notes: last observation from December 2023

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

In the United States, the purchase of public and private securities during the pandemic caused bank reserves to double relative to 2019, reaching a peak of 4.2 trn in August 2021. Since the Fed began its QT in June 2022, this amount has been reduced to 3.5 trn in December 2023 (*for more details on the current stance of the Fed and ECB monetary policies, see Part 4.2*).

CHART 59.
Fed's holding of securities versus bank reserves, USD billion



Source: Federal Reserve
Last observation from December 2023

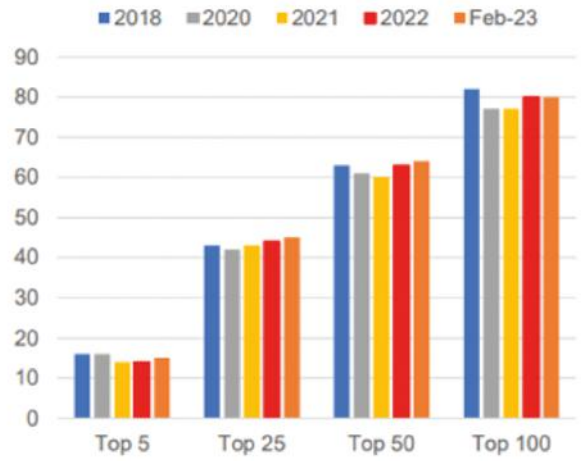
93. By way of comparison, it should be remembered that the public sector purchase programme (PSPP) started with purchases of €60 billion per month (from March 2015 to March 2016). After the Covid 19 crisis purchases rapidly increased throughout 2021 and continued at closed to an average of €90 billion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

Marek Dabrowski[94] explained that "with the current pace of QT, returning to the pre-pandemic size of CB balance sheets (at the end of February 2020), which may be taken as a reasonable policy goal, will take a long time. In the case of the Fed, with the monthly amount of QT equal to $95 billion, this goal could be accomplished by around October 2026. However, with an average monthly QT rate of €27 billion, the ECB will require eight years".

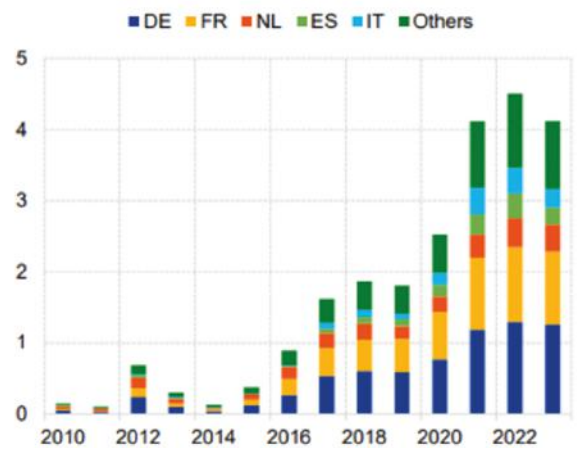
I. Schnabel underlined[95] that in the Euro area, "25 banks alone currently hold over 40% of excess liquidity, with little change over time. Moreover, excess liquidity tends to be concentrated in a few countries that are financial centres (mainly Germany, France and The Netherlands)[96].

CHART 60.
Excess liquidity in the Euro area, breakdown by bank size and country

60.a : Concentration of excess liquidity in Euro area banks (%)



60.b : Excess liquidity across Euro area countries (EUR trn)



Source: ECB, charts 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[97]: 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.

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.

94. M. Dabrowski, "Excess liquidity in the Euro area: sources and remedies", Monetary Dialogue Papers, European Parliament, September 2023.

