EUROPEAN CENTRAL BANK

EUROSYSTEM

Economic Bulletin

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Contents

Economic, financial and monetary developments

Overview

At its meeting on 12 December 2024, the Governing Council decided to lower the three key ECB interest rates by 25 basis points. In particular, the decision to lower the deposit facility rate – the rate through which the Governing Council steers the monetary policy stance – was based on its updated assessment of the inflation outlook, the dynamics of underlying inflation and the strength of monetary policy transmission.

The disinflation process is well on track. According to the December 2024 Eurosystem staff macroeconomic projections for the euro area, headline inflation is expected to average 2.4% in 2024, 2.1% in 2025, 1.9% in 2026 and 2.1% in 2027 when the expanded EU Emissions Trading System becomes operational. For inflation excluding energy and food, staff project an average of 2.9% in 2024, 2.3% in 2025 and 1.9% in both 2026 and 2027.

Most measures of underlying inflation suggest that inflation will settle at around the Governing Council's 2% medium-term target on a sustained basis. Domestic inflation has edged down but remains high, mostly because wages and prices in certain sectors are still adjusting to the past inflation surge with a substantial delay.

Financing conditions are easing, as the Governing Council's recent interest rate cuts gradually make new borrowing less expensive for firms and households. But they continue to be tight because monetary policy remains restrictive and past interest rate hikes are still transmitting to the outstanding stock of credit.

In the December 2024 projections, staff now expect a slower economic recovery than in the September 2024 ECB staff macroeconomic projections for the euro area. Although growth picked up in the third quarter, survey indicators suggest it has slowed in the fourth quarter. Staff see the economy growing by 0.7% in 2024, 1.1% in 2025, 1.4% in 2026 and 1.3% in 2027. The projected recovery rests mainly on rising real incomes – which should allow households to consume more – and firms increasing investment. Over time, the gradually fading effects of restrictive monetary policy should support a pick-up in domestic demand.

The Governing Council is determined to ensure that inflation stabilises sustainably at its 2% medium-term target. It will follow a data-dependent and meeting-by-meeting approach to determining the appropriate monetary policy stance. In particular, the Governing Council's interest rate decisions will be based on its assessment of the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation and the strength of monetary policy transmission. The Governing Council is not pre-committing to a particular rate path.

Economic activity

The economy grew by 0.4% in the third quarter of 2024, exceeding expectations. Growth was driven mainly by an increase in consumption, partly reflecting one-off factors that boosted tourism over the summer, and by firms building up inventories. But the latest information suggests it is losing momentum. Surveys indicate that manufacturing is still contracting and growth in services is slowing. Firms are holding back their investment spending in the face of weak demand and a highly uncertain outlook. Exports are also weak, with some European industries finding it challenging to remain competitive.

The labour market remains resilient. Employment grew by 0.2% in the third quarter of 2024, again by more than expected. The unemployment rate remained at its historical low of 6.3% in October. Meanwhile, demand for labour continues to weaken. The job vacancy rate declined to 2.5% in the third quarter, 0.8 percentage points below its peak, and surveys also point to fewer jobs being created in the fourth quarter.

The euro area economy is set to continue its gradual recovery over the coming years, amid significant geopolitical and policy uncertainty. In particular, rising real wages and employment, in a context of robust labour markets, are expected to support a recovery in which consumption remains one of the main drivers. Domestic demand should also be bolstered by an easing of financing conditions, in line with market expectations of the future path of interest rates. Although surrounded by high uncertainty, fiscal policies are assumed to be on a consolidation path overall. Nevertheless, funds from the Next Generation EU programme should support growth until the expiry of the programme in 2027. Under the baseline assumption that the trade policies of Europe's key trading partners remain unchanged, foreign demand is expected to strengthen and support euro area exports. As a result, net trade is expected to make a broadly neutral contribution to GDP growth, despite existing competitiveness challenges. The unemployment rate is set to decline further to historically low levels. As some of the cyclical factors that have recently reduced productivity start to unwind, productivity is expected to pick up over the projection horizon, although structural challenges remain. Overall, according to the December 2024 projections, annual average real GDP growth is projected to be 0.7% in 2024, 1.1% in 2025 and 1.4% in 2026, before moderating to 1.3% in 2027. Compared with the September 2024 projections, the outlook for GDP growth has been revised down, mainly owing to revisions to data on investment in the first half of 2024, expectations of weaker export growth in 2025, and a small downward revision to the projected expansion of domestic demand in 2026.

Fiscal and structural policies should make the economy more productive, competitive and resilient. It is crucial to swiftly follow up, with concrete and ambitious structural policies, on Mario Draghi's proposals for enhancing European competitiveness and Enrico Letta's proposals for empowering the Single Market. The Governing Council welcomes the European Commission's assessment of governments' medium-term plans for fiscal and structural policies, as part of the EU's revised economic governance framework. Governments should now focus on implementing their

commitments under this framework fully and without delay. This will help bring down budget deficits and debt ratios on a sustained basis, while prioritising growth-enhancing reforms and investment.

Inflation

Annual inflation increased to 2.3% in November according to Eurostat's flash estimate, from 2.0% in October. The increase was expected and primarily reflected an energy-related upward base effect. Food price inflation edged down to 2.8% and services inflation to 3.9%. Goods inflation went up to 0.7%.

Domestic inflation, which closely tracks services inflation, again eased somewhat in October. But at 4.2%, it remains high. This reflects strong wage pressures and the fact that some services prices are still adjusting with a delay to the past inflation surge. That said, underlying inflation is overall developing in line with a sustained return of inflation to target.

Most measures of longer-term inflation expectations stand at around 2%, and market-based indicators of medium to longer-term inflation compensation have decreased measurably since the Governing Council's meeting on 17 October 2024.

The increase in compensation per employee moderated to 4.4% in the third quarter of 2024 from 4.7% in the second. Amid stable productivity, this contributed to slower growth in unit labour costs.

Easing labour cost pressures and the continuing impact of the Governing Council's past monetary policy tightening on consumer prices should help inflation to settle sustainably at around the 2% medium-term target, as previous sharp falls in energy prices continue to drop out of the annual rates.

In the December 2024 projections, headline HICP inflation is projected to rise in late 2024, before declining to hover around the ECB's inflation target of 2% from the second quarter of 2025. Base effects in the energy component are expected to be the main driver of the temporary increase in inflation at the start of the projection horizon. Based on assumptions of declining oil and gas prices, energy inflation is likely to remain negative until the second half of 2025 and to stay subdued thereafter, except for an uptick in 2027 owing to the introduction of new climate change mitigation measures. Food inflation is projected to rise until mid-2025, driven mostly by resurging unprocessed food price dynamics, before declining to an average of 2.2% by 2027. HICP inflation excluding energy and food (HICPX) is expected to decline in early 2025 as the indirect effects of past energy price shocks fade, labour cost pressures recede and the lagged impacts from past monetary policy tightening continue to feed through to consumer prices. This decline is expected to be led by a decrease in services inflation – which has thus far been relatively persistent. Overall, HICPX inflation is expected to moderate from 2.9% in 2024 to 1.9% in 2027. Wage growth will initially remain elevated but will decline gradually as inflation compensation pressures fade. The moderation in the growth of compensation per employee, coupled with a recovery in productivity growth, is

expected to lead to significantly slower growth in unit labour costs. As a result, domestic price pressures are projected to ease, with profit margins initially buffering the still high labour cost pressures but recovering over the projection horizon. External price pressures should remain moderate overall. Compared with the September 2024 projections, the outlook for headline HICP inflation has been revised down marginally for 2024 and 2025, mainly owing to downward data surprises and lower oil and electricity price assumptions.

Risk assessment

The risks to economic growth remain tilted to the downside. The risk of greater friction in global trade could weigh on euro area growth by dampening exports and weakening the global economy. Lower confidence could prevent consumption and investment from recovering as fast as expected. This could be amplified by geopolitical risks, such as Russia's unjustified war against Ukraine and the tragic conflict in the Middle East, which could disrupt energy supplies and global trade. Growth could also be lower if the lagged effects of monetary policy tightening last longer than expected. It could be higher if easier financing conditions and falling inflation allow domestic consumption and investment to rebound faster.

Inflation could turn out higher if wages or profits increase by more than expected. Upside risks to inflation also stem from the heightened geopolitical tensions, which could push energy prices and freight costs higher in the near term and disrupt global trade. Moreover, extreme weather events, and the unfolding climate crisis more broadly, could drive up food prices by more than expected. By contrast, inflation may surprise on the downside if low confidence and concerns about geopolitical events prevent consumption and investment from recovering as fast as expected, if monetary policy dampens demand more than expected, or if the economic environment in the rest of the world worsens unexpectedly. Greater friction in global trade would make the euro area inflation outlook more uncertain.

Financial and monetary conditions

Market interest rates in the euro area have declined further since the Governing Council's October meeting, reflecting the perceived worsening of the economic outlook. Although financing conditions remain restrictive, the Governing Council's interest rate cuts are gradually making it less expensive for firms and households to borrow.

The average interest rate on new loans to firms was 4.7% in October, more than half a percentage point below its peak a year earlier. The cost of issuing market-based debt has fallen by more than a percentage point since its peak. The average rate on new mortgages, at 3.6% in October, is about half a percentage point lower than at its highest point in 2023, even though the average rate on the outstanding stock of mortgages is still set to rise.

Bank lending to firms has gradually picked up from low levels, and increased by 1.2% in October compared with a year earlier. Debt securities issued by firms were up 3.1% in annual terms, which was similar to the increase in the previous few months. Mortgage lending continued to rise gradually in October, with an annual growth rate of 0.8%.

In line with its monetary policy strategy, the Governing Council thoroughly assessed the links between monetary policy and financial stability. Euro area banks remain resilient and there are few signs of financial market stress. Financial stability risks nonetheless remain elevated. Macroprudential policy remains the first line of defence against the build-up of financial vulnerabilities, enhancing resilience and preserving macroprudential space.

Monetary policy decisions

The interest rates on the deposit facility, the main refinancing operations and the marginal lending facility were decreased to 3.00%, 3.15% and 3.40% respectively, with effect from 18 December 2024.

The asset purchase programme portfolio is declining at a measured and predictable pace, as the Eurosystem no longer reinvests the principal payments from maturing securities.

In the second half of 2024, the Eurosystem no longer reinvested all of the principal payments from maturing securities purchased under the pandemic emergency purchase programme (PEPP) to reduce the PEPP portfolio by €7.5 billion per month on average. The Governing Council discontinued reinvestments under the PEPP at the end of 2024.

Banks repaid the remaining amounts borrowed under the targeted longer-term refinancing operations in December 2024, which concluded this part of the balance sheet normalisation process.

Conclusion

At its meeting on 12 December 2024, the Governing Council decided to lower the three key ECB interest rates by 25 basis points. In particular, the decision to lower the deposit facility rate – the rate through which the Governing Council steers the monetary policy stance – was based on its updated assessment of the inflation outlook, the dynamics of underlying inflation and the strength of monetary policy transmission. The Governing Council is determined to ensure that inflation stabilises sustainably at its 2% medium-term target. It will follow a data-dependent and meeting-by-meeting approach to determining the appropriate monetary policy stance. In particular, the Governing Council's interest rate decisions will be based on its assessment of the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation and the strength of monetary policy transmission. The Governing Council is not pre-committing to a particular rate path.

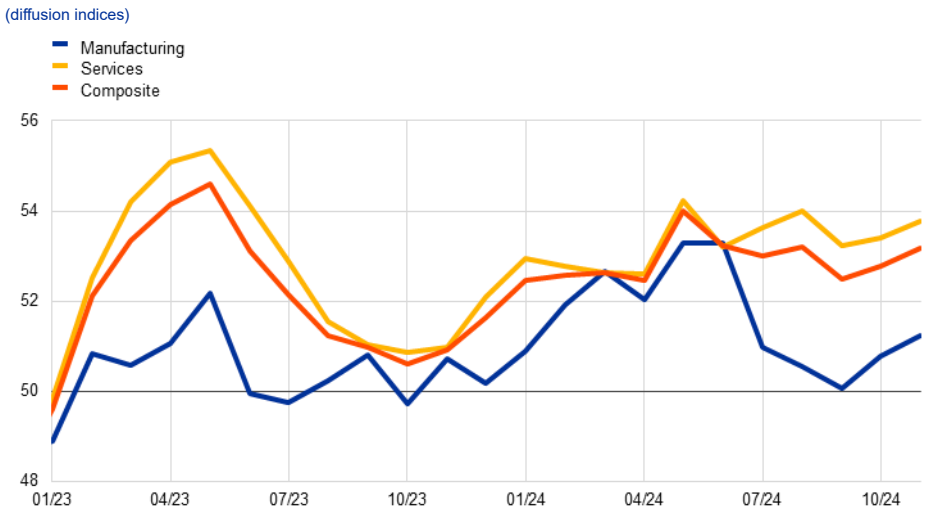
In any case, the Governing Council stands ready to adjust all of its instruments within its mandate to ensure that inflation stabilises sustainably at its 2% target over the medium term and to preserve the smooth functioning of monetary policy transmission.

1 External environment

Over the review period (from 17 October to 11 December 2024) global economic growth remained strong, despite increasing headwinds. Survey data pointed to broad-based improvements across sectors, with the services sector continuing to perform strongly. Global trade remained robust, reflecting to some extent frontloading of goods imports amid uncertainty surrounding future US trade policy. Inflation continued to moderate but upward pressures on services prices remained. The outlook for global growth and inflation, as reflected in the December 2024 Eurosystem staff macroeconomic projections for the euro area, is broadly unchanged from the September 2024 ECB staff macroeconomic projections. However, the outcome of the US presidential elections has added significant uncertainty to international trade policies. Global trade metrics were revised up significantly to reflect stronger data outturns in the second and third quarters. Following the recovery during 2024, global trade is projected to grow more in line with activity, although there are elevated downside risks relating to greater trade protectionism and fragmentation. Inflation across major advanced and emerging market economies is expected to decline gradually over the projection horizon.

Global economic activity has remained strong, even though increasing headwinds highlight the fragility of the outlook. The global composite output Purchasing Managers' Index (PMI) (excluding the euro area) remained firmly in expansionary territory in November 2024 at 53.2, up from 52.8 in October (Chart 1). While services sector activity continued to strengthen, manufacturing activity also improved, edging up further above the no-growth threshold to 51.2 in November. The increase in the composite output PMI indicator was driven in particular by the United States and China. In the case of China, this reflected a strong expansion in the manufacturing sector, while in the United States services sector activity improved significantly. Recent data suggest that global growth remained robust in the fourth quarter of 2024. This is supported by stronger economic data in the United States and China, as well as recently announced fiscal support in China and, to a lesser extent, the United Kingdom. Geopolitical tensions, lingering weakness in the Chinese real estate sector and uncertainties about the policies of the next US Administration also suggest that the global growth outlook is still fragile.

Chart 1
Global output PMI



Sources: S&P Global Market Intelligence and ECB staff calculations.
Notes: "PMI" stands for Purchasing Managers' Index. The latest observations are for November 2024.

