

EUROFI

Monetary Scoreboard

SEPTEMBER 2026

**Jacques de Larosière and Didier Cahen
with the support of Elias Krief**

Inside

- The persistence of 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 evolution of inflation: state of play and challenges ahead
- Quantitative Tightening: challenges and way forward

Eurofi
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Executive summary

Using a comprehensive set of data¹, this Scoreboard aims to analyse the evolution of monetary policy and central bank decisions and their impact on financial stability and the real economy over the last two decades.

Central bank balance sheets are no longer at their pandemic peaks, following several years of quantitative tightening. Nevertheless, they remain exceptionally large by historical standards.

This document opens the debate on monetary policy and the need to change course by presenting key figures and charts.

Central banks played a crucial role during the Lehmann Brothers, EU sovereign Debt and Covid-19 crises through their unprecedented intervention in keeping markets liquid and the financial system stable, thus preventing the economy from falling into a tailspin.

Additionally, the ECB's actions in Europe mitigated financial fragmentation in sovereign and corporate bond markets.

However, the 2% inflation target has locked monetary policy into a systematic and asymmetric accommodative stance over the past two decades. Chronically accommodative monetary policy has pushed global debt to an all-time high of 338% of world GDP in 2022 and increased the monetary base of OECD economies – *i.e.* the total amount of money created by the central banks – by a factor of 10 since 2000.

Persistently low interest rates have encouraged liquidity hoarding at the expense of productive investment, particularly in Europe. The price paid in terms of excessive leverage, reduced business dynamism and productivity growth, asset bubbles, and instability has been high. With its monumental government bonds purchasing program launched in 2015, the ECB has become a *de facto* agent of fiscal policy. In turn, this huge leverage has weakened the stability of the financial system: the search for yield has fuelled swelling bubbles. The prolonged highly accommodative monetary policy has also been accompanied by a significant increase in wealth inequality.

Since the second quarter of 2021, inflation has risen to levels not seen in decades, fuelling concerns about the rising cost of living for households. At the OECD level, headline CPI inflation² increased from 2,4% in March 2021 to 4% in June 2021, reaching 7,7% in February 2022. As a result, central banks have tightened monetary policy over the past two years. In the Euro area, the ECB raised its key interest rates by 450 basis points between July 2022 and September 2023, while the Fed raised them by 550 basis points in the US between March 2022 and August 2023. This shows how maintaining zero or negative interest rates for years on end has contributed to the return of inflation and that interest rates remain central banks' main weapon in the fight against inflation.

As inflation declined, monetary policy began to ease. Between June 2024 and June 2025, the ECB reduced its deposit facility rate by 200 basis points, while the Federal Reserve lowered its target range by a cumulative 175 basis points from its peak. The renewed energy-price shock associated with the Middle East conflict interrupted this process. In June 2026, the ECB raised its key rates by 25 basis points and kept its deposit facility rate at 2.25% in July. The Federal Reserve and the Bank of England maintained their policy rates in July 2026, while the Bank of Japan had raised its short-term policy rate to 1% in June. Monetary-policy cycles have therefore become increasingly desynchronised across the major advanced economies.

1. Charts and statistics in this report are based on data released as of 30 July 2026. The authors would like to thank Mr. Philippe d'Arvisenet for his insightful comments.

2. Headline CPI inflation refers to the inflation rate calculated on the basis of the total consumer Price Index (CPI) including all components, notably energy and food.

The return of inflation above the 2% target shows that price stability cannot be taken for granted. Euro area headline inflation rose to 2.9% in July 2026, while inflation stood at 3.5% in the United States and 2.6% in the United Kingdom in June. This renewed increase reflects, in particular, higher energy prices and demonstrates the continuing vulnerability of inflation to supply shocks. Beyond this immediate shock, trade restrictions and tariffs, expansionary fiscal policies, adverse demographic trends and geopolitical fragmentation could keep inflationary pressures elevated. In the Euro area, weak productivity growth and the continued recovery of real wages are also increasing unit labour costs, although subdued demand could limit firms' ability to pass these costs on to consumers.

In this environment, restoring price stability must remain the primary objective of central banks and maintaining positive real interest rates is necessary to achieve price stability and to encourage long-term savings for productive investment. Quantitative tightening must be implemented firmly and intelligently. Restoring price stability may entail short-term costs in terms of growth and employment. An unwillingness to accept any such adjustment, however, risks allowing inflation to become entrenched, ultimately increasing the economic and social costs of bringing it back under control and raising the risk of stagflation.

1. The monetary base of OECD economies has increased tenfold since 2000, mainly due to the 2% inflation target being the absolute guideline for monetary policy until 2022

Key interest rates have remained at 0% or below in real terms for twenty years. The monetary base in OECD economies has increased significantly due to the unconventional monetary policies implemented in response to the crises of 2008 and 2020. However, even after these crises had ended, these policies were extended to address the zero lower bound constraint and put inflation in line with the 2% target, which had become an absolute guideline for monetary policy. Consequently, from the 2008 crisis to 2022, central bank balance sheets have grown considerably due to continuous monetary stimulus.

Over this period, monetary policy has been asymmetric, especially in the Euro area, stimulating activity at the first signs of slowing growth while being reluctant to tighten policy when overheating emerges. Indeed, the 2% inflation target implied a systematically accommodating monetary policy until 2022.

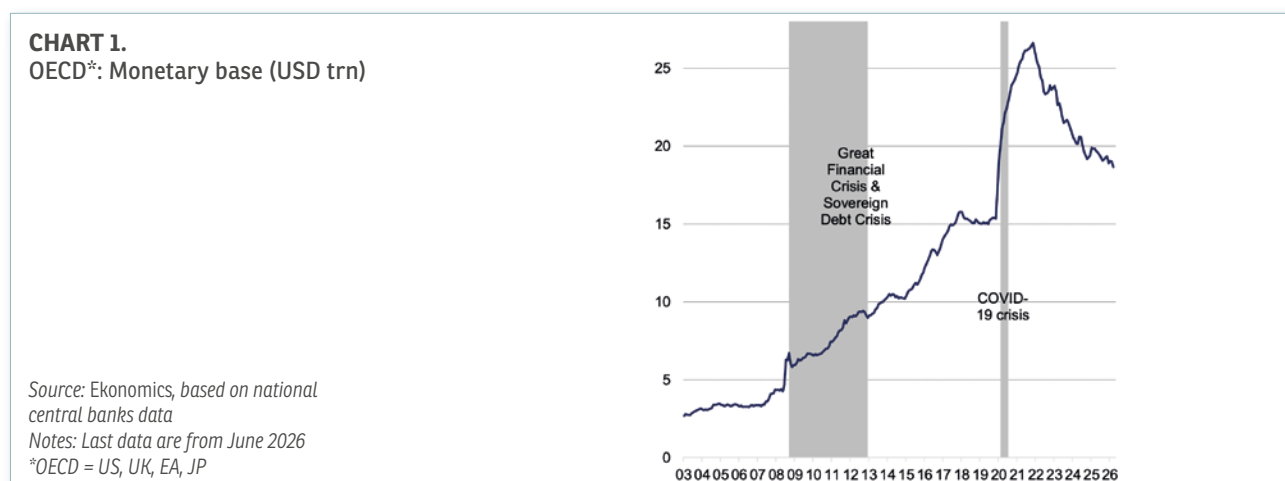
1.1 Central Banks' balance sheets between 2000 and 2022: facts and figures

Since the 2007–08 financial crisis, the monetary policy of major central banks, following the Fed's lead, has consistently been stimulative. This led to an unprecedented expansion of central bank balance sheets. Money creation has been 'firing on all cylinders' for over 15 years.

The monetary base of OECD countries increased tenfold between 2000 and 2022. Chart 1 illustrates this extraordinary development. The aggregate monetary base of OECD countries (the US, the Eurozone, Japan and the UK) increased from \$2.5 trillion in 2000 to reach a peak of \$25 trillion in March 2022 – a 900% increase.

This unprecedented expansion can be divided into two phases:

- From January 2008 to the end of 2019, the monetary base increased by \$10.7 tn, reaching \$14.6 tn in December 2019.
- Between March 2020 and March 2022, the amount of money issued by the central bank increased by a further \$10 tn, reaching \$24.7 tn in March 2022.



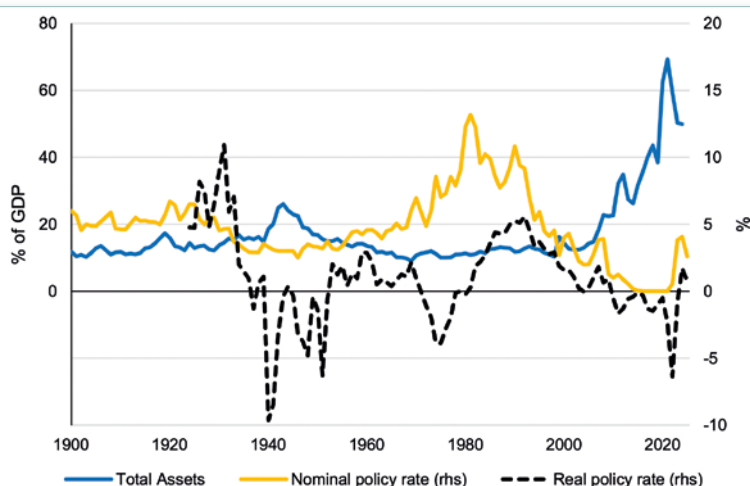
As a percentage of GDP, central bank balance sheets in advanced economies reached 69% in 2021 before declining to 44% as of mid-2026.

Despite the downward trend that began in 2022 due to quantitative tightening policies (see Parts 4 and 5), the current size of central bank balance sheets is still at a record high over the last 120 years. According to the Bank for International Settlements, the last time there was a significant increase in the assets of central banks in developed countries was during the Second World War, when central bank balance sheets reached 26% of GDP in 1943, before falling back to pre-war levels of 16% six years later (see Chart 2).

This 120-year historical review illustrates the unprecedented nature of monetary policy accommodation over the last 20 years, including both conventional policies (such as real and nominal interest rates close to zero or even negative) and unconventional policies (such as balance sheet expansion, including bond purchase programmes of up to 70% of GDP).

CHART 2.
Policy rates and central bank
balances sheets since 1900

Sources: BIS Annual Economic Report (June 2025)
Notes: The real policy rate is calculated by adjusting
the nominal rate for inflation; Economies include AT,
AU, BE, CA, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, JP,
LU, NL, NO, NZ, PT, SE and US



As Chart 3 shows, the growth of the monetary base has consistently exceeded that of GDP in both the United States and the Euro area since 2000.

Between 2008 and 2019, the monetary aggregate M0 grew at an annual rate of 13.5% in advanced countries, while their GDP grew by an average of just 2% in real terms. With an average nominal GDP growth of around 3.5%, the monetary base grew almost four times faster than nominal GDP over the decade.

In the Eurozone (see Chart 3a), the monetary base grew by an annual average of 13.9% between late 2007 and late 2019 – 6.5 times faster than the +2.2% nominal GDP growth rate.

During this period, the monetary base in the United States grew by an annual average of 14.8%, which was 4.3 times faster than nominal GDP growth (+3.4%).

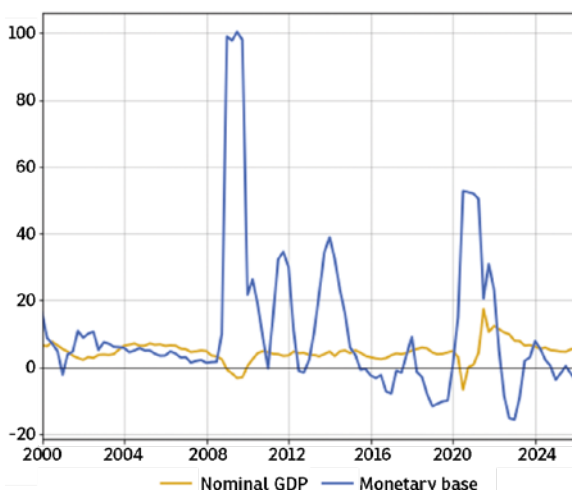
CHART 3.
Nominal GDP against Monetary base, quarterly growth, % annual change

Chart 3a : Euro area



Sources: Economics, based on data from the ECB and the Federal Reserve
Notes: last observations are from Q1-2026

Chart 3b : United States



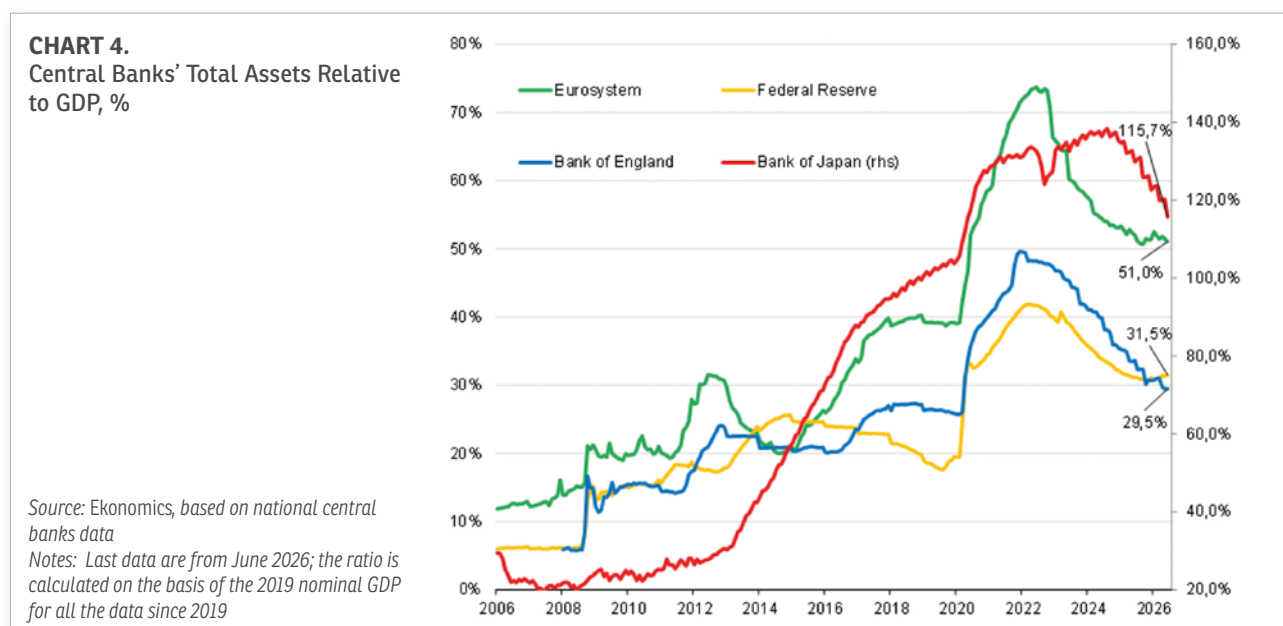
1.1.1 The expansion of the monetary base is the result of asset purchase programmes by central banks, which have increased their balance sheets by over 500% between 2008 and 2022

Between January 2008 and June 2022:

- The balance sheet of the Federal Reserve grew by 890%, an increase of \$8 tn.
- The balance sheet of the Eurosystem grew by 560%, an increase of €7.5 tn.
- The increase in the size of the balance sheet was 548% in Japan and 1056% in the UK.

The size of the Fed's assets reached 41.7% of US GDP in June 2022, up from 6.1% in 2008. The assets of the Eurosystem amounted to 73% of the Eurozone GDP in June 2022, from 13.8% in January 2008 (*see Chart 4*).

The assets of the Bank of Japan (which began its asset purchase program in March 2001) reached 132.6% of Japanese GDP in June 2022, up from 21.7% in January 2008.



The fact that a central bank such as the ECB has decided to buy – and in effect monetise – bonds equivalent to more than 70% of Euro area GDP gives an idea of the unprecedented scale of the explosion in monetary support for the economy since 2014.

J. de Larosière highlights³ (*see Chapter 5*), the issues that arise in this case: "When [the ECB] buys – through money creation – the equivalent of $\frac{3}{4}$ 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 usually only encountered in times of war when governments set rates)."

1.1.2 A significant proportion of the overall increase in the monetary base did not occur during recessionary periods, testifying to the asymmetry of monetary policy

As we have underlined, the aggregate monetary base increased by \$22.5 tn between 2000 and 2022:

- \$13.4 tn were issued during crises: \$4.5 tn in the wake of the Great Financial Crisis and the European Sovereign Debt crisis between 2008 and 2013 and \$8 tn in response to the Covid-19 crisis in 2020.
- The remaining \$9.1 tn was not issued during recessionary periods (*see Chart 1*): +\$1.6 tn between 2000 and 2008, + \$5.3 tn between early 2014 and late 2019 and + \$2.3 tn 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

Since the beginning of the 21st century, a series of extraordinary events – the Great Financial Crisis, the EU Sovereign Debt crisis and the Covid-19 pandemic – have severely tested the conduct of monetary policy. As the BIS Annual Report 2024 reminds us, central banks' forceful, unprecedented, and repeated responses to financial stress have stabilised the system and limited economic damage. As the ultimate source of liquidity in times of

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

stress, central banks' actions are crucial for bolstering confidence, addressing market dysfunction, and supporting the flow of credit to businesses and households.

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 crisis, the Fed implemented several measures to support the financial system, including cutting interest rates, providing liquidity to financial institutions and making large-scale purchases of private and public securities.

From September 2007 onwards, **the Fed reduced the federal funds rate**, bringing it down from 5.25% to between 0 and 0.25% by December 2008. Most of these reductions occurred between January and March 2008, and again between September and December of that year.

The Fed also created several new credit facilities to provide liquidity to financial institutions. These included lending facilities for investment banks in March 2008 and facilities to address liquidity issues following the collapse of Lehman Brothers in September 2008. The expansion of the Fed's lending programmes peaked at over \$1.5 trillion by the end of 2008.

Alongside lending programmes, the Fed engaged in **large-scale asset purchase programmes**, also known as quantitative easing. In November 2008, the Fed announced that it would purchase mortgage-backed securities (MBS) from US agencies and government-related housing debt. From November 2008 to March 2010, the Fed accumulated a total of \$1.75 trillion in securities, doubling the total value of its assets.

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

Following the Great Financial Crisis, the ECB's emergency measures led to a smaller expansion of its balance sheet than the Fed's. However, the extension of the crisis period due to the EU sovereign debt crisis (2010–2012) led to a dramatic expansion of the Eurosystem balance sheet.

On top of cutting its key interest rates from 4.25% to 1% between October 2008 and May 2009, the ECB introduced measures to provide enhanced credit support to banks, which were extended during the sovereign debt crisis. The ECB's response to financial fragmentation in the Eurozone between 2010 and 2012 was twofold:

First, it injected liquidity to offset the drying of market funding sources. The ECB extended the maturity of its **refinancing operations** from a few months to several years⁴. It also **eased the requirements** for accessing these refinancing operations by accepting lower-rated securities, fixed-term deposits and subordinated debt as collateral. According to G. Claey's⁵, the cumulative take-up of these two operations between October 2008 and February 2012 exceeded €1 tn.

Second, it addressed tensions in several market segments through the **Securities Markets Program (SMP)** and the **Covered Bond Purchase Programme (CBPP)**. Introduced in May 2010, the SMP involved the purchase of Eurozone sovereign bonds in the secondary market to reduce the risk premium inflated by investor mistrust. Under the SMP, the ECB purchased around €220 bn of Greek, Irish, Portuguese, Italian, and Spanish government bonds between 2010 and 2012. It also launched the CBPP in 2009 to revive the covered bond market. After an initial purchase of €60 billion of securities between July 2009 and June 2010, the ECB launched a second wave of CBPP in November 2011 for a total of €40 bn. The program was discontinued in October 2012, after the purchase of €16.4 bn of covered bonds.

Until mid-2012, these measures failed to ease tensions in sovereign bond markets, as yields on bonds issued by vulnerable Euro area Member States soared. Financial conditions eased significantly when ECB President Mario Draghi stated in a speech on the 26th of July 2012 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 so-called **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 they adhered to the conditions of the ESM program. Although the OMT was never activated, announcing it significantly reduced troubled Member States' government bond yields.

4. 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).

5. G. Claey's, "The (not so) Unconventional Monetary Policy of the European Central Bank since 2008", EU Parliament Publications, 2014.

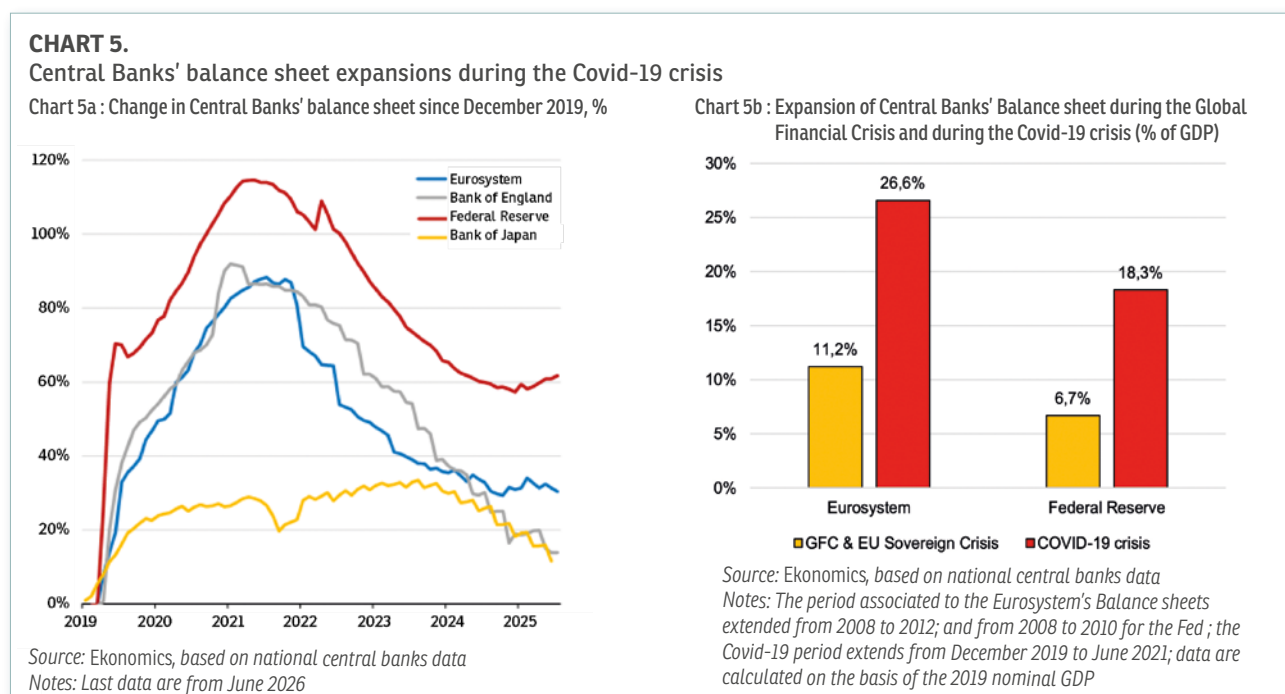
Taken together, these measures doubled the size of the Eurosystem's balance sheet, from €1.5 trillion in December 2007 to €3 trillion in December 2012.

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

In response to the pandemic outbreak in early 2020, central banks acted swiftly and decisively to mitigate its economic and financial consequences. As well as lowering policy rates, they expanded their balance sheets significantly and used other unconventional monetary policy tools to restore market functioning.

Consequently, central bank balance sheets expanded rapidly in many countries, often reaching record levels. Between December 2019 and June 2021, when most pandemic-related restrictions were lifted and economic growth turned positive, the Eurosystem's total assets had increased by 70.2%, while the Federal Reserve's balance sheet had grown by 97.2% (see Chart 5a).

Furthermore, the increase in central bank balance sheets in response to the pandemic was much larger than that seen during the 2008 global financial crisis. Between December 2019 and June 2021, the Eurosystem's balance sheet more than doubled as a percentage of GDP compared with the four years of the GFC and the EU sovereign debt crisis (2008–2012) (see Chart 5b). In the US, the Fed's balance sheet increased by 18.3% of GDP in less than two years, between March 2020 and December 2021, compared to an increase of 6.7% between 2008 and 2010.



Measures taken by the ECB in response to the pandemic.

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

In March 2020, the Governing Council decided to launch the Pandemic Emergency Purchase Programme (PEPP), in addition to the existing Asset Purchase Program (APP) in place since 2015. The PEPP had an initial volume of €750 billion, which was increased twice in 2020, reaching €1,850 billion in December 2020 (i.e. around 15.5% of Euro area GDP in 2019). Regarding the APP, a temporary envelope of €120 bn of net asset purchases was added from March to December 2020.

From March 2020 to May 2021, the cumulative net purchase total under the PEPP reached €1.18 trillion. Purchases of government securities accounted for 80% of the total. Unlike the APP, the range of assets included in the PEPP was broadened by relaxing the eligibility criteria, enabling the Eurosystem to purchase low-rated sovereign bonds, such as those issued by Greece. The PEPP also permitted the Eurosystem to hold more than 33% of a country's sovereign bonds outstanding, whereas the APP prevented the Eurosystem from exceeding this threshold. In addition to asset purchase programmes, the Eurosystem extended its lending operations to commercial banks through its LTRO programmes. According to the ECB, the total amount borrowed exceeded €1.5 trillion in June 2020, rising to €2.2 trillion by June 2021.

The Eurosystem's balance sheet increased significantly as a result of the combination of asset purchase programmes and lending operations, rising from €4.7 trillion in December 2019 to €7.88 trillion 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 3rd and March 15th, 2020. These reductions brought the federal funds rate to a range of 0% to 0.25%. To support the smooth functioning of the markets for Treasury securities and government-guaranteed mortgage-backed securities (MBS), the Federal Open Market Committee (FOMC) announced that it would increase its holdings of Treasury securities and MBS. On the **15th March 2020**, it stated it would purchase at least \$500 bn in Treasury securities and \$200 bn in MBS over "the coming months".

On **23 March 2020**, it made the purchases open-ended, stating it would purchase securities "in the amounts needed to support smooth market functioning and effective transmission of monetary policy to broader financial conditions." By **June 2020**, the Fed set its pace of Treasury purchases at \$80 billion per month and \$40 billion in residential and commercial MBS until further notice. In **December 2020**, it updated its guidance to indicate that 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 stood at \$8,08 tn, double the amount in December 2019 (\$4.2 tn).

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

Over the past two decades, monetary policies, eager to fulfil the 2% inflation target, have been both asymmetric and accommodative. This primary objective has guided monetary policy ever since. The substantial growth in central bank balance sheets outside of recessionary periods (see Charts 1 and 4) exemplifies this asymmetry.

It seems that monetary policy has become disconnected from the business cycle, as it has been highly expansionary over the past two decades. Central banks did not tighten monetary conditions when the economy improved. This has led to the financial sector becoming overly dominant in the economy.

However, rather than allowing inflation to remain at around 1%, central banks sought to increase it from 1% to 2% at all costs. This misguided and dogmatic approach led central banks to inflate money creation on a massive and unnecessary scale. The pretext was: 'We have not yet reached the sacrosanct 2% target' (even though this figure is arbitrary and reaching it would not guarantee prosperity). In fact, the dangers of deflation were exaggerated while the disadvantages of persistently low interest rates were underestimated.

According to J. de Larosière⁶, "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 take 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 Chart 6 shows, short-term real interest rates have predominantly been negative in both the Euro area and the United States over the past two decades. With real interest rates close to zero or even negative, central banks have employed quantitative easing (QE) programmes during and after crises to overcome the zero lower bound.

The ECB's failure to tighten monetary conditions when economic conditions improved limited its ability to act decisively at the next turning point.

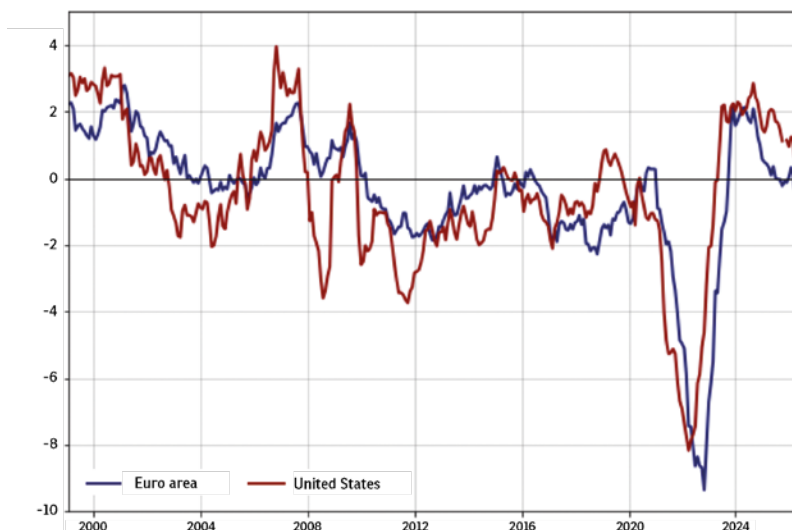
However, changes in interest rates cannot address the structural reasons for downward inflationary pressure, such as ageing populations, increased imports from low-wage countries, changes in labour market behaviour, and productivity gains resulting from new technologies.

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

CHART 6.

Real Refinancing Rates in the US
and Euro area
*Policy rate minus headline inflation rate,
% points*

Source : Ekonomics, based on Bank
for International Settlements' data
Notes : Latest data from June 2026



1.3.2 When the economic situation improved after the sovereign debt crisis, the ECB did not tighten or even normalize its monetary policy

Substantial bond-buying programmes were legitimately required to address the Global Financial Crisis and the EU Sovereign Debt Crisis. However, from late 2013 onwards, as the Eurozone economy recovered from the 2011-12 recession, the ECB's monetary policy remained highly accommodative.

In a 2014 speech⁷ in which he expressed his concern about the "unwarranted tightening of the policy" and the "deterioration in the medium-term inflation outlook", 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 measure was the use of a negative interest rate policy, with the deposit rate cut 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 was the launch of asset purchase programmes in October 2014. Initially designed to purchase asset-backed securities, the program was expanded in January 2015 to include corporate and government securities. Combined monthly purchases reached €60 bn from March 2015 to March 2016 and were intended to continue "until at least September 2016" according to the Governing Council⁸. However, net asset purchases continued at a monthly pace varying from €15 bn to €80 bn between 2016 and 2019.

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

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

Had monetary policy over the past 15 years been geared toward a more realistic inflation target of around 1% rather than 2% and taken into account the increasing financial vulnerabilities associated with the very accommodative stance (see Section 3), the world would have succeeded in both avoiding unnecessary expansionary monetary policy and deflation.

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

After the collapse of Lehman Brothers in September 2008, the Fed launched its QE policy 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 NBER⁹.

Following the completion of its first round of asset purchases, which took place between November 2008 and March 2010 (QE1), the Fed launched a second round of quantitative easing (QE2), involving the purchase of \$600 billion of US Treasury securities. This was completed in June 2011. Then, in September 2012, the Federal

7. M. Draghi, "Monetary policy communication in turbulent times", Speech at the Conference De Nederlandsche Bank 200 years, Amsterdam, April 2014.

8. "ECB announces expanded asset purchase programme", ECB Communication (January 2015).

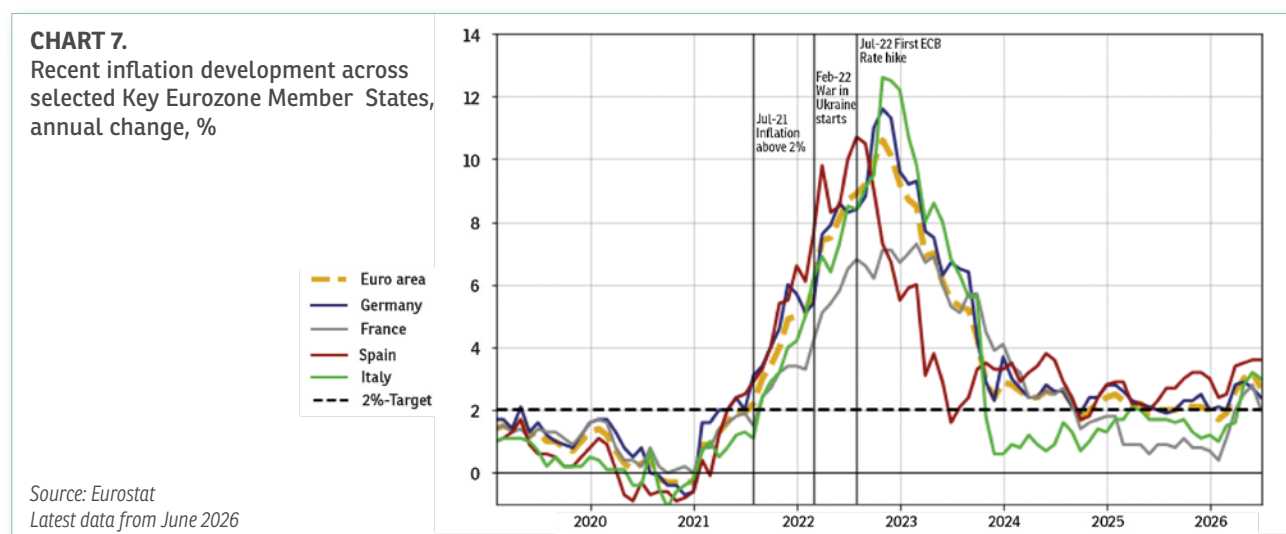
9. NBER, Business Cycle Dating – see Business Cycle Dating | NBER.