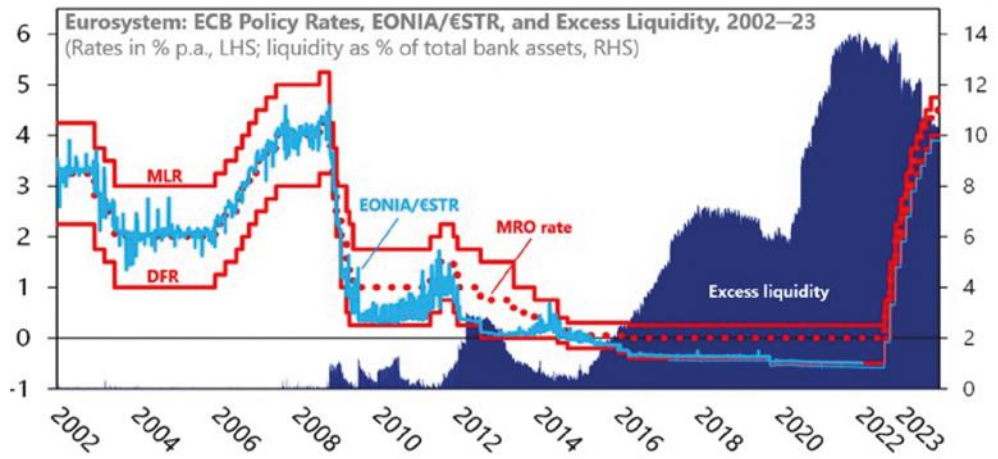
95. I. Schnabel, "Back to normal? Balance sheet size and interest rate control", 27 March 2023.

96. 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.

97. 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.

As noted by J. Nagel[98], 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 61.
Euro Area: Excess Liquidity, ECB Policy Rates, and EONIA/ESTR



Source: IMF

The IMF[99] 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 remunerated at a substantial rate – is also taking the form of significant income loss for the central bank, and ultimately governments.

G. Moec[100] 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 €4 trn of bank deposits comes at a cost of €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[101].

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

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

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

101. 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[102] suggest that alternative policies to raising interest rates in order 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 Why quantitative tightening

I. Schnabel explained last March that reducing the size of our balance sheet is warranted for three main reasons?[103]

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 our 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".

102. Already quoted in footnote 3.

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

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

The first one has been recently stressed by the Bank for International Settlements' chief economist Claudio Borio: **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[104] 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[105] 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". According to 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[106] 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.

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

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

106. 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.

"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 Jacques de Larosière[107] "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 by a gradualreduction of the stock of liquidity created, without going as far as restoring pre-QE between balance sheet amounts.

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 suit. If they do not keep up, capital flows may surge and provoke exchange movements that stand to disturb trade and undermine monetary policy.[108]
- The smaller the balance sheet, the less exposed a central bank leaves itself to political pressure for criticism, *e.g.* with respect to its 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.

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

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

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 not much 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.

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 very low 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.

Conclusion

During the Lehmann Brothers fiasco, 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 to 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 totally underestimated. No well-functioning economy should operate with real interest rates that remain negative for too long: risk becomes mispriced, capital is misallocated, and economic growth is 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 decade has not led to sufficient productive investment or growth. Persistent low or negative interest rates induce a fatalistic mindset that lowers, not raises the propensity to invest. Constrained by what J.M. Keynes called the "liquidity trap", investors play safe by placing savings in very short-term instruments rather than deploying them over the longer term since low interest rates yield them inadequate returns for higher risks.

The social significance of persistent very accommodative monetary policies of the past years (2008-2022) should not be underplayed either. Did they help reduce social inequalities? In fact, the opposite is true; they tended to increase inequalities in the distribution of wealth because the beneficiaries have been those who have had the income and capital to profit from inflated financial and real estate asset markets. Not poor people.

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. Consequently, over the past two years central banks have tightened their monetary policy. They have raised their policy rates by 450 basis points in the Euro area between July 2022 and September 2023, and by 550 basis points in the US between March 2022 and August 2023. This shows that maintaining zero or negative interest rates for many years has also contributed to the return of inflation, and that interest rates remain the essential weapon in the fight against inflation.

The good news is that **inflation has continued to fall since the fourth quarter of 2022**. But lower inflation is not low inflation. Inflation is still above the 2% central banks target in most countries and needs to fall further.