The outlook for global activity is projected to stay strong but to moderate slightly over the projection horizon. Global real GDP is projected to grow by 3.4% in 2024 and 3.5% in 2025, and to decrease to 3.3% in 2026 and 3.2% in 2027. The small decline in global growth later in the projection horizon is due mainly to expectations of slower growth in China, reflecting unfavourable demographics, and some deceleration in the United States. In the United Kingdom, fiscal loosening is assumed to boost real GDP growth only temporarily, as future corporate tax increases are likely to weigh on private sector activity. The outcome of the US elections has brought significant uncertainty since it is difficult at this stage to gauge the policy measures of the new US Administration. The December Eurosystem staff projections incorporate stricter immigration legislation and looser fiscal policies (particularly the extension of personal and corporate income tax cuts, which was introduced in 2017 and is set to expire in 2025).

After stronger than expected growth in the third quarter, the pace of global trade is likely to decelerate in the near term. Global imports surprised on the upside in the third quarter, driven by a sharp increase in US trade. Anecdotical evidence suggests that US firms frontloaded imports given the uncertainties about future trade policies and in anticipation of strike action in US East Coast ports in October. While global trade is inherently volatile, incoming data point to a softening in global imports in the fourth quarter. The easing reflects a still weak manufacturing cycle and a normalisation of goods imports following buoyant growth in previous quarters. This is exacerbated by a less favourable composition of global demand, which is currently influenced by the less trade-intensive services sector and public sector consumption. In line with decelerating trade momentum, the global (excluding the euro area) PMI for new export orders in manufacturing remained in contractionary territory, at 49.4, in November. In light of this, shipping costs are also beginning to normalise after the steep increases observed in the second quarter of

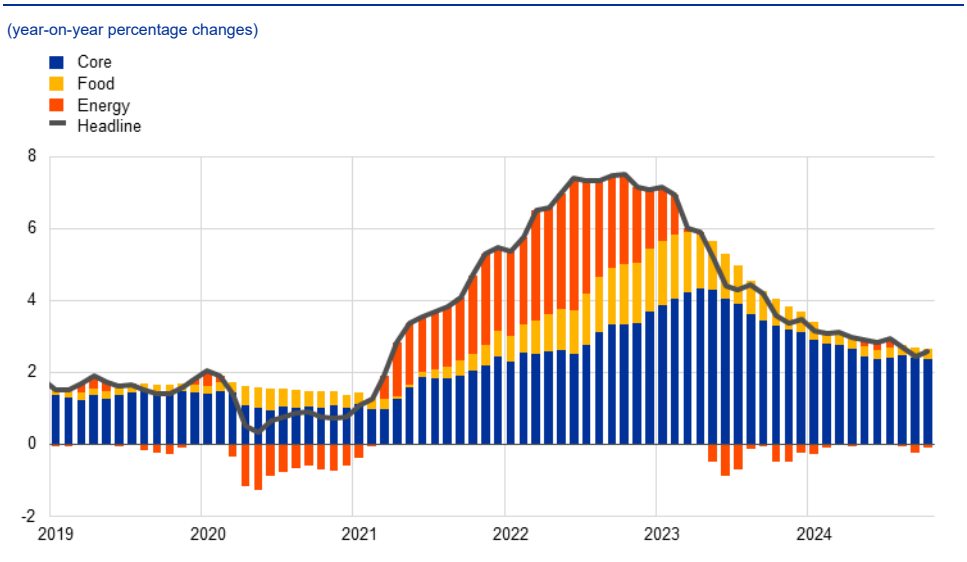
2024 that reflected higher demand for shipping, consistent with frontloading of imports.

Global trade is projected to recover this year and grow more in line with global activity over the rest of the projection horizon, although there are strong downside risks of increased trade protectionism and fragmentation. Global trade growth for 2024 has been revised up by 0.9 percentage points compared with the September 2024 projections, mainly as a result of stronger data outturns in the second and third quarters. Global trade is projected to increase by 3.6% in 2025, before moderating to 3.3% in 2026 and 3.2% in 2027. The outlook, however, remains very uncertain. Further frontloading driven by expectations of trade restrictions could strengthen trade in the short term. In the medium term trade could weaken further in light of ongoing geopolitical tensions, a significant increase in trade protectionism and fragmentation.

Inflation across the member countries of the Organisation for Economic Co-operation and Development (OECD) continues to moderate, but underlying price pressures remain. In October the annual headline rate of consumer price index (CPI) inflation across OECD countries (excluding Türkiye) increased marginally to 2.6%, compared with 2.5% in the previous month (Chart 2). The slight increase in headline inflation was due to less negative energy inflation – at -0.8% in October, compared with -2.5% in September – while food and core inflation remained stable. Core inflation, which accounted for 90% of headline inflation in October compared with a median contribution of 64% before the COVID-19 pandemic, is driven notably by elevated services inflation across advanced economies. As services inflation is in turn closely linked to wage growth, which is expected to ease in 2025 as labour markets cool, headline inflation across OECD economies is expected to normalise further.

Chart 2

OECD CPI inflation



Sources: Organisation for Economic Co-operation and Development (OECD) and ECB staff calculations.
Notes: The OECD aggregate excludes Türkiye and is calculated using OECD annual weights of the consumer price index (CPI). The latest observations are for October 2024.

Since the October Governing Council meeting, Brent crude oil prices have fallen by 2.9% while European gas prices have risen by 17.7%.[1] Oil prices experienced significant volatility during the review period, owing primarily to geopolitical tensions in the Middle East. On the demand side, strong fuel consumption in the United States added to upward pressure on prices, as US petrol stocks had fallen to their lowest level since November 2022. This was nevertheless offset by the negative impact of weaker demand for oil in China, which contracted for the sixth consecutive month in September. European gas prices have risen by 17.7% since the October Governing Council meeting, driven by both supply and demand factors. On the supply side, the increase can largely be attributed to the impending expiration of the gas transit agreement between Ukraine and Russia at the end of 2024. Additionally, following an arbitration ruling against Gazprom in favour of the Austrian company OMV, Gazprom threatened to halt its gas supplies. On the demand side, reduced wind farm output in November in Europe has led to increased reliance on gas-fired power generation. This, coupled with cold weather, has significantly decreased gas storage levels across Europe, further contributing to rising gas prices. Meanwhile, metal prices have declined (-4.5%), with China's stimulus package falling short of expectations. Food prices have increased by 15.9%, driven by supply-related factors.

In the United States, economic activity remains robust. In the third quarter of 2024 real GDP continued to grow at a steady pace of 0.7% quarter on quarter, supported by strong domestic private demand and government consumption. In contrast, the contribution of private investment decelerated, while private inventories and net trade also contributed negatively to growth. The US labour market continued to cool, with the unemployment rate 0.1 percentage points higher at 4.2% in November, up from 3.7% at the start of 2024. Annual wage growth ticked up to 4.0% in October – having declined over the year – and remained above the 3-3.5% range that the Federal Reserve System considers to be consistent with its inflation target. Headline CPI inflation also increased slightly to 2.6% in October from 2.4% in September, while core inflation remained at 3.3%. The Federal Open Market Committee (FOMC) decided to cut the federal funds rate by 25 basis points at its November meeting, which had been widely expected.[2]

Economic growth momentum in China has strengthened but the new fiscal package is not expected to provide much stimulus. Monthly indicators for October turned out stronger than expected, with significant improvements in retail sales and export growth. The recovery in retail sales – extending into early November – has been largely driven by the ongoing trade-in subsidies, with a notable gain in categories subsidised by the Chinese Government. At the same time the new fiscal package announced on 8 November, while substantial, is not expected to boost growth significantly. Aimed at addressing financial stability risk associated with local government debt, the package mainly represents a migration of debt towards bonds with lower service costs. Since it leaves the overall debt level unchanged, it does not produce a direct fiscal impulse. The potential additional

1 The cut-off date for data included in this issue of the Economic Bulletin was 11 December 2024.

2 At its meeting on 18 December – which took place after the review period from 17 October to 11 December – the FOMC lowered the federal funds rate target by another 25 basis points.

spending associated with lower financing costs is likely to be small, providing only very limited support to growth. Chinese consumer price inflation slowed further in November, easing to 0.2% year on year from 0.3% in September. Producer price inflation remained negative at -2.5% in November, heightening deflationary concerns.

Activity in the United Kingdom has continued to slow, while headline inflation has risen owing to higher energy prices. In the third quarter of 2024 UK GDP grew only modestly by 0.1% (quarter on quarter). The Government's new Autumn Budget entails a 2%-of-GDP increase in public spending, which, together with ongoing monetary easing, is expected to gradually support growth dynamics in 2025. Headline inflation increased significantly to 2.3% in October, from 1.7% in September. At its November meeting the Bank of England lowered the Bank Rate by 25 basis points to 4.75%.[3]

[3] At its meeting on 18 December – which took place after the review period from 17 October to 11 December – the Bank of England decided to keep the Bank Rate unchanged.

2 Economic activity

The economy grew by 0.4% in the third quarter of 2024, after expanding by 0.2% in the second quarter, amid a recovery in consumption and a build-up of inventories, while net trade contracted. Employment rose by 0.2% in the third quarter, implying some recovery in productivity. Across sectors, industrial activity, excluding Irish intellectual property products, continued to decline in the third quarter, reflecting weak demand, competitiveness losses and rising uncertainty. By contrast, the services sector remained in expansion, boosted mainly by non-market and business-related services. Survey indicators point to softening economic activity at the turn of the year. The Purchasing Managers' Indices (PMIs) for both manufacturing and services have been below their respective third quarter levels in the fourth quarter, while orders and business expectations have declined, implying further weakness at the start of 2025. With regard to domestic demand, private consumption is likely to slow in the fourth quarter, after picking up strongly in the third quarter, as confidence remains low. Also, indicators for housing, business investment and exports suggest continued weakness in the short term. Looking ahead, the projected recovery of real incomes, supported by increased wages and a robust labour market, should allow households to consume more. In addition, foreign demand is expected to strengthen and support euro area exports.

This outlook is broadly reflected in the December 2024 Eurosystem staff macroeconomic projections for the euro area, which foresee annual real GDP growth of 0.7% in 2024, 1.1% in 2025 and 1.4% in 2026 respectively before moderating to 1.3% in 2027.[4]

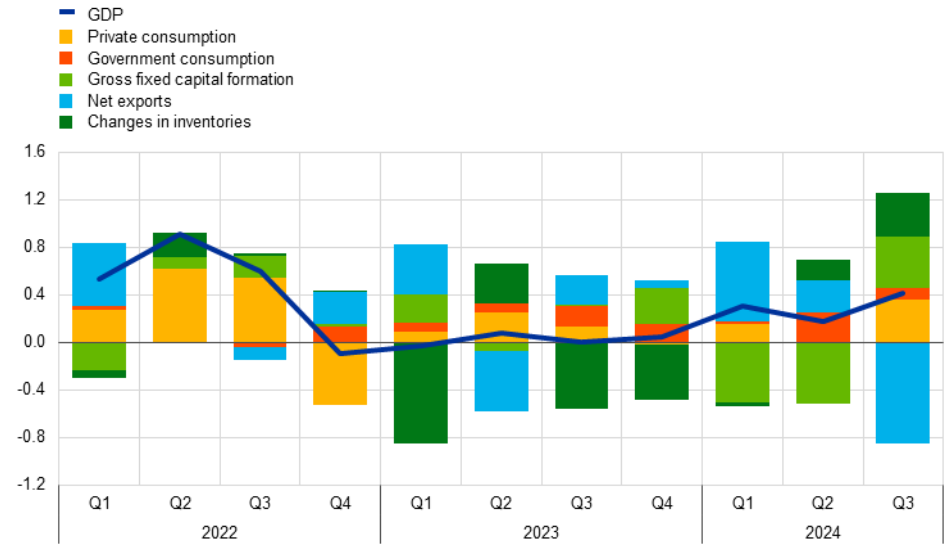
According to Eurostat's latest estimate, real GDP increased by 0.4%, quarter on quarter, in the third quarter of 2024, having expanded by 0.2% in the second quarter (Chart 3). Domestic demand and changes in inventories made a positive contribution to growth in the third quarter, while net trade contracted. Although growth in total investment in the third quarter was positive, it is estimated to have been negative when excluding an unprecedentedly large increase in non-construction investment in Ireland.

[4] See "Eurosystem staff macroeconomic projections for the euro area, December 2024", published on the ECB's website on 12 December 2024.

Chart 3

Euro area real GDP and its components

(quarter-on-quarter percentage changes; percentage point contributions)

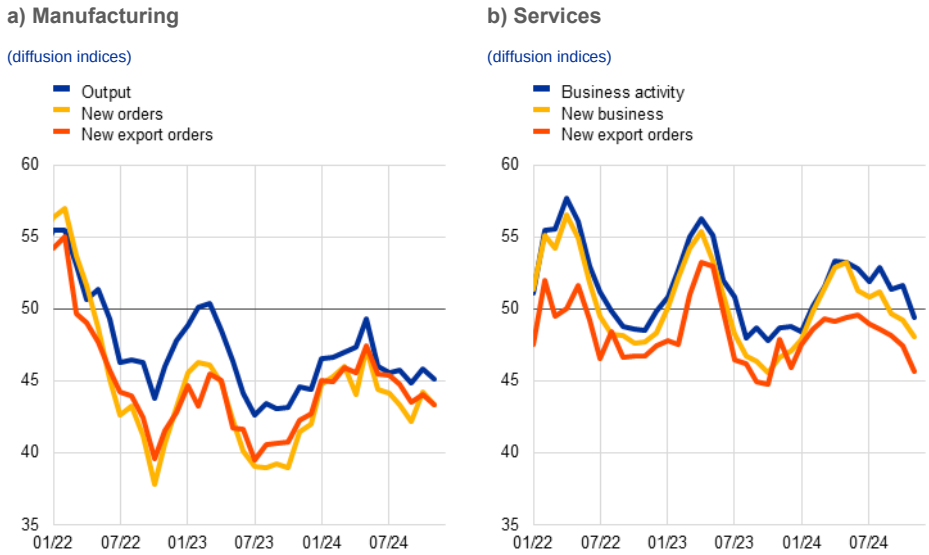


Sources: Eurostat and ECB calculations.
Note: The latest observations are for the third quarter of 2024.

Survey data point to a weaker fourth quarter of 2024. PMI output fell to 49.2 on average in October and November (from 50.3 in the third quarter), on the back of declines both in services and manufacturing. In the manufacturing sector, the PMI continued to contract in the fourth quarter, with the index now having been in contractionary territory for 20 consecutive months (Chart 4). The PMI for new orders also remains below 50, pointing to a weak short-term outlook for industry. In the services sector, the PMI fell below 50 in November – for the first time since January 2024 – although the average for October and November is still in modest growth territory, at 50.5. The European Commission's business confidence indicators portray a similar picture. After falling in October, the Economic Sentiment Indicator moved broadly sideways in November, suggesting ongoing headwinds are hampering the recovery. The results of the Commission's survey on factors limiting production for the fourth quarter show that manufacturing is still affected by insufficient demand and labour shortages, compared with the historical averages, while demand is not seen as a limiting factor in the services sector.

Chart 4

PMI indicators across sectors of the economy



Source: S&P Global Market Intelligence.
Note: The latest observations are for November 2024.