Reserve announced a third large-scale asset purchase programme (QE3), involving monthly purchases of \$40 billion in mortgage-backed securities (MBS) and \$45 billion in long-term US Treasuries. This ended in October 2014.

These additional waves of QE further increased the size of the Fed's balance sheet. It grew from \$2.3 trillion in March 2010, at the end of QE1, to \$4.5 trillion in October 2014, when the end of net purchases was announced. The FOMC reduced the Fed's asset holdings in 2017, with quantitative tightening ended in 2019.

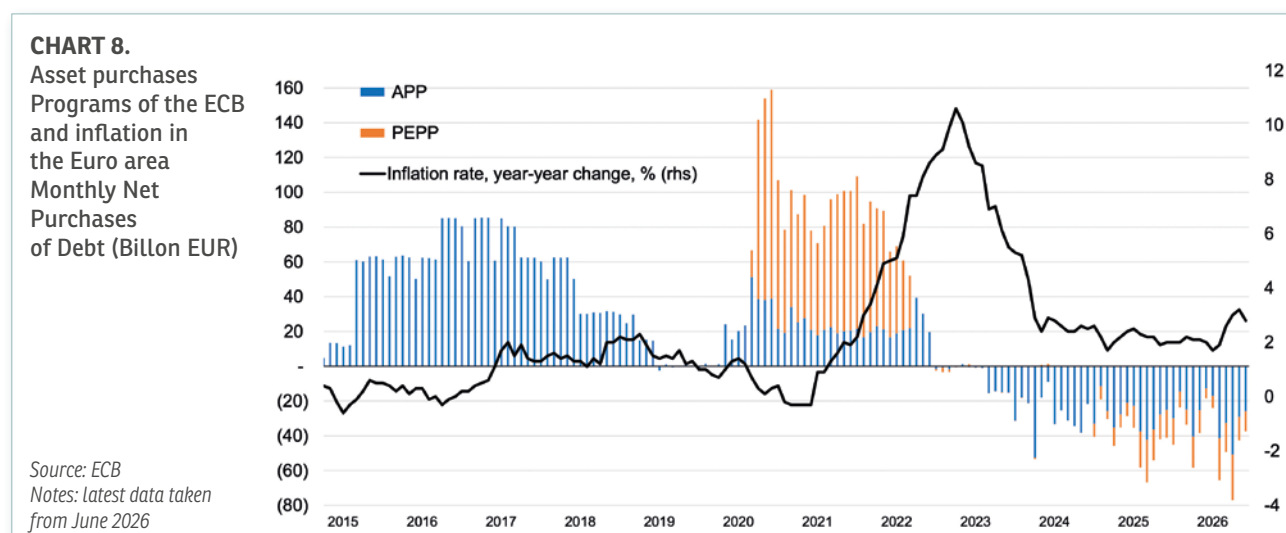
1.3.4 The ECB continued its QE policy until July 2022, while inflation rose sharply to its highest level since the start of the Monetary Union

While inflation in the Eurozone had been continuously exceeding 2% since July 2021 and was heading toward double-digit levels a few months later (see Chart 7), the ECB pursued its asset purchase programs and kept the deposit rate unchanged at -0.5% until July 2022, thus failing to contain inflation.



Following a peak of €160 billion in June 2020, the ECB's net monthly securities purchases averaged €91.3 billion between October 2020 and November 2021 (see Chart 8). This pace slowed to €50-70 billion per month between December 2021 and March 2022.

Following the end of its net purchases under the PEPP in March 2022, the Eurosystem continued to purchase securities under the APP. In April 2022, a total of €40 billion of public and private securities were purchased under this programme, despite headline inflation being more than three times the ECB's 2% target. Monthly net purchases then fell to €30 billion in May and €19.7 billion in June, before being discontinued on 1 July 2022 (see final section).



Thus, despite an accelerating inflation, including its core component, from the third quarter of 2021, the ECB maintained an extremely expansionary stance until July 2022. This was based on models that predicted that inflation would return to below 2% in any case, given the credibility of its policy. As D. Gros and F. Shamsfakhr explain, "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% but at the end of the forecast horizon inflation would return automatically anyway (*i.e.* to just below 2% without any change in policy)¹⁰."

The models used by the ECB struggled to adjust to structural changes. They implied that any wage pressures would be neutralised, as the models explicitly assumed that the ECB's 2% target would be met. The credibility of central banks is such that the public expects this to happen. However, wage demands increased significantly across the Euro area, including double-digit increases in the minimum wage in several countries (*see Part 4.1*). This outcome was therefore unsurprising – how could one imagine European workers accepting a 7-10% loss in purchasing power without demanding compensation?

In a speech made in November 2021, M. King¹¹ 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 drivers of expectations. This type of model only works when nothing happens..."

•

J. de Larosière points out that 'it is understandable for a central bank to lower its policy rate to zero at certain times and for reasons of economic adjustment'. However, it is difficult to imagine or justify doing so continuously for two decades (*see the above Chart*). Such prolonged negative interest rates are incomprehensible. This is because one of the fundamental forces of the economy has been artificially broken. This has led to profound disruptions in the financing of the economy and helped shape a hyper-leveraged financial system that is prone to crises.

While an inflation target is designed to protect the system from excessive price increases or deflation, it does not aim to achieve an artificially higher price level than that which would result from market forces. The risk of deflation has been exaggerated, while the downside of persistently low interest rates has been underestimated.

Rather than addressing structural weaknesses, most countries have avoided implementing structural reforms over the last decade. Accommodative monetary and fiscal policies should only aim to manage the economic cycle.

A. Weber, in his article for the *Eurofi magazine*¹², emphasized that "even if monetary policy were effective in countering some of these problems, which it is not, it would have been the wrong tool. With interest rates at zero or slightly negative and central bank balance sheets massively expanded by quantitative easing, the ultra-loose monetary policy 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 tried to solve huge structural problems by increasing debt to unprecedented levels and using cheap money to devalue their currencies and inflate stock and real estate prices artificially. The longer these underlying structural problems remain unaddressed, the more significant they become."

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

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

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

2. Such prolonged monetary policy easing has steadily contributed to the expansion of indebtedness

Central banks have failed to control credit growth, thereby exacerbating the over-indebtedness of economies. In fact, they have not paid much attention to credit expansion over the past two decades.

Between 2008 and 2022, money supply growth consistently outpaced real economic growth. Persistently low interest rates have also contributed to a substantial increase in debt during this period.

Against this backdrop, central banks have come to hold an increasing share of government debt, effectively acting as fiscal agents.

2.1 Lessons on the causes of the 2008 crisis were ignored by policymakers: financial crises are always the result of excessive debt

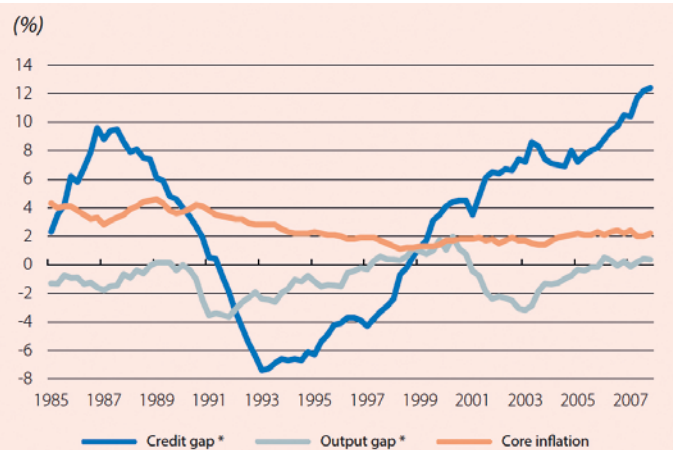
The explosion of credit was a major factor behind the Global Financial Crisis (2008).

In 2010¹³, J. de Larosière explained that the credit boom – which is a monetary phenomenon – was a major factor in the Global Financial Crisis¹⁴. Certainly, the abuse of off-balance sheet operations (SIVs, conduits, etc.) and the securitisation of complex and opaque products contributed significantly to this expansion. But many central banks – and in particular the Federal Reserve, which kept real interest rates close to zero for several years – fuelled credit expansion, which in turn stimulated monetary aggregates.

In the period leading up to the 2007-2008 crisis, debt rose much faster than the economy (*see Charts 9 and 10*).

CHART 9.
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 has 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 credit growth has traditionally been an important element in the analysis and toolkit of monetary policymakers. At the very least, the magnitude of the credit bubble should have raised questions about the adequacy of monetary policies.”

In 2024, the BIS finally acknowledged that “the Global Financial Crisis itself was arguably in part the result of the period of low rates that preceded it¹⁵.”

To avoid a remake of such events, central banks will have to resume their monitoring of credit expansion to avoid inflating bubbles. J. de Larosière underlined that central banks should lean against the wind to “improve macroeconomic 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...”

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

14. 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 %).

15. See page 55 of the BIS Annual Economic Report (June 2024).

Unfortunately, these 2010 analyses and proposals have not been followed up on. Worse, the financialization¹⁶ of economies has only increased since then.

There are features of the current situation that make it much worse than in 2007.

When it comes to debt, the end of the financial crisis marked a return to business as usual. Worse, "the debt engine has shifted into a higher gear." Global debt is now at its highest peacetime level:

- At the end of 2007, global debt – both private and public – stood at \$113 tn. By the fourth quarter of 2025, it had more than doubled (to \$262 tn).
- As a percentage of GDP, the global debt ratio rose from 184% end-2007 to 232% in Q4-2025.

Has productive investment at least benefited from low interest rates? Unfortunately, the answer is no (see Chapter 3).

For 20 years, debt has exceeded investment.

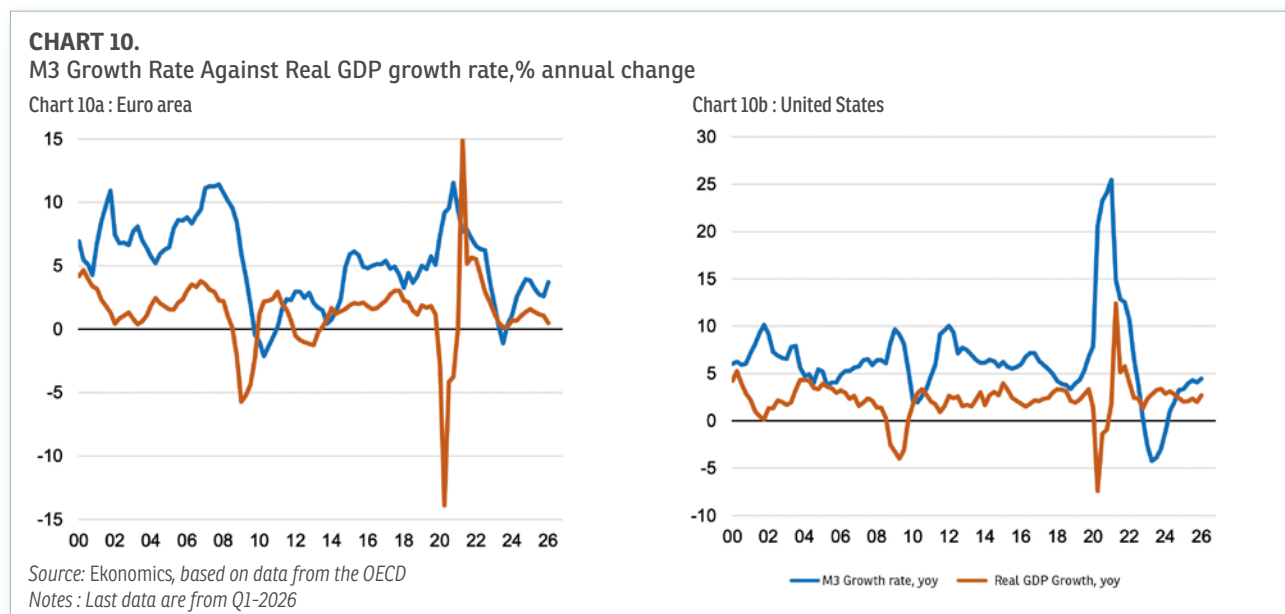
McKinsey¹⁷ calculated that, on average, 4 dollars of liabilities (debt and similar) were needed to generate 1 dollar of net investment between 2000 and 2020.

Although there is considerable variation across countries in this area, the fact remains that this multiplier of 0,25 indicates significant leverage – an all-time high – which raises concerns about future debt sustainability.

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

Two periods have to be distinguished: the first spans from 2000 to 2019, and the second from the start of the Covid-19 response to the present (early 2025).

M3 growth¹⁸ has consistently outpaced real GDP growth in both the US and the Euro area (see Chart 10). Between 2000 and 2019, the volume of M3 in the US increased by 227%, while real GDP grew by only 51%. In the Euro area, M3 increased by 172%, compared to a real GDP increase of just 28%.



Admittedly, these data should be treated with caution, as the relationship between money creation and inflation is complex and non-linear. The velocity of circulation and the irregularity of economic agents' demand for money are difficult to model. However, the scale and continuity of this 'excess' money should have led to questioning the wisdom of such a policy. Traditionally, financial activity has grown in proportion to economic growth. But over the past 20 years, this relationship has disappeared, with financing exceeding economic needs.

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

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

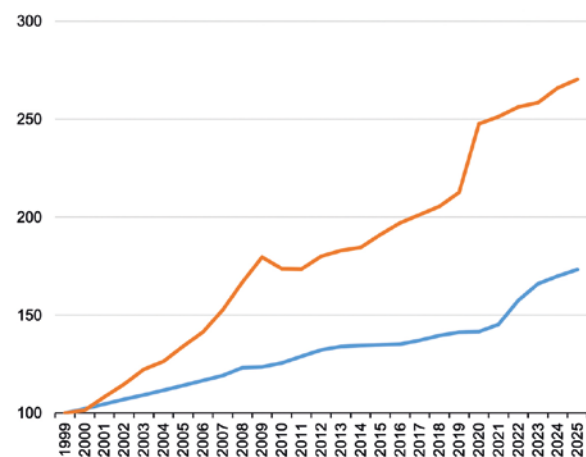
18. M3 is a broad measure of the quantity of money in circulation, that includes highly liquid assets as cash and deposits accounts but also less liquid components as institutional money market funds, and short-term repurchase agreements.

The growth in credit between 2013 and 2019 was not accompanied by rising prices for goods and services, but rather rising prices for financial and real estate assets. This caused major instability in the financial system (see Part 3).

CHART 11.

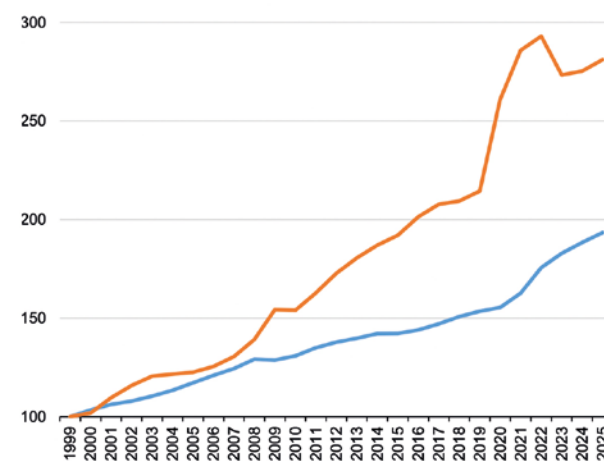
Money supply, real GDP and inflation, 1999 = 100

Chart 11a : Euro area



Sources: Economics, based on data from the OECD

Chart 11b : United States

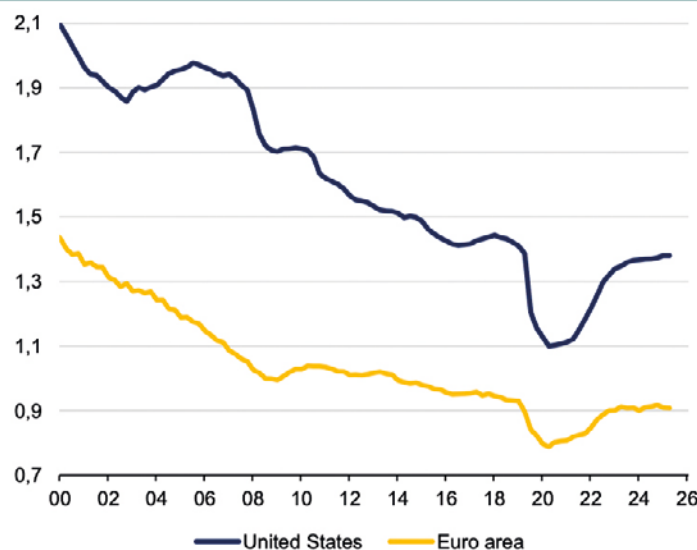


— CPI — Ratio: M3 money supply/Real GDP

The divergent trajectories of money supply and economic growth involve changes in the velocity of money. The real economy has not benefited from money creation due to a drop in the speed of money circulation. Between 1999 and the end of 2019, it fell by 52% in the Euro area and by 49% in the United States (see Chart 12).

CHART 12.

Velocity of Money in Circulation in the United States and the Euro area, in units



Source: Economics, based on data from the OECD
Last data from Q1-2026

Following the Covid-19 crisis, the growth of the money supply driven by central banks' asset purchases accelerated significantly until mid-2022.

In the United States, the annual growth rate of M3 peaked at 26.9% in February 2021 – the highest rate since 1943 – before gradually declining to around 12% between June 2021 and January 2022, *i.e.* double the pre-pandemic average of 5.5% per year between 2014 and 2019.

In the Euro area, annual M3 growth was more moderate, peaking at 12% in January 2021, before fluctuating between 6% and 8% from May to December 2021. Between April 2021 and September 2022, annual M3 growth was close to 6%, although this remained well above the pre-pandemic average of 4.5% per year between 2014 and 2019.

Between February 2020 and April 2022, the money supply increased by 40% in the US and by 20.2% in the Eurozone, as much as it had in the six years prior to the Covid-19 crisis. Between January 2013 and December 2019, the money supply increased by 46.2% in the United States and 33.3% in the Eurozone.

As the money supply has grown much faster than GDP, the resulting 'excess money' has led to inflation, which is a monetary phenomenon (see Section 4.1).

Another key factor in the current rise in inflation is the dynamics of the velocity of money. After falling during the pandemic due to the sharp increase in the money supply and the fall in GDP, the velocity of money stabilised in both regions at the end of 2020 (see Chart 12). From June 2021 onwards, it began to rise slightly in both regions, indicating that the excess money initially accumulated by households and businesses was being spent on goods and services. This led to strong demand, which, coupled with supply constraints, resulted in high inflation (see Section 4.1).

From mid-2022, however, monetary growth in the Eurozone fell sharply, turning negative in Q3-2023 for the first time since 2010. However, this decline was temporary, with growth recovering in subsequent quarters (averaging 3% between Q3-2024 and Q1-2026), though remaining below pre-Covid-19 levels (an average of 5.3% between 2000 and 2019).

2.3 Lasting accommodative monetary policies have contributed to lower interest rates

Long-lasting accommodative monetary policies have led to lower interest rates. Notably, the ECB's deposit facility rate – one of its key policy interest rates – remained negative in nominal terms between 2014 and 2022 (see Chart 13).

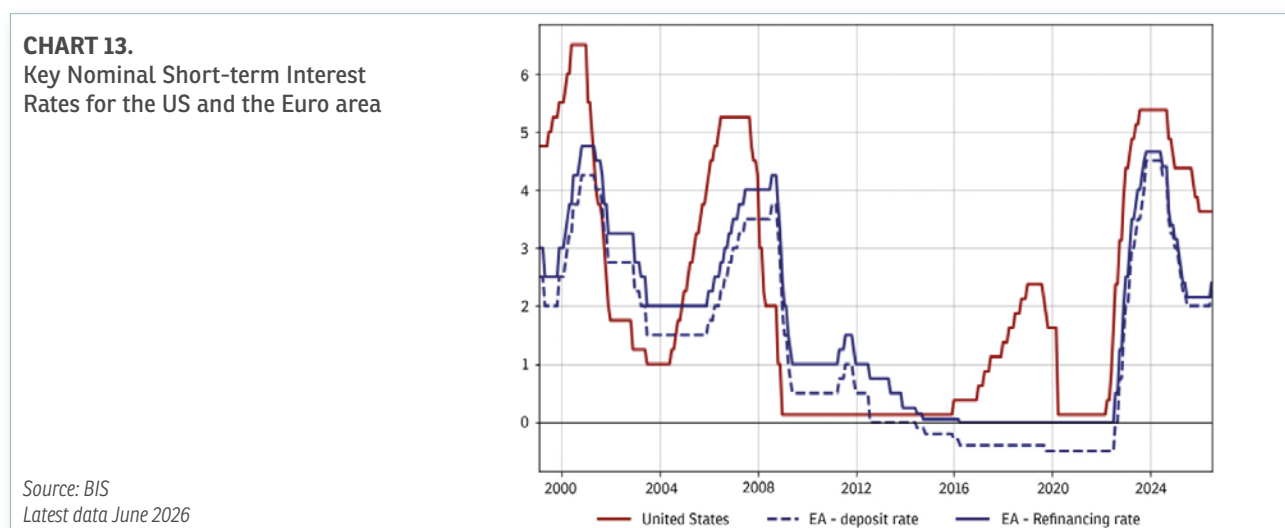


Chart 14 illustrates the downward trend in long-term interest rates in several major advanced economies over the past 20 years. The German 10-year interest rate was the first to turn negative, reaching this point at the end of 2016, while the French 10-year interest rate remained close to zero. From late 2019 until late 2021, both rates were negative.

Since early 2022, however, French and German long-term bond yields have been above zero again (see Part 4).

The equilibrium real interest rate, the natural rate of interest, or “r-star”¹⁹ has been falling for several decades, and this has motivated central banks to keep interest rates permanently low by conducting unconventional asset purchase policies, even if, as the BIS explains²⁰, the natural interest rate is a “blurry guidepost for monetary policy”.

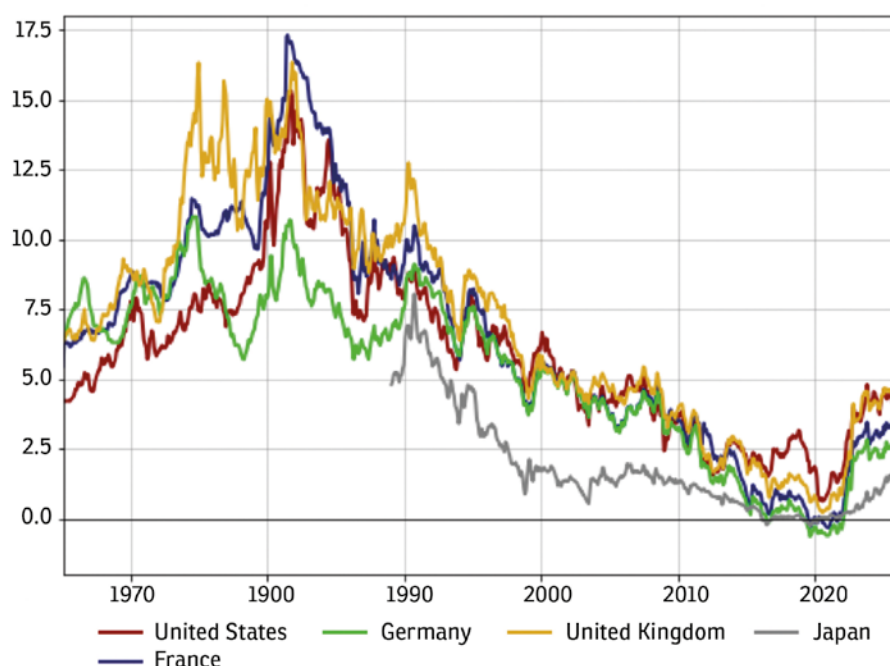
However, zero or negative nominal interest rates are not a normal phenomenon. They are largely the result of substantial asset purchases by central banks.

19. The natural rate of interest, or r-star, is generally defined as the level of the risk-free short-term real interest rate that would prevail in the absence of business cycle fluctuations, with output at potential, saving equal to investment and inflation stable. In principle, this concept provides a yardstick for where real policy interest rates are heading in the medium term, once current business cycle disturbances dissipate, and the economy gravitates towards its equilibrium. The natural rate is also often used as a benchmark to assess whether the monetary policy stance is restrictive or expansionary.

Analytically, r-star is a compelling concept. But its measurement is fraught with difficulties, and our understanding of its drivers is quite limited. Ideally, frameworks as well as policy calibration should limit as far as possible dependence on notions such as r-star, which are so hard to pin down.

20. See BIS, Annual Economic Report (June 2024), page 66.

CHART 14.
10-Year Nominal Interest
Rates of Selected Advanced
Economies, %



Source: OECD
Latest data from June 2026

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 much higher, since they depend partly on growth potential, which has been remarkably low in recent years. Indeed, quantitative easing affects long-term yields through signalling and portfolio rebalancing channels. The IMF reminds us that, according to the 'portfolio rebalancing' channel, asset purchases compress the term premium (*i.e.* the compensation required to hold long-term debt securities) and therefore reduce long-term yields.

This occurs because QE decreases the net supply of long-term assets held by the private sector. In turn, private sector agents will agree to reduce their holdings of such assets if their prices rise (or if yields decrease).

The IMF also highlights 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 reduce long-term yields by up to 265 basis points'. However, the evidence on the magnitude of QE for the Euro area is more limited than for the US, as the ECB only began its asset purchase programmes in 2015.

The 2024 BIS Annual Report also states that "the empirical evidence clearly indicates that unconventional policy measures allowed central banks to ease financial conditions much further²¹. Large-scale asset purchases helped compress risk (term and credit) premia and, by underlining central banks' willingness to keep interest rates low, influenced expectations of policy rates further out in the future – the signalling channel. Forward guidance helped shape those expectations more directly and, by reducing uncertainty about the policy rate path, compressed risk premia too. Negative interest rates were transmitted to money market and capital market rates very much like other policy rate cuts, thereby also having a similar impact on the exchange rate."

Furthermore, the substantial liquidity and quantitative easing programmes introduced by the central banks of advanced economies (such as the ECB, the Fed and the BoJ) have distorted the concept of long-term interest rates, rendering them unable to fulfil their discriminatory function. This has resulted in mispricing of risk (see Section 3.2.1).

Consequently, central banks have managed the yield curve and taken control of the traditional functions of markets.

Finally, asset purchase programmes have also reduced the relevance of the interbank market by creating an environment of abundant bank reserves. The implementation of asset purchases led to the creation of reserves, which brought the unsecured overnight lending rate closer to the Deposit Facility Rate over time. The IMF adds that 'as a result, banks have become less vigilant about their counterparty risks and have become accustomed to the abundant liquidity over time. This might make it difficult to withdraw such excess liquidity should they wish to do so'.

21. See Borio and Zabai (2016), CGFS (2019) and Cecchetti et al (2020) for a review of the evidence on the impact of unconventional monetary policy tools on economic activity. See also Markets Committee (2019) on the impact of large balance sheets on market functioning.

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

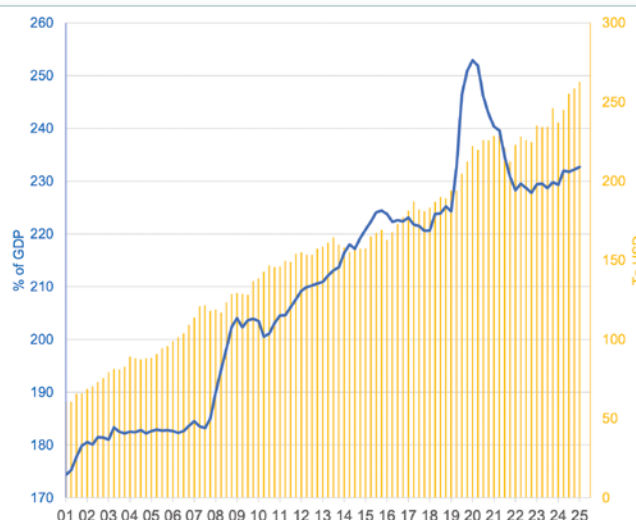
Lasting very low interest rates have pushed global debt to record peacetime levels, even before the sovereign debt crisis. According to the BIS, global debt reached a record of 252% of GDP at the end of 2020, up from 223% in 2019 and 203% in 2011.

It is important to note that public debt has been the main driver of this overall expansion, growing much faster than private debt since 2008.

Following the reopening of economies, which led to strong GDP growth and inflation, the global debt-to-GDP ratio fell by around 25 percentage points between 2020 and the end of 2023. However, amid the global economic slowdown, disinflation and rising interest rates, the ratio resumed its upward trend since Q1-2024 and stood at around 232% of GDP in Q4-2025 (see Chart 15).

CHART 15.
World* public and non-financial private debt

Source: Bank for International Settlements
Notes: *World debt includes 45 advanced and emerging economies; last observations are from 2025-Q4



Financial crises are always the result of excessive debt.

The higher the debt, the more borrowers become excessively indebted, and the more likely and severe future crises are. Some of the indebted countries (particularly those in the developing world) will not be able to meet the costs of their commitments²². This means that our overexposed financial system is vulnerable.

BIS data show the global debt-to-GDP ratio increased by 48 percentage points between the end of 2007 and end-2025.

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	2007	Q4-2025	2000	2007	Q4-2025	2000	2007	Q4-2025	2000	2007	Q4-2025
United States	48,7	57,6	116,4	136,7	170,6	140,3	66	74,8	72,2	70,7	95,9	68,1
United Kingdom	37,5	43	102,2	135,5	175,2	132,6	70,5	89,5	59	65	94,8	73,6
Japan	113	140,8	194,5	184,7	159,2	175	116	104,5	113,9	68,8	59,6	61,1
China	22,7	28,9	99,3	104,5	107,6	200,8	n.a	88,4	142,8	n.a	17,6	58
Euro area	69,2	65,9	87,9	125	153,1	153,6	76,2	98,3	103,1	48,8	59,9	50,5
France	59,6	65,4	116	139,6	159,4	215,5	104,8	117,2	155,8	34,8	49,4	59,7
Germany	59,2	63,6	63,4	147,7	141,9	136,7	77,3	84,5	87,8	70,5	58,8	48,9
Italy	108,7	103,4	137,1	78,4	111,3	94,3	55,8	76,1	58,5	22,6	38,8	35,8
Spain	57,8	35,7	100,7	122,3	216,4	119,3	76,6	138,6	76,5	45,6	82,8	42,8
Netherlands	52,2	42,8	44,4	260,4	275,6	260,1	170,7	162,8	166,3	93,7	116,6	93,8
Austria	66,6	65,8	81,5	132,9	140,8	125,5	87,7	90,8	83,9	45,2	52,4	41,6
Portugal	54,2	72,7	89,7	142,8	193,9	128,1	83,9	117,4	74,2	58,8	88,9	53,9
Belgium	109,7	87,5	107,9	146,2	170,1	174,7	105,4	142,2	117,9	40,8	49,9	56,8
Aggregate	n.a	56,1	89,6	n.a	132	145,4	n.a	77,2	91,2	n.a	54,8	54,2

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

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

Global debt²³ increased from 189.5% of GDP in 2008 to 232.7% in Q4-2025. It is worth noting that the global debt had already increased by 39.8 ppts between 2007 and 2019, reaching 224.3% of the 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 2025.
- Between the end of 2007 and the end of 2025, the global public debt increased by 34 percentage points, from 56.1% of GDP in 2007 to 89.6% of GDP in Q4-2025.
- The private non-financial sector debt increased by 13.4 ppts, from 132% of GDP in 2007 to 145.4% of GDP in Q4-2025.
- Non-financial corporations were the main contributors to the rise in the private sector debt since 2008, increasing by 14 percentage points – from 77.2% of GDP in 2007 to 91.2% in Q4-2025. In contrast, the increase in household debt was marginal, with the ratio stabilizing at around 55% of GDP since 2008.

CHART 16.