But inflation could remain above the 2% level for longer than expected. Indeed, real wages try to catch up in a context of very low productivity in particular in the Euro area which should lead to higher unit labour costs; the rise of geopolitical tensions could disrupt global trade adding cost of transporting goods; in addition, the challenges posed by the green transition, loose fiscal policies and adverse demographic forces could also combine to keep up inflationary pressures.

In such a context, the fight against inflation must remain the priority of central banks despite the vulnerabilities they have created over the years. Maintaining positive real interest rates is necessary to achieve price stability. Quantitative tightening must be implemented firmly and intelligently. Reducing fiscal deficits is also essential not only to preserve macroeconomic stability but also to support the ongoing process of disinflation. 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 such fiscal accommodative stance.

The fear of the reappearance of Eurozone significant sovereign spreads in Europe should not dominate the decision-making process of 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 emerging from 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), limiting financial flows between the Eurozone countries due to the insufficient number of viable 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 with CMU.

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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 pleagued the system, upset the risk-reward relation and encouraged short term speculation.
- Be more careful about 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 becoming questionable.
- Central Banks should refrain from the temptation of trying to become "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.

The temptation to relaunch easy monetary policy too quickly is inappropriate for 2 essential reasons:

- There is no guarantee that inflation will continue to fall (declining labour productivity in Europe, upward pressure on wages, geopolitical uncertainties, etc.).
- We are at a crossroads. Do we want to re-establish a balanced economy for the future, with a stable currency, long-term savings attracted by productive investment, structural reforms that boost production capacity and a reduction in public deficits (do we really want these adjustments and these efforts?) or do we want to turn a blind eye and go back to taking the easy way out and postponing the essential adjustments needed?

Only productivity enhancing, and productive investment can create sustainable increases in productivity, neither negative real interest rates, nor QE. Reviving productive investment requires that **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 financial markets.

Finally, monetary policy makers should accept that any victory against inflation comes at a cost: less growth and fewer jobs for a while. If we do not accept to pay this price, it is likely that the spectre of stagflation will reappear.

Last but not least, fostering a sustainable path to stronger growth is essential, notably in the current indebtedness environment. Raising long term potential growth requires structural- supply side-oriented reforms, an appropriate remuneration of risky investments and sustainable fiscal policies designed to deliver a flexible and competitive economy. A. Carstens reminds us[109] that "achieving higher and sustainable growth can only be accomplished by boosting productive potential through measures enhancing the supply side and

109. A. Carstens, "Where are we on the journey towards price stability", BIS, 22 January 2024.

boosting innovation. This requires renewed efforts to design and implement structural reforms in product and labour markets which have slowed considerably over the past two decades".

Lost competitiveness due to postponed reforms in many EU countries, has led to the deterioration of 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. Unfortunately, the Eurofi Macroeconomic scoreboard underlines that so far the Next Generation EU package is underperforming in this respect unlike the IRA in the US.

In over-indebted countries, governments must take corrective actions to ensure a path of primary fiscal balances and reduce unproductive and inefficient public spending. The review of the stability and Growth Pact is missed a missed opportunity. According to the compromise achieved by the Ecofin Council in December 2023, countries that are subject to an excessive deficit procedure (total public deficit over 3% of GDP) are exempt from the rule requiring them to reduce their public debt by an average of 1% a year until their deficit falls back below 3%. These countries will only be subject to the procedure once their public deficit has fallen back below the 3%. This is not the best way to encourage the worst performers to reduce their debt to GDP ratio! It's as if the worst performers in a class are exempt from extra effort and sanctions as long as their results remain mediocre.

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If fiscal, inflationary and economic drift continues in the Eurozone, the "virtuous" countries will end up paying for it. This would be the definition of an uncooperative game, where most players try to evade their obligations by passing on the cost to those who respect them. We must therefore take the Union's destiny into our own hands and not let it drift. If this is to be the case, the logical outcome could well be a new and inevitable Eurozone crisis.

Notes

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