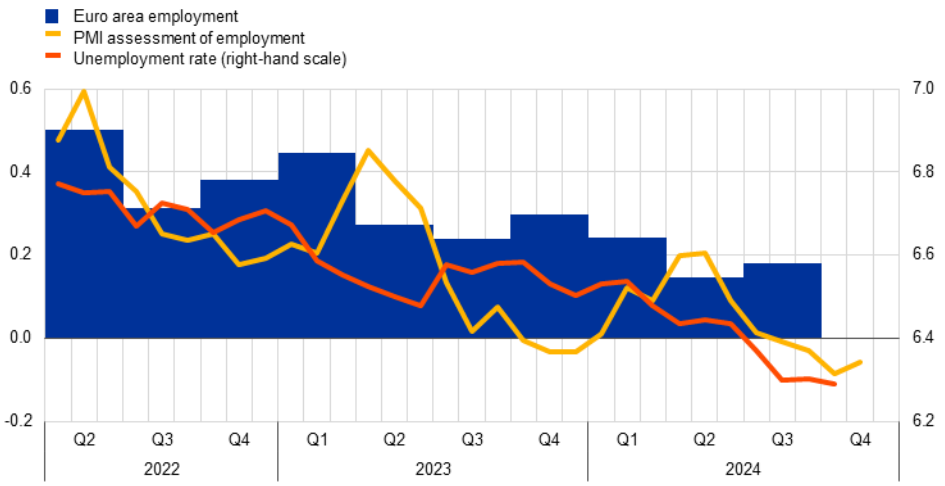
Employment increased by 0.2% in the third quarter of 2024. This was broadly the same rate as in the first half of the year (Chart 5). Employment growth was more aligned with GDP growth in the third quarter, allowing for some recovery in productivity, which rose by 0.2%.[5] Total hours worked were unchanged in the third quarter, leading to a 0.1% decline in average hours worked. The unemployment rate stood at 6.3% in October, the same as in September, remaining at its lowest level since the euro was introduced. Labour demand has declined somewhat from the high levels seen after the pandemic, with the job vacancy rate falling to 2.5% in the third quarter, 0.1 percentage points lower than in the previous quarter and closer to its pre-pandemic peak.

5 For an overview of the euro area labour market over the past two years, see the article entitled "Explaining the resilience of the euro area labour market between 2022 and 2024" in this issue of the Economic Bulletin.

Chart 5

Euro area employment, PMI assessment of employment and unemployment rate

(left-hand scale: quarter-on-quarter percentage changes, diffusion index; right-hand scale: percentages of the labour force)



Sources: Eurostat, S&P Global Market Intelligence and ECB calculations.
Notes: The two lines indicate monthly developments, while the bars show quarterly data. The PMI is expressed in terms of the deviation from 50, then divided by 10 to gauge the quarter-on-quarter employment growth. The latest observations are for the third quarter of 2024 for euro area employment, November 2024 for the PMI assessment of employment and October 2024 for the unemployment rate.

Short-term labour market indicators point to stable employment in the fourth quarter of 2024. The monthly composite PMI employment indicator increased slightly from 49.2 in October to 49.4 in November, suggesting that employment in the fourth quarter is likely to be broadly unchanged. The PMI services indicator increased from 50.3 in October to 51.0 in November, while the PMI manufacturing and construction indicators remained in contractionary territory.

Private consumption rose strongly in the third quarter but is expected to moderate at the turn of the year. After weak average growth in the previous quarters, private consumption in the euro area increased by 0.7%, quarter on quarter, in the third quarter (Chart 6), probably boosted by temporary factors such as the Paris 2024 Olympic and Paralympic Games – albeit to a limited extent. The consumption of goods rebounded and increased broadly in line with consumption of services in the third quarter, as also suggested by a 1% rise in retail sales, quarter on quarter, in the third quarter, compared with the more modest rise of 0.2% in services production. However, incoming data suggest that household spending is likely to have moderated in the fourth quarter, as retail sales declined in October. The European Commission's consumer confidence indicator also fell back towards its September level in November. Nevertheless, more forward-looking indicators point to a recovery in the quarters ahead, as reflected in the latest Eurosystem staff macroeconomic projections.[6] The European Commission's indicators of business expectations for demand in contact-intensive services continued to improve in November, while the ECB's latest Consumer Expectations Survey also showed that expected holiday purchases remain at a high level, despite some recent softening. Consumer expectations for major purchases in the next 12 months improved further

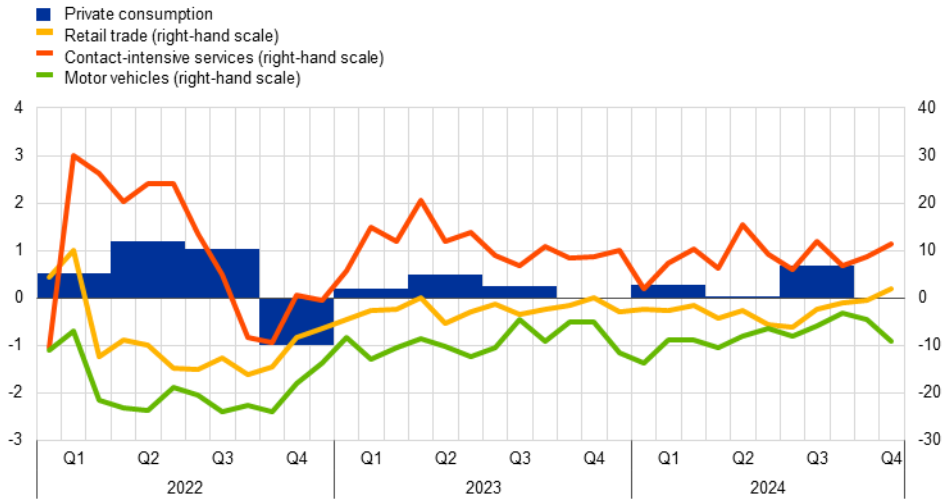
[6] See "Eurosystem staff macroeconomic projections for the euro area, December 2024", published on the ECB's website on 12 December 2024.

in November, rising above their pre-pandemic levels and indicating an increase in consumer demand for goods. Higher purchasing power and continued rises in real labour income are expected to support consumption in the quarters ahead. At the same time, uncertainty remains elevated and households may continue to have concerns about longer-term geopolitical issues, which could have an adverse impact on their spending decisions (see Box 3).

Chart 6

Private consumption and business expectations for retail trade, contact-intensive services and motor vehicles

(quarter-on-quarter percentage changes; net percentage balances)

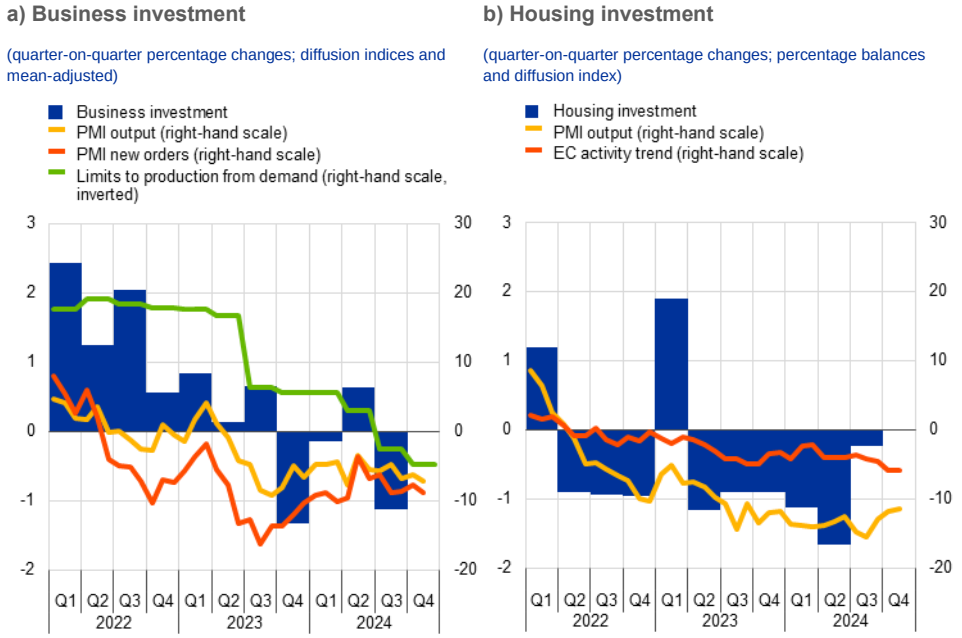


Sources: Eurostat, European Commission and ECB calculations.
Notes: Business expectations for retail trade (excluding motor vehicles), expected demand for contact-intensive services and expected sales of motor vehicles for the next three months refer to net percentage balances; "contact-intensive services" refers to accommodation, travel and food services. The latest observations are for the third quarter of 2024 for private consumption and November 2024 for business expectations for retail trade, contact-intensive services and motor vehicles.

Business investment contracted notably in the third quarter of 2024 and is likely to remain muted in the near term. Having shown modest growth in the first half of the year, non-construction investment, excluding Irish intangible investment, fell by 1.1%, quarter on quarter, in the third quarter. Investment growth in the fourth quarter is set to have continued to contract, as suggested by the PMI output and orders indicators and the European Commission's confidence surveys for the capital goods sector up to November (Chart 7, panel a). The Commission's latest survey on factors limiting production in the capital goods sector revealed weak demand and little need for further investment in equipment in the fourth quarter. The elevated uncertainty surrounding geopolitics, trade tariffs and economic policy is further dampening investment (see Box 3). In this environment, bankruptcies have continued to rise, standing about 23% higher than their 2019 levels in the third quarter of 2024. Looking ahead, investment is expected to gradually increase as the impact of tight financing conditions diminishes, demand improves, and green and digital investment plans are implemented.

Chart 7

Real investment dynamics and survey data



Sources: Eurostat, European Commission (EC), S&P Global Market Intelligence and ECB calculations.
Notes: Lines indicate monthly developments, while bars refer to quarterly data (apart from the survey data for factors limiting production, which are also quarterly). The PMIs are expressed in terms of the deviation from 50. In panel a), business investment is measured by non-construction investment excluding Irish intangibles. Short-term indicators refer to the capital goods sector. "Limits to production from demand" is expressed as the average over the period from the first quarter of 1991 to the fourth quarter of 2019 and then inverted. The latest observations are for the third quarter of 2024 for business investment and November 2024 for all other items. In panel b), the line for the European Commission's activity trend indicator refers to the weighted average of the building and specialised construction sectors' assessment of the trend in activity compared with the preceding three months, rescaled to have the same standard deviation as the PMI. The line for PMI output refers to housing activity. The latest observations are for the third quarter of 2024 for housing investment and November 2024 for PMI output and the European Commission's activity trend.

Housing investment fell slightly in the third quarter of 2024 and is expected to continue to decline in the short term. Housing investment in the euro area edged down by 0.2% in the third quarter, while production in building and specialised construction fell by 0.6%. Survey-based activity indicators point to further weakening in the fourth quarter of 2024, as both the PMI indicator for housing production and the European Commission's indicator for building and specialised construction activity in the last three months remained in contractionary territory up to November (Chart 7, panel b). However, housing investment should stabilise in the course of 2025. According to the European Commission's survey, the short-term intention of households to buy or build a house has improved further in the fourth quarter of 2024. Similarly, the ECB's Consumer Expectations Survey shows that the proportion of households that consider housing as a good investment has significantly increased in 2024 overall, although it declined slightly in October. This improvement in sentiment is supported by falling mortgage rates and is reflected in a gradual recovery in housing loans, as also shown in the October euro area bank lending survey.

Euro area export growth continued to slow in the third quarter of 2024. Total euro area export growth slowed by 1.5%, quarter on quarter, in the third quarter. This deceleration confirms the persisting competitiveness challenges facing euro area exporters, even amid a recovery in global demand. Looking ahead, surveys suggest

that the performance of exports will continue to be subdued in the near term. The latest PMIs for export orders remained well below the no-growth threshold in November for manufacturing and point to increasing weakness in services. At the same time, import growth saw a moderate increase of 0.2% in the third quarter, compared with the previous quarter, on the back of a modest rise in domestic consumption. Overall, net exports made a negative contribution of 0.9 percentage points to GDP in the third quarter.

Looking ahead, the euro area economy is expected to continue its gradual recovery over the projection horizon, albeit amid significant uncertainty. Following an estimated GDP increase of 0.7% in 2024, activity growth is expected to strengthen over the next three years. In particular, rising real wages and employment, in a context of robust – albeit softening – labour markets, are expected to support a sustained recovery in consumption. Domestic demand should also be bolstered by easing financing conditions, in line with market expectations for the future path of interest rates.

The economic recovery is now expected to be slower than anticipated in the September 2024 projections. Although growth picked up in the third quarter of this year, survey indicators suggest it has slowed in the current quarter. According to the December 2024 projections, the economy is expected to grow by 0.7% in 2024, 1.1% in 2025, 1.4% in 2026 and 1.3% in 2027. The projected recovery rests mainly on rising real incomes – which should allow households to consume more – and firms increasing investment. Over time, the gradually fading effects of restrictive monetary policy should support a pick-up in domestic demand.

3 Prices and costs

Euro area headline inflation increased to 2.3% in November 2024, up from 2.0% in October, primarily reflecting a rise in energy inflation.[7] *At the same time, underlying inflation is overall developing in line with a sustained return to the 2% medium-term target for headline inflation. The indicator of domestic inflation edged down in October but remains high, reflecting strong wage growth and the fact that the prices of some items are still adjusting to the past inflation surge with a substantial delay. The overall rate of growth in labour costs is moderating, while unit profit growth continues to partially buffer the impact of still elevated labour cost pressures and thereby support the ongoing disinflation. Over the review period, most indicators of longer-term inflation expectations remained broadly stable at around 2%, and market-based measures fell closer to this level. The December 2024 Eurosystem staff macroeconomic projections for the euro area foresee headline inflation averaging 2.4% in 2024, 2.1% in 2025, 1.9% in 2026 and 2.1% in 2027 when the expanded EU Emissions Trading System becomes operational.*[8]

Euro area headline inflation, as measured in terms of the Harmonised Index of Consumer Prices (HICP), increased further to 2.3% in November 2024, up from 2.0% in October (Chart 8). This was primarily attributable to the expected increase in energy inflation, which rose to -1.9% in November, up from -4.6% in October, owing mainly to an upward base effect. Food inflation fell slightly to 2.8% in November, down from 2.9% in October, reflecting a lower annual rate of change in unprocessed food prices, while the annual rate of change in processed food prices increased marginally. HICP inflation excluding energy and food (HICPX) stood at 2.7% in November, unchanged from October and September. This was due to a small decline in services inflation (3.9% in November, down from 4.0% in October) being offset by an increase in non-energy industrial goods (NEIG) inflation (0.7% in November, up from 0.5% in October). The annual rate of NEIG inflation remained close to its long-term average of 0.6% before the COVID-19 pandemic, while the more persistent services inflation reflects the impact of still elevated wage pressures in some of its items and the effects of lagged repricing in others.

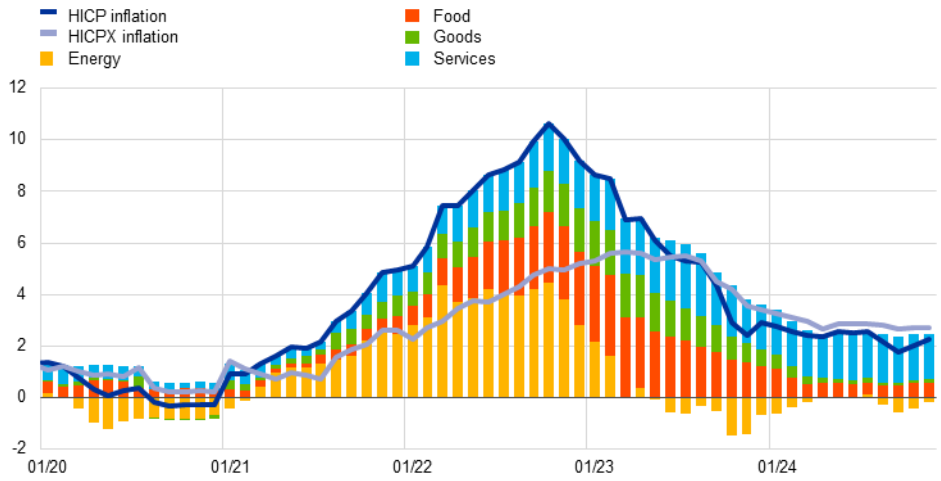
7 The cut-off date for data included in this issue of the Economic Bulletin was 11 December 2024. This flash estimate from Eurostat was revised down by 0.1 percentage points, to 2.2%, in the release of HICP inflation data for November on 18 December 2024.