Evolution of global debt in advanced economies

Chart 16a: Credit by sector in advanced economies, Q1-2000=100

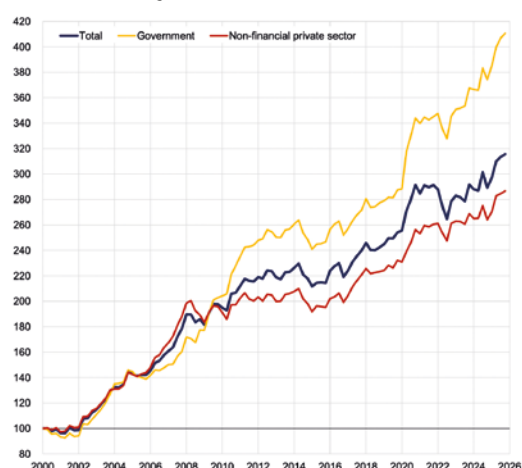
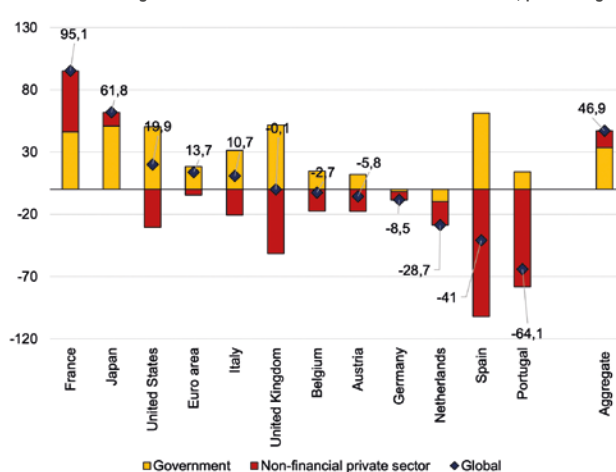


Chart 16b: Change in debt to GDP between Q4-2008 and Q4-2025, percentage points



Source: Economics, based on data from the Bank for International Settlements

2.4.1 Loose credit conditions have led to a substantial increase in public debt

Over the past two decades, public debt in advanced economies has steadily risen from 64.1% of GDP in 2000 to 95.3% in 2019. Following the 2020–2021 pandemic, public debt in advanced economies peaked at 118.8% of GDP in Q1-2021. Helped by higher growth and inflation, this figure declined to 105% in Q4-2025, though it remained 9.7 percentage points above its pre-pandemic level.

Among the major advanced economies, government debt-to-GDP ratios increased by more than 30 percentage points in the US, the UK, France, Italy and Spain between 2000 and 2025 (see Chart 17b).

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

In this context, non-financial corporate debt (loans + bonds) in advanced economies stood at 95.8% of GDP at the end of 2019, compared to 77.2% in 2000 (see Chart 18). By December 2025, non-financial corporate debt had reached 91.4% of GDP. Unlike the public sector, however, non-financial companies have managed to reduce their debt-to-GDP ratio since the start of the pandemic, bringing it down to below 2019 levels by end-2025.

At the end of 2019, the global stock of outstanding non-financial corporate bonds reached a record level of \$13.5 trillion. Notably, around 20% of the total amount of all bonds issued has been consistently rated below non-investment grade since 2010, indicating a persistent problem with overall bond quality²⁴.

This decline in corporate bond quality has also affected the global investment grade segment: while BBB-rated bonds accounted for an average of 38.9% of the global investment grade issuance between 2000 and 2007, they

23. The global debt is based on aggregated using data covering 45 advanced and emerging economies.

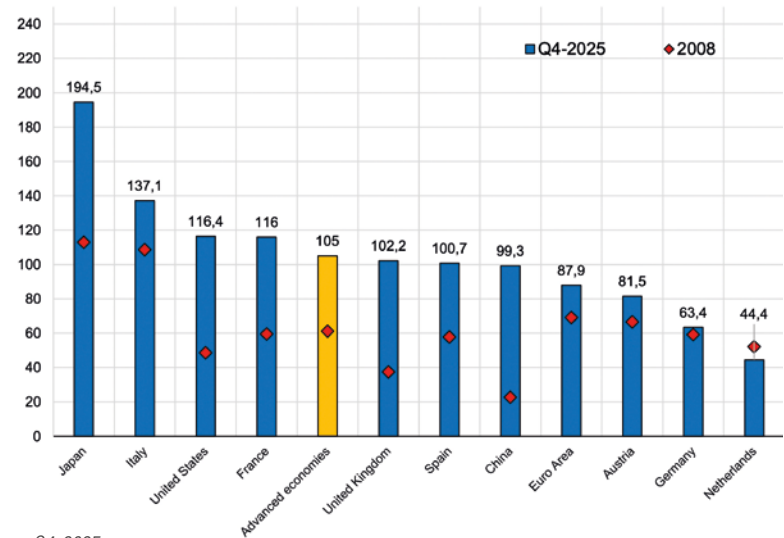
24. Celik, S, Demirtas, G, Isaksson .M, Corporate bond market trend, emerging risks and monetary policy – OECD capital market series, 2020.

CHART 17.
Gross Public Debt, as % of GDP

Chart 17a : Advanced economies



Chart 17b : Main Advanced Economies



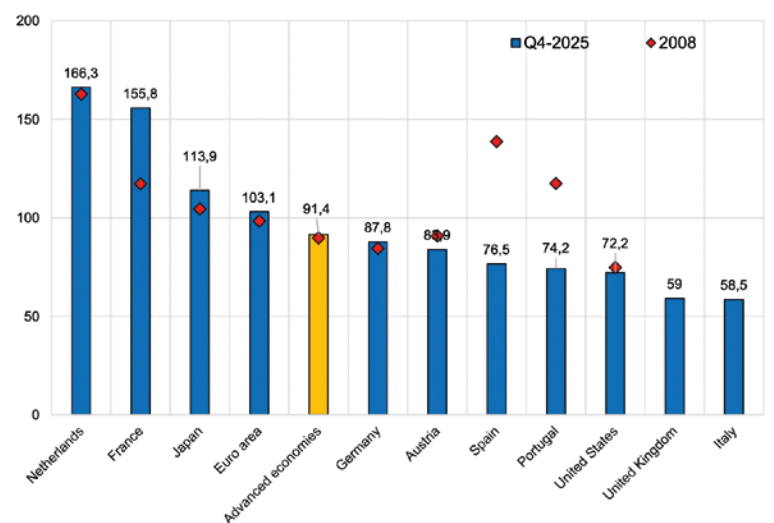
Source: Bank For International Settlements. Last observation from Q4-2025

CHART 18.
Credit to Non-Financial Corporations, % of nominal GDP

Chart 18a : Advanced economies



Chart 18b : Main Advanced Economies



Source: Bank For International Settlements. Last observation from Q4-2025

reached an average of 44.1% in 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 fell from 16.7% to 13.7% between 2000-2007 and 2008-2018, and that of AAA-rated bonds fell 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.”

As a result, the corporate sector entered the Covid-19 crisis with high levels of debt and had to continue to borrow during the crisis, causing concern among many borrowers.

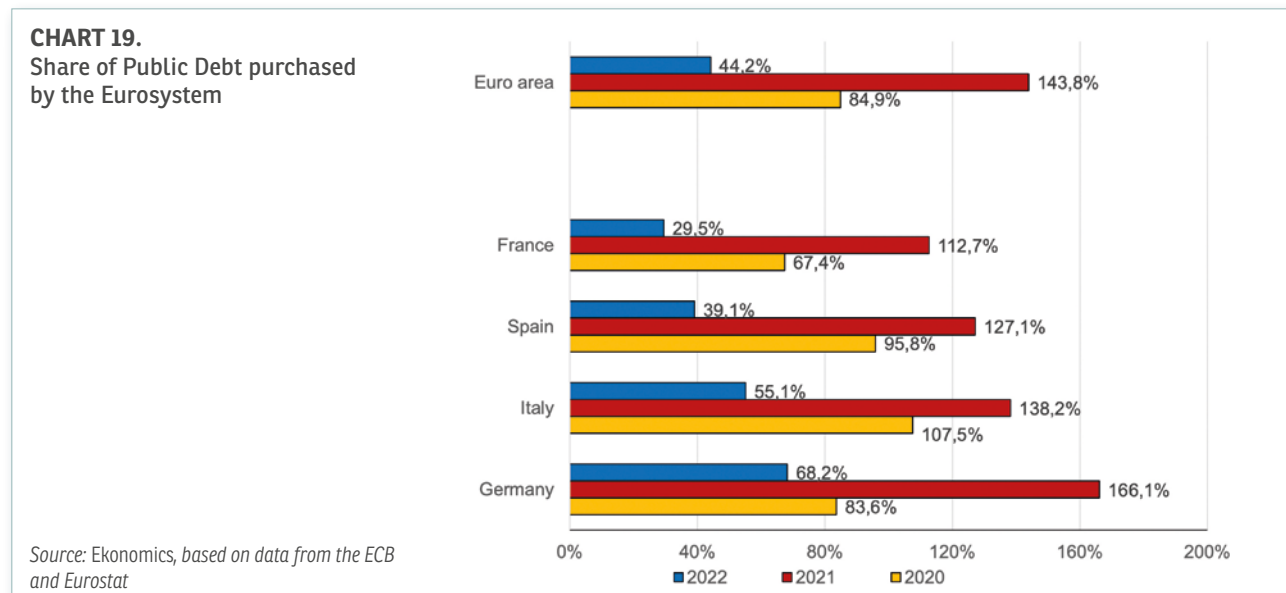
As explained by J. de Larosi re in the first chapter of his book²⁵, “the policy of low interest rate has long played an important role in this deterioration in credit quality. Indeed, an environment of persistently very low interest rates leads financial operators to search for returns and therefore 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 reduced).

25. See footnote n°5.

2.5 Central banks have de facto become fiscal agents

National Central Banks hold a 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, with its purchases of government securities accounting for the bulk of government borrowing needs (*see Chart 19*). The scale of this intervention conferred a significant advantage to the borrowing governments (*i.e.* "fiscal dominance").



In 2020, Euro area governments issued €1,063 billion of public securities, of which the Eurosystem absorbed €902.3 billion in bonds, representing 84.9% of new issues²⁶.

In 2021, Euro area governments issued €629 billion (€400 billion less than in 2020). However, the amount of assets purchased by the Eurosystem increased slightly compared to 2020, reaching €904.7 billion (*i.e.* 143.9% of public debt issuance) in 2021. In other words, as well as absorbing all new issues, the Eurosystem repurchased some of the debt that was due to mature in 2021.

According to estimates Ekonomics, the Eurosystem purchased more than all the debt securities issued by the French, German, Spanish and Italian governments in 2021 (*see Chart 18*)²⁷.

In 2022, net Eurosystem purchases of securities amounted to 45.3% of Euro area government debt issuances. This decline from the previous two years is explained by the reduction and subsequent interruption of net asset purchases in July 2022: the Eurosystem purchased €203.3 billion of securities in 2022, which is one-fifth of the amount purchased in 2021.

The purchase of sovereign bonds since 2015 has led the Eurosystem to hold more than one-third of the Euro area government debt outstanding in 2022.

The proportion of government debt held by the Eurosystem has risen steadily since 2015, when the ECB began including government securities in the Asset Purchase Programme (APP) (*see Section 1*). Between January 2015 and December 2019, this figure increased from 4.9% to 19.8%.

Since March 2023, the ECB has been reducing its holdings of sovereign bonds. From March to June 2023, the APP portfolio decreased by an average of €15 billion per month as the Eurosystem chose not to reinvest all the principal payments from maturing securities. From July 2023 onwards, the Eurosystem has decided not to reinvest redemptions under the APP. This accelerated the reduction in securities holdings to an average of €25 billion per month. Since July 2024, the stock of bonds held under the PEPP has fallen by an average of €12 billion per month.

Over two and a half years after quantitative tightening began in March 2023, the Eurosystem's share of Euro area

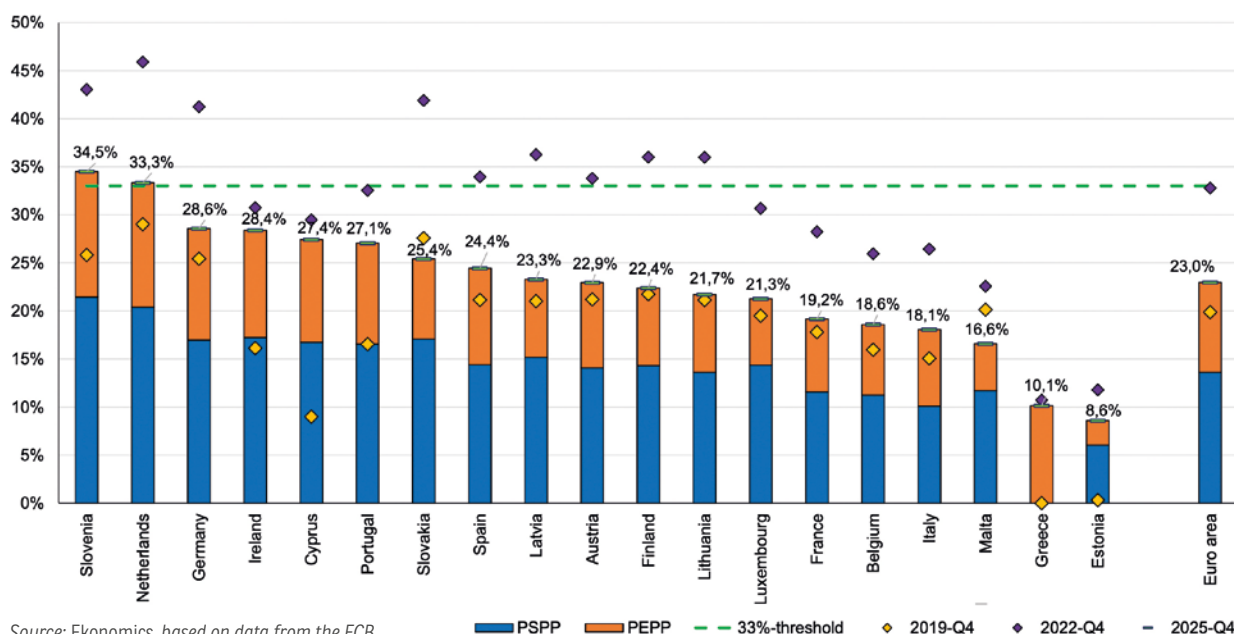
26. We calculate the share of Eurosystem purchases in government refinancing needs, by dividing the total amount of net purchases of Eurosystem securities in a year to the annual change in government debt.

27. 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.

public debt fell by 10 percentage points to reach 23% in December 2025. Despite this recent decline, the Eurosystem still holds a larger share of public debt than before the pandemic (19.5% in December 2019), retaining a significant presence in Euro area sovereign debt markets. In December 2025, the Eurosystem held 19.2% of French government debt and 18.1% of Italian government debt. Furthermore, more than 25% of Portuguese (27.1%), German (28.6%) and Dutch (33.3%) government debt remained on the Eurosystem's balance sheet.

CHART 20

Share of Government Debt held by the Eurosystem, as of December 2025, %



Source: Economics, based on data from the ECB and Eurostat

The link between sovereign states and central banks has strengthened.

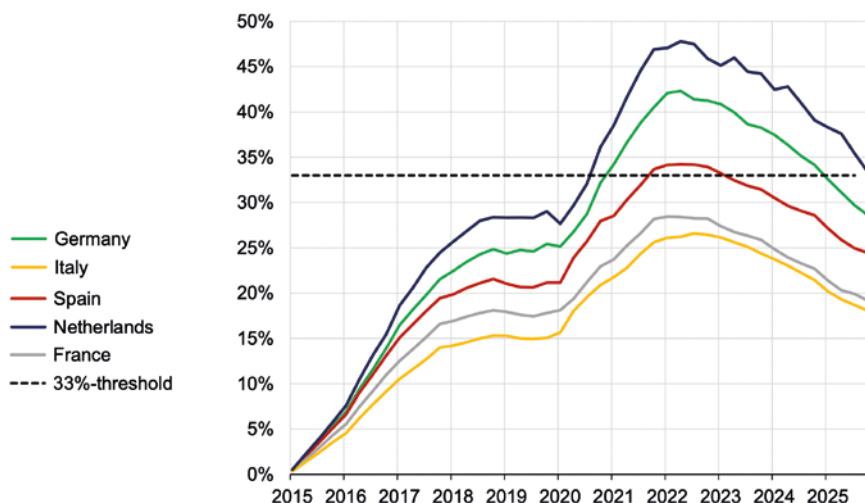
In advanced economies, central banks have taken on a greater responsibility between 2008 and 2022, thereby strengthening their link with sovereign states.

Ultra-low interest rates and other monetary interventions have lowered government debt service ratios, disguising the fiscal excesses of highly indebted countries. Indeed, between 2012 and 2021, debt service costs fell in France, Spain and Italy while public debt increased or stabilised at high levels (above 100% of GDP) (see Chart 22).

This led governments to believe that the economic situation was under control and that they could continue operating as normal.

CHART 21

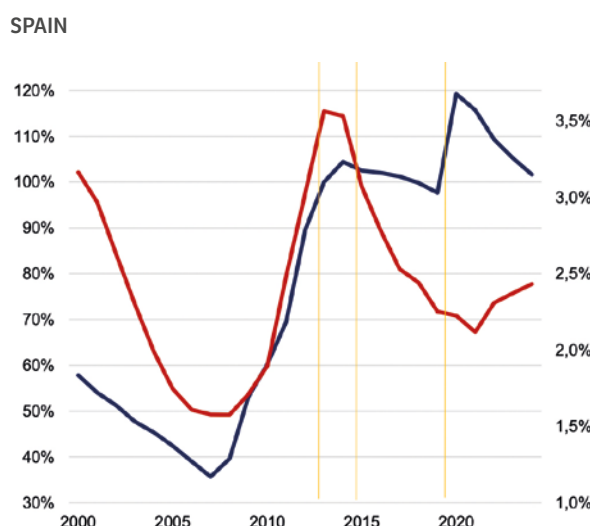
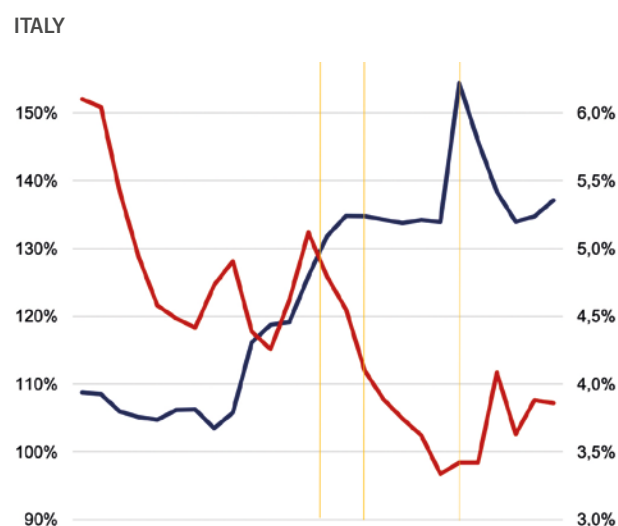
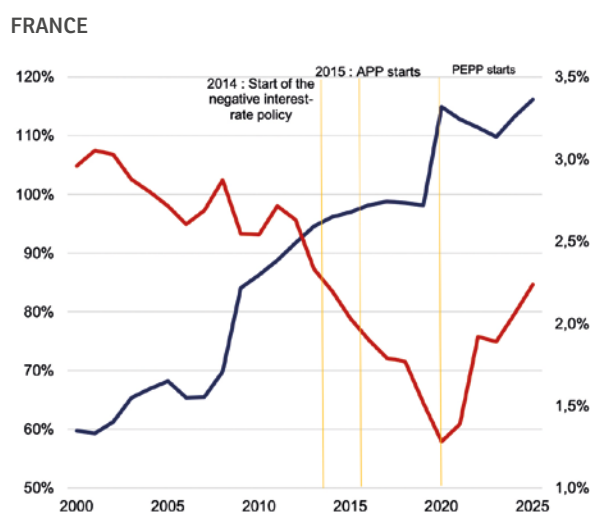
Share of public debt held by the Eurosystem



Source: Economics, based on data from the ECB and Eurostat
Last observation from 2025-Q4

However, it should have been clear that the systematic purchase of sovereign bonds should not allow governments to finance large stimulus packages unconditionally. There should also have been consideration given to increasing the efficiency of public spending and prioritising public investment over current spending.

CHART 22.
Government debt and interest payments, % of GDP across key indebted EA Member States



Source: European Commission, Autumn Forecast (May 2026)

There are three major dangers posed by this 'fiscal dominance'.

First, it calls into question the independence of central banks.

Second, it acts as a powerful disincentive for governments to control public spending or reallocate it towards productive uses. It also discourages them from implementing the structural reforms that are essential to meet the fundamental challenges of the green transition, which cannot be solved by printing more and more money.

In fact, the prospect of lasting zero or even negative interest rates has discouraged many EU Member States from launching structural reforms that could boost potential growth. Ultra-low interest rates have encouraged them to borrow more. If government borrowing becomes a free lunch, there is clearly a disincentive to fiscal discipline. Furthermore, the majority of large EU economies have not complied with the Stability and Growth Pact rules (e.g. Italy, Spain, France and Belgium).

In other words, the certainty of low interest rates in the face of political imperatives has encouraged governments to increase their debt. However, the notion that money creation can solve the problem of excessive debt is illusory. The end of the pandemic has revealed that we have a debt overhang problem that only governments, not central banks, can solve.

Third, the excessive indebtedness of several large member states (Italy, France and Belgium, for example) may prevent monetary policy from effectively combating inflation. Higher debt makes fiscal positions more sensitive to policy rates.

Concerns about the sustainability of public debt in certain countries could restrict central banks' actions regarding interest rates and balance sheet reduction. Furthermore, fiscal expansion could stimulate demand excessively and hinder the objective of disinflation.

Therefore, fiscal consolidation in these over-indebted EU countries is an absolute priority. In the short term, this would help reduce inflationary pressures. Failing to bring fiscal positions under control would increase the risks to financial and macroeconomic stability.

•

While debt is acceptable when used to finance investments that will generate additional income and allow the debt to be repaid, it is a cause for concern when used to finance current expenditure or public deficits. In this case, it can only be repaid by incurring more debt, creating an infinite process of debt accumulation, unless there is some unlikely euphoric growth.

Excessive growth in unsecured debt has a major drawback: it weakens the financial system by multiplying bad risks, triggering defaults or propping up 'zombie' firms that survive on low-interest subsidies and prevent new competitors from developing. The extreme increase in global indebtedness demonstrates the over-financialisation of our system and the danger of a financial crisis should monetary conditions reverse.

"The productive potential of the economy diminishes as debt levels rise because the interest burden associated with servicing higher public debt becomes a major government expense once again with higher interest rates. This will lead to further tax increases, which will have negative effects on economic incentives and future growth. In the long run, the price to be paid for this recent period of cheap money will be high²⁸."

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

3. Persistent ultra-loose monetary policies have had negative consequences for the economy and financial stability

Ultra-accommodative policies lasting from 2008 to 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.

Additionally, persistently low interest rates have exacerbated financial vulnerabilities, resulting in mispricing of risks and asset bubbles. They have encouraged unfavourable financial valuations at the expense of growth, and have been accompanied by a significant increase in wealth inequality.

As the BIS summarises in the introduction to its Annual Report (June 2024), "exceptionally strong and prolonged monetary easing has limitations. It exhibits diminishing returns, it cannot by itself fine-tune inflation in a low-inflation regime, and it can generate unwelcome side effects over the long term. These include weakening financial intermediation and inducing resource misallocations, encouraging excessive risk-taking and the build-up of vulnerabilities, and raising economic and political economy challenges for central banks as their balance sheets balloon. These limitations were not fully appreciated at the time the measures were first introduced."

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

Ultra-loose monetary policy has undermined the growth potential of the Eurozone. Instead of leading to increased productive investment, abundant liquidity and low interest rates have led to liquidity hoarding. With interest rates set to remain at zero for an indefinite period, investors have been discouraged from investing in risky projects and have instead turned to high-yielding, speculative assets. Additionally, households' and non-financial corporations' savings have shifted into liquid and non-risky assets, as the returns on investments have been insufficient in relation to the risk taken, especially in Europe.

Furthermore, low or negative interest rates create a fatalistic mindset that decreases – and not increases – the propensity to invest. In what John Maynard Keynes²⁹ called the 'liquidity trap', investors play safe by placing their savings in very short-term instruments rather than deploying them in longer-term projects, as low interest rates generate inadequate returns for higher risks.

As the BIS³⁰ 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

The combination of loose monetary policies and the expectation of low returns on investments creates a preference for liquidity.

As shown in the following chart, the purely liquid component (currency and sight deposits) of households' and non-financial corporations' financial portfolios significantly increased between 2008 and 2021 across the main Eurozone countries while interest rates decreased. When investors are no longer rewarded for taking risks, they turn away from risky long-term projects.

Indeed, the proportion of liquid financial assets held by households and non-financial corporations increased from 10.2% in 2007 to 20.1% in 2021 in Germany, and from 5.3% to 7.8% in France over the same period. Significant increases were also observed in Spain and Italy over the same period (respectively +10.2 percentage points and +6.6 percentage points). This tendency continued to grow during the Covid-19 crisis and intensified afterwards.

It should also be noted that the 'flight to liquidity' effect, as measured by this liquidity ratio, is underestimated between 2008 and 2021 due to valuation effects on stock markets. During this period, the STOXX Europe 600 index increased by 146%. These strong valuation effects on stock markets significantly impacted the denominator (total financial wealth), but not the numerator (liquid assets). Such a preference for liquidity diverts savers away from long-term investments.

29. Keynes justified 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.

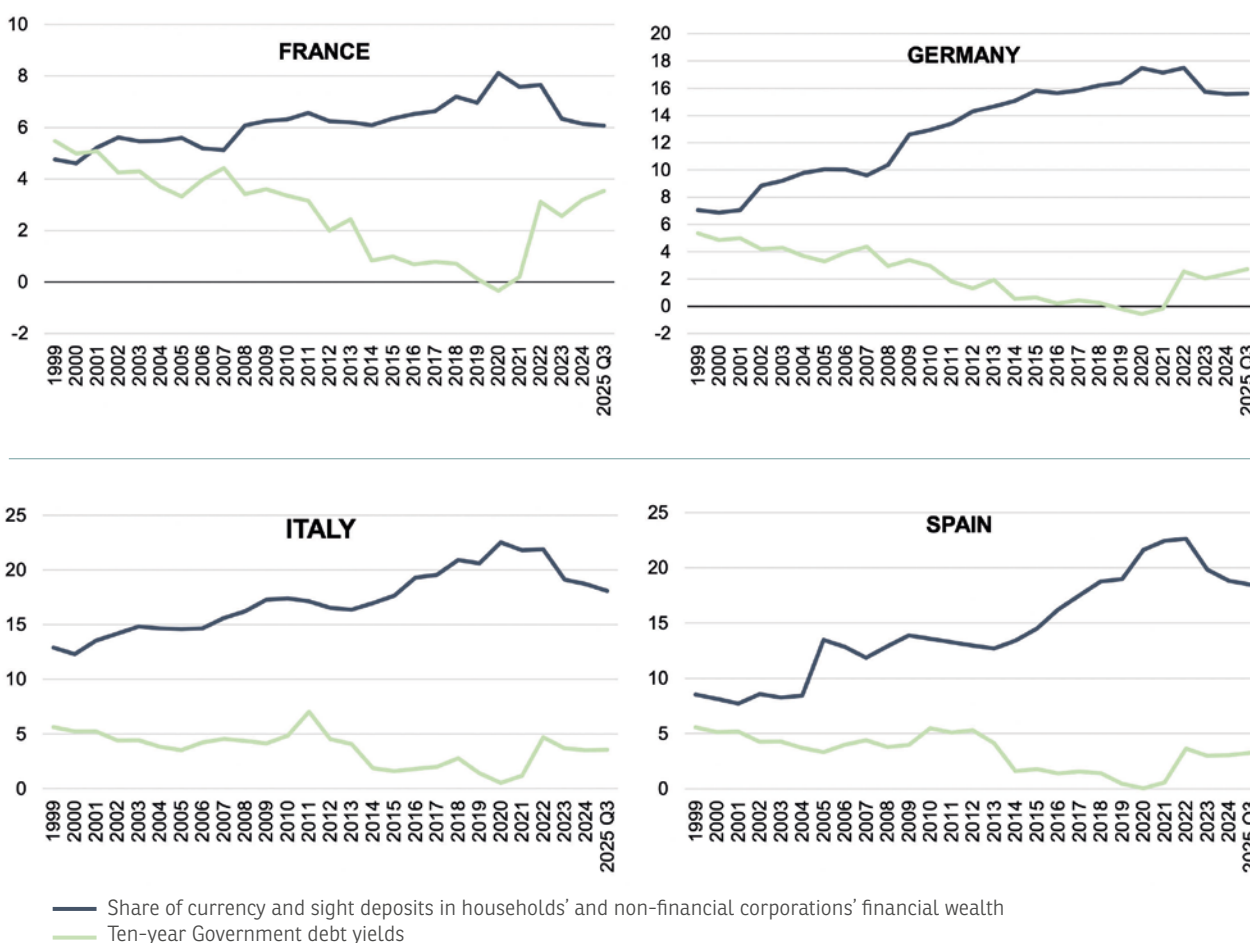
30. BIS, Annual Economic Report, June 2021.

In 2022, rising inflation prompted central banks to intervene by rapidly increasing their main refinancing operations rates: from March 2022 for the Fed and from July 2022 for the ECB. By September 2023, the ECB's main refinancing operations rate had reached 4.5%, its highest level since 2001. During this time, the proportion of liquid assets held by households and non-financial corporations began to fall, confirming the negative correlation between interest rates and the proportion of liquid assets in financial portfolios observed from 2008 to 2021.

From June 2024 onwards, the ECB started lowering interest rates again as inflation decreased and the proportion of liquid assets in financial portfolios stopped falling or began to rise again in most countries.

CHART 23.

Evolution of the liquid assets held by economic agents as proportion of financial wealth and interest rates and government bonds



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

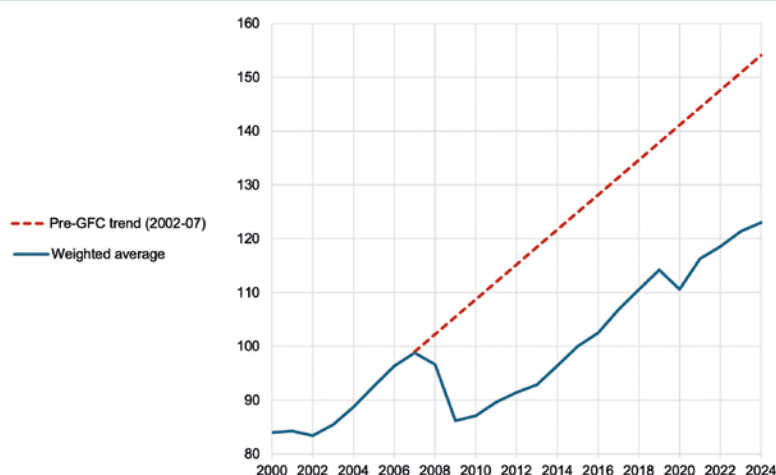
This concentration of households' investments in liquid, risk-free assets is also explained by the passivity of many savers who do not take the time to consider the most effective allocation strategy for their long-term savings. This phenomenon was highlighted by G. Naacke and L. Gabaut³¹, who observed that during the Covid-19 crisis, savings increased significantly due to consumption constraints imposed by containment measures. However, a large proportion of these additional savings remained in non-interest-bearing current accounts. A study commissioned by the European Savings Institute (OEE) and conducted by L. Calvet³² also highlights that only a small proportion of the wealthiest economic agents adapt their saving behaviours according to the evolution of the economic context.

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

32. "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 24.
Real investment versus pre-GFC trend –
Advanced economies

Note: Real investment across 33 advanced economies ;
Weighted average using GDP PPP weights in 2015.
GFC denotes the global financial crisis
Source: OECD Economic Outlook 117 database; and
OECD calculations



Moreover, 'monetary illusion' is prevalent. In France, we recently observed an increase in the money invested in regulated savings products, following an increase in the nominal interest rates on these products. However, given the relatively high inflation rates, the real interest rates were in fact negative. Consequently, households saw their financial assets lose value. Following an upward trend in interest rates since 2022, after ten years of exceptionally low rates, investors now face significant arbitrage regarding their liquid assets. The opportunity cost of keeping non-remunerated deposits is now impacting outstanding amounts of sight deposits, while interest rates are increasing. The reallocation of funds previously held in current accounts was observed in all major European economies. However, it is interesting to note that the types of products that benefited from these arbitrages varied depending on the country, particularly due to the heterogeneous range of savings products on offer. France, for example, saw a significant shift towards non-transferable deposits due to the popularity of regulated savings and the growth of term accounts.

Long-running low-interest rate policies tend to undermine productive investment.

Long-term productive investment enables an economy to progress and increase its productivity, as well as adapt to necessary changes (e.g. the green and digital transitions). Investment is the lifeblood of competitiveness and productivity. Long-term investment involves taking risks and making predictions about the future.