8 See "Eurosystem staff macroeconomic projections for the euro area, December 2024", published on the ECB's website on 12 December 2024.

Chart 8

Headline inflation and its main components

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.
Notes: "Goods" stands for NEIG inflation. The latest observations are for November 2024 (flash estimate).

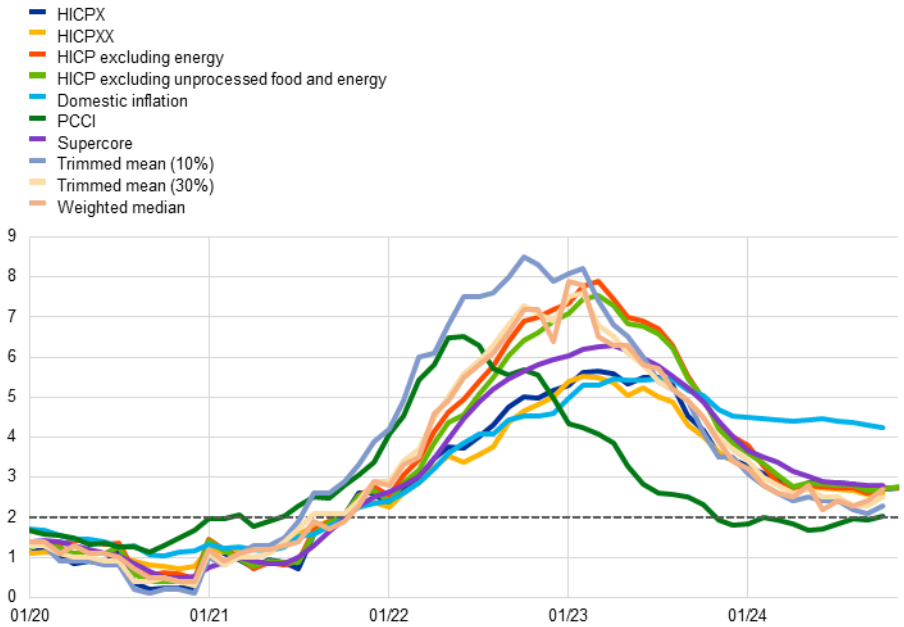
Most measures of underlying inflation suggest that inflation will settle at around the 2% medium-term target on a sustained basis, and the range of values across them has narrowed (Chart 9). In October 2024 – the latest month for which data are available – the bulk of the indicator values ranged from 2.0% to 2.8%.[9] The Persistent and Common Component of Inflation (PCCI), which tends to perform best as a predictor of future headline inflation, was at the bottom of this range, while the Supercore indicator, which comprises HICP items that are sensitive to the business cycle, was unchanged at 2.8%. HICPX inflation excluding travel-related items, clothing and footwear (HICPXX) also remained unchanged, at 2.6%, whereas the 10% and 30% trimmed means, which remove 5% and 15% of the annual rates of change from each tail of the distribution of HICP items respectively, both increased slightly. While it remained at a persistently high level, the indicator for domestic inflation fell slightly further to 4.2%, down from 4.3% and 4.4% in September and August respectively. This reflects the strong weight of services items such as insurance and rents, for which reactions to general inflationary pressures and the dampening of monetary policy restraint propagate more slowly.

9 For more information, see Lane, P.R., "Underlying inflation: an update", speech at the Inflation: Drivers and Dynamics Conference 2024 organised by the Federal Reserve Bank of Cleveland and the ECB, Cleveland, 24 October 2024.

Chart 9

Indicators of underlying inflation

(annual percentage changes)



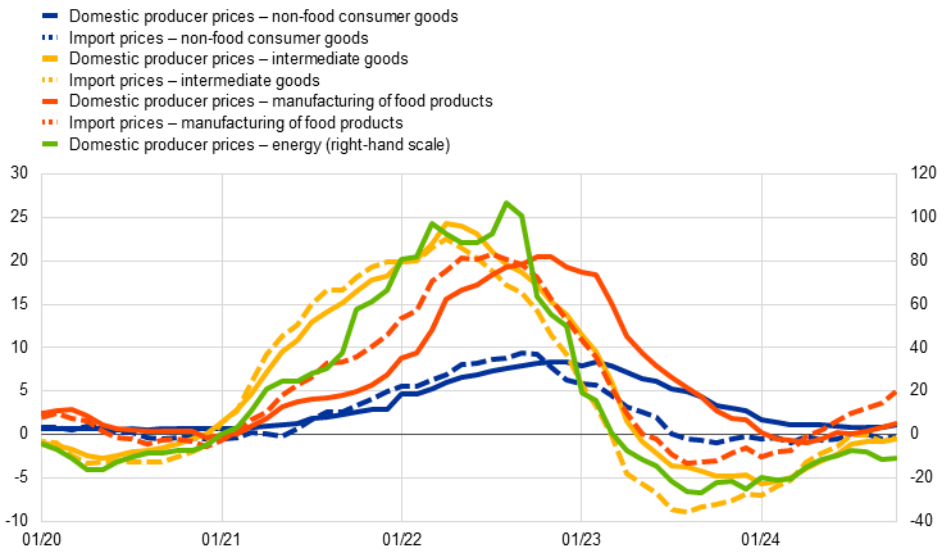
Sources: Eurostat and ECB calculations.
Notes: The grey dashed line represents the ECB's inflation target of 2% over the medium term. The latest observations are for November 2024 (flash estimate) for HICPX, HICP excluding energy and HICP excluding unprocessed food and energy, and for October 2024 for all other indicators.

Pipeline pressures increased in October, although they remained moderate across all industry categories (Chart 10). At the early stages of the pricing chain, producer price inflation for energy, which has been negative since April 2023, edged up to -11.2% in October 2024 from -11.5% in September. The annual growth rate of producer prices for domestic sales of intermediate goods also remained negative, albeit less so than in the previous month (-0.5% in October, up from -0.8% in September). Similarly, the corresponding annual growth rate of import prices for intermediate goods stood at -0.4% in October, up from -0.8% in September. At the later stages of the pricing chain, domestic producer price inflation for non-food consumer goods rose to 1.1% in October, up from 0.9% in September. There was also an increase in both domestic producer price inflation for the manufacturing of food products, which went up to 1.3% in October from 0.9% in September, and import price inflation for the manufacturing of food products, which climbed to 4.9% in October, possibly driven by the recent double-digit growth rates of international food commodity prices. Overall, pipeline pressures increased across all industry categories, albeit from still moderate levels, indicating an end to the easing of the pipeline pressures that had accumulated as a result of earlier cost shocks.

Chart 10

Indicators of pipeline pressures

(annual percentage changes)



Sources: Eurostat and ECB calculations.
Note: The latest observations are for October 2024.

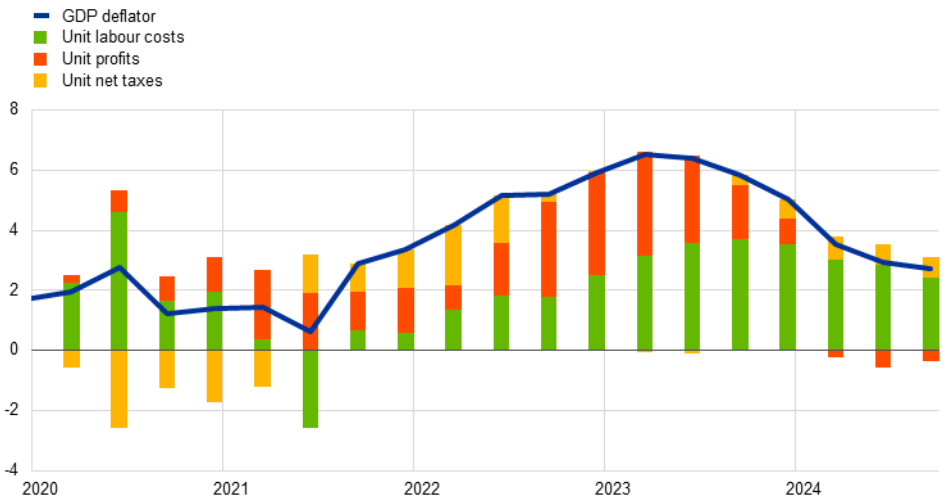
Domestic cost pressures, as measured by growth in the GDP deflator, fell further in the third quarter of 2024, albeit remaining at a high level (Chart 11). The annual growth rate of the GDP deflator declined to 2.7% in the third quarter of 2024, down from 2.9% in the previous quarter. This decrease reflected a smaller contribution from unit labour costs, while the contribution from unit net taxes was unchanged and that of unit profits rose slightly. Despite increasing, unit profit growth remained in negative territory, indicating that it is continuing to buffer still elevated labour cost pressures. The reduced contribution from unit labour costs was due to a decline in wage growth, measured in terms of compensation per employee, which fell from 4.7% in the second quarter of 2024 to 4.4% in the third quarter. A similar decrease was recorded for growth in compensation per hour. By contrast, negotiated wage growth increased to 5.4% in the third quarter of 2024, up from 3.5% in the second quarter, but data on the latest wage agreements in the ECB's forward-looking wage tracker point to weaker growth in the fourth quarter of 2024.[10] Overall, the latest wage developments indicate that compensation for past high inflation and the corresponding real wage catch-up are playing a declining role. The December 2024 Eurosystem staff macroeconomic projections expect growth in compensation per employee to stand at 4.6% on average for 2024 and to continue moderating to 2.8% in 2027. However, it is expected to remain above historical levels owing to continuing tight labour markets and remaining inflation compensation.

[10] See Górnicka, L. and Koester, G. (eds.), "A forward-looking tracker of negotiated wages in the euro area", *Occasional Paper Series*, No 338, ECB, Frankfurt am Main, February 2024.

Chart 11

Breakdown of the GDP deflator

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.
Notes: The latest observations are for the third quarter of 2024. Compensation per employee contributes positively to changes in unit labour costs, and labour productivity contributes negatively.

Most measures of longer-term inflation expectations stand at around 2%, and market-based indicators of medium to longer-term inflation compensation have declined measurably since the Governing Council's meeting on 17 October 2024 (Chart 12). In both the ECB Survey of Professional Forecasters for the fourth quarter of 2024 and the ECB Survey of Monetary Analysts for December 2024, average and median longer-term inflation expectations remained at 2%. Shorter-term survey expectations for 2025 also stood at around 2%, but saw small movements depending on the incorporation of the latest data outcomes and movements in energy commodity prices. There was an increase in market-based measures of near-term inflation compensation, as measured by inflation fixings (based on the HICP excluding tobacco). This suggests that market participants expect inflation to stand slightly above 2% at the turn of the year, before reaching approximately 2% in 2025 and falling to slightly below 2% in 2026. The one-year forward inflation-linked swap rate one year ahead remained broadly unchanged at around 1.7% over the review period. Looking at the medium and longer term, market-based measures of inflation compensation declined slightly to around 2%. Specifically, the five-year forward inflation-linked swap rate five years ahead fell by 5 basis points over the review period, mostly on account of lower inflation risk premia. Model-based estimates of genuine inflation expectations, excluding inflation risk premia, also indicate that market participants continue to expect inflation to be around 2% in the longer term. On the consumer side, inflation expectations remained broadly stable. According to the ECB's Consumer Expectations Survey (CES) for October 2024, median expectations for headline inflation over the next 12 months increased slightly to 2.5%, up from 2.4% in September, while expectations for three years ahead remained unchanged at 2.1%. Inflation perceptions over the previous 12 months declined further to 3.2% in October and have therefore fallen by more than 5 percentage points from their peak of 8.4% in September 2023.

Chart 12

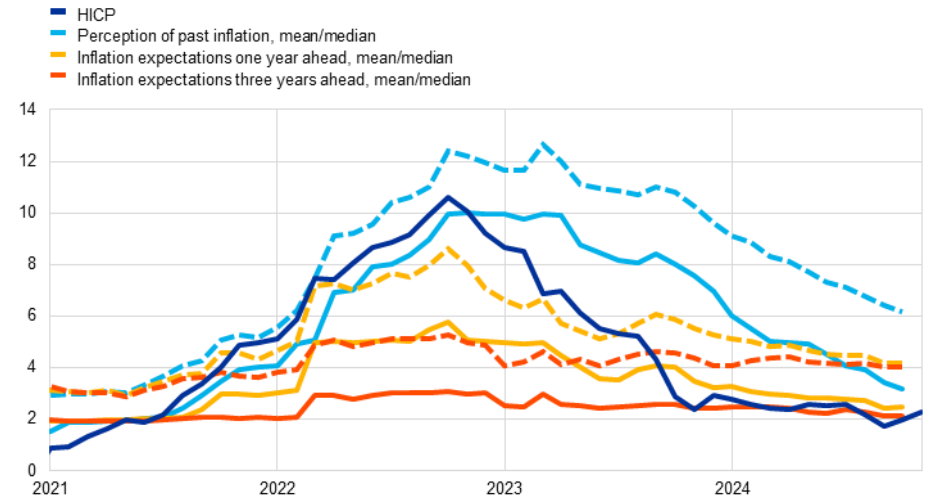
Market-based measures of inflation compensation and consumer inflation expectations

a) Market-based measures of inflation compensation

(annual percentage changes)

b) Headline HICP inflation and ECB Consumer Expectations Survey

(annual percentage changes)



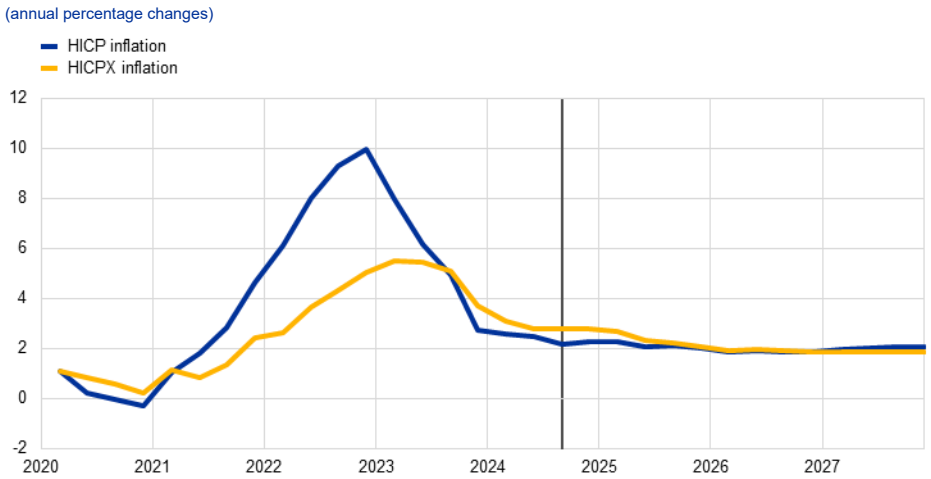
Sources: LSEG, Eurostat, CES and ECB calculations.
Notes: Panel a) shows forward inflation-linked swap rates over different horizons for the euro area. The vertical grey line indicates the start of the review period on 12 September 2024. In panel b), the dashed lines show the mean rate and the solid lines the median rate. The latest observations are for 11 December 2024 for the forward rates, November 2024 (flash estimate) for the HICP and October 2024 for all other measures.

The December 2024 Eurosystem staff macroeconomic projections expect headline inflation to average 2.4% in 2024 and to decline further to 2.1% in 2025 and 1.9% in 2026, before rising to 2.1% in 2027 when the expanded EU Emissions Trading System becomes operational (Chart 13). Headline inflation is projected to increase slightly in the last quarter of 2024, owing mainly to base effects in energy prices, before starting to fall again. It is then expected to gradually ease further over the coming years, as inflation compensation pressures in a tight labour market continue to fade and wage growth declines as a result. The projected increase in headline inflation in 2027 mainly reflects a largely temporary upward

impact from the implementation of the EU's Fit for 55 package – specifically a new Emissions Trading System (ETS2) for heating of buildings and for transport fuels. Compared with the September 2024 projections, the outlook for headline inflation has been revised down slightly by 0.1 percentage points for 2024 and 2025, mainly owing to downward data surprises and lower oil and electricity price assumptions. At the same time, Eurosystem staff continue to expect a rapid decline in core inflation, from 2.9% in 2024 to 2.3% in 2025 and 1.9% in 2026 and 2027, primarily driven by a decrease in services inflation. Compared with the September 2024 projections, HICPX inflation has been revised down by 0.1 percentage points for 2026.

Chart 13

Euro area HICP and HICPX inflation



Sources: Eurostat and Eurosystem staff macroeconomic projections for the euro area, December 2024.
Notes: The grey vertical line indicates the last quarter before the start of the projection horizon. The latest observations are for the third quarter of 2024 for the data and the fourth quarter of 2027 for the projections. The December 2024 Eurosystem staff macroeconomic projections for the euro area were finalised on 27 November 2024, and the cut-off date for the technical assumptions was 20 November 2024. Both historical and projected data for HICP and HICPX inflation are reported at a quarterly frequency.

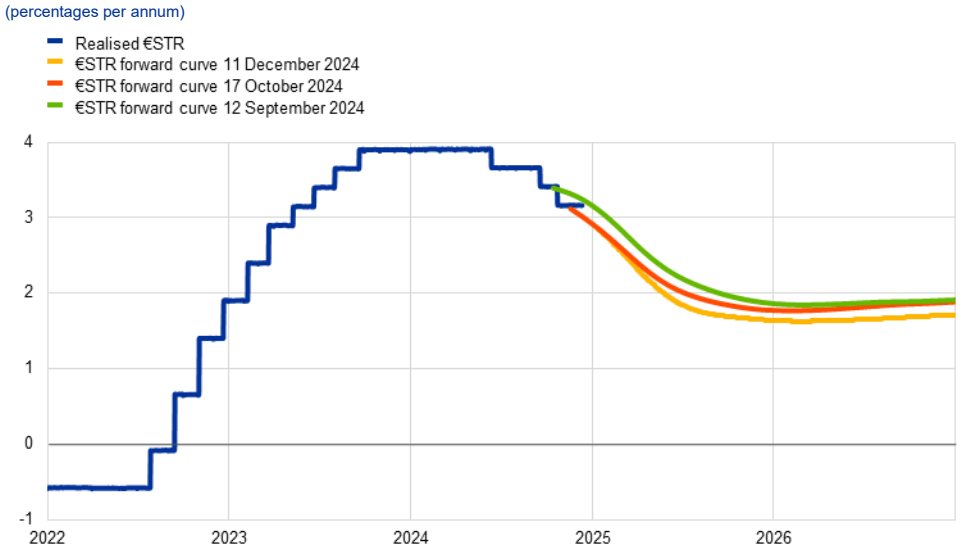
4 Financial market developments

During the review period from 12 September to 11 December 2024 important factors behind financial market developments included the market assessment of the implications of the US presidential elections and ongoing geopolitical tensions. Euro area short-term risk-free interest rates shifted downwards, reflecting expectations of deeper and more rapid cuts in the key ECB interest rates as markets observed weaker euro area macroeconomic data releases. Markets fully priced in a rate cut of 25 basis points at the December Governing Council meeting. Euro area long-term risk-free interest rates also declined, primarily reflecting a fall in the real rate component. Sovereign bond yields decreased by less than risk-free swap rates, with some differences across countries amid the uncertain political and fiscal outlook in some of them. Euro area equity prices fluctuated over the review period and ended the period somewhat higher. Corporate bond spreads tightened at the beginning of the review period but edged up thereafter. In foreign exchange markets, the euro depreciated against the US dollar and somewhat less in trade-weighted terms.

Following the September Governing Council meeting the overnight index swap (OIS) forward curve shifted downwards as market participants expected faster and deeper cumulative policy rate cuts (Chart 14). The benchmark euro short-term rate (€STR) averaged 3.3% over the review period, after the Governing Council lowered the deposit facility rate by 25 basis points at both its September and October meetings. Excess liquidity decreased by around €155 billion between 12 September and 11 December, to stand at €2,912 billion. This mainly reflected repayments in September of funds borrowed in the third series of targeted longer-term refinancing operations (TLTRO III) and the decline in the portfolios of securities held for monetary policy purposes, with the Eurosystem no longer reinvesting the principal payments from maturing securities in the asset purchase programme (APP) portfolio and only partially reinvesting principal payments in the pandemic emergency purchase programme (PEPP) portfolio. The €STR-based OIS forward curve shifted downwards compared with the time of the September Governing Council meeting, suggesting a lower path for policy rates amid weaker euro area macroeconomic data releases and the outcome of the US elections. On 11 December markets were fully pricing in a 25 basis point rate cut at the December Governing Council meeting. Looking further ahead, the forward curve moved downwards, from pricing in 123 basis points of cumulative interest rate cuts in the period up to June 2025 (on 12 September) to pricing in 133 basis points of cumulative cuts (on 11 December).

Chart 14

€STR forward rates

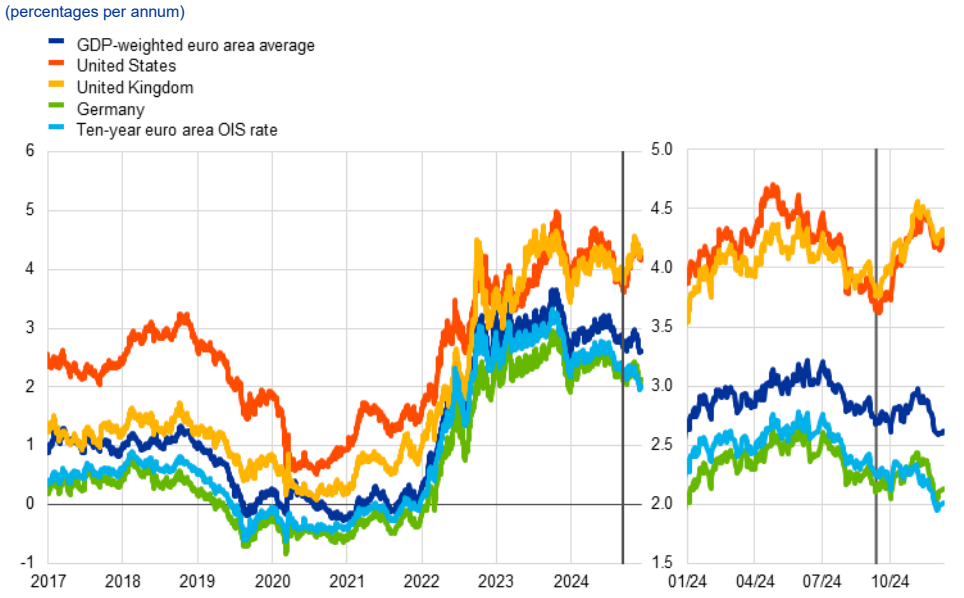


Sources: Bloomberg and ECB calculations.
Note: The forward curve is estimated using spot OIS (€STR) rates.

Euro area long-term risk-free rates have also declined since the September Governing Council meeting, in contrast to their US counterparts (Chart 15). The ten-year euro area OIS rate fell by 26 basis points in the review period, ending the period at around 2.0%. This decline in long-term risk-free rates mainly reflected the fall in the real rate component. Domestic monetary policy expectations and macroeconomic data releases weighed on euro area risk-free rates, while US and global spillovers counterbalanced the negative effects at longer maturities. By contrast, US long-term risk-free rates increased significantly over the review period, supported by both higher real rates and higher inflation compensation. In particular, the ten-year US Treasury yield increased by around 60 basis points to 4.3%. As a result, the differential between ten-year risk-free rates in the euro area and the United States widened by 85 basis points. The ten-year UK sovereign bond yield also increased by 54 basis points and stood at around 4.3% at the end of the review period.

Chart 15

Ten-year sovereign bond yields and the ten-year OIS rate based on the €STR

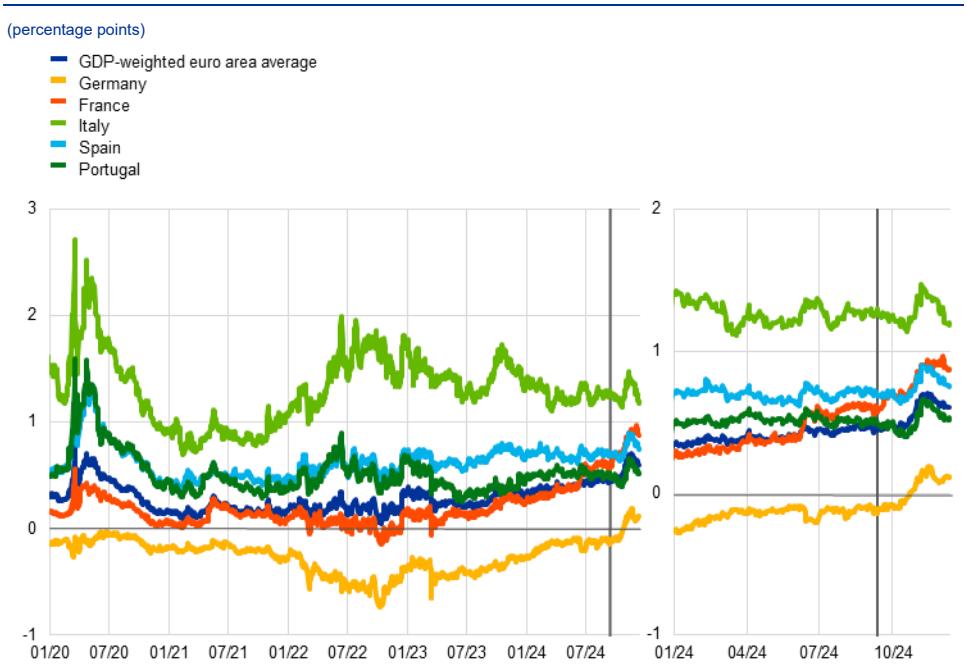


Sources: LSEG and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 12 September 2024. The latest observations are for 11 December 2024.

Euro area sovereign bond yields declined by less than risk-free rates, resulting in somewhat wider spreads (Chart 16). At the end of the review period the ten-year GDP-weighted euro area sovereign bond yield stood about 10 basis points lower, at around 2.6%, leading to an increase of 15 basis points in its spread over the OIS rate. A large part of the spread widening took place before the US elections, continuing the trend since 2022. After the elections, the spread widened more quickly, as higher US treasury yields spilled over to euro area sovereign bond markets. The German ten-year sovereign spread also increased by 23 basis points over the review period, continuing a trend which, among other things, reflected lower Eurosystem bond holdings. During the review period the German spread turned positive for the first time since 2016, while the announcement of snap elections in Germany did not have a significant effect. More notable changes were observed for the French ten-year sovereign bond yield, which increased by around 5 basis points on the back of uncertainty regarding the French fiscal outlook and widened the spread over the ten-year OIS rate by 30 basis points. However, spillovers to Greece, Spain, Italy and Portugal were limited, given the more positive sentiment surrounding the fiscal outlook for some of these countries. Overall, the sovereign bond yield to OIS spread declined by 9 basis points for Italy, while widening by 4 and 6 basis points for Portugal and Spain respectively.

Chart 16

Ten-year euro area sovereign bond spreads vis-à-vis the ten-year OIS rate based on the €STR



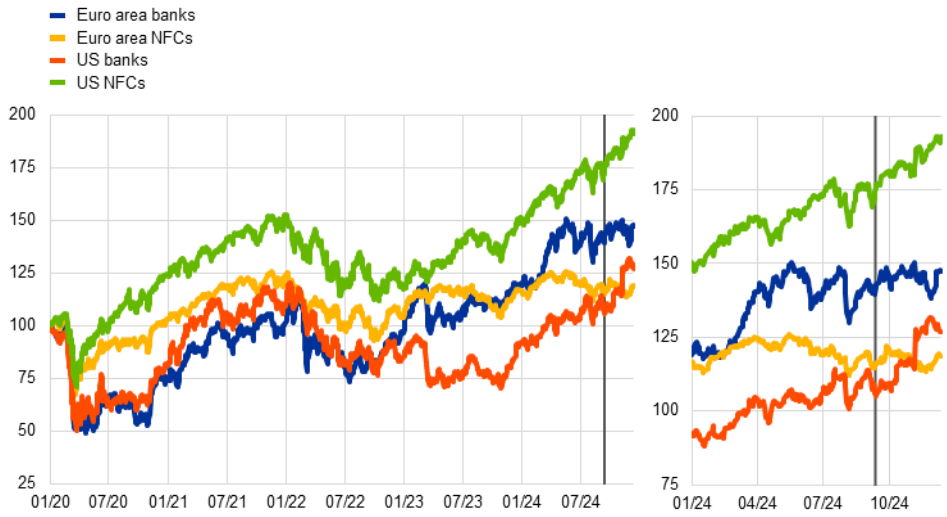
Sources: LSEG and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 12 September 2024. The latest observations are for 11 December 2024.

Corporate bond spreads tightened at the beginning of the review period and then edged up, in part following movements in stock markets. Spreads of investment-grade corporate bonds tightened by about 10 basis points until mid-October but subsequently widened somewhat. The tightening was more pronounced for financial than for non-financial corporate bonds, with the spreads of the latter widening slightly overall. In the high-yield segment, spreads fluctuated more significantly, especially from mid-October, but decreased moderately overall.

Euro area equity prices fluctuated over the review period and ended the period somewhat higher than at the time of the September Governing Council meeting (Chart 17). Euro area equity prices were supported by a marked increase in risk appetite at the beginning of the review period that more than offset downward revisions in expected earnings. From mid-October, the deterioration in the outlook for the euro area economy, as reflected for example in Purchasing Managers' Index readings for November, led to a further decline in expected earnings. Broad stock market indices in the euro area retreated towards levels observed at the start of the review period before accelerating again at the end of November, also supported by an improvement in risk appetite. Overall, equity prices for non-financial corporations (NFCs) and banks increased by 2.5% and 3.7% respectively. In the United States, NFC and bank equity prices strengthened by 9.8% and 20.6% respectively.