Persistent low interest rates do not encourage more productive investment. Indeed, entrepreneurs are discouraged from investing in an environment where interest rates remain low and growth prospects are weak. When uncertainty, risk aversion and a lack of return converge, long-term investment inevitably becomes less attractive in favour of defensive, risk-free and liquid investments.

CHART 25.
Net investment in OECD countries

Chart 25a : Business investment

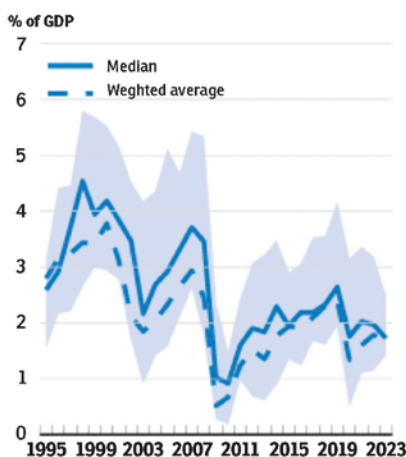


Chart 25b : Housing investment

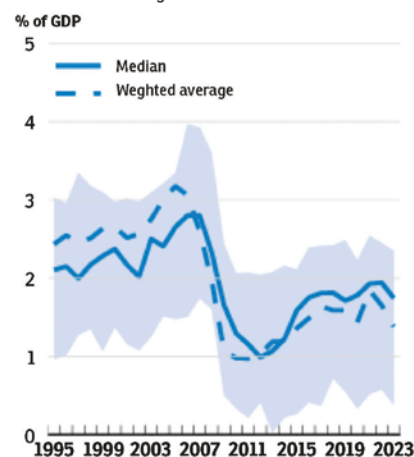
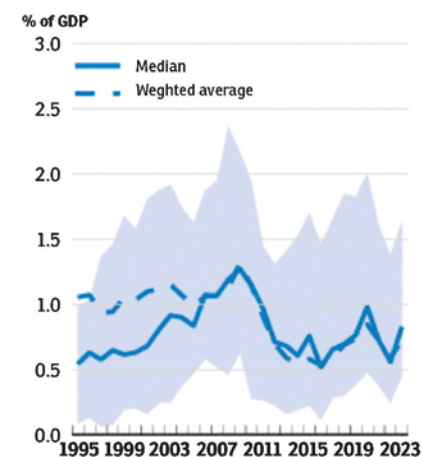


Chart 25c : Public investment



Note: Net investment-to-GDP is defined as the ratio of gross fixed capital formation minus the consumption of fixed capital in current prices, to nominal GDP. Business investment includes the combined investment of the non-financial and financial sectors, while public investment refers to the investment undertaken by the general government. Based on 32 OECD countries for which sectoral investment data are available. The shaded area shows the interquartile range
Source: OECD Economic Outlook 117 database; and OECD calculations

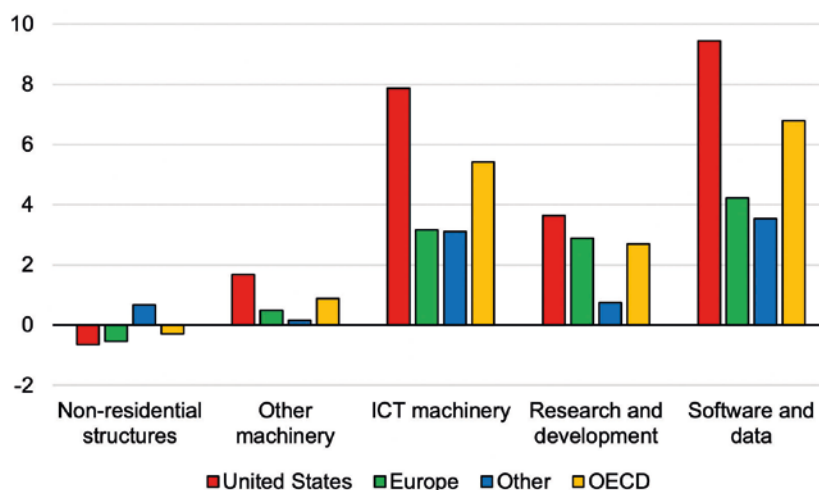
According to the OECD³³, weak investment has hindered potential output growth since the global financial crisis, despite historically low financing costs. Indeed, aggregate real investment volumes in advanced economies were still around 22% below their pre-GFC trend by the end of 2024 (see Chart 25).

Although the ratio of gross investment to GDP has increased in some countries in recent years, net investment – the increase in the capital stock after accounting for depreciation – has remained weak across OECD countries in the corporate, public and residential sectors. Since the pre-GFC period, the average net investment rate across OECD countries has declined by over 0.9 percentage points of GDP, falling from 2.5% to 1.6% for the median country. The decline in net investment has been most pronounced in the Euro area. At the same time, residential investment has struggled to keep pace with strong housing demand, contributing to a steady erosion in affordability over the past few decades (see Section 3.2.3). Although public investment has shown some recent signs of recovery, it has also been weak in many countries for an extended period.

CHART 26.

Average annual growth in real gross investment by asset class, 2008–2022

Note: ICT machinery includes both computer hardware and telecommunications equipment. 'Other' includes Australia, Canada, Israel, Japan and the United Kingdom. OECD refers to the weighted average of 32 OECD countries for which data are available. Source: OECD National Accounts database; and OECD calculations



The relatively strong growth in digital and knowledge-based investment has not been enough to counterbalance the impact of rising depreciation and weak tangible investment. Indeed, net business investment as a percentage of GDP has fallen in most OECD countries (see Chart 26a), despite a significant increase in digital and R&D investment. This decline reflects sluggish growth in traditional tangible investment categories, such as infrastructure and machinery, which still account for the largest share of business investment. Another cause of this decline is the higher depreciation rates for digital and knowledge-based capital.

Over the 2008–2022 period, annual growth in investment in non-residential structures was negative in both the United States and Europe, even though investment in new technologies remains considerably more dynamic in the United States than in Europe (see Chart 27). **These data all show that persistently low interest rates have not favoured productive investment. In fact, they have encouraged liquidity traps and deterred investors from taking risks with long-term investments.**

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

As Claudio Borio explains³⁴, "prolonged monetary easing has helped structurally unprofitable firms – so-called "zombies" to survive. They would not have kept in business without extremely favourable financing conditions.

Over the past decade, prolonged low interest rates and lender forbearance may have weakened the process of firm exit and reallocation by securing the survival of zombie firms that should have gone bankrupt. This has further compromised aggregate productivity growth, and the resulting excess supply has perpetuated the disinflationary pressures that prevailed in the run-up to the Covid-19 crisis. Acharya et al. (2020)³⁵ have detailed this process: in sectors where zombie firms predominate, prices and profits fall. However, increased competition for factors of production raises costs and further reduces profits for all. This reduces investment, particularly among healthy

33. "Reigniting investment for more resilient growth", OECD Economic Outlook, Volume 2025 Issue 1 (June 2025).

34. C. Borio, "Monetary policy in the 21st century: lessons learned and challenges ahead", BIS, 30 June 2024.

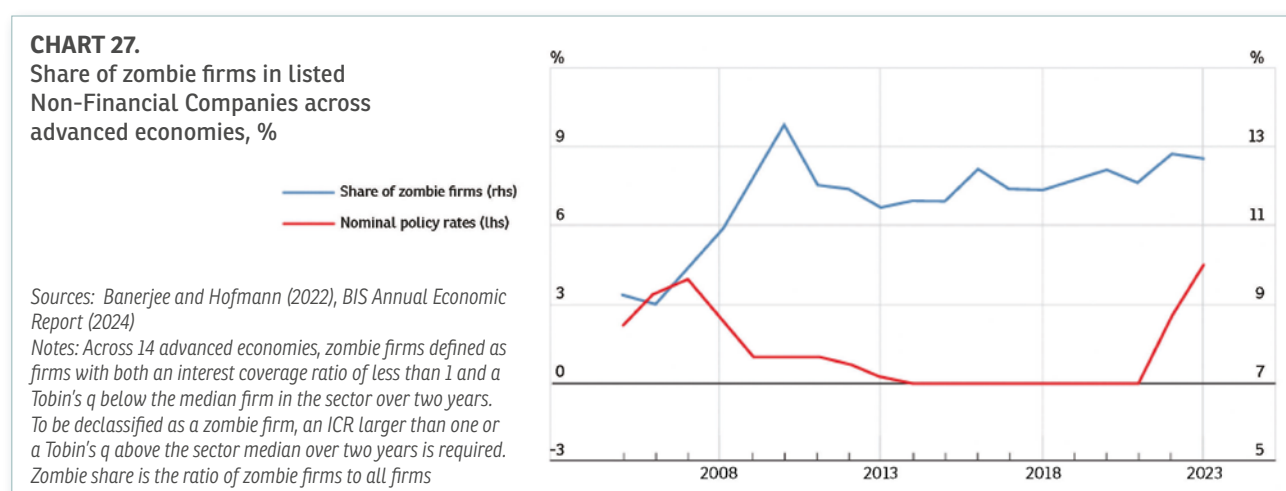
35. V. Acharya, M. Crosignani, T. Eisert & C. Eufinger, "Zombie credit and dis-inflation: evidence from Europe", National Bureau of Economic Research, May 2020.

firms, and decreases future productivity growth. Productivity in the sector also falls as it includes low-productivity zombie firms. In short, zombie firms increase short-term disinflationary pressures by maintaining excess capacity, but they also reduce competition by deterring new firms from entering the market and stifling productivity growth.

Among listed non-financial firms in a sample of fourteen advanced economies, the estimated share of zombie firms increased from around 9% in 2008 to 13% in 2023, according to the BIS (*see Chart 27*), worsening the allocation of labour and capital by crowding out more productive businesses. The expansion of zombie firms has 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 declines³⁶.

According to W. White, the sharp reduction in corporate default rates up to 2022 is also indicative of the increasing 'zombification' of many economies. Since the pandemic, drawing down bank lines and heavy reliance on the bond market have probably exacerbated this issue. In fact, insolvencies have fallen further in many countries during this period.

As the BIS Annual Report (June 2024) explains, "it is easier for unprofitable enterprises to remain in business when borrowing costs are very low, and lenders have a greater incentive to 'extend and pretend', given the lower opportunity cost of forbearance. Eventually, some firms might even borrow primarily to service existing debt and avoid exiting or restructuring – these are the so-called zombies. This contributes to the misallocation of labour and capital by crowding out more productive businesses. Empirical evidence tends to confirm this observation. It finds a ratcheting up in the prevalence of zombies since the late 1980s linked to reduced financial pressure and hence lower interest rates, even after accounting for other factors. The evidence also points to crowding out effects."



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

The evolution of share buybacks cannot be dissociated from monetary policy.

A 2021 OECD report 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 encourage companies to issue more debt to finance share buybacks rather than invest in future projects. Expansionary monetary policy initiatives, such as those undertaken by many OECD countries following the 2008 crisis and the Covid-19 pandemic, can directly impact payout policies and adjustments to companies' capital structures.

According to the OECD, around 83% of the total value of share buybacks in 2018 was attributable to US corporations. A significant proportion of US share buybacks took place in the financial sector, whose profitability was boosted by low interest rates. In 2018, US companies' share buybacks amounted to around \$1.1 trillion, 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 2019³⁷.

36. R. Banerjee et B. Hofmann, "The rise of zombie firms: causes and consequences", BIS, September 2018.

37. Idem.

CHART 28.

Share buybacks by non-financial corporations (USD bn)

Chart 28a : as % of nominal GDP

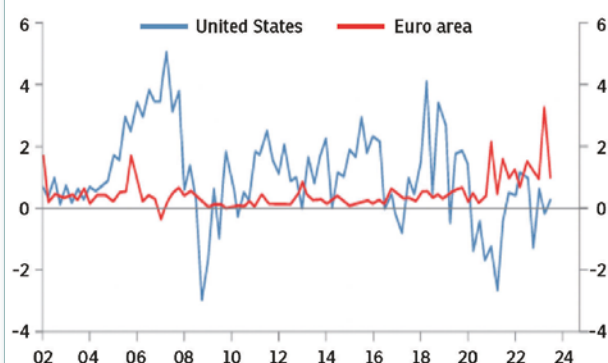
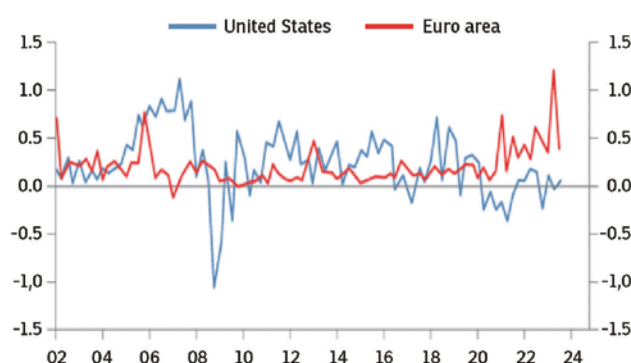


Chart 28b : as % of market capitalisation



Sources: P. Artus, "Share buybacks and stock market indices in the United States and the Eurozone", Natixis Economic Research (February 2024)

Notes: share buybacks are calculated as the difference between Gross issuance and net issuance of listed shares

According to the S&P Global data³⁸, a significant increase in the value of shares repurchased by listed corporates on both sides of the Atlantic occurred in 2022. In the United States, a new record was reached at \$1.139 trillion (1.8% of GDP), compared to \$1.026 trillion in 2021.

In Europe, share buybacks totalled \$286 billion (1.4% of GDP) in 2022, down from \$291.5 billion in 2021.

According to BNP Paribas Exane³⁹, the value of shares repurchased by listed corporates in the 11 largest European markets amounted to €161 bn in 2022, almost double the €84 bn of share buybacks executed in 2021. The four largest markets (the UK, France, the Netherlands and Germany) accounted for 77% of buybacks in 2022. It doubled in Germany, tripled in the UK and increased sixfold in Italy.

A study by Natixis points out⁴⁰ that "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."

These share buybacks did not facilitate the transfer of savings to finance more efficient corporate investments, so the Schumpeterian reallocation of capital to more efficient companies did not really materialise. In fact, share buybacks have coincided with a decline in capital accumulation (see Charts 24 and 25) and an increase in share prices over the past decade (see Chart 32).

This situation is worrying because companies will have to invest heavily to achieve decarbonisation, but the return on such investment will be quite low. As noted by P. Artus⁴¹, "share buybacks will deprive companies of some of this financing needed for energy transition investment."

3.2 Persistent low interest rates have exacerbated financial vulnerabilities

Ultra-expansionary monetary policies caused net wealth to grow much faster than income and distorted asset prices significantly. High leverage significantly increased market valuations, stimulating the development of asset bubbles. In such a context, wealth inequalities have widened between asset and non-asset owners, as well as across generations.

3.2.1 Net wealth has grown much faster than income⁴²

As a result of highly accommodative monetary policy, the prices of financial and real assets have risen disproportionately compared to incomes, a departure from historical trends.

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

38. "Un millésime 2022 record en Europe et aux Etats-Unis pour les 'buybacks'", AGEFI, 17 March 2023.

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

40. P. Artus, "What about share buybacks?", Natixis Economic Research, February 2023.

41. Idem footnote 17.

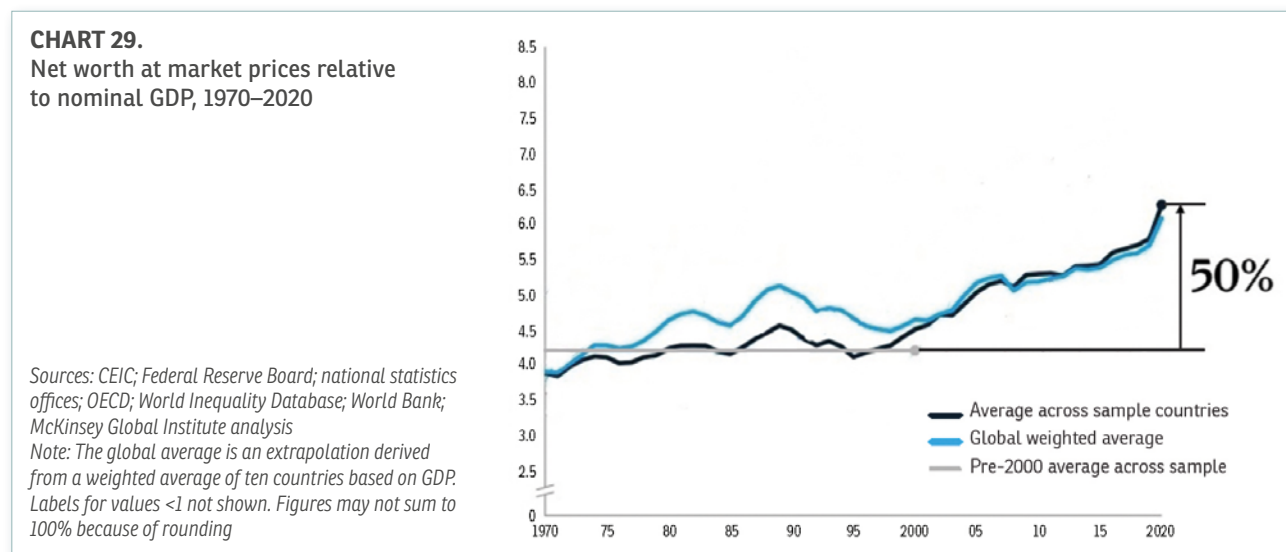
42. We quote here in extenso pages 27, 28 and 29 of J. de Larosière's book, "Putting an end to the reign of financial illusion – For real growth", Odile Jacob, September 2022.

Since 2000, however, net worth has exploded, with the ratio of net wealth to GDP increasing by 50%, while GDP growth has been moderate. Chart 29 illustrates the divergence that occurred around the year 2000.

Savings that were not allocated to productive investments were largely channelled into real estate. Overall, the system is not very productive (it finances current expenditure through debt and transactions in existing homes and buildings) and generates high asset valuations while real growth remains modest.

The main conclusion of McKinsey's report is that the historical link between net worth and output growth (GDP) no longer applies at the level of the global economy. While economic growth has been modest over the past 20 years, valuations have soared. The pace of valuations, which traditionally followed that of GDP, is now 50% above the historical trend.

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



McKinsey has calculated that 77% of the increase in net worth between 2000 and 2020 comes from higher asset prices (and only 23% from real value creation).

The latest McKinsey Global Institute report⁴³ reinforces this finding, noting that global household wealth reached a record USD 570 trillion. This increase was predominantly driven by 'paper' gains rather than the accumulation of productive assets. The report states that only 20% of wealth creation came from real capital formation, while the valuation of existing assets increased four percentage points faster than the already high rate of consumer price inflation.

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

One can understand, given these conditions, that investors have preferred and still do make quick profits on valuations rather than commit themselves (without remuneration) to financing risky long-term projects.

An economy cannot function in the long term and for the good of all if investors' choices are oriented 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 distinguish between assets based on their quality, rather than being dominated by interest rate settings by central banks. However, as emphasised in Section 1, central banks in OECD countries have controlled the prices of an increasing number of assets through their large-scale purchases, including not only short-term interest rates, but also longer-term interest rates targeted by quantitative easing programmes. This has led to control of the yield curve. By controlling long-term interest rates through the purchase of government bonds, sovereign risk premia no longer reflect market forces, providing savers with

43. McKinsey Global Institute, "The global balance sheet 2026: Imbalance and divergence", July 23, 2026.

inadequate information about economic and financial developments. In other words, government bond prices have been transformed from market prices to administered prices.

How can free markets assess fundamental values in these conditions? The significance of losing benchmarks should not be underestimated, as zero interest rates blur risk premia. This reduction in risk premia occurred prior to the 2007–08 crisis.

One example of mispriced risk is the increasing proportion of negative-yielding debt securities worldwide between 2015 and 2022. According to *The Economist*⁴⁴, by the end of 2020, almost 40% of global government debt was offering negative returns, equivalent to \$18.4 trillion (see Chart 30).

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

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



Source: Wall Street Journal/Bloomberg
As of January 2023

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

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

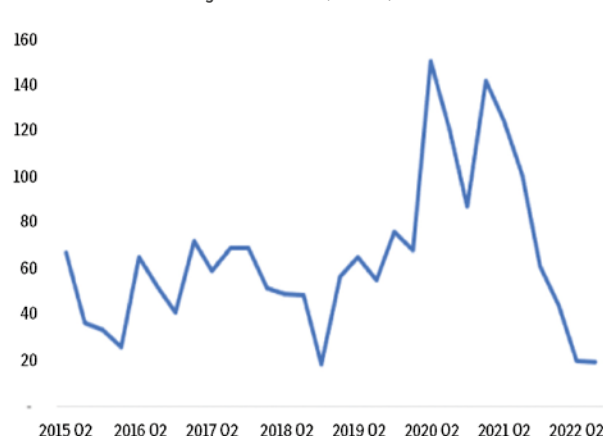


Source: St. Louis Fed

Last observation from 24 July 2026

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

Chart 31b: 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'

The pandemic-related measures taken by central banks in 2020–21 distorted financial markets by incentivising further risk-taking, which was already at record levels. In the US, for example, the Fed's actions predictably pushed Treasuries and MBS yields down across all maturities, leading to investors' classic "search for yield", as reported by Better Markets⁴⁵.

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

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

According to their report, 'Because financial returns had been lowered, investors were willing to take on more risk in order to achieve the returns they wanted. Consequently, the cost of credit decreased significantly, and credit became more widely available.' For instance, junk bond spreads reached lows in 2021 that had not been seen since 2007 (see Chart 31a). The lower cost of credit led to the average high-yield debt issuance doubling in the six quarters following the 2020 pandemic stress, compared with the average issuance in the previous three years (see Chart 31b).

3.2.3 High levels of leverage have greatly increased market valuations, thereby fuelling the growth of asset bubbles

Although money growth has been abundant over the past 20 years, it has failed to generate commensurate economic growth. While this massive wave of money creation failed to achieve the 2% inflation target by 2021, it has been reflected in the prices of financial and real estate assets. The increase in market valuations caused by high leverage threatens financial stability, especially in the context of inflation and rising interest rates.

A lack of a 'lean against the wind' stance has exacerbated financial imbalances. The disconnect between financial and real estate asset prices and economic fundamentals has been a source of market bubbles. Prolonged low interest rates open the credit floodgates to governments and the private sector, encourage yield-seeking 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.

The BIS⁴⁶ explained that "prolonged monetary easing can inadvertently contribute to the build-up of financial vulnerabilities. This is, in part, inherent to the transmission mechanism. Monetary policy works to an important extent by boosting credit and asset prices, including by compressing risk premia and encouraging risk-taking. These effects remain contained during normal business fluctuations but can generate vulnerabilities if the easing is prolonged. Indeed, growing empirical evidence indicates that such easing can, over time, increase the probability of financial stress."

Periods of very low interest rates that last for a long time reduce the profitability of financial intermediaries and reduce their resilience.

Strong and prolonged periods of low interest rates reduce banks' net interest margins and reduce the profitability of life insurance companies and pension funds, given that they exhibit maturity mismatch: their liabilities have a longer maturity than their assets.

Here, we will limit ourselves to quoting the 2024 BIS Annual Report, "Banks are a case in point. To be sure, an easy stance lifts profits by boosting asset values and spurring economic activity. But in the longer run, these effects tend to wane or even reverse, and the more lasting impact operates through compressed net interest margins, as deposit rates are sticky, and through lower returns to maturity transformation, particularly if LSAPs depress the term premium. Central banks have actively sought to limit such side effects by providing relief through interest offered on intra-marginal reserve holdings. Insurance companies and pension funds also suffer. This is mainly because the maturity of their liabilities exceeds that of their assets, so that their value increases more as interest rates decline."

In recent years, stock markets have largely been influenced by the expansion of central bank monetary policy.

Chart 32 illustrates the growing disparity between stock prices and real GDP growth in OECD economies, suggesting an evident disconnect between financial markets and underlying economic performance. Between early 2013 and early 2020, stock prices in OECD countries increased by 45.5%, which is three times higher than the growth in real GDP (+15.4%). This disconnection from the economy was further illustrated by rises of 16.26% in the S&P 500 and 43.6% in the Nasdaq in 2020, despite the fact that the world experienced a 4.2% recession that year.

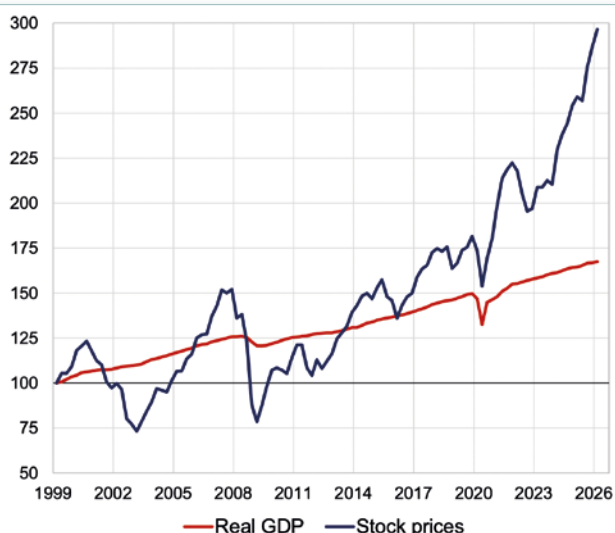
Stock markets rose further still in 2021, with the S&P 500 and Nasdaq indices increasing by 27.2% and 20.1%, respectively.

This chart also shows that equity price declines caused by negative shocks, such as the bankruptcy of Lehman Brothers and the Covid-19 crisis, were immediately followed by an upturn, given the persistently loose monetary policies of the past decade.

46. BIS, "Annual Economic Report", June 2024.

CHART 32.
Stock prices versus Real GDP in OECD Economies*
(Q1-1999 =100)

Source : Ekonomics, base on data from the OECD
*including the United States, the Eurozone, Canada, Australia
and the United Kingdom ; data are quarterly ; last observation
from Q1-2026



In 2022, when central banks began raising interest rates in most OECD countries, stock market indices fell worldwide. For instance, the S&P 500 fell by 19.4% over the course of the year. However, this decline was temporary, as these indices rebounded from the end of 2022 and continued to rise globally throughout 2023.

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

Stock market indices continued to grow strongly in 2024 and 2025, particularly in the United States, where the S&P 500 and Nasdaq rose by 25% and 29%, respectively, in 2024 and by 18% and 20% in 2025.

According to the latest McKinsey Global Institute report, this rally has been driven primarily by valuation gains rather than the accumulation of productive capital. Global household wealth reached a record USD570 trillion in 2025. However, 'only 20 per cent came from real capital formation', while '57 per cent of new household wealth was based in equity and only 15 per cent in real estate'. As Martin Wolf⁴⁷ argues, the recent surge in equity prices has become increasingly disconnected from underlying economic fundamentals. Rather than reflecting a broad-based improvement in productive capacity, much of the increase in market capitalisation has been concentrated in a handful of large US technology companies that have benefited from the AI boom. While this growing concentration has reinforced global wealth creation, it has also made financial markets more vulnerable to a reversal in investor sentiment.

Low interest rates and abundant liquidity contributed to the rise in house prices, alongside housing shortages, income growth, demographic factors and fiscal support.

Charts 33a and 33b illustrate the sharp rise in housing prices in both the United States and the Euro area, stimulated by the growth in the money supply in recent years. Between 2015 and 2019, housing prices in OECD economies rose by around 27.5% (see Chart 33a). Prices increased by 31.8% in the United States and by 22.8% in the Euro area.

Following the Covid-19 crisis and the actions of central banks that pushed interest rates to record low levels, house prices in OECD countries were 94.6% higher than in 2015 as of December 2025, 56% higher in the Euro area, and 101.7% higher in the US.

Note that the increase in real estate values since 2015 at the OECD level is higher than that observed between 2000 and 2007, which led to the subprime crisis of 2008⁴⁸. This comparison should be a cause of concern.

After a brief and mild correction between 2022 and 2023 – a cumulative drop of 2% from their peak while the market adjusted to rising interest rates – Eurozone real estate prices resumed their upward trajectory in 2024. By the end of 2025, prices had surpassed those in 2021, fully recovering beyond the levels seen prior to the rate hikes. In the United States, however, price growth remained uninterrupted.

47. M. Wolf, The next crash: why this time might not be different, Financial Times, July 2026.

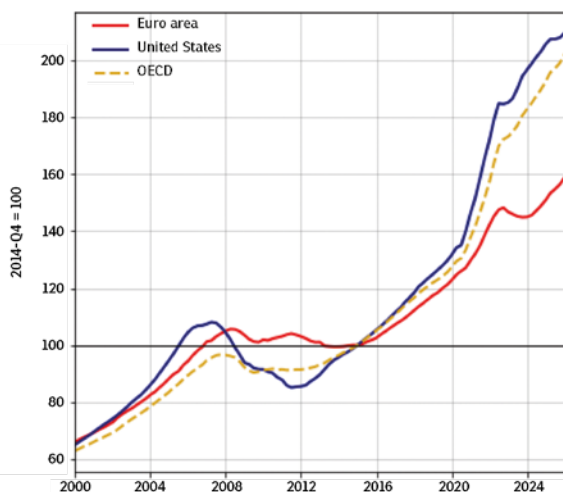
48. For the OECD at the whole, the increase in house prices between 2014 and 2022 was 19 ppts higher than in 2000-2007. This is also the case for the US, where the increase in 2014-22 was 26 ppts higher than in 2000-2007. In the Eurozone, house price increases, by 47% between 2014 and 2022, and are still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

Rising interest rates contributed to temporary price corrections in certain European countries, particularly those that had experienced rapid expansion in the period leading up to mid-2022. Between June 2022 and December 2025, France recorded a minor decline of 4%, while Germany saw a slight increase of 2%. In contrast, prices continued to rise in Italy (+10%) and the Netherlands (+21%), albeit at a slower pace than before 2022. Of the largest European economies, Spain stood out with a 29% surge over the same period, substantially outstripping the United States (+10%).

CHART 33.

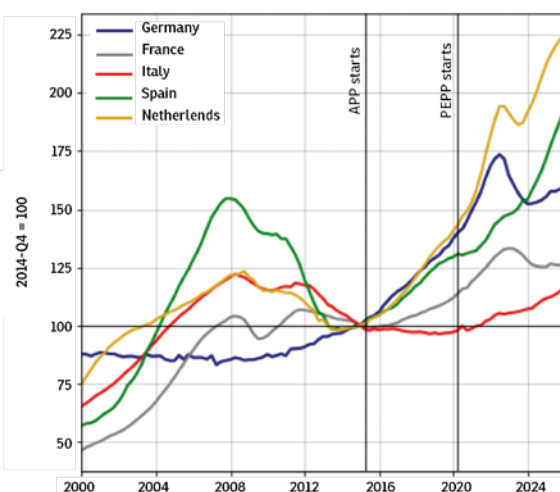
Residential House Prices development, Q4-2014=100

Chart 33a : At the OECD level



Source: OECD. Last data are from Q4-2025

Chart 33b : Across Euro area Member States



Despite a mild price correction in some Eurozone countries, property valuations remain high, making housing unaffordable for many households. The price-to-income ratio is an indicator of housing affordability for households (see Chart 34), which has increased, showing that housing prices are rising faster than disposable income.

Starting from a level of 100 in 2015, the ratio increased to 108.3 by December 2019 at the OECD level. Following the onset of the pandemic, the index continued to rise, peaking at 120.7 in Q2-2022. Despite the slowdown that began at the end of 2022, the ratio remained, on average, 14.7% above its 2015 level in OECD countries in Q4-2025 (see Chart 33a).

The United States played a significant role in this overall trend, with its price-to-income ratio rising by **29.1% between December 2014 and December 2025** (reaching 131.6). Growth in the Eurozone was more moderate, increasing by **12.9% over the same period** after peaking at a cumulative increase of 22.6% in mid-2022. However, this aggregate figure disguises significant disparities between member states over the past decade. While the ratio fell slightly in Germany (-0.3%), it rose by **15.2% in Austria, 36.6% in the Netherlands, 39.9% in Spain and 54.3% in Portugal.**

As J. de Larosière points out⁴⁹, “when the value of assets increases 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 favouring the minority of the wealthiest asset holders to the detriment of wage earners with little financial savings.”

Cryptocurrency and gold development.

The search for higher returns, driven by excess liquidity and historically low interest rates, has also fuelled demand for alternative assets such as cryptocurrencies and gold. Notably, Bitcoin has surged by over 30,000% between early 2015 and July 2025.