Chart 17

Euro area and US equity price indices



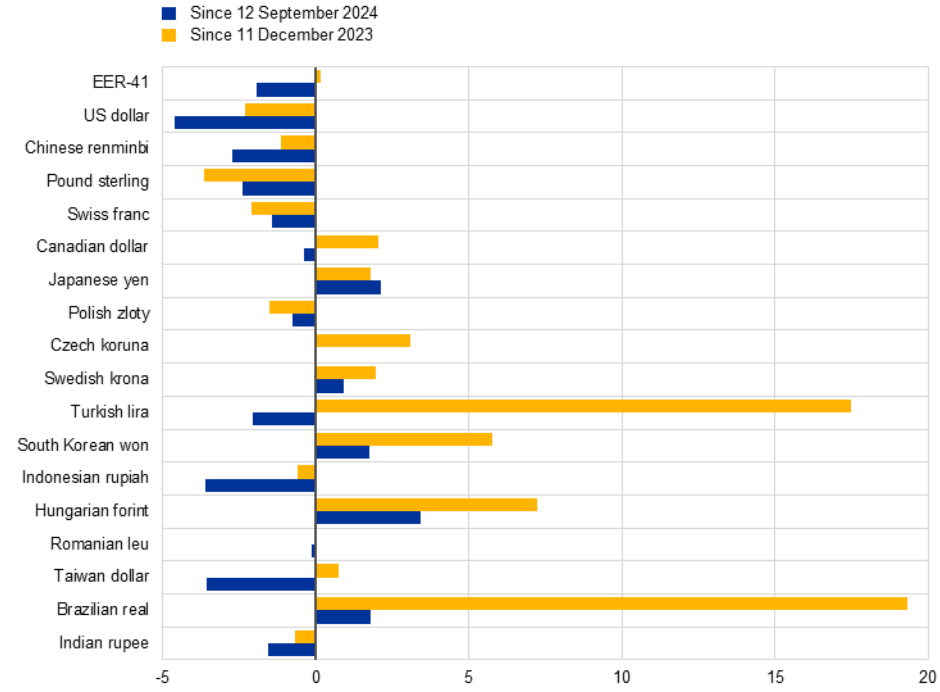
Sources: LSEG and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 12 September 2024. The latest observations are for 11 December 2024.

In foreign exchange markets, the euro depreciated by 4.6% against the US dollar and by 2.0% in trade-weighted terms (Chart 18). During the review period, the nominal effective exchange rate of the euro – as measured against the currencies of 41 of the euro area's most important trading partners – weakened by 2.0%. The euro also depreciated against the US dollar (by 4.6%), which was largely driven by an upward shift, in early November, in market participants' expectations for the path of the Federal Reserve System's policy rate following the US presidential elections, as well as expectations of potential changes in US trade, regulatory and fiscal policies. The euro depreciated by 2.4% against the pound sterling and by 1.4% against the Swiss franc, as well as against some emerging market currencies, reflecting changes in market participants' views on the relative outlooks for the respective economies. The euro appreciated against the Japanese yen (by 2.1%), as the latter resumed its broad-based depreciation amid persistently lower policy rates in Japan than in other advanced economies.

Chart 18

Changes in the exchange rate of the euro vis-à-vis selected currencies

(percentage changes)



Source: ECB calculations.
Notes: EER-41 is the nominal effective exchange rate of the euro against the currencies of 41 of the euro area's most important trading partners. A positive (negative) change corresponds to an appreciation (depreciation) of the euro. All changes have been calculated using the foreign exchange rates prevailing on 11 December 2024.

5 Financing conditions and credit developments

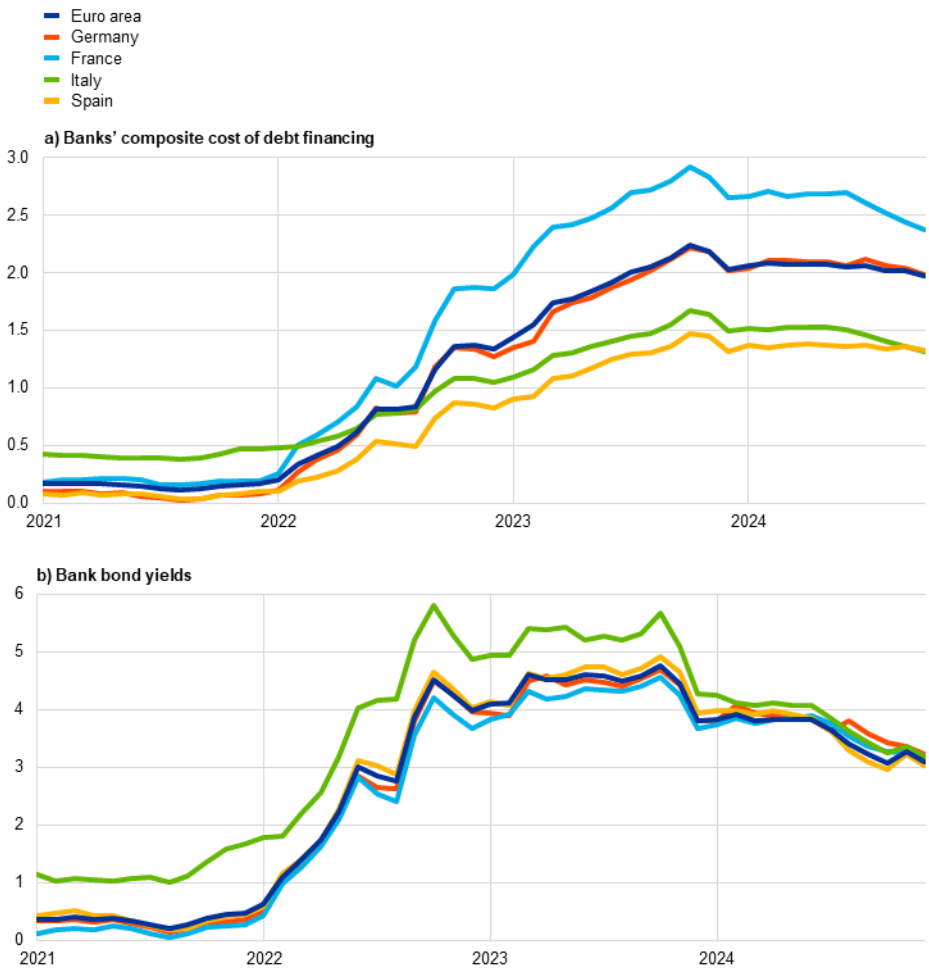
Recent and anticipated ECB policy rate cuts are gradually making it less expensive for firms and households to borrow. In October 2024 bank funding costs and bank lending rates continued to decline from their peak levels, although financing conditions still remained tight. The average interest rates on new loans to firms and on new mortgages fell in October to 4.7% and 3.6% respectively. Growth in loans to firms and households remained subdued, reflecting weak economic growth and still tight credit standards. Over the period from 12 September to 11 December 2024, the cost to firms of both market-based debt and equity financing fell, coinciding with an easing of the long-term risk-free interest rate and a lowering of the equity risk premium. In the latest Survey on Access to Finance of Enterprises (SAFE), firms reported that the availability of bank loans remained on balance broadly unchanged in the third quarter of 2024, with few expecting improved availability in the fourth quarter. The annual growth rate of broad money (M3) continued to recover from low levels, with net foreign inflows still the primary contributor to growth.

Euro area bank funding costs have declined from their peak levels, reflecting the ECB's recent policy rate cuts and the expected interest rate path. The composite cost of debt financing for euro area banks declined slightly in October 2024, standing at 2.0% (Chart 19, panel a). The decline in bank funding costs resulted primarily from a decrease in bank bond yields (Chart 19, panel b), against the backdrop of a fall in longer-term risk-free rates. High bank funding costs have persisted, however, amid the ongoing shift in the composition of funding towards more expensive sources. Average deposit rates diminished only slightly in the third quarter of 2024, with the composite deposit rate standing at 1.3% in October. Interest rates on time deposits fell more sharply than on overnight deposits and deposits redeemable at notice, which saw just a marginal decline over that period.

Chart 19

Composite bank funding costs in selected euro area countries

(annual percentages)



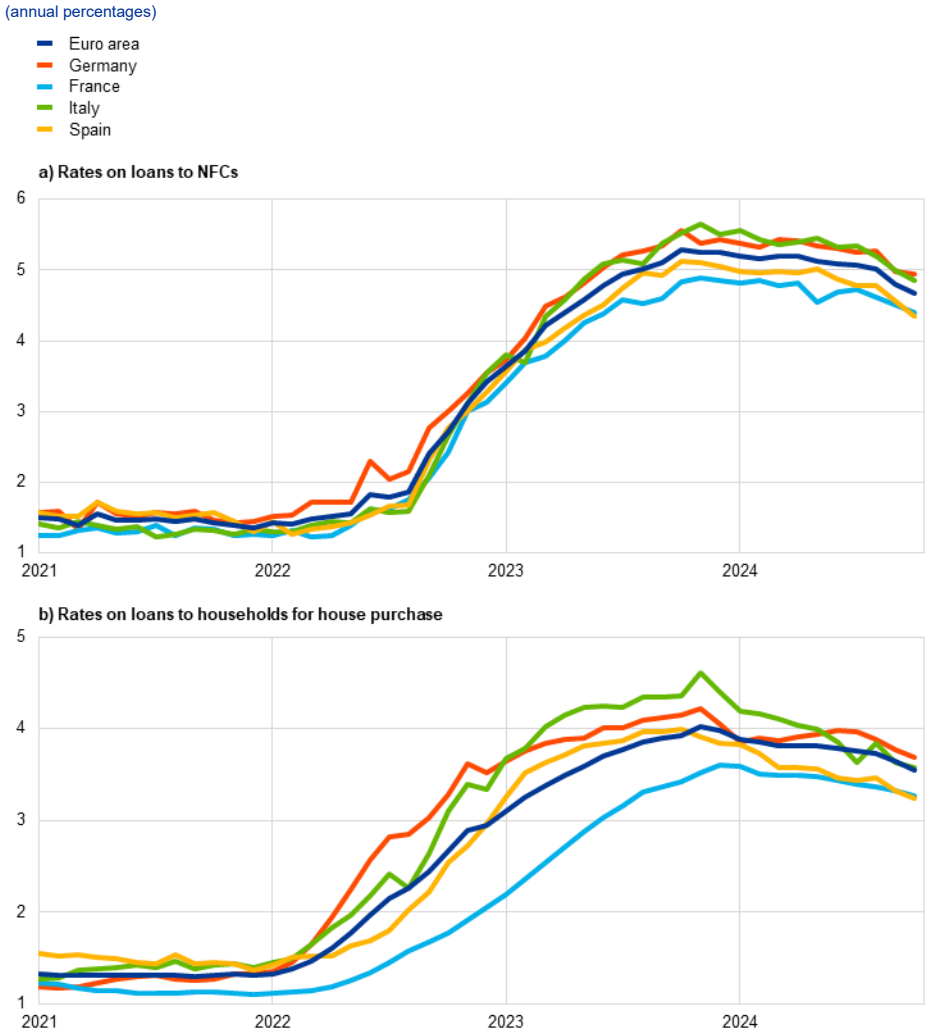
Sources: ECB, S&P Dow Jones Indices LLC and/or its affiliates, and ECB calculations.
Notes: Composite bank funding costs are a weighted average of the composite cost of deposits and unsecured market-based debt financing. The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their respective outstanding amounts. Bank bond yields are monthly averages for senior tranche bonds. The latest observations are for October 2024 for the composite cost of debt financing for banks (panel a) and for 11 December 2024 for bank bond yields (panel b).

Bank lending rates for firms and for households declined further, but financing conditions remain restrictive. Lending rates for firms and for households have fallen over recent months, supporting a gradual recovery in lending (Chart 20). In October 2024 lending rates for new loans to non-financial corporations (NFCs) fell by 22 basis points to stand at 4.68%, some 60 basis points below their October 2023 peak (Chart 20, panel a), although with some variation across euro area countries and maturities. The spread between interest rates on small and large loans to firms narrowed again in October, falling to 0.34%, which is close to the low reached in summer 2024. Across maturities, the largest decline was seen for loans with intermediate fixation periods (of between 1 and 5 years). Lending rates on new loans to households for house purchase stood at 3.55% in October, down from 3.64% in September, and now stand around 50 basis points below their November 2023 peak (Chart 20, panel b), with variation across countries. The decline was broad-based

across fixation periods and in line with markets rates, with variable rate mortgages remaining more expensive than those granted at fixed rates.

Chart 20

Composite bank lending rates for firms and households in selected euro area countries



Sources: ECB and ECB calculations.
Notes: NFCs stands for non-financial corporations. Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The latest observations are for October 2024.

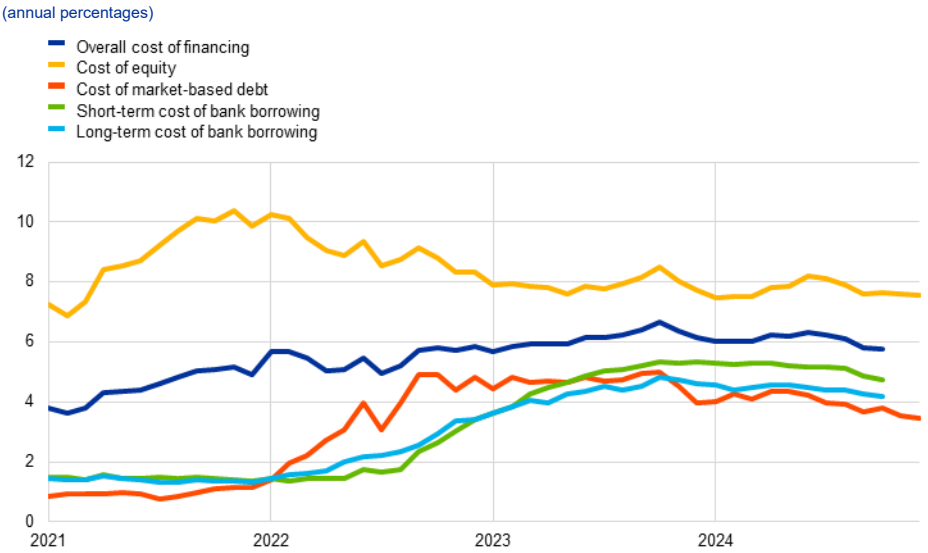
Over the period from 12 September to 11 December 2024, the cost to firms of both market-based debt and equity financing fell. Based on the monthly data, available until October, the overall cost of financing for NFCs – i.e. the composite cost of bank borrowing, market-based debt and equity – was unchanged in October compared with the previous month and stood at 5.8%, still below the multi-year high reached in October 2023 (Chart 21).[11] While the cost of equity financing remained virtually unchanged in that month, the slight rise in the cost of market-based debt was fully offset by the fall in the cost of bank borrowing. Daily data covering the

[11] Owing to lags in data availability for the cost of borrowing from banks, data on the overall cost of financing for NFCs are only available up to October 2024.

period from 12 September to 11 December 2024 show that the cost of both market-based debt and equity financing declined. The easing of the cost of market-based debt was driven by the significant downward shift of the overnight index swap (OIS) curve at all maturities of up to fifteen years, notwithstanding a slight widening of the spreads on bonds issued by NFCs in the investment grade segment. The reduction in the cost of equity financing resulted from both a lower equity risk premium and a fall in the long-term risk-free rate – as approximated by the ten-year OIS rate.

Chart 21

Nominal cost of external financing for euro area firms, broken down by component



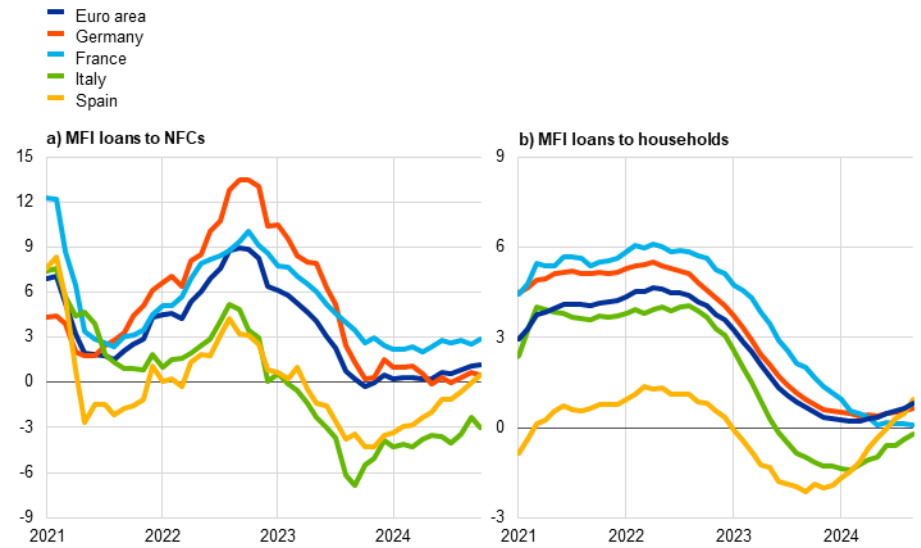
Sources: ECB, Eurostat, Dealogic, Merrill Lynch, Bloomberg, LSEG and ECB calculations.
Notes: The overall cost of financing for non-financial corporations (NFCs) is based on monthly data and is calculated as a weighted average of the long and short-term cost of bank borrowing (monthly average data), market-based debt and equity (end-of-month data), based on their respective outstanding amounts. The latest observations are for 11 December 2024 for the cost of market-based debt and the cost of equity (daily data), and for October 2024 for the overall cost of financing and the cost of borrowing from banks (monthly data).

The growth rate for bank loans to firms and households remained subdued, reflecting weak economic growth and still tight credit standards. Bank lending to firms has gradually picked up from low levels and increased to 1.2% in October 2024, up from 1.1% in September (Chart 22, panel a). Corporate debt borrowing remained at 1.6% in October, the positive net issuance of debt securities by firms not fully counterbalancing weak bank lending. The annual growth rate of loans to households edged up to 0.8% in October, from 0.7% in September, amid improvements in the short-term dynamics (Chart 22, panel b). Mortgage lending has stabilised from its earlier declines and is showing initial signs of a recovery. Consumer credit growth also increased in October, while other lending is still contracting, albeit at a decelerating pace. The ECB's Consumer Expectations Survey in October 2024 provides evidence of growth in consumer credit being concentrated among lower income households. Additionally, the percentage of households who perceived credit access to have been tighter still outweighs that perceiving credit access to have been easier (+14% in September).

Chart 22

MFI loans in selected euro area countries

(annual percentage changes)



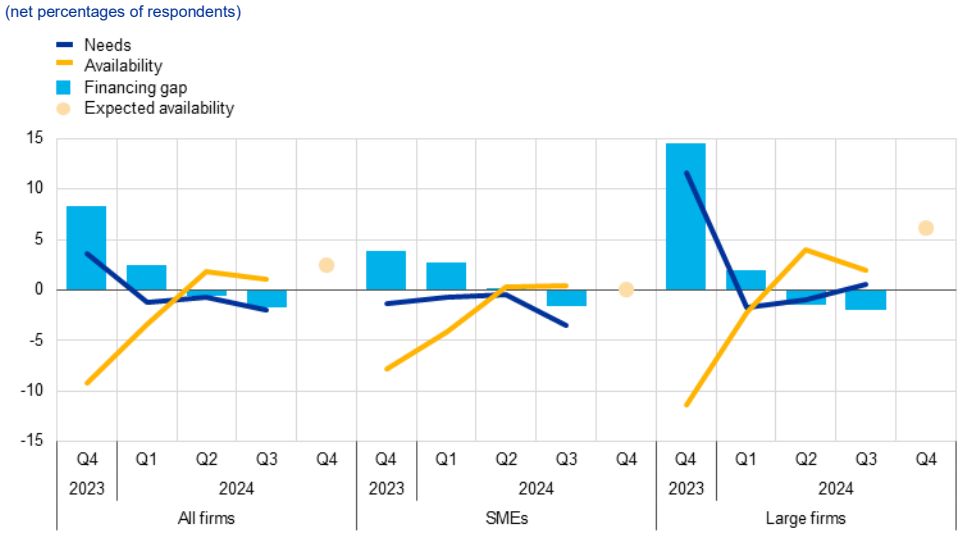
Sources: ECB and ECB calculations.
Notes: Loans from monetary financial institutions (MFIs) are adjusted for loan sales and securitisation; in the case of non-financial corporations (NFCs), loans are also adjusted for notional cash pooling. The latest observations are for October 2024.

In the Survey on Access to Finance of Enterprises (SAFE), firms reported that the availability of bank loans in the third quarter of 2024 had, on balance, remained broadly unchanged, with few expecting a positive change in the fourth quarter (Chart 23). The net percentage of firms reporting improved availability of bank loans was 1% in the third quarter of 2024, down from 2% in the previous quarter. This slight decline in the net percentage as compared with the previous quarter was attributable to large firms, while small and medium-sized enterprises (SMEs), on average, reported no change. A net 2% of firms expected access to bank loans to improve over the fourth quarter of 2024. While, on net, SMEs do not anticipate any change in the availability of loans, large firms expected to see an improvement in external/loan financing.

Firms also signalled a small reduction in the need for bank loans. In the third quarter of 2024 a net 2% of firms, primarily SMEs, reported lower bank loan needs, while a small net share of large firms indicated an increased need. As a result, the financing gap for bank loans – the estimated difference between the change in needs and availability – was negative for a net 2% of firms, this gap being similar for SMEs and large firms alike. While large firms had signalled a very modest negative financing gap already in the second quarter of 2024, this was not the case for SMEs until the third quarter.

Chart 23

Changes in euro area firms' bank loan needs, current and expected availability and financing gap



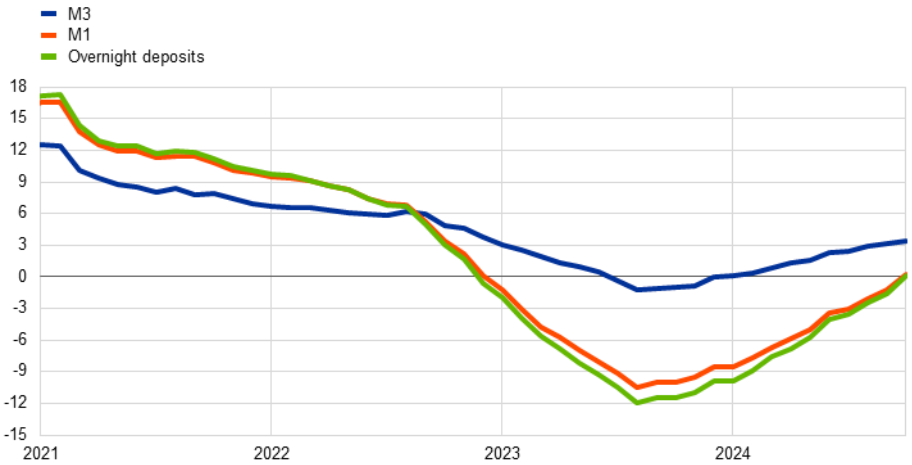
Sources: Survey on Access to Finance of Enterprises (SAFE) and ECB calculations.
Notes: SMEs stands for small and medium-sized enterprises. Net percentages are the difference between the percentage of firms reporting an increase in availability of bank loans (needs and expected availability respectively) and the percentage reporting a decrease in availability in the past three months. The financing gap indicator combines both financing needs and the availability of bank loans at firm level. The indicator of the perceived change in the financing gap takes a value of 1 (-1) if the need increases (decreases) and availability decreases (increases). If firms perceive only a one-sided increase (decrease) in the financing gap, the variable is assigned a value of 0.5 (-0.5). A positive value for the indicator points to a widening of the financing gap. Values are multiplied by 100 to obtain weighted net balances in percentages. The figures refer to rounds 29 (pilot round from October to December 2023) to 32 of the SAFE (June-September 2024).

The annual growth rate of broad money (M3) in the euro area continued to recover, with net foreign inflows still the main contributor to money creation. Annual M3 growth increased to 3.4% in October 2024, up from 3.2% in September (Chart 24). Annual growth of narrow money (M1) – which comprises the most liquid assets of M3 – turned positive for the first time since December 2022, rising to 0.2% in October compared with -1.3% in September. The annual growth rate of overnight deposits – a component of M1 – rose to 0.1% in October, up from -1.6% in September. Foreign inflows continued to be the primary source of money creation, mainly driven by a large euro area current account surplus. While the contribution to money growth made by net bank purchases of government debt was also significant, that of lending to households and to firms remained small. The ongoing contraction of the Eurosystem balance sheet and the issuance of long-term bank bonds (which are not included in M3), amid the phasing out of targeted longer-term refinancing operation (TLTRO) funding by the end of 2024, contributed negatively, however, to money creation.

Chart 24

M3, M1 and overnight deposits

(annual percentage changes, adjusted for seasonal and calendar effects)



Source: ECB.
Note: The latest observations are for October 2024.

6 Fiscal developments

According to the December 2024 Eurosystem staff macroeconomic projections, the euro area general government budget deficit is expected to decline from 3.6% of GDP in 2023 to 3.2% of GDP in 2024 and then very gradually to 2.9% in 2027. Broadly reflecting this path, the euro area fiscal stance is projected to tighten significantly in 2024, very marginally further in both 2025 and 2026, and then more strongly in 2027. However, the fiscal policy assumptions and projections are surrounded by an unusual level of uncertainty.[12] *The tightening of the fiscal stance in 2024 mostly reflects the phasing-out of a large part of energy and inflation-related support measures as well as sizeable non-discretionary factors, in particular strong revenue developments. The relatively large tightening of the fiscal stance in 2027 primarily reflects lower assumed public spending related to the expiry of Next Generation EU (NGEU) grant financing. The euro area debt-to-GDP ratio is projected to increase slowly from an already elevated level and to stabilise only at the end of the projection horizon at close to 89%. On the fiscal policy side, the European Commission launched the first cycle of policy coordination under the new economic governance framework with the release of its Autumn Package on 26 November. Governments should now focus on implementing their commitments under this framework fully and without delay. This would help bring down budget deficits and debt ratios on a sustained basis, while prioritising growth-enhancing reforms and investment.*

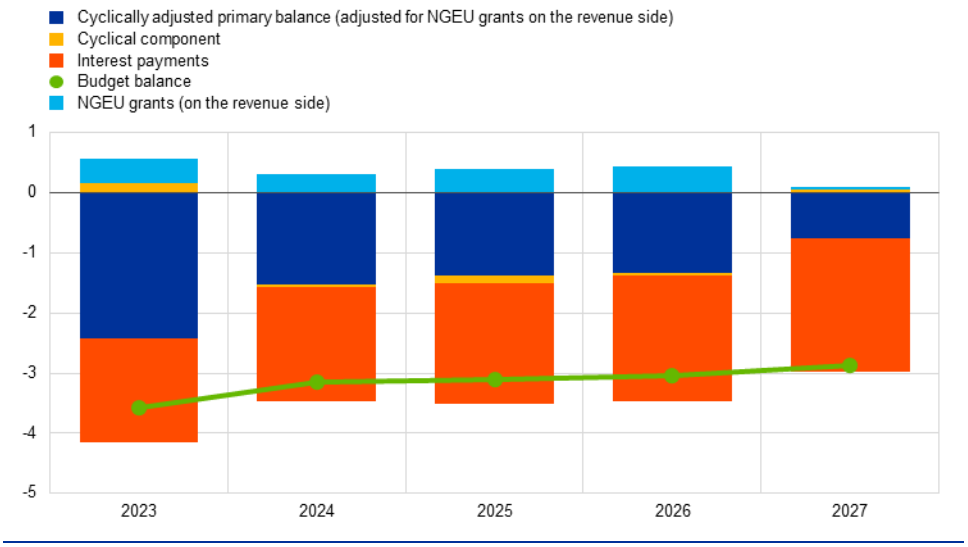
According to the December 2024 Eurosystem staff macroeconomic projections, the euro area general government budget balance is set to improve gradually over the projection horizon (Chart 25).[13] While the euro area budget deficit was stable at 3.6% of GDP in 2022 and 2023, it is expected to decline to 3.2% of GDP in 2024 and then by 0.1 percentage points per annum until 2027, when it is projected to stand at 2.9%. The projected path reflects mainly a gradually improving but still negative cyclically adjusted primary balance over the projection horizon. This will, however, be partly offset by gradually rising interest expenditure over the whole period, reflecting a slow pass-through of past interest rate increases given the long residual maturities of outstanding sovereign debt. The cyclical component remains very small and negative until 2027, when it turns slightly positive. Compared with the September 2024 ECB staff macroeconomic projections, the budget balance is revised marginally up in 2024 and 2025 but is unrevised in 2026.

[12] The fiscal plans of some large euro area countries are either not yet finalised or already outdated given the prevailing political situation. In France, for instance, the baseline fiscal policy assumptions and projections rest on an assessment of the 2025 budget and medium-term fiscal plans of the Government of former Prime Minister Michel Barnier. On 4 December, the French Parliament passed a motion of no-confidence in the Government and its fiscal plans, with unclear consequences for the 2025 budget. In many countries there are also risks to the baseline stemming from possible, but as yet unspecified, additional measures needed to comply with the requirements of the revised EU fiscal framework.

[13] See "Eurosystem staff macroeconomic projections for the euro area, December 2024", published on the ECB's website on 12 December 2024.

Chart 25

Budget balance and its components



Sources: ECB calculations and Eurosystem staff macroeconomic projections for the euro area, December 2024.
Note: The data refer to the aggregate general government sector of all 20 euro area countries.

The euro area fiscal stance is projected to tighten significantly in 2024 and, with the expiry of the NGEU programme, also in 2027.[14] The annual change in the cyclically adjusted primary balance, adjusted for grants extended to countries under the NGEU programme, points to a significant tightening (0.9 percentage points of GDP) of fiscal policies in the euro area in 2024. This mostly reflects the phasing-out of a large part of government energy and inflation-related support measures, as well as sizeable non-discretionary factors reflecting strong revenue developments in some countries. The fiscal stance is projected to continue tightening over the coming years, albeit only marginally in 2025 and 2026. In 2025 the tightening impact of discretionary measures is expected to be compensated by dynamic public investment and fiscal transfers, while a reduction in discretionary measures is expected to underpin the tightening in 2026. When the NGEU programme expires in 2027, the fiscal stance is expected to tighten much more significantly, by 0.6 percentage points of GDP, primarily reflecting lower assumed public investment and fiscal transfers, previously financed from NGEU grants. As a result, the cumulated tightening of the fiscal stance over the 2024-27 projection horizon amounts to 1.7 percentage points of GDP. Overall, however, taking into account the large amount of fiscal support provided since the pandemic, the cumulative fiscal stance over the period 2020-27 remains very accommodative.