Although its growth has been more modest at +184%, the price of gold has also soared during periods of low interest rates. More recently, this upward trend has been boosted by geopolitical factors, with central banks accounting for 20% of total gold demand in 2024. Purchases of gold for monetary reserves rose sharply following Russia's invasion of Ukraine in 2022 and have remained high. As the ECB has noted, several central banks in

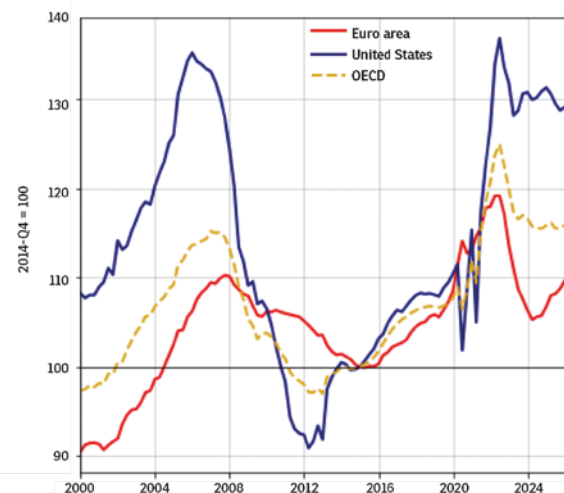
49. J. de Larosière, “Putting an end to the reign of financial illusion – for real growth”, Odile Jacob, September 2022.

emerging and developing economies have cited concerns over sanctions and the potential erosion of major currencies' global roles as reasons for increasing their gold holdings.

CHART 34.

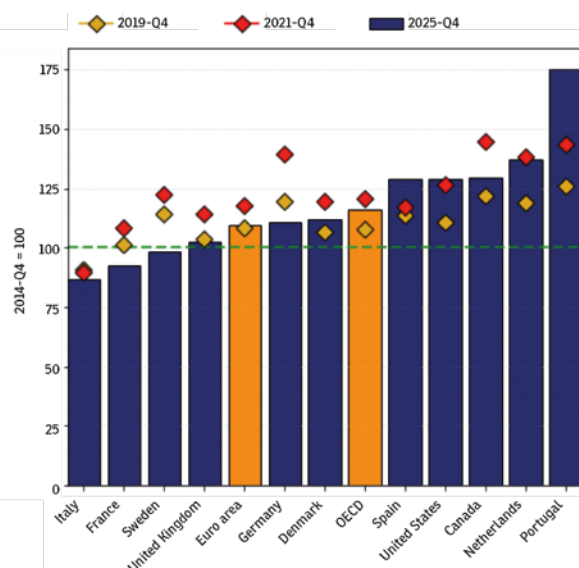
Price-to-income Ratio (Q4-2014 = 100)

Chart 34a : At the OECD level



Source: OECD. last observation from Q4-2025

Chart 34b : Across OECD Member States



Demand for gold has recently been supported by central bank purchases, geopolitical risk, concerns about sanctions and, more recently, investor demand for assets perceived as hedges against fiscal and monetary uncertainty. Bitcoin has also benefited at times from abundant global liquidity, although its price is considerably more volatile and responds to a broader set of speculative and regulatory factors.

CHART 35.

Gold and bitcoin prices,
January 2015 = 100

Source: Yahoo Finance
Last data from July 2026



As a result, monetary policy has widened wealth inequalities between asset and non-asset owners, as well as across generations.

As we have seen, low interest rates, asset purchases and other unconventional monetary policy instruments have boosted asset prices, particularly those of housing, equities, government bonds and corporate bonds. This has therefore particularly benefited the wealthiest segment of society.

Ultra-accommodative monetary policy also has distributional consequences across generations. Since older people tend to have higher savings (accumulated from their families and during their working lives), they can sell their assets at opportune moments and maintain stable consumption levels. They therefore benefit from upward price variations. Younger households, on the other hand, tend to buy these assets at relatively high prices or save for retirement. This absorbs a large proportion of their income.

These income inequalities have a lasting effect because they tend to be passed down through the generations: wealthier older people can easily help their children and grandchildren to buy property in desirable locations and attend the best schools and universities.

A report by the McKinsey Global Institute⁵⁰ 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?”

The main conclusion of McKinsey's research is that the historical correlation between net worth and GDP growth is no longer valid. While economic growth has been modest over the past 20 years, valuations have soared. The pace of valuations, which has traditionally followed that of GDP, is now 50% higher than in previous years.

McKinsey has calculated that 77% of net worth growth between 2000 and 2020 came from rising asset prices and valuations, with only 23% coming from the creation of real resources. Those among the wealthiest 10% of the population have generally benefited most from the rise in stock prices.

In the United States and China 2/3 of the household's wealth is held by the richest 10%. The increase in inequality in China is striking: the share of wealth of the poorest 50% of the population decreases: they held only 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. The share held by the poorest 50% now represents only 1.5% of the total.

Table taken from the book J. de Larosière's book, "Putting an end to the reign of financial illusion – For real growth", Odile Jacob, September 2022

I. Schnabel⁵¹ acknowledged that QE may exacerbate inequality. “In the Euro area, residential property prices increased by nearly 50% from the start of QE in 2015 to their peak in 2022 (see 3.2.3). Surging asset prices not only pose risks to financial stability but may also exacerbate wealth inequality. While monetary policy always has distributional effects, portfolio rebalancing as part of QE may amplify these effects. In the Euro area, for example, less than 0.1% of households in the bottom net wealth quintile hold bonds, compared with more than 10% of the top decile. And only around 1 to 2% of low-wealth households hold shares in mutual funds and stocks, compared with more than 35% of households in the top net wealth decile. Therefore, central banks' purchasing of longer-dated assets disproportionately benefits wealthier households, whose assets tend to have longer durations than their liabilities. Central banks' purchasing longer-dated assets disproportionately benefits wealthier households, whose assets tend to have longer durations than their liabilities.”

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 centres 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 work⁵².”

50. McKinsey Global Institute, “The rise and rise of the global balance sheet”, November 2021.

51. “The benefits and costs of asset purchases”, Speech addressed at the 2024 BOJ-IMES Conference on “Price Dynamics and Monetary Policy Challenges: Lessons Learned and Going Forward”, May 2024.

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

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Central banks have limited the impact of financial crises. However, the effectiveness of strong and prolonged monetary easing is limited. The abundance of cheap money between 2008 and 2021 undermined financial stability. A. Weber writes on this topic 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 materialised. Central banks have also endangered financial stability by massively distorting asset prices. Distorted prices send the wrong signals to investors, who make 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 subsidising highly indebted countries or ailing economic sectors, central banks have not only lowered the cost of refinancing, but they have also 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.”

In summary, as detailed in Chapter 2 of the latest BIS annual report, “When interest rates remain exceptionally low for very long, side effects and costs become apparent. These include the build-up of debt, capital misallocation, the declining profitability of financial intermediaries and impaired market functioning. In addition, such policies can have undesirable consequences for central banks themselves to the extent that they narrow the room for policy manoeuvre, reflecting difficulties in devising exit strategies and tighter interlinkages with the government.”

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Fifteen years of zero or negative real interest rates created the conditions for a major financial crisis when it became necessary to raise rates to combat inflation. The bond portfolios built up during this period have lost value since then. This prolonged zero-interest rate policy has therefore played a significant role in the emergence of the current crisis.

The current financial environment is extremely uncertain. Opinions are divided: the markets, which never like rate rises, are looking for any sign to trigger or encourage them. However, central banks are aware that the situation is fragile, inflation is not yet under control and caution is required.

These dilemmas are exacerbated 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 outlook for the global financial system remains challenging. In its ongoing surveillance, the Financial Stability Board has highlighted vulnerabilities associated with high levels of public and private debt, inflated asset valuations and leverage and liquidity mismatches in non-bank financial intermediation. Each of these vulnerabilities is exacerbated by a tightening of financial conditions and a slowdown in economic activity.

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

The damaging effects of high inflation are well established. Inflation erodes household purchasing power, redistributes income and wealth, increases uncertainty and discourages investment. Moreover, disinflation does not reverse the increase in the general price level accumulated during the inflationary period. By December 2025, average consumer prices across the OECD were almost 36% higher than in December 2019. Restoring price stability therefore remains essential even after annual inflation rates have declined from their peaks.

Headline inflation fell markedly across most advanced economies between the fourth quarter of 2022 and early 2026. At the OECD level, headline CPI inflation declined from 9.4% in December 2022 to 3.3% in January 2026. This broad-based disinflation reflected the normalisation of global supply chains, lower energy and food price pressures and the effects of tighter monetary policy. By January 2026, inflation had fallen to 1.7% in the Euro area and 2.4% in the United States. However, this progress was interrupted by the escalation of the conflict in Iran and the wider Middle East from late February 2026. The resulting disruption to energy supplies pushed headline inflation back up to 2.9% in the Euro area in July and 3.5% in the United States in June, although underlying inflation has so far remained more contained.

The new energy shock has highlighted the vulnerability of the disinflation process to adverse supply developments. Its persistence will depend on the duration of the disruption, the speed at which energy flows and inventories normalise, and the extent to which higher input costs pass through to other prices and wages. While there has so far been limited evidence of material second-round effects, the risks remain tilted to the upside, particularly if elevated energy prices affect inflation expectations or become embedded in wage and price-setting behaviour.

Beyond the immediate energy shock, several structural developments could make the inflation environment more volatile than during the decade preceding the pandemic. Trade fragmentation and higher tariffs may reduce the flexibility of global supply, while demographic ageing and labour shortages could sustain wage pressures in some economies. In the Euro area, weak productivity growth increases the risk that wage increases translate into higher unit labour costs. At the same time, additional defence and infrastructure expenditure may support productive capacity over the longer term but could add to demand and inflationary pressures during the implementation phase.

Monetary policy has consequently entered a new and more divergent phase. After the rapid tightening of 2022–23, most advanced-economy central banks began reducing policy rates during 2024 and 2025 as inflation declined. The Middle East conflict called this easing cycle into question. The ECB raised its policy rates in June 2026 and held them unchanged in July, while the Federal Reserve and the Bank of England maintained their respective rates amid heightened inflation uncertainty. The Bank of Japan, which had begun normalising policy later than its peers, cumulatively raised its policy rate to 1% in June 2026. At the same time, central bank balance sheets have generally continued to decline, although the pace and operational form of quantitative tightening differ considerably across jurisdictions.

This chapter examines the implications of these developments in three stages. Section 4.1 analyses why inflation could remain above central bank targets for longer than previously expected, focusing on energy shocks, trade fragmentation, labour supply, wages and productivity. Section 4.2 reviews the monetary policy cycle between 2021 and July 2026, including changes in policy rates and central bank balance sheets across advanced and emerging economies. Section 4.3 examines the evolution of nominal and real interest rates, sovereign bond yields and Euro area spreads, placing the recent tightening of financial conditions in the context of the prolonged period of negative real interest rates that preceded it.

4.1 Inflation could remain above 2% for longer than expected

Since March 2021, the world economy has experienced an episode of inflation, breaking with the trend of slow price growth that prevailed during the decade preceding the Covid-19 crisis. Inflationary pressures intensified in 2022 following the war in Ukraine, with inflation reaching levels not seen for decades.

The causes are numerous and complex, driven by a combination of cyclical and structural factors. Soaring energy prices, which spread to a wide range of commodities including food and raw materials, were one of the main drivers of the inflationary shock. Disruptions to global supply chains exacerbated price pressures.

However, there are other sources of pressure too; the acceleration of inflation in 2022 is also the result of substantial broad money growth in recent years (*see Section 2*). As the BIS reminds us, there is a positive correlation between inflation and the degree of monetary policy easing and fiscal expansion across countries. Borio et al. (2023) highlight a significant positive correlation between excess money growth in 2020 and average inflation in 2021 and 2022 across a range of advanced and emerging market economies.

K. Warsh also explained in 2024⁵³ that we should 'expect inflation to rise if the central bank doesn't continue to reduce the size of its balance sheet... Price stability would be more easily achieved if the Fed continues to shrink its holdings. In my view, irresponsible government spending and excessive money printing largely triggered inflation in the first place. Had the Fed's asset holdings remained smaller or decreased more quickly, inflation would not have risen so high. Hardworking Americans would not now be suffering the twin indignities of high prices and higher credit costs.'

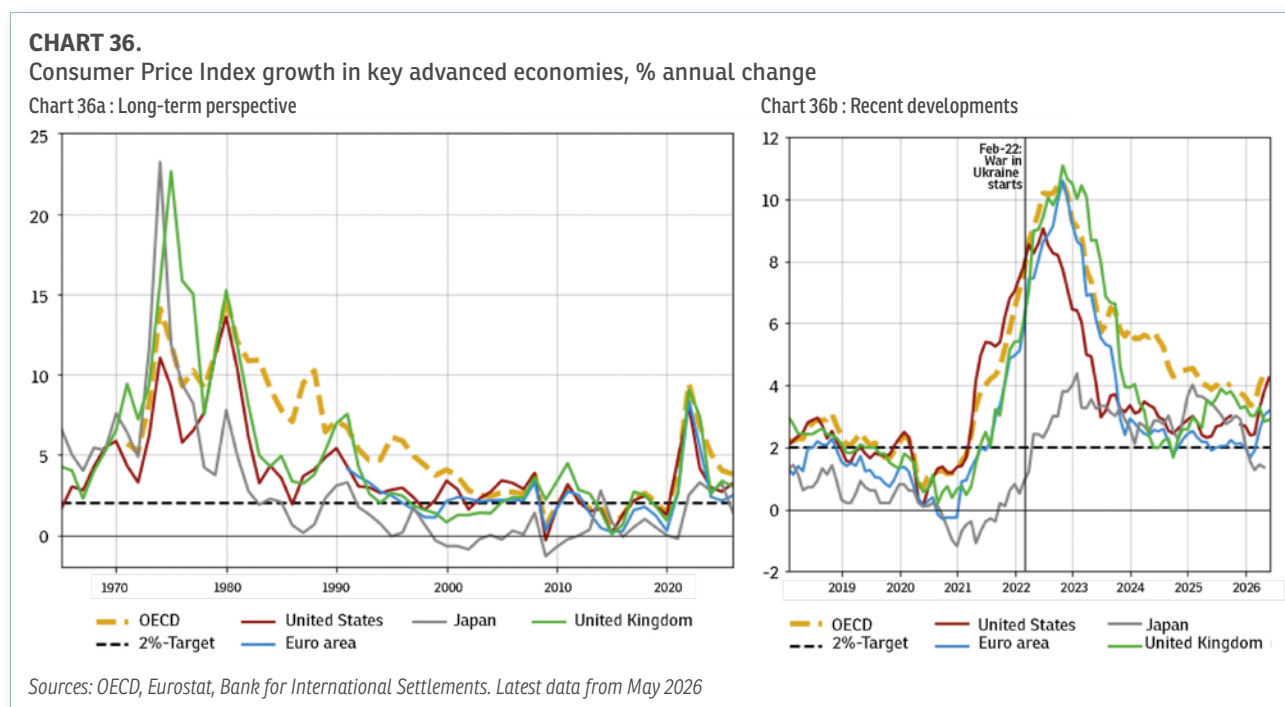
Since the fourth quarter of 2022, headline consumer price inflation has fallen significantly in most economies, primarily due to lower energy and food prices, bringing inflation close to or at central bank targets in many countries by early 2026.

This period of disinflation came to an abrupt end in early 2026 when the conflict in Iran escalated and the Strait of Hormuz was closed, reigniting inflation risk through a large, potentially persistent energy shock. This once again tested the resilience of the progress achieved since 2022. This renewed pressure is in addition to a number of structural factors that were already expected to keep inflation above target for longer in several advanced economies, including demographic ageing and the resulting tightening of labour markets, elevated US tariffs, and the broader fragmentation of global trade. Persistently weak productivity growth in the Euro area also continues to leave economies more exposed to inflationary pressure and less able to absorb shocks of this kind.

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

Between March 2021 and February 2022, the annual growth of the consumer price index was above 2% in many advanced economies.

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



In the Euro area, the HICP annual growth rate exceeded 2% for the first time in July 2021. From November 2021 onwards, headline inflation remained above 2% in all Eurozone member states, continuing to rise until February 2022. In the United States, inflation surpassed 2% in March 2021, reaching 7.9% in February 2022.

In a speech delivered in August 2022, the President of the Bundesbank explained this resurgence of inflation⁵⁴: 'One major factor driving this momentum was the unexpectedly swift recovery of the global economy from the pandemic-induced recession. The fiscal and monetary policy support measures taken around the globe to limit the economic damage caused by the pandemic played a part in this. The rapid revival of economic activity then sent commodity prices soaring.'

53. K. Warsh, "Interest rates are a sideshow in the Fed Drama", Wall Street Journal, 30 July 2024.

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

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

In addition, the pandemic has disrupted global supply chains and transport routes. Some of these supply chain issues have proved more persistent than initially expected. This has also contributed to rising prices. Furthermore, robust demand meant that energy prices were already rising before the war began.

The war in Ukraine triggered a major shock in the global commodity market, pushing inflation to higher levels in OECD economies in 2022. At the **OECD level**, the aggregated consumer price index increased by 9.5% between 2021 and 2022, marking its highest level since 1988.

In the US, year-on-year headline inflation averaged 8% in 2022.

The war in Ukraine and associated pressures on energy and food supplies pushed headline inflation in the Euro area into double-digit territory for the first time in October and November 2022, reaching 10.6% and 10.1% respectively, and averaging 8.4% for the year as a whole – the highest level recorded since the creation of the monetary union in 1999.

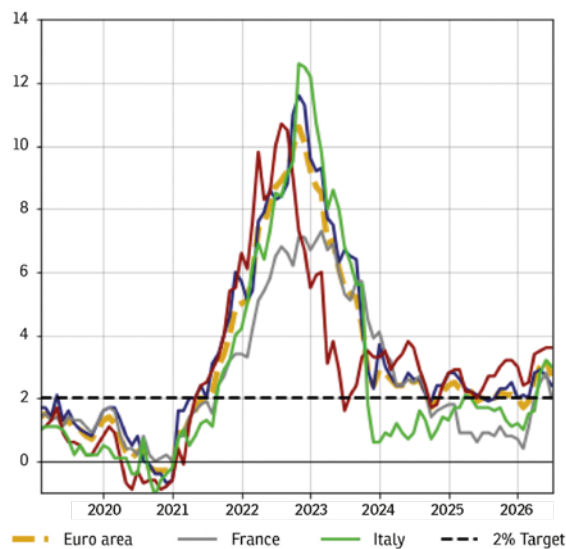
As explained by P. Hernandez de Cos⁵⁵, “in the case of the Euro area, higher energy and food prices have added to the effect of other supply-side factors related in particular to supply-chain disruptions. The increased demand, mainly due to the reopening of the economy, met an inelastic supply. This and the depreciation of the euro have also played a role in the increase in inflation.”

In the **UK**, inflation averaged 9% in 2022 – the highest level since 1982. Meanwhile, in Japan, headline inflation reached just 2.5%, which is low by international standards, but still unusual for a country that has been battling deflation for decades.

CHART 37.

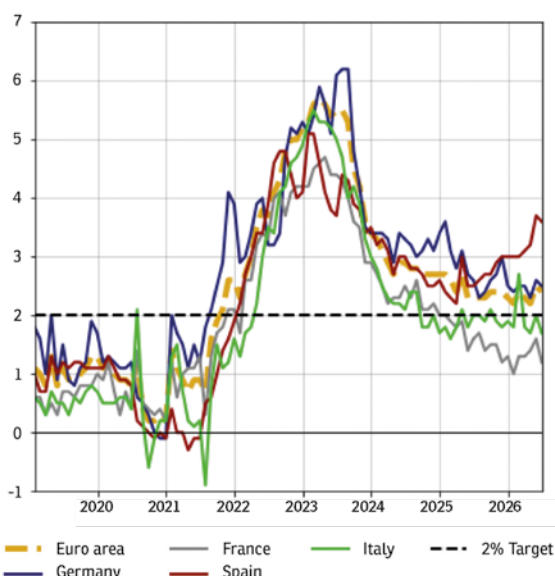
Headline versus Core Inflation across the main Euro area Member States, annual% change

Chart 37a : Headline inflation



Source : Eurostat. Last data from June 2026

Chart 37b : Core Inflation



4.1.2 The post-2023 disinflation was interrupted by the energy shock triggered by the Iran war, which reignited inflation risks from March 2026 onwards

Just as headline inflation was converging towards the target rate across most advanced economies – with OECD inflation standing at 3.4% in January 2026 (1.7% in the Euro area and 2.4% in the United States) – the conflict in Iran escalated in late February 2026, abruptly reversing this dynamic.

55. P. Hernandez de Cos, “Consistent economic policies – a prerequisite for macroeconomic stability”, Madrid, 16 January 2023.

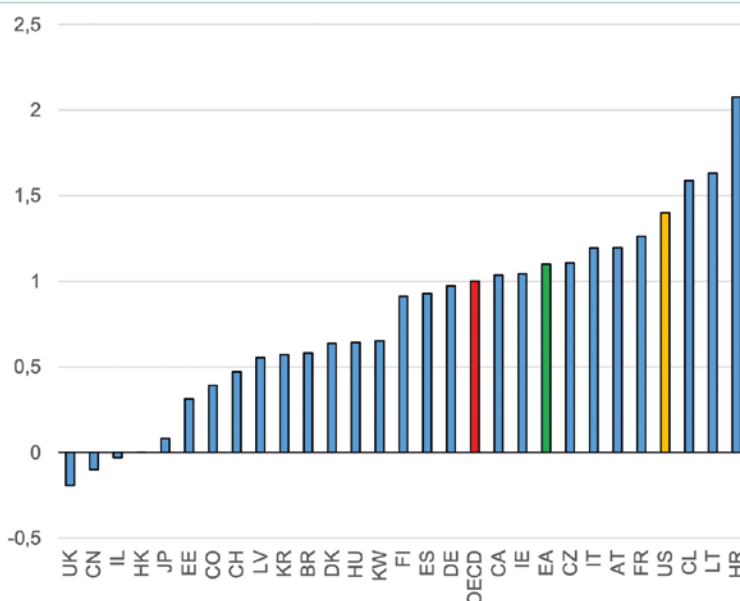
The closure of the Strait of Hormuz caused a historic oil supply shock: according to the BIS⁵⁶, crude flow losses exceeded 10 million barrels a day – around 13% of normal global supply, which is proportionally larger than the oil shocks of the 1970s (around 8%). Ample pre-conflict inventories quickly turned into an acute shortage, with Brent prices surging by 67% to reach an intraday peak of \$120 within two weeks. Meanwhile, fertiliser and plastics prices rose by 50%, consistent with reports from purchasing managers of sharply higher input costs.

The shock carries a significant risk of persistence, on both physical and economic grounds.

By the end of March, more than 40 energy assets in nine Middle Eastern countries had been severely damaged – Qatar's LNG export capacity had fallen by 17%, and it is expected to take up to five years to make a full recovery. Consequently, global oil and gas supply could remain below pre-conflict capacity for months or years, even in the absence of a prolonged blockade. Meanwhile, higher input costs are likely to propagate through supply chains with the usual production lags, putting pressure on inflation long after energy flows normalise (BIS, 2026). The impact may also increase disproportionately with the size and duration of the disruption. Evidence from advanced economies shows that inflation is more sensitive to larger energy shocks because firms are less able to absorb significant cost increases and are more likely to pass them on. Larger shocks are also more likely to trigger second-round effects across a broader range of goods, a risk that is compounded by the fact that post-pandemic inflation may already have weakened the anchoring of expectations.

These effects have been visible since March 2026, albeit unevenly across countries. OECD inflation has risen by a percentage point since the conflict began, approaching 4%, even as core inflation has remained relatively stable (IMF, WEO Update, July 2026). Inflation has accelerated notably, reaching 3.5% in the US and 2.8% in the Eurozone, but has fallen in the UK.

CHART 38.
Change in headline inflation
between February and April 2026,
pct points



Source: OECD, Eurostat,
Bank for International Settlements

While second-round effects remain largely unobserved so far – tempered by adjusting oil demand, a relative cooling of labour markets, and the other mitigants outlined above – they nonetheless represent a risk of durable inflation, particularly where structural pressures pre-date the shock itself. Ongoing fiscal expansion in Europe, notably on defence and infrastructure, adds a further layer of upside pressure. More persistently, labour markets remain relatively tight in several advanced economies, although vacancy rates have declined from their 2022 peaks and conditions have become more heterogeneous – a dynamic reinforced by demographic ageing, which continues to shrink the working-age population and strengthen workers' bargaining power even as cyclical shortages ease from their 2022 peak. This tightness is compounded by a heightened sensitivity of household inflation expectations, which a recent BIS⁵⁷ survey found have been "deeply scarred by the experience of pandemic-era inflation" – households' year-ahead expectations remain closely tied to their perception of price increases over the past five years, raising the risk that expectations become unmoored more easily than before the pandemic.

56. Annual Economic Report, June 2026.

57. "Will the inflation surge leave a mark on household inflation expectations?", article from the BIS annual economic report (June 2025).

4.1.3 Amid more frequent negative supply shocks, inflation in advanced economies could remain structurally above central bank targets

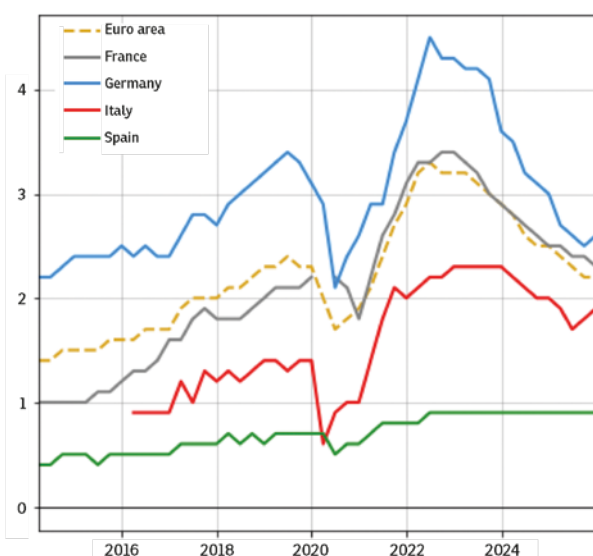
The global economy is entering a phase of persistent trade fragmentation, which is reversing decades of globalisation. According to the BIS, this fragmentation, combined with ageing populations and emerging labour shortages, could “further reduce supply flexibility, leaving economies more prone to inflation pressures.” Recent protectionist measures – notably the US tariff increases imposed since April 2025 – have accelerated this shift. However, the deeper and more persistent driver of inflation risk lies in the labour market.

Demographic ageing is structurally tightening labour supply across advanced economies. In the Eurozone, the working-age population (15-64) grew by less than 7% between 1990 and 2023, compared to 33% in the US. The EU working-age population is projected to shrink by an average of 1.2 million people per year between 2025 and 2050⁵⁸, a trend that is expected to exacerbate job shortages and labour market tensions as older workers retire faster than younger ones enter the workforce. While job vacancy rates have fallen since 2022, they remain high in several major Eurozone countries. This persistent tightness continues to strengthen workers' bargaining power, keeping wage growth well above its pre-pandemic level.

CHART 39.

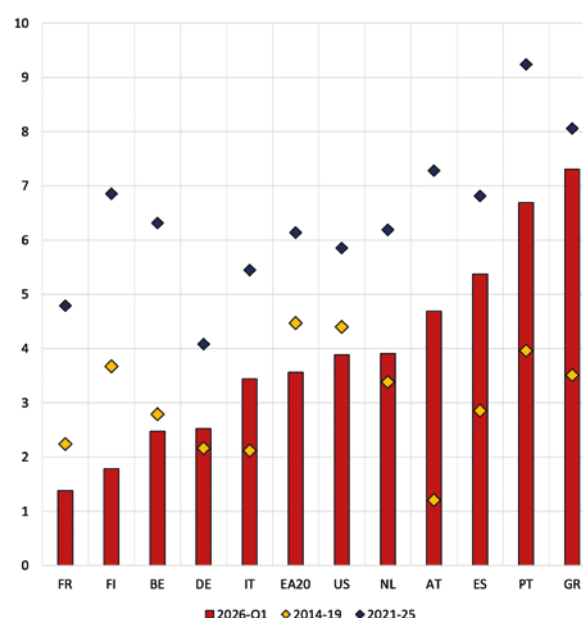
Labour market and wage developments in the Euro area

Chart 39a: Job vacancy rate in the Eurozone. Proportion of vacant positions as a share of total jobs (filled and unfilled), %



Source: Eurostat. As of Last data from Q4-2025

Chart 39b: Wages and salaries of the business sector, % annual change



Source: Economics, based on Eurostat and BEA data

Higher wages can put upward pressure on inflation if they are not accompanied by a corresponding increase in productivity. In the United States, labour productivity increased by 11.4% between Q4-2019 and Q1-2026. These productivity gains contributed to the normalisation of unit labour costs, which fell from a year-on-year peak of 5% in mid-2022 to 0.5% in Q1-2026 – well below the pre-pandemic average of 1.7%.

However, this is not the case in the Euro area, where productivity has barely increased since 2019 (see Chart 40b). Meanwhile, wage growth remains robust, and the institutional features of the European labour market may make it susceptible to prolonged price-wage catch-up processes. Declining productivity would further amplify inflationary pressures by pushing up unit labour costs faster than wages. In November 2023, I. Schnabel⁵⁹ warned that “meagre productivity growth puts additional pressure on firms' unit labour costs, which could add to inflationary pressures.”

A further potential source of inflation is the renewed fiscal expansion under way in Europe. As stated by the Bundesbank Governor J. Nagel⁶⁰, “whether or not greater debt also leads to greater price pressures in the Euro area depends on many factors, such as what the additional money is spent on, how quickly it flows out, and how much money flows in from abroad. These uncertainties make it more difficult to forecast developments.”

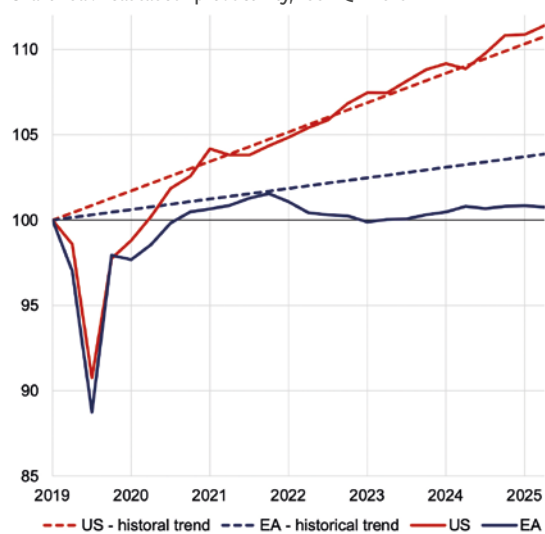
58. See Ageing Report, European Commission, 2024.

59. I. Schnabel, “The last mile”, Speech at the annual Homer Jones Memorial Lecture, November 2023.

60. J. Nagel, “European monetary policy in times of high uncertainty”, Lecture at ZEW – Leibniz Centre for European Economic Research, Mannheim (May 2025).

CHART 40.**Productivity and unit labour cost**

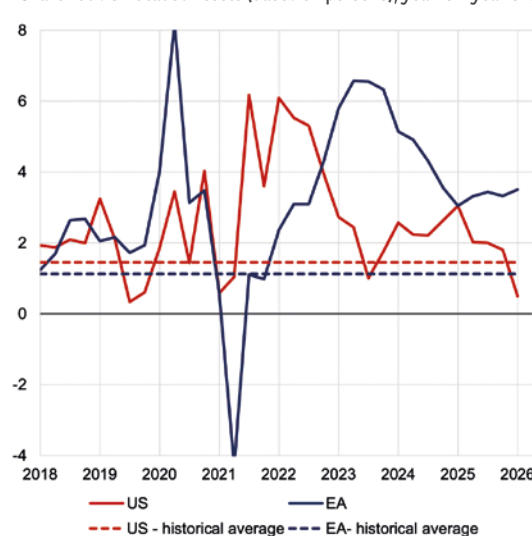
Chart 40a : Real labour productivity, 100 = Q4-2019



Source: Economics calculations based on Eurostat, Bureau of Economic Analysis

Notes: The historical trend refers to the path productivity would have followed if it had continued to grow at the same rate as between 2014 and 2019

Chart 40b : Unit labour costs (based on persons), year-on-year change (%)



Source: Economics calculations based on Eurostat, Bureau of Economic Analysis

Notes: The historical trend refers to the path productivity would have followed if it had continued to grow at the same rate as between 2014 and 2019

4.2 State of play of the normalisation process at the end of July 2026

With the exception of some emerging markets, central banks were slow to react to rising inflation in 2021. Initially considered a 'transitory' phenomenon, inflation began to concern central bankers towards the end of 2021. This awareness led to the normalisation of monetary policy, which materialised first through a gradual reduction in the pace of asset purchases, followed by interest rate hikes and quantitative tightening measures aimed at reducing the size of central bank balance sheets.

Between early 2022 and early 2026, four phases can be identified in the global monetary policy cycle.

The first phase focused on the pace of interest rate hikes, which increased significantly at each central bank meeting during the second half of 2022. After raising the Federal funds rate by 25 basis points in March 2022, the Fed significantly accelerated the pace of rate hikes at subsequent meetings, raising it by 50 basis points in May 2022 and by 75 basis points at each of the four meetings between June and November 2022. In the Euro area, policy rates were raised by 75 basis points at each meeting in September and October 2022 and by 50 basis points in December 2022, February and March 2023. In July 2022, the Bank of Canada raised its policy rate by 100 basis points – the largest rise since 1998.

Rate hikes continued in the first half of 2023, albeit at a more moderate pace than in 2022. The new challenge for the second half of the year was to determine the level of the 'terminal' rate – the level at which central banks would consider monetary policy to be sufficiently restrictive, meaning that further rate hikes would not be required. Following several consecutive rate hikes, the Fed and the ECB left their key rates at 5.5% and 4.5% respectively, in July and September 2023, maintaining this level for several consecutive meetings.

After several pauses, **central banks started to cut interest rates in the first half of 2024, marking the beginning of the second phase of the monetary policy cycle**. While some emerging countries had already implemented the first rate cuts in the second half of 2023 (Brazil, Hungary and the Czech Republic, for example), advanced countries were slower to act. The Swiss National Bank was the first of these to cut rates in March 2024, followed by the Bank of Canada and the ECB in June. Between June 2024 and March 2025, the ECB's key interest rate was cut by a cumulative 200 basis points. In July 2024, the Bank of England cut the key interest rate by 25 basis points. Further cuts followed in November 2024 and February 2025, resulting in a total reduction of 75 basis points. The Fed began cutting rates in September with a reduction of 50 basis points, followed by further reductions at the next two meetings, contributing to a total reduction of 100 basis points.

However, **since the fourth quarter of 2024, the pace of rate cuts has slowed, with most central banks either moderating or pausing their easing cycles**. This marks the third phase of monetary policy normalisation.

Nevertheless, important divergences have emerged among central banks. While acknowledging progress in the disinflation process, many have cautioned against excessive monetary policy relaxation, particularly in light of persistently high domestic inflation and the uncertain landscape of US trade policy (Sweden and Australia). Conversely, others argued that the risk now lies more with employment than with inflation, supporting the case for further interest rate cuts (Norway and Canada).

Since February 2026, the escalation of the conflict in the Middle East marked the beginning of a fourth, more abrupt phase, calling into question the direction of the cycle itself. As the shock fed through into inflation compensation and expectations, market participants rapidly adjusted their expectations of future policy from March 2026 onwards. They shifted from anticipating further easing or holding to pricing in renewed tightening across a range of countries, including the United States, the Eurozone, the United Kingdom and Japan. This repricing resulted in a significant increase in nominal yields, initially concentrated at the short end of the curve, leading to a notable flattening in core sovereign markets.

TABLE 2.
Central Banks' policy rates decisions between January 2021 and July 2026

	Central Bank	First rate hike	Last rate hike	Cumulative rate hike (basis points)	Current policy rate (%)	First cut	Latest interest rate decision*	Future rate trajectory
Advanced economies	United States	mars-22	juil-23	525	4,375	sept-24	Unchanged	"Policy should be a little bit restrictive, somewhat restrictive, because we want inflation to move all the way back to its target."
	Euro area	juil-22	sept-23	450	2	June-24	Unchanged	"Partly reflecting our past interest rate cuts, the economy has so far proven resilient overall in a challenging global environment. At the same time, the environment remains exceptionally uncertain, especially because of trade disputes."
	United Kingdom	nov-21	août-23	515	4,25	July-24	Unchanged	"Substantial disinflation over the past two years [...] has allowed the MPC to withdraw gradually some degree of policy restraint, while maintaining Bank Rate in restrictive territory so as to continue to squeeze out existing or emerging persistent inflationary pressures."
	Japan	mars-24	mars-24	15	0,5	na.	Unchanged	"Japan's financial conditions have been accommodative."
	Norway	sept-21	déc-23	450	4,25	na.	Cut	"The economic outlook is uncertain, but if the economy evolves broadly as currently projected, the policy rate will be reduced further in the course of 2025."
	Australia	mai-22	nov-23	425	3,85	Feb-25	Unchanged	"The Board continues to judge that the risks to inflation have become more balanced and the labour market remains strong."
	Canada	mars-22	juil-23	475	2,75	June-24	Unchanged	"Governing Council is proceeding carefully, with particular attention to the risks and uncertainties facing the Canadian economy, including the extent to which higher US tariffs reduce demand for Canadian exports; how much this spills over into business investment, employment and household spending; how much and how quickly cost increases are passed on to consumer prices; and how inflation expectations evolve."
	Switzerland	sept-22	juin-23	200	0,5	March 2024	Cut	Inflationary pressure has decreased compared to the previous quarter. With today's easing of monetary policy, the SNB is countering the lower inflationary pressure
	New Zealand	oct-21	mai-23	525	3,25	oct-24	Unchanged	The case for keeping the OCR on hold at this meeting highlighted the elevated level of uncertainty, and the benefits of waiting until August in light of near-term inflation risks
	Sweden	mai-22	sept-23	400	2	May 2024	Cut	The forecast for the policy rate entails some probability of another cut this year. The lower interest rate will stabilise inflation at the target and contribute to strengthening economic activity.
Emerging markets economies	Czechia	juin-21	juin-22	675	3,5	déc-23	Unchanged	The Bank Board confirms its determination to continue its monetary policy in order to maintain inflation near the 2% target in the long term. At present, this still requires relatively tight monetary policy.
	Poland	nov-21	août-22	600	5	sept-23	Cut	According to the available forecasts the CPI inflation in the coming months will fall below the upper bound for deviations of the NBP inflation target. Taking this into account, in the Council's assessment, it became justified to adjust the level of the NBP interest rates
	Romania	oct-21	janv-23	575	6,5	juil-24	Unchanged	Based on the currently available data and assessments, as well as in light of the elevated uncertainty, the NBR Board decided in the meeting held today, 8 July 2025, to keep the monetary policy rate at 6.50 percent per annum.
	Hungary	juin-21	sept-22	1240	6,5	oct-23	Unchanged	Restrictive monetary policy contributes to the maintenance of financial market stability, the anchoring of inflation expectations consistently with the central bank target and, as a result, to the achievement of the inflation target in a sustainable manner by ensuring positive real interest rates.
	Brazil	mars-21	oct-22	1175	15	août-23	Hike	The current scenario continues to be marked by deanchored inflation expectations, high inflation projections, resilience on economic activity and labor market pressures.
	Mexico	juin-21	mars-23	725	8	March 24	Cut	This decision was made considering the behavior of the exchange rate, the weakness of economic activity, and the possible impact of changes in trade policies worldwide.

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. Latest interest rate decision is compared to the decision of the previous meeting

CHART 41.

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

Chart 41a : Short-term nominal policy rate (%)

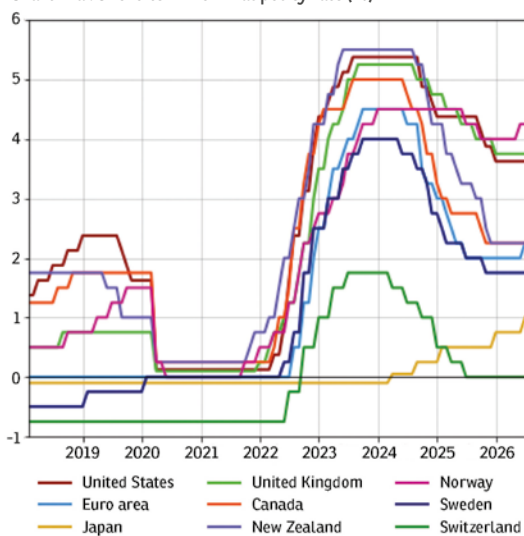
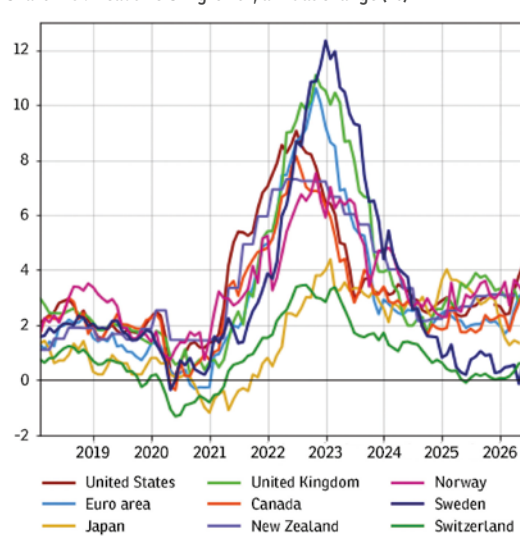


Chart 41b : Headline CPI growth, annual change (%)



Sources: Bank for International Settlements, national Central Banks

CHART 42.

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

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

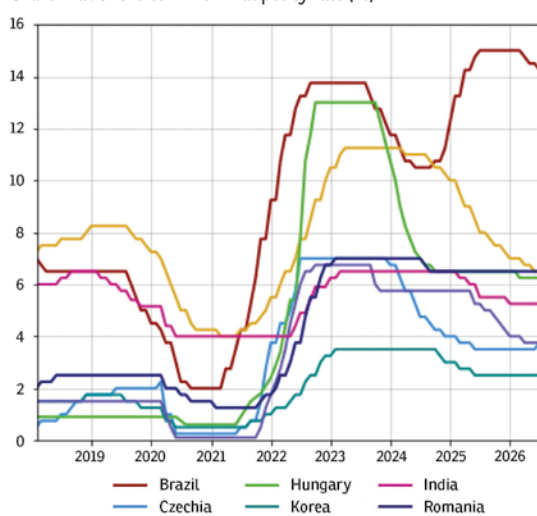
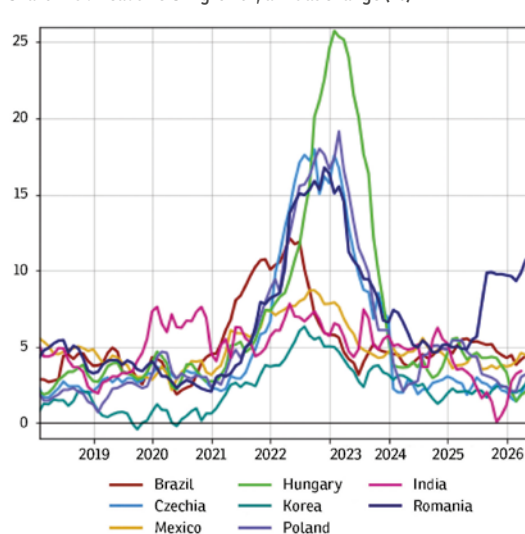


Chart 42b : Headline CPI growth, annual change (%)



Sources: Bank for International Settlements, national Central Banks

This repricing materialised in June 2026 when the ECB raised interest rates for the first time in the current cycle, before holding them steady the following month. Following the rate hike in June 2026, the ECB maintained its three key interest rates at the July 2026 meeting, despite acknowledging that the balance of risks to the outlook was no longer 'more balanced', explicitly highlighting the potential for inflation to rise and the risk of economic contraction. By contrast, the Fed and the Bank of England have so far left their policy rates unchanged, despite market pricing pointing to tightening in both jurisdictions.

Since the start of the conflict with Iran, emerging market central banks have followed increasingly divergent monetary policy paths. Some have adopted a wait-and-see approach, leaving policy rates unchanged (Mexico, Romania and Poland), while others have continued to cut rates (Brazil and Hungary). In contrast, the Czech Republic has resumed monetary tightening, highlighting the growing heterogeneity across emerging economies.

Having set itself apart from other central banks by not adjusting its monetary policy strategy throughout 2022 and 2023, the Bank of Japan finally ended the era of negative interest rates in early 2024, while maintaining an accommodative stance. Against the backdrop of a global decline in interest rates, the Bank of Japan raised interest

rates twice in 2025, setting itself apart once more. Following another rate increase in 2026, the Bank has continued to emphasize that financial conditions remain highly accommodative, supported by still-low real interest rates and a weaker yen.

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

This section reviews the actions of the four major central banks since 2021, with a focus on their interest rate decisions and balance sheet policies.

4.2.1 Since March 2022, the Federal Reserve has gradually increased the Federal funds rate, which reached 5.5% in July 2023. It began cutting rates in September 2024. Since June 2022, the Fed has also been reducing its bond holdings

Until November 2021, J. Powell considered inflation to be a 'transitory' phenomenon. Between December 2020 and November 2021, the Fed continued to purchase US Treasuries and mortgage-backed securities (MBS) at a monthly rate of \$120 billion, while keeping the Federal funds rate at its lower bound of 0.25%.

From December 2021 onwards, the Fed gradually reduced the pace of net asset purchases, bringing them to an end in March 2022. The FOMC then raised the Federal funds rate by 25 basis points in **March 2022**, which was the first increase since 2019, and formally ended the purchase of public and private securities.

The pace of rate hikes accelerated significantly at subsequent meetings, with the Federal Open Market Committee (FOMC) raising the Federal funds rate by 50 basis points (bps) in May 2022, and by 75 bps at each of the four meetings between June and November 2022. It was raised again by 50 basis points in December 2022, and by a further 25 basis points **at each of the three subsequent meetings between February and May 2023**.

After leaving the policy rate unchanged in **June 2023**, the Committee raised it by a further 25 basis points to 5.5% in July 2023. After remaining unchanged for the following fifteen months, the Fed funds rate was cut for the first time in **September 2024**, by 50 basis points. This was followed by a further two cuts in November and December, reducing the Federal funds rate to 4.5%.

After pausing in **January 2025**, the Federal Reserve resumed its rate-cutting cycle **between September and December 2025**. This resulted in an additional cumulative reduction of 75 basis points, bringing the target range for the federal funds rate to 3.50-3.75%. At the January 2026 meeting, the rate was left unchanged. As noted by Chair Powell, "This normalization of our policy stance should help stabilize the labor market while allowing inflation to resume its downward trend toward 2 percent once the effects of tariff increases have passed through."

Subsequent meetings were held against the backdrop of the conflict in Iran, renewed inflationary pressures, and a change in leadership at the Federal Reserve, with Kevin Warsh succeeding Jerome Powell as Chair. In this environment, the FOMC kept policy rates unchanged and avoided providing a clear indication of the future direction of monetary policy, instead emphasising a data-dependent approach. At the July 2026 meeting, Chair Warsh argued that financial markets were increasingly incorporating incoming economic information without relying on guidance from the central bank. He stated that 'market participants are learning to play the ball, not the referee', suggesting that a reduced role for forward guidance would enable market prices to respond more directly to underlying economic developments.

In June 2022, the Federal Open Market Committee (FOMC) began quantitative tightening (QT) by reducing its holdings of US Treasuries and mortgage-backed securities (MBS). At that time, the Fed held \$5.8 trillion in US Treasuries, accounting for a quarter of the national debt. It also held \$2.7 trillion in MBS.

The monthly pace of balance sheet reduction increased from \$47.5 billion between June and September 2022 to \$95 billion since then. Consequently, the Fed's balance sheet shrank from \$8.9 trillion in June 2022 to \$8.3 trillion by the end of February 2023. Outstanding **US Treasury securities held by the Federal Reserve** fell by \$400 billion to \$5.4 trillion in February 2023, while outstanding MBS fell by \$89 billion to \$2.6 trillion.

According to CaixaBank, this pace of reduction is much more aggressive than in previous tightening cycles. In 2017, for example, the Fed set a monthly cap of \$50 billion, although the initial pace was closer to \$10 billion in practice. Between 2017 and 2019, nearly \$613 billion of private and public securities were sold or not reinvested.

However, the banking turmoil triggered by the Silicon Valley Bank (SVB) bankruptcy in March 2023 has caused the Federal Reserve's (Fed) balance sheet to grow again since mid-March 2023. In fact, the Federal Reserve, in cooperation with the Treasury Department, set up a 'bank term funding programme' to provide short-term liquidity assistance to US banks. In the ten days following the SVB bankruptcy, the Fed's assets increased by almost \$400 billion; they had fallen by almost \$600 billion between June 2022 and February 2023 due to quantitative tightening (QT).

CHART 43.
Fed funds rate versus headline
inflation in the United States



Following the SVB bankruptcy, the Fed continued to reduce its holdings of securities at a monthly rate of \$95 billion (\$60 billion of US Treasuries and \$35 billion of MBS), as it had been doing since September 2022. However, in May 2024, the FOMC decided to slow the pace of reduction of US Treasury holdings from \$60 billion to \$25 billion per month. This took effect in June 2024.

Consequently, the balance sheet fell back below its pre-banking crisis level in March 2023. By the end of January 2026, the Fed's total assets had fallen to \$6.7 trillion, down from \$8.4 trillion in February 2023. After more than two and a half years of QT, Treasury holdings had declined by an amount equivalent to almost half of the securities acquired during the pandemic purchase programme.

In December 2025, the Federal Reserve modified the orientation of quantitative tightening again, deciding to 'initiate purchases of shorter-term Treasury securities solely to maintain an ample supply of reserves over time, thereby supporting effective control of the policy rate'. Consequently, net purchases of U.S. Treasury securities turned positive again, amounting to around USD30 billion per month. While the Federal Reserve presented this decision as a technical adjustment aimed at ensuring an ample level of reserves, it effectively signalled the conclusion of balance sheet contraction and a modest resumption of net asset purchases.

CHART 44.
Federal Reserve balance sheet, stock and flows

Chart 44a : Total Assets, breakdown by purchase program, USD Trn

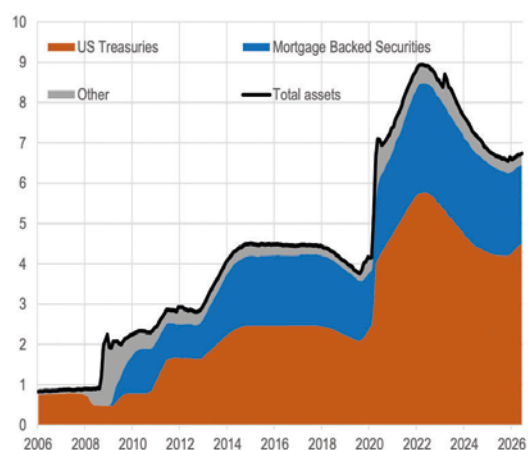
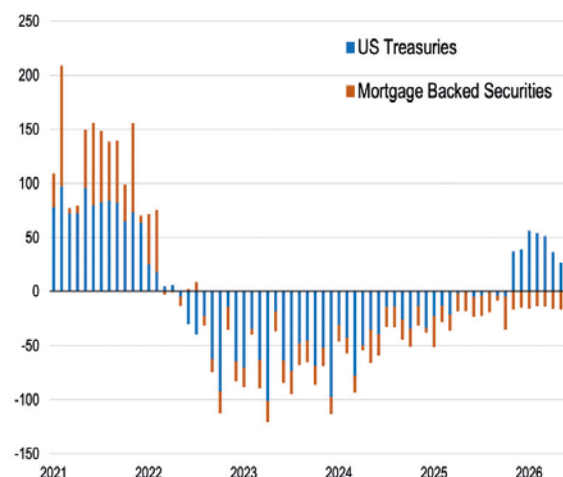


Chart 44b : Monthly change in securities holding, breakdown by purchase program, USD bn



4.2.2 Between July 2022 and September 2023, the ECB increased interest rates by a total of 450 basis points. After a series of rate cuts between 2024 and 2025, the tightening cycle resumed in June 2026 when the ECB raised interest rates again in response to renewed inflationary pressures caused by the conflict in Iran

Until December 2021, the Governing Council maintained its belief that 'monetary accommodation will be needed to ensure that inflation stabilises at the 2% objective over the medium term'. This view justified the continuation of bond-buying programmes and the maintenance of key interest rates at their current levels. Between December 2021 and March 2022, net monthly purchases under the PEPP and APP averaged €60 billion, while the deposit facility rate had remained negative at -0.5% since September 2019.

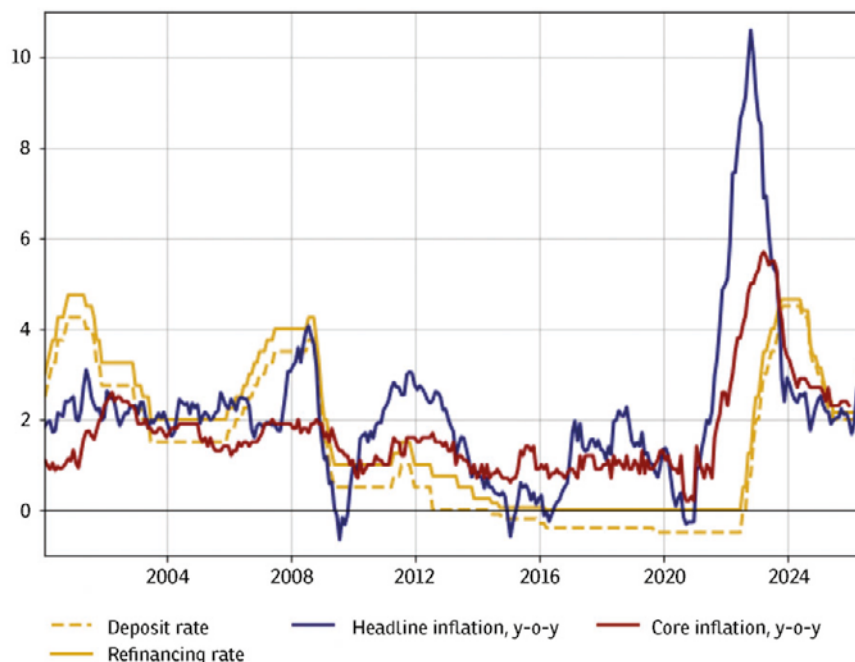
The Governing Council ceased its net purchases under the PEPP at the end of March 2022, though it intended to reinvest the principal payments from maturing securities purchased under the programme until at least the end of 2024. According to ECB President C. Lagarde, this amounted to a reinvestment package of €1.7 trillion. Meanwhile, the ECB continued to purchase sovereign and private securities under the original APP, at a rate of €40 billion per month in April, €30 billion per month in May, and €20 billion per month in June. In June 2022, the ECB decided to end net asset purchases under the APP by 1 July 2022. However, it intended to continue reinvesting the full amount of the principal payments from maturing securities purchased under the APP 'for an extended period of time'. In July 2022, the Governing Council voted to raise the three key ECB interest rates by 50 basis points – the first increase since July 2011 – thereby ending the negative interest rate policy that had been in place since 2014.

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

Since July 2022, interest rates have increased at every meeting. They rose by 75 basis points in September and October 2022, and by 50 basis points in December 2022, February 2023, and March 2023. Since then, the ECB has slowed the pace of rate hikes, raising rates by 25 basis points at the next four meetings in May, June, July and September 2023.

After maintaining the key rate at 4% for nine months, the Governing Council voted to reduce it by 25 basis points in June 2024. A further five cuts have since been decided, bringing the key rate down to 2.0% in June 2025.

CHART 45.
Policy rate versus headline
inflation in the Euro area



The cycle of rate cuts was interrupted at the July 2025 meeting, when the ECB chose to maintain its key policy rates at 2%, despite the fact that Euro area inflation had returned to the same level. Following the outbreak of the Iran conflict, the monetary policy stance tightened again in June 2026, when the ECB raised its key policy rates in response to renewed inflationary pressures stemming from higher energy prices. However, at its July 2026

meeting, the Governing Council adopted a more cautious, wait-and-see approach, leaving rates unchanged. During the subsequent press conference, President C. Lagarde stated that there had been no evidence of second-round effects thus far, while cautioning that 'the full inflationary impact of the energy shock is yet to be realised'. She also indicated that the balance of risks to the inflation outlook had shifted to the upside, with financial markets pricing in an 85% probability of another rate increase at the September meeting.

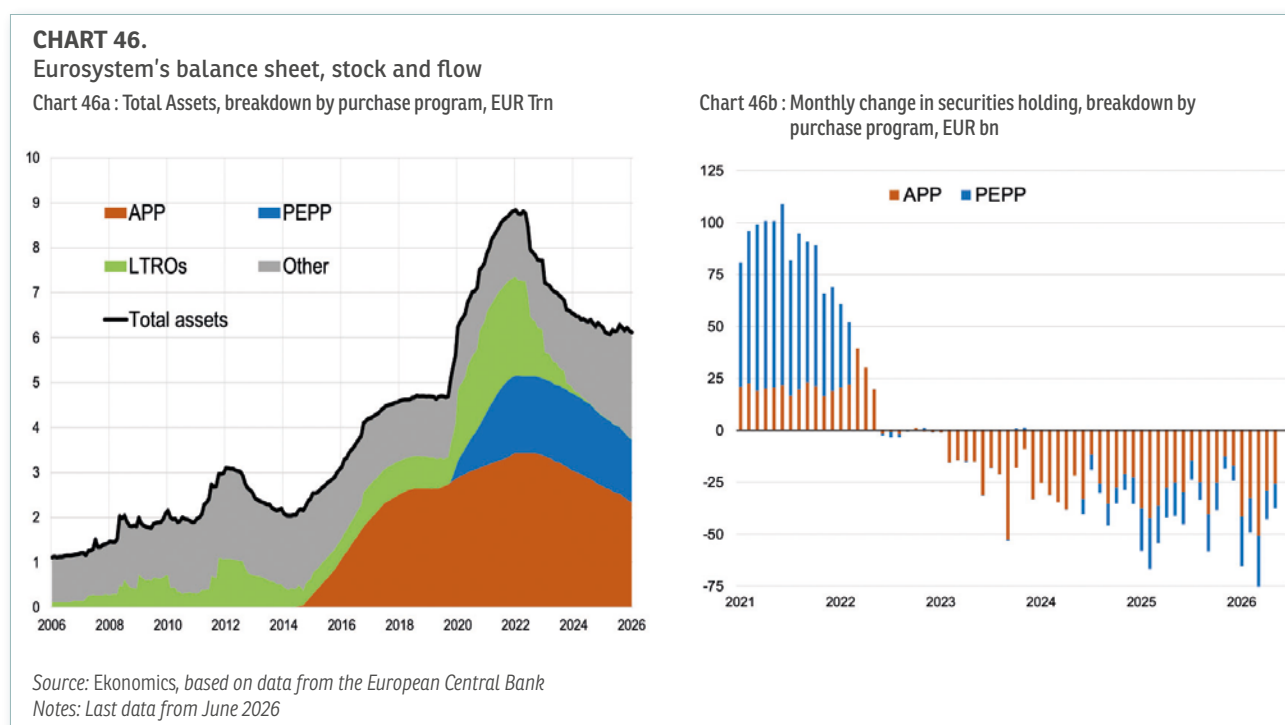
This cumulative increase in the policy rate has been accompanied by a number of measures aimed at reducing the size of the Eurosystem's balance sheet, as part of the process of 'quantitative tightening'.

The first of these was to allow early repayment of the longer-term refinancing operations (LTROs). **Between October 2022 and February 2025**, European banks repaid almost all of the €2.2 trillion they had borrowed from the ECB in TLTRO III programme. These repayments have been the main reason for the €2 trillion decline in the Eurosystem's total assets since November 2022 (see Chart 45a).

In addition, the Governing Council has begun reducing its APP holdings. **From March to June 2023**, the APP portfolio decreased by an average of €15 billion per month, as the Eurosystem did not reinvest all the principal payments from maturing securities. From July 2023 onwards, the Eurosystem decided to stop reinvesting redemptions under the APP. This has accelerated the reduction in securities holdings to an average of **€25 billion per month** (see Chart 45b).

Although the securities purchased under the PEPP were not subject to quantitative tightening (QT) until 2023, in **December 2023**, the ECB announced its intention to reduce its PEPP portfolio by an average of €7.5 billion per month in the second half of 2024. Since July 2024, the stock of bonds held under the PEPP has fallen by an average of €12 billion per month.

These measures have contributed to reducing the size of the Eurosystem's balance sheet. In June 2026, total assets stood at €6.1 trillion, down from a peak of €8.8 trillion in June 2022.



4.2.3 After fourteen consecutive rate increases between December 2021 and August 2023, the Bank of England began cutting rates in August 2024. It has maintained Bank Rate at 3.75% since December 2025

The Bank of England (BoE) was the first major central bank among the G7 economies to raise interest rates since the start of the pandemic. In December 2021, it increased the Bank Rate from 0.1% to 0.25%. Since then, it has been raised a further thirteen times, reaching 5.25% in August 2023. The Bank Rate remained unchanged until July 2024, when CPI inflation reached the 2% target in both May and June. Between August 2024 and December 2025, the MPC reduced the Bank's rate by a cumulative 150 basis points to 3.75%.

Although the Bank Rate was left unchanged at the February 2026 Monetary Policy Committee (MPC) meeting, it is worth noting that four of the nine MPC members voted in favour of reducing it by 25 basis points to 3.5%. Following the outbreak of conflict in Iran, the MPC has kept the Bank Rate unchanged, as renewed inflationary risks have complicated the path to monetary policy easing. At its July 2026 meeting, the Committee noted that there had been 'little evidence of material second-round effects so far', while emphasising that, given the time it takes for inflation to pass through, this could not be taken as a strong indication of their future emergence. The MPC concluded that, while past disinflation was consistent with some degree of economic slack, 'the risk of strong inflationary pressures was greater than the risk of weak inflationary pressures', with significant uncertainty surrounding the outlook. Members also highlighted that monetary policy might need to react before the risk of persistent inflation fully materialised. They noted that financial conditions had tightened materially since the start of the conflict, raising borrowing costs for households and firms.

In addition to raising interest rates, the Bank of England has reduced its holdings of UK government bonds. In February 2022, it stopped reinvesting maturing bonds, which was well ahead of the Fed and the ECB. After temporarily reversing this decision in October 2022 due to severe disruption in the gilt market, the BoE resumed its quantitative tightening programme in November 2022. By June 2026, the BoE's total gilt holdings had fallen to £491 billion, down from a peak of £895 billion in December 2021.

CHART 47.
Policy rate versus inflation
in the United Kingdom



Source: Bank of England
Last observation from June 2026

4.2.4 The Bank of Japan ended its negative interest rate policy in March 2024 and has since gradually unwound monetary accommodation, primarily by reducing its asset holdings

Compared to other central banks, the Bank of Japan has been much slower to react to rising inflation since 2021. While inflation exceeded 3% for most of 2022 and 2023 – the highest it has been in 40 years – BoJ members have kept the monetary policy framework unchanged since 2016. This framework consists of three elements: (I) maintaining a negative interest rate policy; (II) yield curve control (YCC), which involves unlimited purchases of government bonds to prevent the yield on 10-year government bonds from rising above 0.25%; and (III) continued purchases of corporate bonds and stock market ETFs. This "patient" monetary accommodation was justified at the time by "the aim of achieving the price stability target of 2 percent in a sustainable and stable manner, accompanied by wage increases."

However, the persistence of underlying inflation, yield curve distortion and sharp yen depreciation have since led to adjustments to the monetary policy strategy. The first adjustment was made in **December 2022**, when the upper limit of the 10-year government bond yield targeted by the YCC policy was increased from 0.25% to 0.5%. Then, in **July 2023**, the BoJ announced that it would implement the YCC policy more flexibly, offering to purchase 10-year JGBs at 1% at certain government bond auctions. However, the most significant decision was the termination of the negative interest rate policy in **March 2024**, when the key policy rate was increased from -0.1% to 0.05%. The BoJ also announced that it would stop buying exchange-traded funds and Japanese real estate investment trusts, though it confirmed that it would not sell the 70,000 billion yen (430 billion euros) in securities it already holds. The key rate was raised again in **July 2024**, and then in **January and December 2025**, reaching 0.75%.

Despite this gradual normalisation, the BoJ continued to emphasise that financial conditions remained accommodative. Following the increase in its policy rate to 1% at the June 2026 meeting, the Bank of Japan reiterated the accommodative nature of financial conditions at the July 2026 meeting. The bank noted that 'real interest rates have been negative, mainly in the short- to medium-term zone', while emphasising that 'firms' funding costs have remained sufficiently low relative to profitability overall'. At the same time, the BoJ highlighted persistent upside risks to inflation, stating that 'the year-on-year rate of increase in the CPI is likely to accelerate to a level clearly above 2 percent from the second half of fiscal 2026'. This outlook reflected the continued pass-through of wage increases into prices, the impact of higher crude oil prices, stronger global demand for semiconductors linked to AI development and the recent depreciation of the yen. These factors are likely to lead to an increase in prices, mainly of durable goods.

Alongside the rate hikes, the BoJ announced that it would begin reducing its holdings of Japanese government bonds. The BoJ progressively reduced its monthly JGB purchases from about ¥5.7 trillion in July 2024 to around ¥2.9 trillion in early 2026. Under the extended plan, purchases are scheduled to decline by about ¥200 billion per quarter, reaching approximately ¥2.1 trillion in early 2027.

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

From January 2022, a sharp rise in government bond yields was driven by rising inflationary pressures, the end of central bank asset purchase programmes, and market expectations of central bank rate hikes.

From January 2022, government bond yields rose sharply, driven by increasing inflationary pressures, the end of central bank asset purchase programmes and expectations of monetary policy tightening. Although policy rates were subsequently reduced, long-term government bond yields remained well above their pre-pandemic levels in mid-2026. Renewed energy-price and inflation uncertainty associated with the conflict in the Middle East has added further upward pressure.

Disinflation and higher nominal policy rates brought ex post real policy rates back into positive territory in many economies during 2023 and 2024. Since then, monetary easing and renewed inflationary pressures have narrowed – or, in some cases, reversed – this adjustment. By July 2026, the Euro area real refinancing rate was approximately –0.5%, while the corresponding US measure was close to zero.

However, the renewed inflationary shock triggered by the conflict in Iran has undone some of this adjustment. Real policy interest rates fell back below zero in both the Euro area and the United States in 2026.

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

From January 2022, the nominal yield on 10-year US government bonds more than doubled, reaching around 4.7% by the end of June 2026. Meanwhile, the 10-year German Bund yield, which had been negative until December 2021, increased to 3% by the end of June 2026. In France, it increased from 0% in January 2022 to 3.8% in June 2026.

CHART 48.

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

Chart 48a: Long-term perspective

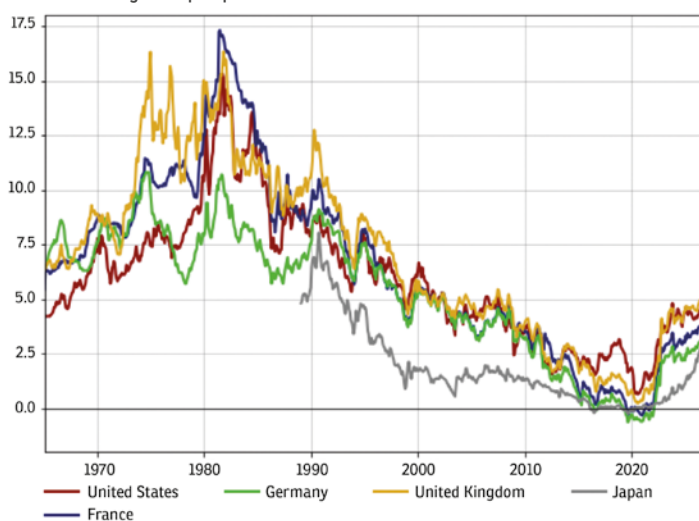
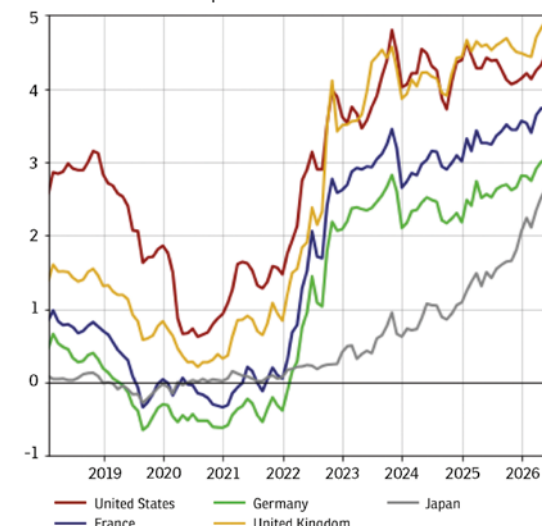


Chart 48b: Recent developments



Source: OECD. Note: Latest data from June 2026

Since 2022, there has also been a significant rise in sovereign bond yields in southern Member States. The yield on the Italian 10-year government bond, for example, has risen by 210 basis points since January 2022, approaching 3.9% by June 2026 – one of the highest levels since 2014. In Greece, the long-term interest rate has increased by over 200 basis points during this period, reaching 3.6% by the end of June 2026.

Despite experiencing periods of volatility, such as those observed between April and June 2025, it is worth noting that long-term interest rates are now remaining at elevated levels. Unlike short-term central bank rates, which have recently been reduced, long-term rates are stabilising at relatively high levels. The outbreak of conflict in Iran triggered a renewed increase in long-term yields as markets reassessed the outlook for inflation and priced in tighter financial conditions. The conflict has also impacted business and consumer confidence, with indicators showing a sharp deterioration.

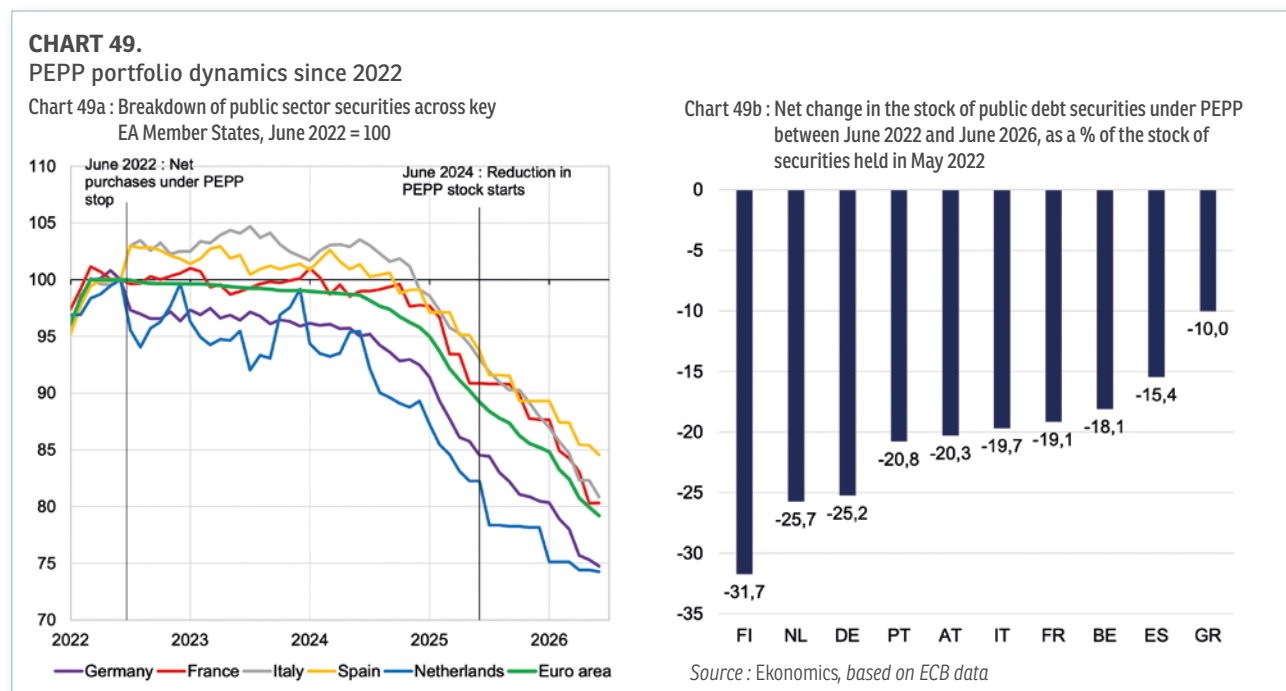
The prospect of structurally higher inflation and the need to hedge against it, combined with the increased financing requirements of governments – both in Germany, with its infrastructure and defence stimulus plan, and in France in particular – are contributing to keeping long-term rates relatively high compared with the pre-pandemic era.

4.3.2 Despite the QT, the ECB's reinvestment policy remained focused on the most indebted countries until the end of 2024, limiting the increase in long-term bond yields and sovereign spreads

Despite the conclusion of net asset purchases under the PEPP, the Eurosystem has continued to reinvest the principal payments from maturing securities purchased under the €1.7 trillion programme until the end of 2024.

Since June 2022, this reinvestment policy has focused on bonds issued by the Euro area's most indebted countries. Between June 2022 and May 2024, for example, the ECB purchased an additional €11.5 billion of Italian and Spanish government bonds while reducing its portfolio of German and Dutch debt by €25.3 billion.

Although the flexible reinvestment policy has ended and the ECB has begun reducing its PEPP holdings, the stock of the most indebted countries is decreasing at a much slower pace. For instance, between June 2022 and January 2026, the quantity of French, Italian, and Spanish bonds held under the PEPP decreased by 10–20%, whereas the quantity of German and Dutch bonds shrank by 25–30% (see Chart 48a). Around 25% of the German bonds repurchased during the pandemic were not reinvested; however, this percentage does not exceed 20% for Greece, France, Italy and Spain (see Chart 48b).

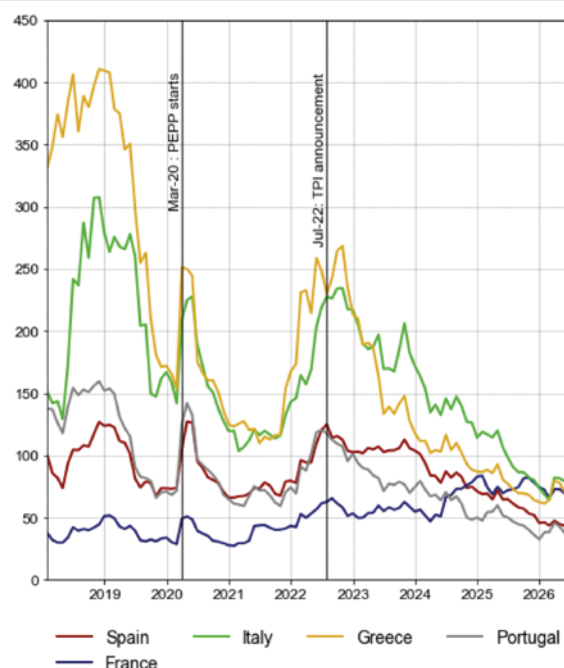


The reinvestment policy of the PEPP, combined with the announcement of the Transmission Protection Instrument to "counter sudden jumps in yields", has coincided with a gradual decline in the bond yield spreads since June 2022 (see Chart 53).

Since the ECB began raising its key interest rates in July 2022, the yield spread between German and peripheral European Union member state sovereign bonds has temporarily widened before falling back below pre-crisis levels. After peaking at 234 basis points (bps) in September 2022, the yield spread between Italian and German 10-year government bonds declined to 81 bps at the end of June 2026, which is well below the 2019 average of 210 bps. Similarly, in Spain and Greece, yield spreads fell from peaks of 118.4 bps and 271.5 bps in September 2022 to 44 bps and 70 bps respectively by the end of June 2026.

As noted by R. Brooks and D. March⁶¹, “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.” R. Brooks⁶² further argues that the impact of central bank asset purchases operates through three channels. The first is a ‘flow’ effect, whereby ongoing purchases of government bonds in secondary markets keep yields below the levels that would otherwise prevail. Second is the ‘stock’ effect, which reflects the cumulative impact of past purchases, particularly when maturing holdings are effectively rolled over for extended periods, thereby continuing to suppress yields. Thirdly, a signalling and credibility channel arises from previous interventions, as markets may expect central banks to intervene during periods of stress in order to contain sovereign spreads and limit the impact of fiscal deterioration. President Lagarde’s repeated pronouncements on the French bond market and the creation of the TPI belong in this category. According to Brooks, this implicit backstop has contributed to lower sovereign yields. He estimates that the “shadow yield” – the hypothetical yield absent these interventions – is around 300 basis points higher than the observed yield for Japan, 200 basis points higher for Greece, and 100 basis points higher for Italy and Spain.

CHART 50.
10-Year Government Yield of
Selected Eurozone Member States
over Germany, basis points



Source: *Economics*, based on OECD data
Latest data from June 2026

4.3.3 Having turned positive in 2023 due to disinflation and rising nominal interest rates, real rates are now converging back towards 0% in several advanced economies

In the Eurozone, the real policy rate returned to positive territory in September 2023. By June 2024, it had reached 1.75%, remaining below the US level.

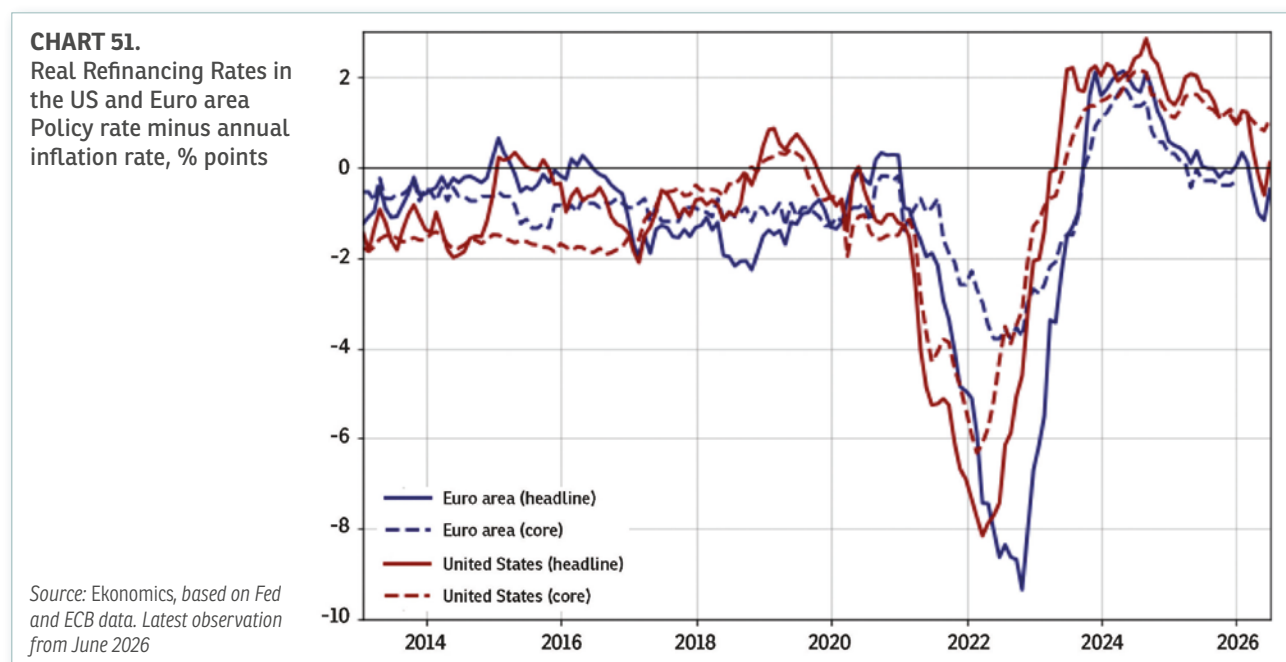
The return of central banks' real policy rates to positive levels has been supported overall by the rise in nominal policy rates to 550 basis points in the US and 450 basis points in the Euro area, as well as significant disinflation in 2023.

However, the easing cycles initiated by the ECB and the Federal Reserve, coupled with the renewed inflationary impact of the Iran conflict, led to a further decline in real policy rates. By May 2026, real refinancing rates had

61. “ECB bond reinvestments muddy Europe’s fiscal rules”, OMFIF.

62. R. Brooks, “Shadow Government Bond Yields in the G10” Shadow Price Macro Blog, July 2026.

returned to negative territory, standing at around -1% in both the Eurozone and the US. This reversal shows that despite the significant monetary tightening since 2022, inflation's resurgence has reduced the restrictiveness of monetary conditions in real terms once again.



In most advanced and emerging market economies, real interest rates turned positive again, mostly in the second half of 2023. This was particularly the case in the United Kingdom, where real rates turned positive in October 2023, as well as in the Euro area, the United States, Canada (January 2023) and Switzerland (June 2023).

Nevertheless, the evolution of real rates remains highly heterogeneous across countries. Brazil and Mexico, for example, started to normalise monetary policy in 2021 and returned to positive real rates the following year. They now have real rates above 4%, which is twice as high as in Poland (3.1%), Hungary (3.3%), and the Czech Republic (2.75%).

Until late 2025, Japan's belated adjustment of its monetary policy in the face of resurgent inflation set it apart from other advanced economies. In June 2024, the real interest rate was -2.75%, which is well below its long-term average of 0.05%. Monetary accommodation has continued to be withdrawn gradually, with further steps being taken to reduce central bank asset holdings and with real interest rates edging upwards alongside two additional hikes recorded in 2025, and one in 2026.

Although they remain positive, real policy interest rates have started to fall again in some countries. After peaking at 2.1% in March 2024, the real interest rate in the Eurozone fell back to 0% following seven rate cuts by the ECB between June 2024 and March 2026. A renewed inflationary shock, triggered by the conflict in Iran, subsequently pushed real policy rates back into negative territory in 2026, despite the ECB partially reversing its easing cycle.

Although there are significant differences between countries, real long-term interest rates have also returned to positive territory.

4.3.4 The recent return of real interest rates to positive territory should be viewed in historical context, given that it follows several consecutive years of negative real interest rates

An analysis of interest rates over the last fifty years shows that real 10-year interest rates were exceptionally negative for a prolonged period.

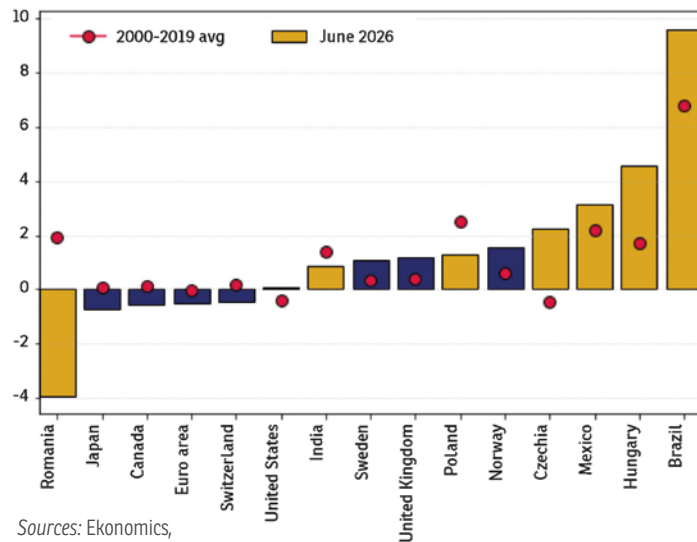
This historical analysis shows that:

- Real long-term interest rates in advanced countries were negative in several major advanced economies for much of the period after 2013, whereas they averaged above 2% in the previous two decades. Since 2013, real long-term interest rates in Germany and the UK have remained below -1% overall, having been above 5% between 1984 and 1995, and fluctuating above 3% between 1996 and 2007.

CHART 52.

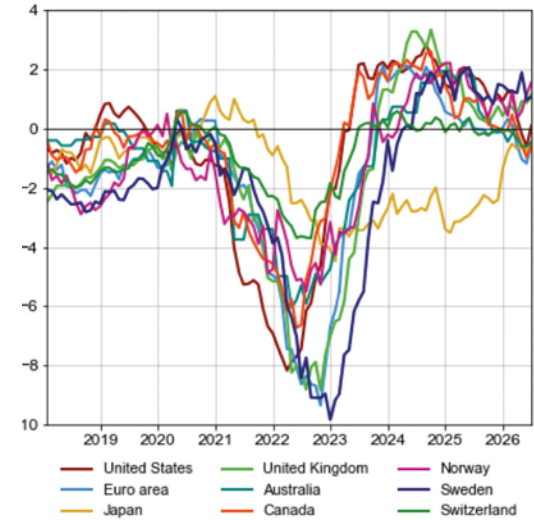
Real policy rates in selected AEs and EMEs as of June 2026, percentage points ; Nominal Policy rate minus inflation rate

Chart 52a : Real Policy Rates as of June 2026, percentage points



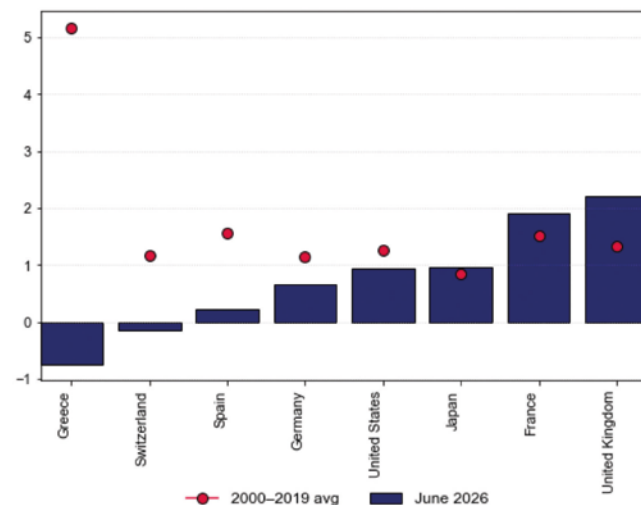
Sources: Economics,
based on OECD and BIS data

Chart 52b : Recent Real Policy Trajectory since 2018

**CHART 53.**

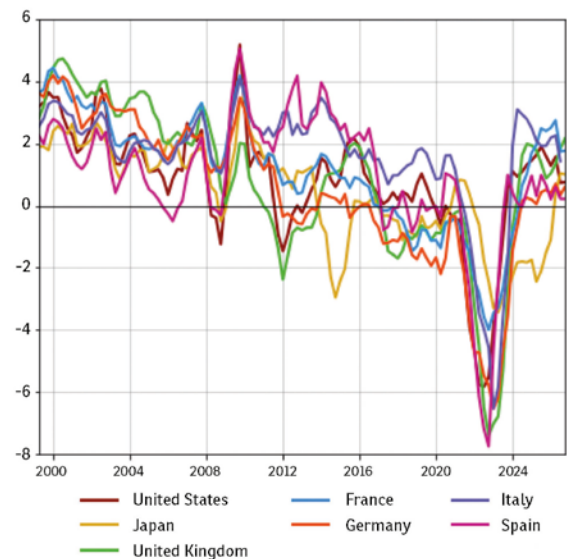
Nominal Long-term government bond yields adjusted for CPI, percentage points

Chart 53a : Real 10-Year Government Bond-Yields as of June 2026, percentage points



Sources : Economics, based on OECD and BIS data

Chart 53b : Real 10-Year Government Bond-Yields, percentage points

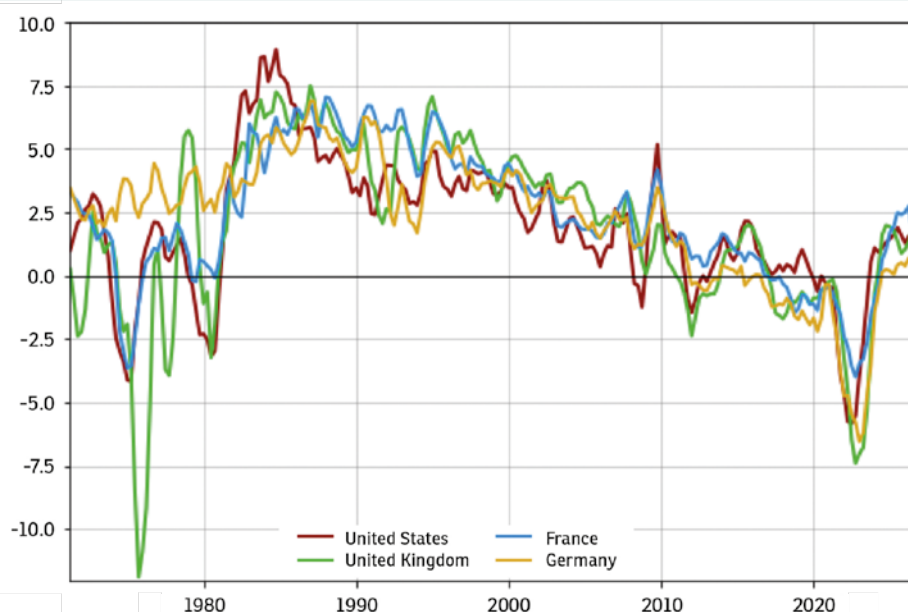


- The real yield on French bonds has averaged -0.6% since 2013, compared to 5.9% between 1984 and 1995, and 3.1% between 1996 and 2007.
- The negative level of real interest rates observed during the current inflationary period (2021-24) contrasts sharply with the stagflationary episode of the 1970s (1973-83), when real interest rates often exceeded zero despite double-digit inflation. After spending two years in negative territory (1974-75), the French real 10-year rate climbed back above 0% by the end of 1975 and averaged 1.2% over the 1973-83 decade, despite annual inflation averaging 10.9%.

Between mid-2021 and the end of 2024, the French real interest rate fell below -1.5% on average, while inflation was half that of the 1970s (averaging 4.4% between 2021 and 2023). In Germany, the real bond yield fluctuated around -3% between mid-2021 and the end of 2024, compared to +3.4% in the 1970s. The inflationary period from 2021 to 2024 has pushed it to its lowest level since the 1970s (-6% in March 2023).

CHART 54.
Real 10-year government
bond yields since 1970

Sources : Ekonomics, based on OECD and BIS data. Real bond yields are calculated as the difference between 10-year nominal government yield and observed year-on-year inflation of the corresponding period.
Last observation from June 2026

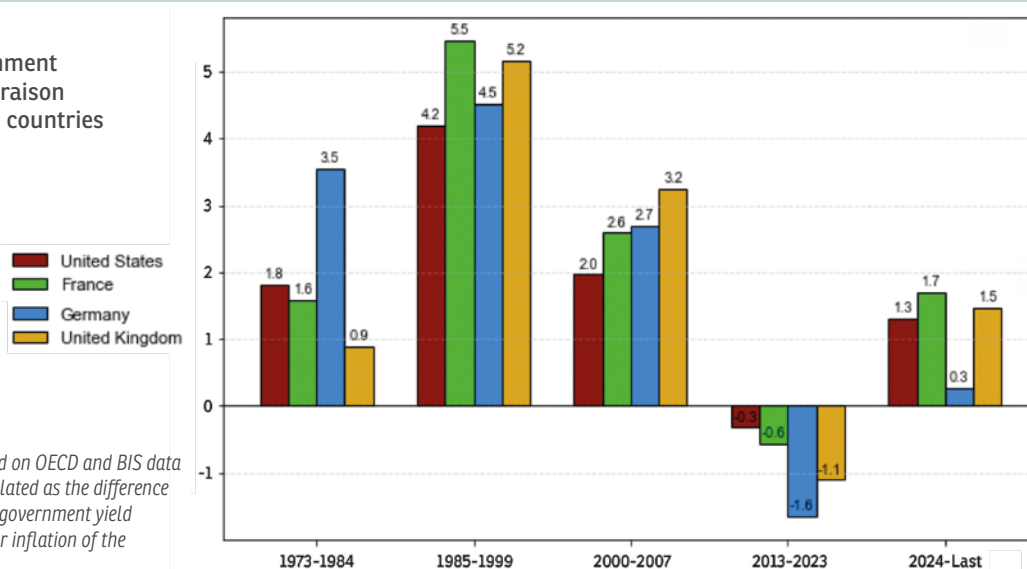


The unprecedented credit growth and associated boom in indebtedness over the past decade (see Section 2) was facilitated, among other factors, by the prolonged period of very low or negative real interest rates (2013-2023). This increases the vulnerability of financial market players.

It is puzzling how the major central banks could have allowed credit to grow so massively without reacting. Historically, an increase in credit to governments and corporations has been considered a leading indicator of inflation that should be monitored closely. Yet the credit boom of the past 20 years does not appear to have caused any concern among central banks.

CHART 55.
Real 10 year government
bond yields: comparaison
across decades and countries

Sources : Ekonomics, based on OECD and BIS data
Real bond yields are calculated as the difference between 10-year nominal government yield and observed year-on-year inflation of the corresponding period



Real interest rates reflect the actual cost of borrowing and the actual return on savings. The acceleration in inflation, coupled with central banks' decision to delay raising interest rates, has intensified monetary stimulus until 2023.

Negative interest rates are a source of financial instability, misallocation of capital, and low growth. In its Financial Stability Review (2021), the ECB stated that these 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 favour of QT, its intended effects, and 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 why does it matter?

5.1.1 Some reminders

Quantitative tightening (QT) 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'.

Excess liquidity is defined as the amount of liquidity provided by the central bank over and above the strict needs of commercial banks⁶³. 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.

Excess liquidity peaked at €4.75 trillion in the Eurosystem in November 2022⁶⁴ and at \$4.28 trillion in the United States in December 2021⁶⁵, reflecting the unprecedented scale of central bank asset purchases under quantitative easing programmes.

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 Eurosystem 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 currently relies primarily on policy interest rates to adjust the monetary policy stance, alongside balance sheet reduction and TLTRO repayments, as part of the normalisation of its operational framework and the legacy of past crisis measures. These quantitative normalisation policies are currently aimed at removing the residual stimulus associated with past asset purchases.

5.1.2 Amounts at stake

In such a context, the Eurosystem balance sheet amounted to €8.56 trillion at the end of 2021 and €6.11 trillion in June 2026, corresponding to 68.68% and 45.90% of 2019 GDP, respectively. Reserves held by credit institutions amounted to €4.8 trillion in October 2022 and €2.6 trillion at the end of January 2026.

Table 3 reports the evolution of total assets held by the Eurosystem and the Federal Reserve since 2019.

Table 3 shows that total assets of the Eurosystem increased from €4.67 trillion in 2019 to €7.96 trillion in 2022, before declining to €6.14 trillion in 2025. Similarly, total assets of the Federal Reserve increased from \$4.17 trillion in 2019 to \$8.55 trillion in 2022 and declined to \$6.73 trillion in June 2026.

63. 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.

64. European Central Bank, "Liquidity conditions and monetary policy operations from 30 July to 4 November 2025", ECB Economic Bulletin, Issue 8/2025, prepared by Kristian Tötterman and Samuel Bieber.

65. Federal Reserve Bank of St. Louis, "Reserve Balances with Federal Reserve Banks, Week Average (WRESBAL)", FRED Economic Data.

TABLE 3.

Evolution of quantitative tightening at the ECB and the Fed

Year	Eurosystem ⁷¹ Total Assets (€ bn)	Eurosystem Total Assets / 2019 GDP (%)	Fed ⁷² Total Assets (\$ bn)	Fed Total Assets / 2019 GDP (%)
2019	4671	37,46%	4173	19,52%
2020	6979	55,97%	7363	34,44%
2021	8564	68,68%	8757	40,96%
2022	7956	63,80%	8551	40,00%
2024	6428	51,55%	6852	32,05%
2025	6135	49,20%	6641	31,06%

Changes in balance sheet size were accompanied by corresponding changes in reserve balances held by credit institutions.

Table 4 reports the evolution of excess liquidity in the Eurosystem and reserve balances held at the Federal Reserve.

TABLE 4.

Excess liquidity and current levels in the Eurosystem and the Federal Reserve

	December 2019	November 2022	June 2026
Fed ⁶⁵	\$1,65 tn	\$3,27 tn	\$3.02 tn
Eurosystem ⁶⁶	€1,77 tn ⁶⁷	€4,75 tn ⁶⁸	€2,18 tn

As shown in Table 4, excess liquidity in the Eurosystem amounted to €1.77 trillion in December 2019, increased to €4.75 trillion in November 2022, and declined to €2.18 trillion in June 2026.

Reserve balances held at the Federal Reserve amounted to \$1.65 trillion in December 2019, increased to \$3.27 trillion in November 2022, and declined to \$3.01 trillion in June 2026.

These data highlight that reserve balances remain above their pre-pandemic levels in both jurisdictions. This remains the case even though the Federal Reserve completed its QT reduction programme in December 2025.

CHART 56.

Eurosystem's selected assets and liabilities

Chart 56a : Bank reserves versus selected assets of the Eurosystem, EUR bn

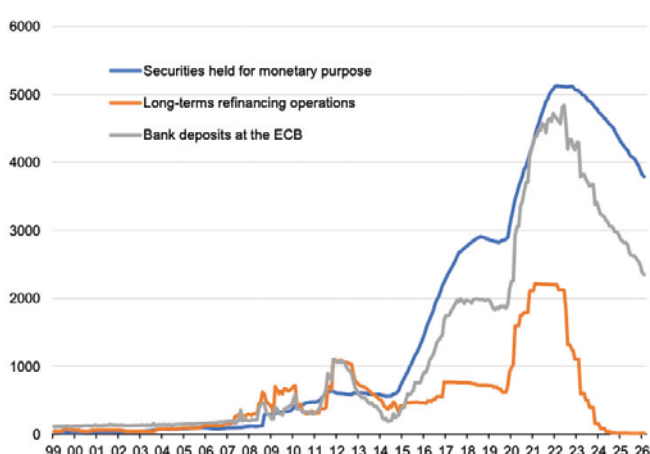
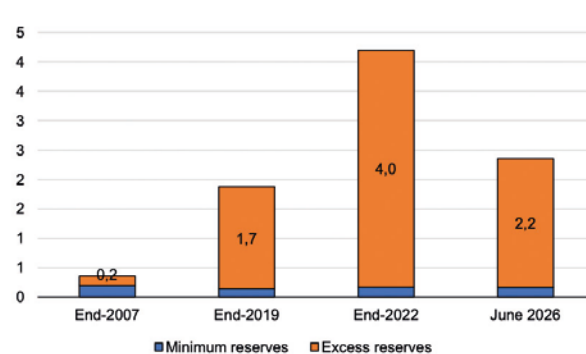


Chart 56b : Mandatory versus excess bank reserves, EUR bn



Source: ECB

Notes: last observation from June 2026

Chart 59 highlights the evolution of bank reserves held with the Eurosystem in relation to selected asset holdings. Bank reserves remained relatively stable until 2019, at around €1.7 trillion, before increasing sharply between

66. Federal Reserve Bank of St. Louis, "Reserve Balances with Federal Reserve Banks, Week Average (WRESBAL)", FRED Economic Data.

67. European Central Bank, "Excess Liquidity – Eurosystem, Euro area, Daily", ECB Data Portal, series key ILM.D.U2.C.EXLIQ.U2.EUR, accessed February 17, 2026.

68. European Central Bank, "Liquidity conditions and monetary policy operations in the period from 30 October 2019 to 28 January 2020", ECB Economic Bulletin, Issue 2/2020.

69. European Central Bank, "Liquidity conditions and monetary policy operations from 30 July to 4 November 2025", ECB Economic Bulletin, Issue 8/2025, prepared by Kristian Tötterman and Samuel Bieber.

2020 and 2022, reaching a peak of approximately €4.8 trillion. Since then, reserve balances have declined, reaching approximately €2.6 trillion by early 2025.

At the same time, the composition of reserves reflects the structure of the Eurosystem balance sheet. The increase in reserves between 2020 and 2022 coincided with a substantial expansion in securities held for monetary policy purposes and long-term refinancing operations. The subsequent decline in reserves corresponds to a reduction in long-term refinancing operations and a gradual decline in asset holdings.

Despite this decline, reserve balances remain significantly above their pre-pandemic levels. According to Isabel Schnabel, this is explained because "until 2008 in the Euro area, for example, banks had to pay 100 basis points of interest to keep funds they had borrowed in our standard refinancing operations as overnight deposits with the ECB. High opportunity costs disincentivised banks from holding excess reserves. QE has turned that system on its head. As liquidity has become abundant and effectively cost-free, the way banks are treating reserves has changed fundamentally. Today, reserves are an important part of banks' efforts to comply with liquidity regulations. Moreover, the introduction of instant payments and digital banking services more broadly are likely to have prompted banks to hold larger precautionary reserve buffers⁷⁰."

5.1.3 Diverging paths of balance-sheet normalisation in the United States and the Euro area

While the Fed completed its quantitative tightening policy in December 2025, the ECB is continuing its own at a monthly pace of €35 billion in balance sheet reduction, which it plans to complete by next year.

The following sections present the evolution of balance sheets in the Euro area and in the United States, including their peak levels, the reductions observed since 2022, and their current levels.

The Eurosystem balance-sheet reduction follows a different timeline and operational approach compared with the United States.

The European Central Bank has implemented balance sheet normalisation through three main channels: (1) the repayment of Targeted Longer-Term Refinancing Operations (TLTROs), (2) the gradual reduction of holdings under the Asset Purchase Programme (APP), and (3) the subsequent decline of holdings under the Pandemic Emergency Purchase Programme (PEPP).

The reduction of the Eurosystem balance sheet has followed a gradual, predominantly **passive process**, driven primarily by the repayment of TLTROs since July 2022. As noted by Schnabel (2025), balance sheet normalisation had started with the early repayment and maturing of targeted longer-term refinancing operations in 2022, and over the past three years, the repayment of TLTROs has reduced the overall supply of reserves in the system by more than €2.1 trillion. This marked the initial phase of balance sheet normalisation.

In parallel with TLTRO repayments, the Eurosystem balance sheet was further reduced through the gradual runoff of securities held under the Asset Purchase programme (APP) and the Pandemic Emergency Purchase Programme (PEPP).

APP holdings reached a peak of €3,254 billion in December 2022⁷¹, according to ECB financial statements. Following the discontinuation of reinvestments in July 2023, APP holdings declined steadily, reaching €2,289 billion as of February 2026⁷². Overall, this corresponds to a cumulative reduction of approximately €965 billion since the peak.

TABLE 5.
Peak and current levels of TLTRO, APP and PEPP holdings

Component	Peak	2025 / 2026	Change
TLTRO	€2,200 bn	~0	-€2,200 bn
APP	€3,254 bn	€2,341 bn	-€913 bn
PEPP	€1,681 bn	€1,394 bn	-€287 bn

The reduction of the Eurosystem balance sheet has also been supported by the gradual runoff of securities held under the Pandemic Emergency Purchase Programme (PEPP). PEPP holdings reached €1,681 billion⁷³ at their peak in 2022. Reinvestments under the PEPP were maintained for longer than under the APP and were discontinued only at the end of 2024. As of June 2026, PEPP holdings amounted to €1,394 billion, corresponding to a reduction of approximately €287 billion from peak levels⁷⁴.

70. I. Schnabel, "Towards a new Eurosystem balance sheet", European Central Bank, 6 November 2025.

71. European Central Bank, "Financial statements of the ECB for 2022", press release, February 23, 2023.

72. European Central Bank, "Consolidated financial statement of the Eurosystem as at 13 February 2026", press release, February 17, 2026.

73. European Central Bank, "Financial statements of the ECB for 2022", press release, February 23, 2023.

74. European Central Bank, "Consolidated financial statement of the Eurosystem as at 13 February 2026", press release, February 17, 2026.

Taken together, the repayment of TLTROs and the gradual runoff of APP and PEPP holdings have led to a substantial reduction in the Eurosystem balance sheet. **Total assets declined from a peak of €8.56 trillion in 2021 to €6.11 trillion in June 2026.** Over the same period, excess liquidity declined from €4.8 trillion in October 2022 to approximately €2.6 trillion in early 2026.

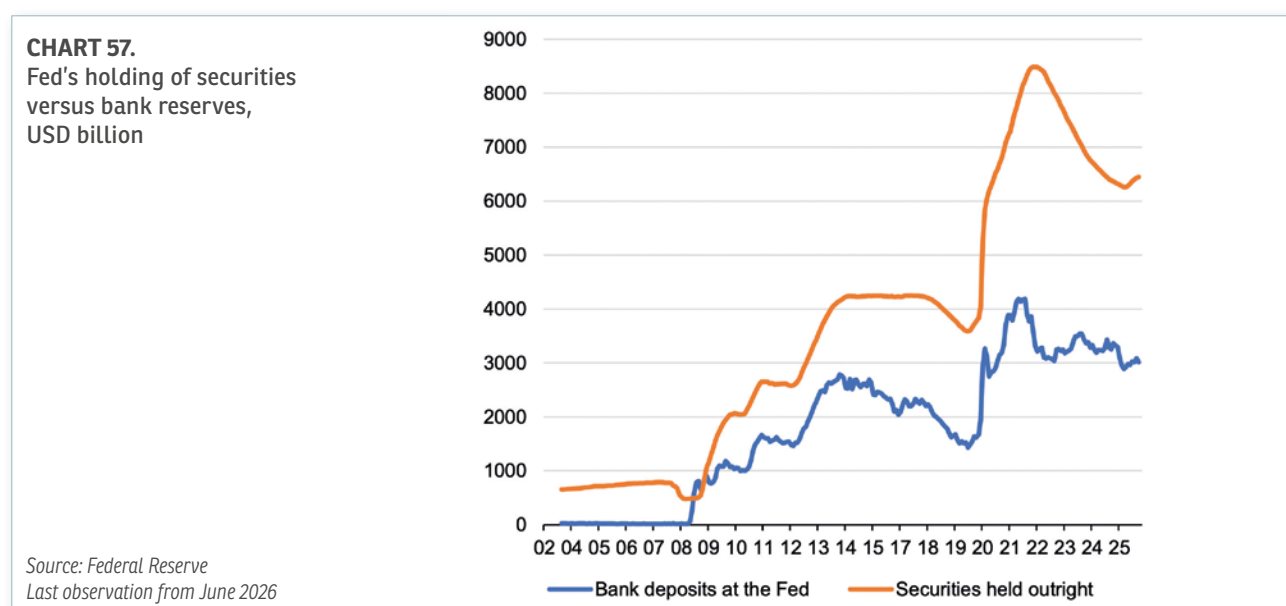
Despite this reduction, the balance sheet size remains significantly above its pre-pandemic level. Importantly, this balance sheet reduction has been achieved entirely through passive mechanisms, including the repayment of refinancing operations and the non-reinvestment of maturing securities.

The ECB has not conducted active sales of assets. The operational framework and implementation of quantitative tightening differ in the United States, where balance sheet reduction has followed a distinct timeline and structure.

Since June 2022, the Federal Reserve has reduced its balance sheet through a predefined runoff mechanism based on monthly caps.

Unlike the Eurosystem, where balance sheet reduction has been implemented through the repayment of refinancing operations and the passive runoff of securities holdings, the Federal Reserve has conducted its balance sheet normalisation through a structured and predefined runoff framework. The Federal Reserve began reducing its balance sheet in June 2022, following the end of its large-scale asset purchase programmes. According to its Policy Normalization Plans, “the Committee intends to reduce the Federal Reserve’s securities holdings over time in a predictable manner”, by limiting the reinvestment of principal payments from securities held in the System Open Market Account (SOMA). This process was implemented through monthly runoff caps, set at \$60 billion for Treasury securities and \$35 billion for agency mortgage-backed securities. As a result, the Federal Reserve’s securities holdings declined by more than \$2.2 trillion between June 2022 and early 2025⁷⁵.

The balance sheet reduction has been accompanied by a decline in reserve balances held by depository institutions. Reserve balances peaked at \$4.28 trillion in December 2021, according to the Federal Reserve’s H.4.1 statistical release. As securities holdings declined following the start of balance sheet normalisation in June 2022, reserve balances also decreased. By the end of 2025, reserve balances stood at approximately \$2.96 trillion (*cf. Table 5*).



Between 2022 and mid-2026, the Fed's balance sheet declined from \$8.55 trillion to \$6.73 trillion, reflecting the impact of quantitative tightening.

While both the Eurosystem and the Federal Reserve have significantly reduced their balance sheets since their respective peaks, the operational mechanisms differ. In the Euro area, the balance sheet reduction has been driven primarily by the repayment of refinancing operations and the passive runoff of securities holdings. In contrast, the Federal Reserve implemented balance sheet reduction through explicit monthly runoff caps, actively determining the pace of securities runoff. In both jurisdictions, however, balance sheet size and reserve balances remain significantly above their pre-pandemic levels.

75. Federal Reserve Board, “Policy Normalization”, Board of Governors of the Federal Reserve System.

Jerome Powell explains that: "Normalizing the size of our balance sheet does not mean going back to the balance sheet we had before the pandemic. In the longer run, the size of our balance sheet is determined by the public's demand for our liabilities rather than our pandemic-related asset purchases. Non-reserve liabilities currently stand about \$1.1 trillion higher than just prior to the pandemic, thus requiring that our securities holdings be equally higher. Demand for reserves has risen as well, in part reflecting the growth of the banking system and the overall economy.

Regarding the composition of our securities portfolio, relative to the outstanding universe of Treasury securities, our portfolio is currently overweight longer-term securities and underweight shorter-term securities. The longer-run composition will be a topic of Committee discussion. Transition to our desired composition will occur gradually and predictably, giving market participants time to adjust and minimizing the risk of market disruption. Consistent with our longstanding guidance, we aim for a portfolio consisting primarily of Treasury securities over the longer run."

5.2 Why quantitative tightening?

5.2.1 Why is the ECB reducing the Eurosystem balance sheet?

I. Schnabel explained in March 2023⁷⁶ and November 2025⁷⁷ that reducing the size of the ECB's balance sheet is warranted for three main reasons.

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 stemming from past asset purchases, without using the balance sheet as an active tightening instrument.

Regaining policy space when excess liquidity is more than needed.

ECB's current estimates suggest that the amount of central bank reserves currently held by the banking sector exceeds, by a significant margin, the level required to steer short-term market rates close to the ECB's key policy rate, even under a floor system. This implies that the current size of the Eurosystem balance sheet remains larger than necessary for the effective implementation of the monetary policy stance and that maintaining a large stock of legacy bond holdings absorbs valuable policy space that may be needed if policy rates were to become constrained again by the effective lower bound.

At the same time, under the Eurosystem's demand-driven operational framework, the ongoing reduction of legacy bond holdings is not intended to make reserves scarce. Liquidity is supplied elastically through refinancing operations when needed, and balance-sheet reduction therefore serves primarily to free policy space by unwinding past asset purchases, while remaining fully consistent with a framework in which banks' demand for reserves is accommodated.

Mitigating the 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 the 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.

Another 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 around 25% of the outstanding market as of Q1-2025⁷⁸. Mobilised 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

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

77. I. Schnabel, "Towards a new Eurosystem balance sheet", European Central Bank, 6 November 2025.

78. Philip R. Lane, The Euro area bond market, keynote speech at the Government Borrowers Forum 2025, European American Chamber of Commerce, Dublin, 11 June 2025.

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.

Reducing the effect of the stock of our monetary policy bond holdings on our policy stance.

The ECB has clarified that its 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 its 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."

Beyond operational considerations: four additional arguments for quantitative tightening.

The first has been recently stressed by the Bank for International Settlements chief economist C. Borio: the smaller the balance sheet, the less exposed a central bank leaves itself to political pressure or criticism, e.g. for its independence.

A closely related concern is formulated in 2025 by Scott Bessent⁷⁹, US Secretary of the Treasury, who explicitly links large-scale balance-sheet policies to an erosion of central bank independence and to a blurring of the boundary between monetary and fiscal policy. As he writes: "By extending its remit into areas traditionally reserved for fiscal authorities, the Fed has blurred the lines between monetary and fiscal policy. This is particularly evident in the Fed's balance sheet policies, which affect the allocation of credit across the economy. When the Fed acquires non-federal government obligations, it directly influences which sectors receive capital, thereby intervening in what should be the domain of the capital markets and fiscal authorities."

He further underlines that "at the heart of these concerns is the erosion of central bank independence, which is a cornerstone of sustainable economic growth and stability. As the Fed expanded its remit, it eroded the traditional boundaries that insulated it from political influence."

The second is the fact that inflation is expected to rise if the central bank doesn't keep reducing the size of its balance sheet.

In 2024, K. Warsch, the upcoming new president of the Federal Reserve, stated that "The surge in federal spending and concomitant central-bank asset purchases in 2021 and 2022 contributed to the harmful surge in inflation. The monetary base is up 60% since the pandemic... The Fed shrank its balance sheet in the past few quarters, down 7 percentage points from its peak as a share of GDP. M2 is down about 3%. Lo and behold: less money printing, less inflation.

Price stability would be more easily achieved if the Fed continues to shrink its holdings. But Fed leaders have strongly signaled the opposite: that its asset holdings are approaching steady state. They argue that the fall in inflation can be traced to lower wage increases in a softer job market. In my view, irresponsible government spending and excessive money printing are largely to blame for triggering inflation in the first place.

Had the Fed recognised the inflation problem sooner, it wouldn't have been forced to raise rates so high. Had the Fed's asset holdings stayed smaller or shrunk faster, inflation wouldn't have risen so high. Hardworking Americans wouldn't now be suffering the twin indignities of high prices and higher credit costs⁸⁰."

The third reason for QT, which is fundamental, is to **allow the capital markets to set the level of short-term and long-term interest rates freely: 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.**

As D. Gros explains⁸¹, "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."

A fourth argument for quantitative tightening relates to the functioning of money markets and the process of price discovery. The Federal Reserve explicitly emphasises this point, stating that: "a large balance sheet, whereby

79. Scott Bessent, The Fed's New "Gain-of-Function" Monetary Policy, The International Economy, Spring 2025.

80. K. Warsch, "Interest Rates Are a Sideshow in the Fed Drama", Wall Street Journal, 28 July 2024.

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

the central bank provides a lot of reserves, can crowd out private sector money market activity such as inter-bank lending or money market fund lending to dealers. As a result, a large balance sheet potentially reduces price discovery for short-term rates, weakens market discipline, and may deprive markets of the information that could be provided by an active inter-bank market⁸²."

5.2.2 The Fed Balance-Sheet Trilemma framework

Central banks face structural constraints in determining the size of their balance sheets. These constraints have been described by the Federal Reserve as a "balance-sheet trilemma".

The Fed offers a framework for understanding the trade-offs involved in determining the optimal size and behaviour of a central bank's balance sheet. Specifically, we highlight that central banks face a **"balance sheet trilemma"**, in that they can achieve only two of the following goals at once: **a small balance sheet, low volatility of short-term rates, and limited market intervention**.

Compromising on any of the three goals carries significant costs:

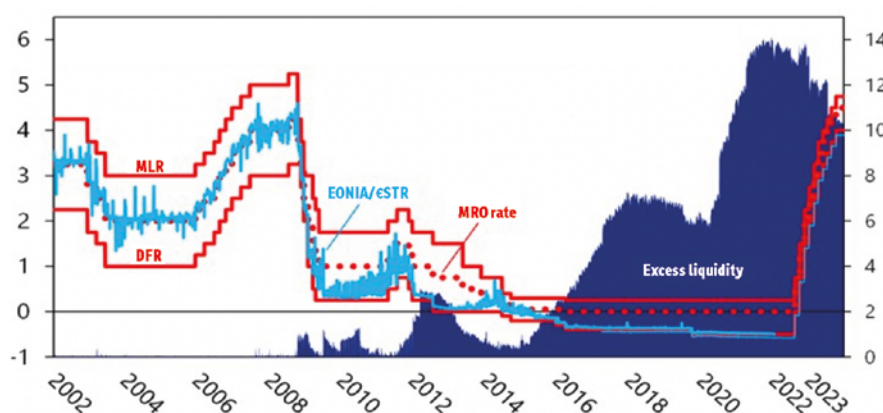
1. A large balance sheet increases the central bank's structural footprint in financial markets and could crowd out private sector credit intermediation.
2. High money-market volatility can dampen the rate control, impeding the implementation of monetary policy and leading to unexpected funding stress and liquidity shortages.
3. Frequent market interventions expand the central bank's footprint through daily market operations, potentially impairing price discovery and market discipline. To be sure, the central bank can opt for an interior solution and tolerate some rate volatility (for instance, around calendar quarter-ends), some extra market operations, and a slightly larger balance sheet⁸³.

5.3 From corridor to floor: the role of excess reserve

Before the Global Financial Crisis (2008), the Eurosystem implemented monetary policy in a "corridor" system: 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.

CHART 58.
Euro area: Excess
Liquidity, ECB Policy
Rates, and EONIA/ESTR



Source: IMF

82. Board of Governors of the Federal Reserve System, "The Central Bank Balance-Sheet Trilemma", FEDS Notes, January 14, 2026.

83. Board of Governors of the Federal Reserve System, "The Central Bank Balance-Sheet Trilemma", FEDS Notes, January 14, 2026.

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 have been demanding more liquidity than they immediately need. As noted by J. Nagel⁸⁴, the Eurosystem subsequently kept offering refinancing operations with maturities of multiple years. Thanks to extremely favorable terms, these operations met with very brisk demand. This explains 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.

The IMF⁸⁵ 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.”

5.3.1 Structural increase in reserve demand and implications for balance-sheet normalisation

Beyond the pure size of the balance sheet, Isabel Schnabel stresses that quantitative normalisation must be assessed against profound structural changes in the demand for central bank money. She underlines that “we will not return to the past, neither regarding the size nor the composition of our balance sheet”, notably because base money itself has expanded structurally: “in 2006 currency in circulation was in the order of €630 billion. Today, it is around €1.6 trillion⁸⁶.”

More importantly, banks’ demand for reserves has become structurally higher. According to ECB scenario analysis cited by Schnabel, the steady-state demand for excess reserves could range from about €600 billion to as much as €2.2 trillion, depending on banks’ liquidity preferences and regulatory constraints. This reflects the fact that, after years of abundant liquidity, “reserves are an important part of banks’ efforts to comply with liquidity regulations”, while instant payments and digital banking services have increased precautionary liquidity buffers.

Schnabel also shows that, despite the decline in reserves, banks have largely preserved their liquidity positions by reallocating into government bonds, so that aggregate LCRs have fallen only marginally and remain well above pre-pandemic levels. This evidence supports the view that the long-run endpoint of balance-sheet normalisation is primarily constrained by structural reserve demand rather than by a mechanical return to pre-QE balance-sheet configurations⁸⁷.

However, maintaining a structurally high level of reserves is not without potential risks. A prolonged environment of abundant liquidity reduces interbank market activity and weakens price discovery in short-term funding markets, as previously highlighted by the Federal Reserve. Excess liquidity can also lessen market discipline by reducing banks’ incentives to manage liquidity actively. Moreover, a persistently large balance sheet may increase the central bank’s footprint in financial markets, raising concerns about long-term market distortions and the blurring of monetary and fiscal boundaries. From this perspective, while structural reserve demand has increased, the appropriate long-run level of excess reserves remains subject to debate.

5.3.2 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.

In 2023, G. Moec⁸⁸ 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 has an impact on the income of the Eurosystem. Paying 3.5% on almost EUR4 trillion of bank deposits costs EUR140 billion a year, or 1% of Euro area GDP, which is not matched by the income on the asset side, as the bonds bought under QE mostly had a low, often zero or even negative yield.”

Such an ALM mismatch is in principle unproblematic for the central bank – at worst it could operate with negative equity – but it still results in lower dividend and taxes paid to governments already struggling to get their finances back in order...; central banks are always concerned about the risk of seeing their independence from governments eroded. Becoming a “cost centre” would not help.

84. J. Nagel, “Challenges for monetary policy”, Frankfurt, 4 July 2023.

85. IMF, “Quantitative tightening by the ECB: why and when”, Euro area policies, selected issues, July 2023.

86. I. Schnabel, “Towards a new Eurosystem balance sheet”, European Central Bank, 6 November 2025.

87. I. Schnabel, “Towards a new Eurosystem balance sheet”, European Central Bank, 6 November 2025.

88. G. Moec, “Leaky pipes”, Macropast, AXA Investment managers, 10 July 2023.

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 Bagehot⁸⁹.

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 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. Ji⁹⁰ suggest that alternative policies to raising interest rates to reduce inflation without having to transfer parts of their monopoly profits to commercial banks (and making large interest payments to banks) can be envisaged. They suggest that a combination of sustained sales of government bonds and an increase of minimum reserve requirements could be raised to encompass the whole of these bank reserves...

5.4 Possible risks and side effects of QT

G. Claey's⁹¹ 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. However, 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 due 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. Claey's. 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 appears limited at this stage, but it cannot be assessed solely by comparing excess reserves with minimum reserve requirements, as banks' demand for central bank reserves has become more structural and is not directly observable (see *Chart 58b*).

G. Claey's 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.

5.5 Implementing the Eurosystem QT firmly and intelligently

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 on underlying risks in the Euro area.
- Inflation has receded from its peak, and balance-sheet reduction mainly serves to withdraw the residual monetary accommodation associated with past asset purchase programmes, thereby supporting a neutral and sustainable monetary policy stance over the medium term.
- A large portfolio may affect liquidity conditions in financial markets.
- Future monetary policy challenges may mean central banks need greater room for manoeuvre again.
- The smaller the balance sheet, the less exposed a central bank leaves itself to political pressure for criticism, *e.g.* for its independence.

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

90. Already quoted in footnote 3.

91. G. Claey's, "Finding the right balance (sheet): quantitative tightening in the Euro area", March 2023.

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- The market should be given more space again. The ECB should act in accordance with the principle of an open market economy where prices and quantities are determined by competitive market forces.

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

Beyond cyclical inflation considerations, a more structural question remains: how far can balance-sheet normalisation proceed while preserving a smooth functioning of money markets in an environment of structurally high reserve demand?

Given the novelty of the post-QE operational environment, the transmission of balance-sheet policies remains subject to considerable uncertainty. This calls for a gradual and data-dependent approach to quantitative normalisation, closely monitoring money-market conditions and banks' liquidity behaviour.

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 are 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

Central banks and fiscal policies played a crucial role during the Lehmann Brothers, EU sovereign Debt and Covid-19 crises through their unprecedented intervention in keeping markets liquid and the financial system stable.

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

As this *Eurofi Monetary Scoreboard* shows, **pushing the monetary pedal too hard and for too long has serious negative consequences**. The prolonged excessively accommodative monetary policy of the past decade has only increased financial leverage and the incentives to borrow more as well as undermine financial stability. It also discouraged governments from undertaking the necessary structural reforms due to borrowing being 'free'. This has ultimately undermined the growth potential of countries.

There is a fundamental and specific flaw in the way monetary policy has been conducted over the past 25 years that is exacerbating Europe's current economic woes. Indeed, this policy has inevitably contributed to a widening of the economic gap between North and South. Inflation rates vary from country to country within the monetary union. The ECB's key interest rates reflect, by construction, an average for the Eurozone economy. It is an advantage for countries with higher inflation, fiscal and current account deficits only in name (*i.e.* the countries of the Euro area with the worst public finances and least competitive economies). Since the creation of the euro, this factory for producing growing economic disparities across Member States – reinforced by the unconventional instruments used since 2015 – has been allowed to flourish, even though inflation differentials between countries have narrowed since the Covid-19 crisis.

This situation could have been corrected. To do so, it would have been necessary to tailor macroeconomic policies to the specificities of each crisis and foster rigour and discipline in high-inflation countries.

But this was not done.

The idea that money creation can solve the problems of excessive debt is an illusion. In other words, supply-side obstacles cannot be overcome by money creation, nor by the use of demand-side policies. Yet this is what has too often been pursued through the implementation of lax fiscal, monetary and economic policies that inevitably lead to systemic risks to financial stability and future growth.

Indeed, the highly accommodative monetary and fiscal stance of the past decade has not translated into higher productive investment or growth. Persistently low or negative interest rates create a fatalistic mindset that reduces – not increases – the propensity to invest. In what J.M. Keynes called the 'liquidity trap', investors play it safe by investing their savings in short-term instruments rather than longer-term ones due to low interest rates offering them inadequate returns for higher risks.

The social implications of the very accommodative monetary policies of recent years (2008-2022) should not be underestimated. Have these policies helped reduce social inequalities? On the contrary, wealth inequality has surged. Only those with sufficient income and capital have been able to benefit from inflated financial and real estate markets. In other terms, not poor people.

Since the second quarter of 2021, inflation has risen to levels not seen in decades, fuelling concerns about the rising cost of living for households. As a result, central banks tightened monetary policy sharply between 2022 and 2023. Between July 2022 and September 2023, the ECB raised its key interest rates by 450 basis points. The Fed did the same, raising its target range by 525 basis points between March 2022 and July 2023. This shows how maintaining zero or negative interest rates for years on end contributed to the return of inflation, and that interest rates remain central banks' main weapon in the fight against inflation.

Inflation fell significantly from its peak in the fourth quarter of 2022, but rose again above the 2% target in 2026, notably as the conflict involving Iran triggered a renewed energy-price shock. Euro area headline inflation rose to 2.9% in July 2026, while inflation stood at 3.5% in the United States and 2.6% in the United Kingdom in June. Lower inflation is not low inflation.

Inflation could remain above 2% for longer than expected. Multiple inflationary factors are at play. Real wages are trying to catch up in a context of very low productivity, especially in the Euro area. This is likely to push up unit labour costs. The ongoing conflict involving Iran has increased energy prices and could further disrupt global

trade and major shipping routes, raising transport and production costs. More broadly, geopolitical tensions, trade restrictions and tariffs could intensify these pressures. Structural challenges posed by the green transition and loose fiscal policies, as well as adverse demographic forces, could also contribute to persistently elevated inflation.

Reducing fiscal deficits is essential not only to preserve macroeconomic stability but also to support the disinflation process. If fiscal policies were to remain expansionary, this could overstimulate demand, create financial stress, complicate efforts to contain inflation and reduce the room for monetary policy manoeuvre by worsening trade-offs. While monetary policy needs to remain sufficiently restrictive in order to reduce inflationary pressures and regain room for manoeuvre, these efforts may be constrained by the need to ensure the sustainability of public debt in over-indebted countries.

At this stage, the impact of artificial intelligence on inflation remains uncertain. In the short term, AI development could create some inflationary pressures, driven by massive investments in infrastructure such as data centres and semiconductors, rising energy demand and higher wages in technology-related sectors. Over the medium term, the impact could instead become structurally disinflationary if productivity gains driven by AI outpace wage growth, thereby reducing production costs.

In such a context, the fight against inflation must remain the priority of central banks. Maintaining positive real interest rates is necessary for as long as needed in order to re-establish price stability. Quantitative tightening must be implemented firmly and intelligently. As the BIS pointed out in its Annual Economic Report of June 2024, premature easing could reignite inflationary pressures and force a costly policy reversal – all the costlier if central bank credibility were undermined. There are two main reasons why it would be inappropriate to return to easy monetary policy too quickly:

- There is no guarantee that inflation will continue to fall, given declining labour productivity in Europe, upward pressure on wages, the continuing conflict involving Iran and wider geopolitical uncertainties.
- We are at a crossroads. Do we want to rebuild a balanced economy for the future, with a stable currency, long-term savings attracted by productive investment, structural reforms that increase productive capacity and a reduction in public deficits – and are we prepared to accept the necessary adjustments and efforts? Or do we want to turn a blind eye, take the easy way out and postpone those adjustments once again?

Monetary policy can reduce spread differentials in the Euro area, but it cannot revive capital flows from north to south. Indeed, since the EU Sovereign Debt crisis, member states with excess savings (notably Germany and the Netherlands) have stopped financing investment projects in countries with lower GDP per capita (Spain, Italy, Portugal, Greece, etc.). This is mainly due to the interest rate and return differentials between the US and Europe (risk is better remunerated in the US than in Europe), and the insufficient number of investment projects.

These limited cross-border capital flows in the Euro area reflect the persistent doubts of Northern European investors about the solvency of governments and companies in countries with low GDP per capita, as well as the absence of a genuine banking union and integrated financial markets.

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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.
- Re-establish symmetry in monetary policy and not continuously stimulate.
- Not give the market a form of free insurance against possible losses. Moral hazard has plagued the system, distorting the relationship between risk and reward and encouraging short-term speculation.
- Be more cautious about the risk of fiscal dominance; having created money to buy more than 60% of the Euro area's GDP, the central bank is getting so deeply involved in fiscal affairs that its independence is called into question.
- Resist the temptation to be 'popular' and focus on too many objectives (green, social inclusion...) that are not at the core of their primary mandate. This should remain monetary and financial stability.

Only productivity-enhancing and productive investment can generate sustainable growth, not negative real interest rates or QE. Reviving productive investment requires a change in the monetary paradigm. Indeed, it is

necessary to refrain from administratively fixing (or directing' the market) long-term interest rates and to accept that the market should remunerate medium and long-term savings according to supply and demand. This is the only way to remunerate long-term savings, without which there can be no productive investment or productivity gains. In other words, **long-term interest rates should no longer be set by central banks**. QE has been used and abused to artificially lower long-term yields when this should be the result of supply and demand in the financial markets.

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 and 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 us⁹² that "achieving higher and sustainable growth can only be accomplished by boosting productive potential through measures enhancing the supply side and 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."

The loss of competitiveness due to postponed reforms in many EU countries has led to a deterioration in potential growth, which cannot be improved by cyclical policies. Monetary policy cannot do everything, and further productive investment does not require more budgetary redistribution: only domestic structural (supply-side) reforms can address structural problems and boost productivity and growth. Unfortunately, the *Eurofi Macroeconomic Scoreboard* shows that the EU's Next Generation Package has not yet produced all the expected results more than six years after its creation.

In over-indebted countries, governments need to take corrective action in order to ensure a primary fiscal balance path and reduce unproductive and inefficient public spending. However, the revision of the Stability and Growth Pact was a missed opportunity. Admittedly, the revised Stability and Growth Pact does contain some positive elements. In particular, the case-by-case framework – which is a specific technical dialogue between the EU Commission and each Member State regarding their differentiated multi-annual budgetary path – has been introduced in the reformed Pact. It allows for a differentiated approach for each Member State which takes into account the heterogeneity of budgetary positions, public debt and economic challenges in the EU.

However, the agreement on this revision of the Stability and Growth Pact stipulates that countries subject to the excessive deficit procedure (total public deficit above 3% of GDP) will be exempted from the rule requiring them to reduce their public debt by an average of 1% per year until their deficit falls below 3%. These countries will only be subject to the procedure once their public deficit has fallen below 3%. This is far from the best way to encourage the worst performers to reduce their debt-to-GDP ratios! It's as if the worst performers in a class were exempt from extra effort and sanctions as long as their results remain mediocre.

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

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

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