The euro area debt-to-GDP ratio is projected to increase slowly from an already elevated level and to stabilise at the end of the projection horizon

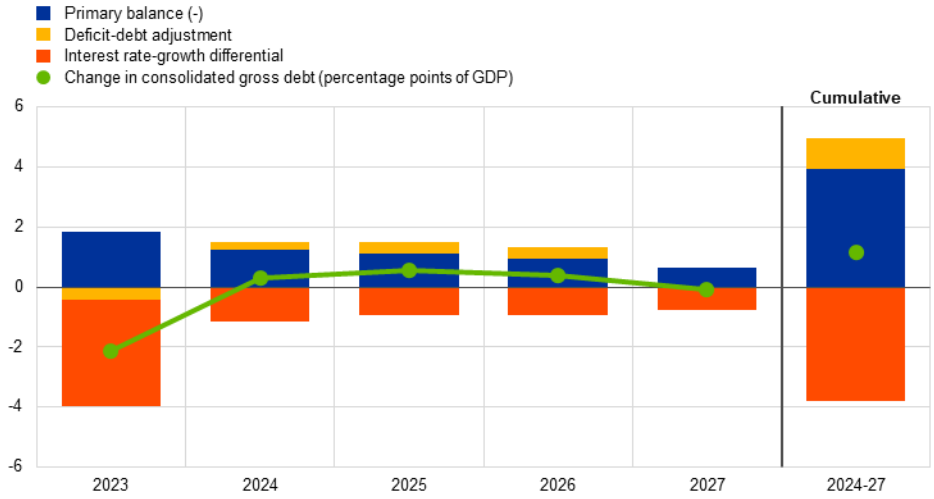
[14] The fiscal stance reflects the direction and size of the stimulus from fiscal policies to the economy beyond the automatic reaction of public finances to the business cycle. It is measured here as the change in the cyclically adjusted primary balance ratio net of government support to the financial sector. Given that the higher budget revenues related to NGEU grants from the EU budget do not have a contractionary impact on demand, the cyclically adjusted primary balance is adjusted to exclude those revenues. For more details on the euro area fiscal stance, see the article entitled "The euro area fiscal stance", *Economic Bulletin*, Issue 4, ECB, 2016.

(Chart 26). The debt ratio increased significantly during the pandemic, to around 97% in 2020, before falling gradually. According to the December 2024 Eurosystem staff macroeconomic projections, this improvement is coming to a halt. Instead, the debt ratio is now expected to increase slowly from 87.4% of GDP in 2023 to close to 88.7% of GDP in 2027. The increase over the projection horizon is driven by continued primary deficits and expected positive deficit-debt adjustments that are only partly compensated by favourable (negative) interest rate-growth differentials.

Chart 26

Drivers of change in euro area government debt

(percentages of GDP, unless otherwise indicated)



Sources: ECB calculations and Eurosystem staff macroeconomic projections for the euro area, December 2024.
Note: The data refer to the aggregate general government sector of all 20 euro area countries.

On 26 November the European Commission launched the first cycle of policy coordination under the new economic governance framework with the release of its Autumn Package. This package contains the Commission's assessment of the first medium-term fiscal structural plans (MTFSPs) submitted by EU Member States under the new governance framework that took effect on 30 April. It also includes the Commission's assessment of euro area countries' draft budgetary plans (DBPs) for 2025. However, not all euro area countries had submitted their budgetary plans to the Commission, mainly owing to their electoral cycles.[15] Moreover, in view of political developments in some countries, several DBPs may already be out of date. Nevertheless, governments should now focus on implementing their commitments under this framework fully and without delay. This would help bring down budget deficits and debt ratios on a sustained basis, while prioritising growth-enhancing reforms and investment. To make the economy more productive, competitive and resilient, it is also crucial to swiftly follow up, with concrete and

15 Belgium, Germany, Lithuania and Austria had not submitted an MTFSP to the Commission, while Belgium, Spain and Austria had not presented a DBP.

ambitious structural policies, on Mario Draghi's proposals for enhancing European competitiveness and Enrico Letta's proposals for empowering the Single Market.[16]

[16] See Draghi, M., "The future of European competitiveness", September 2024; and Letta, E., "Much more than a market – Speed, Security, Solidarity. Empowering the Single Market to deliver a sustainable future and prosperity for all EU Citizens", April 2024.

Boxes

1 What's behind the resilience of US equity prices – market structure, earnings expectations or equity risk premia?

Prepared by Magdalena Grothe, Ana-Simona Manu and Toma Tomov

Increases in US equity prices since early 2023 have led to elevated valuations, particularly for the so-called Magnificent Seven firms. US equity prices have risen by almost 60%, despite the Federal Reserve System's monetary tightening and numerous geopolitical shocks. Year-on-year returns of over 20% have been observed in each quarter of 2024 (Chart A, panel a). The equity returns of the best-performing stocks – those of the large tech companies Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia and Tesla, frequently referred to as the "Magnificent Seven" – have significantly outpaced the rest, increasing by around 75% in 2023 and 45% in 2024. This has driven their valuations, in price-to-earnings (P/E) ratio terms, up to around 30 – well above the median level for S&P 500 companies, which is 20, and above the long-term median level of 17 (Chart A, panel b).[1] While the recent returns of most S&P 500 companies have not been as high as the returns of the technology firm-dominated Nasdaq index 25 years ago, these developments are worth assessing in the light of the experience of the dot-com period. As in that period, which was fuelled by widespread enthusiasm for the internet, tech firms' current market performance has been buoyed by strong optimism surrounding new technology such as artificial intelligence (AI). Analysts and media commentators have therefore been exploring the similarities and differences between the two episodes.[2] Against this background, this box sheds light on the factors behind the US equity market resilience by discussing the role of market structure, earnings expectations and equity risk premia.

Market capitalisation is now significantly more concentrated than in the past, also including the dot-com bubble. While the dot-com boom encompassed numerous highly leveraged small start-ups (many of which were not included in the S&P 500, but rather in the Nasdaq index), the AI boom is concentrated among the highest-performing and largest S&P 500 companies. At current market prices, the "Magnificent Seven" stocks account for around one-third of the entire market capitalisation of the S&P 500, compared with one-fifth five years ago. The significant role of these companies in current index valuations and market capitalisation contrasts sharply with the dot-com boom, when the top seven firms accounted for only 17% of the S&P 500's market capitalisation – about half of today's share. Large US technology companies also have more market power and higher profit margins, at around 20%, than the average US information technology (IT) company in the late

1 The P/E ratio is a popular equity valuation metric, calculated as the share price divided by the earnings per share of the respective company. It can be interpreted as the price an investor pays per unit of earnings.

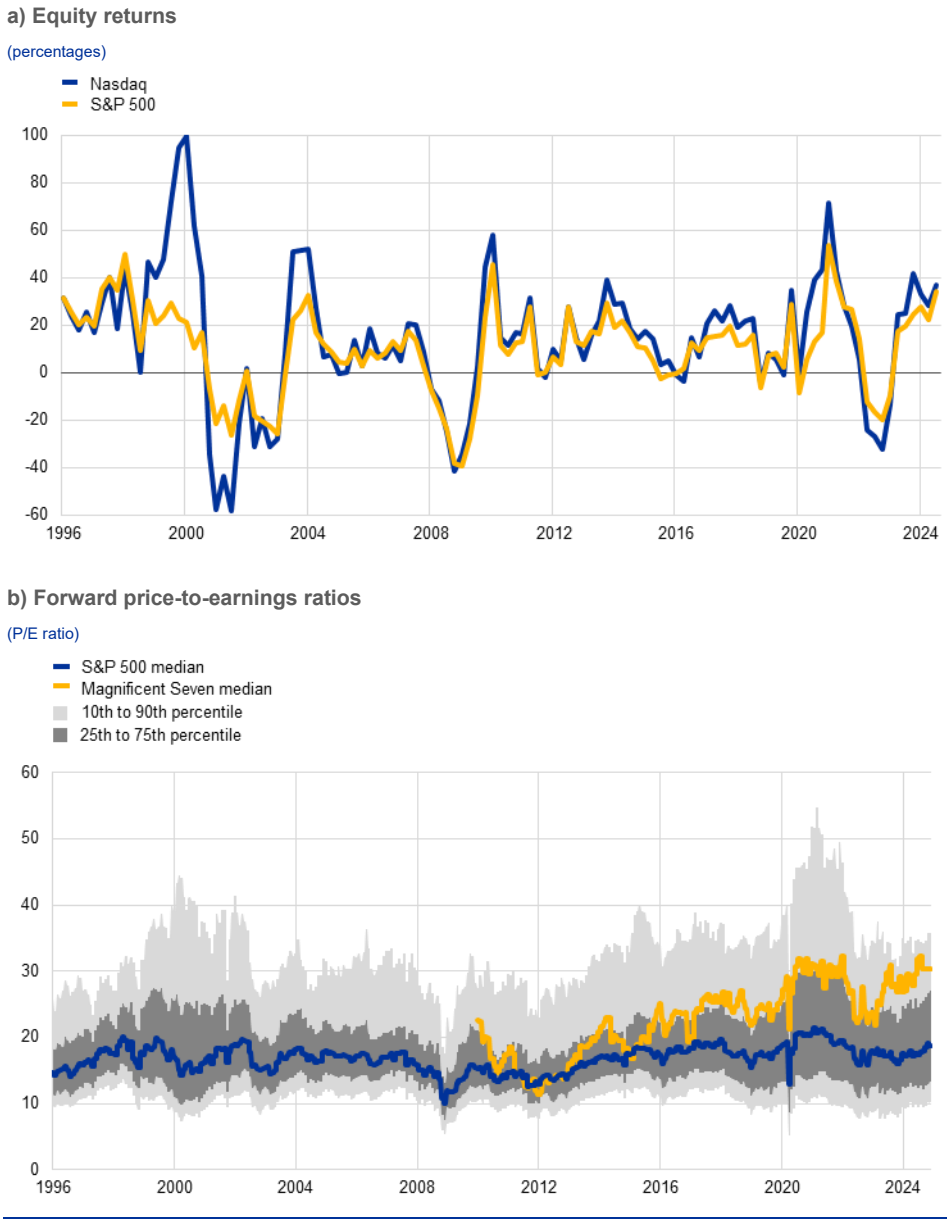
2 As an example of recent publications by some international institutions, see Lombardi, M.J. and Pinter, G., "The valuations of tech stocks: dotcom redux?", *BIS Quarterly Review*, 16 September 2024.

1990s, which had profit margins ranging from 5% to 10%. Moreover, unlike many of the dot-com start-ups that relied on leverage, the “Magnificent Seven” companies have ample cash reserves and cheap access to external financing, enabling them to invest in research and development and to acquire smaller companies and competitors.[3] Barriers to entry (e.g. large fixed costs in chipmaking and cloud services and the first-mover advantage in the development of large language models and search engines) help such companies preserve their market share and capture value, possibly at the expense of other – smaller – companies.

[3] Evidence from recent filings by the “Magnificent Seven” companies suggests increasing mentions of merger and acquisition activity associated with those firms.

Chart A

US equity returns and price-to-earnings ratios



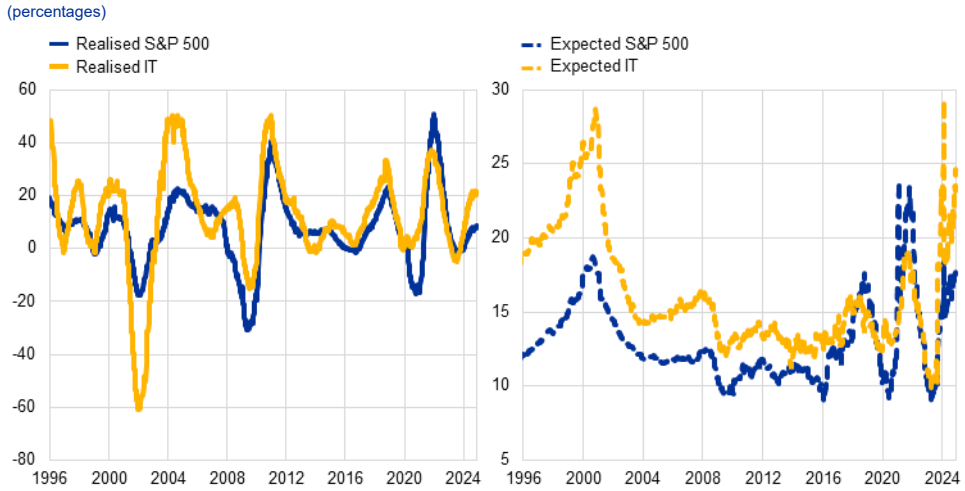
Sources: Bloomberg, LSEG and ECB staff calculations.
Notes: In panel a), the lines denote the year-on-year returns of the S&P 500 and Nasdaq indices (data as at the end of each quarter). In panel b), the grey areas denote forward P/E ratios across percentiles of firms in the S&P 500. The blue and yellow lines correspond to the median of the S&P 500 index and to the median of the Magnificent Seven for the most recent years, respectively. The latest observations for panel a) are for Q3 2024 (quarterly data). The latest observations for panel b) are for 29 November 2024 (weekly data).

Strong expected earnings in the US tech sector, based on hopes for large productivity gains linked to the AI revolution, have driven its equity prices. The "Magnificent Seven" stocks have recorded very high realised earnings in recent years, which has fuelled expectations of further earnings growth and contributed to their stock prices outperforming others. Market analysts expect double-digit earnings growth for the S&P 500 in 2025 and 2026, well above the long-term average (Chart B). AI-related productivity gains arguably underpin these expectations, as AI

has been increasingly mentioned in S&P 500 companies' earnings reports.[4] However, from the historical perspective of the broader market, earnings growth of around 18%, as is currently expected for the S&P 500 over the next years, has been realised relatively rarely. For example, in the dot-com bubble in 2000 expected earnings were similarly high, while realised earnings were initially strong, but fell substantially afterwards. Moreover, due to the above-mentioned structural factors, the proportion of AI-related gains that will accrue to the wider corporate sector is uncertain.

Chart B

Long-term earnings per share growth and realised earnings for S&P 500 firms and the information technology (IT) sector



Sources: IBES via LSEG and ECB staff calculations.
Notes: Long-term earnings per share growth refers to the median growth rate expected over a three-to-five-year period. Realised earnings growth is shown over one year. The latest observations are for 29 November 2024 (weekly data).

Model analysis also points to risk appetite playing a significant role as a driver of the rise in US equity prices, with equity risk premia at multi-year lows.

Insights from the dividend discount model for the S&P 500 and IT stocks reveal that investor risk appetite has been a significant driver of rising equity prices. This trend has been particularly evident since 2022, when estimates of equity risk premia dropped to multi-year lows (Chart C, panel a). Several factors may have contributed to the low levels of equity risk premia and ample risk appetite, such as progress in bringing down inflation without signs of a recession, or subdued demand for tail risk protection.[5] Equity risk premia have been particularly low for the IT sector, which includes some of the "Magnificent Seven" stocks. Together with strong expected earnings, historically low equity risk premia were the driving force behind the resilience of US equity prices, prevailing even when interest rates increased sharply (Chart C, panel b). Following the Federal Reserve's December 2023 Federal Open Market Committee (FOMC) statement, which implied a pivot away from the

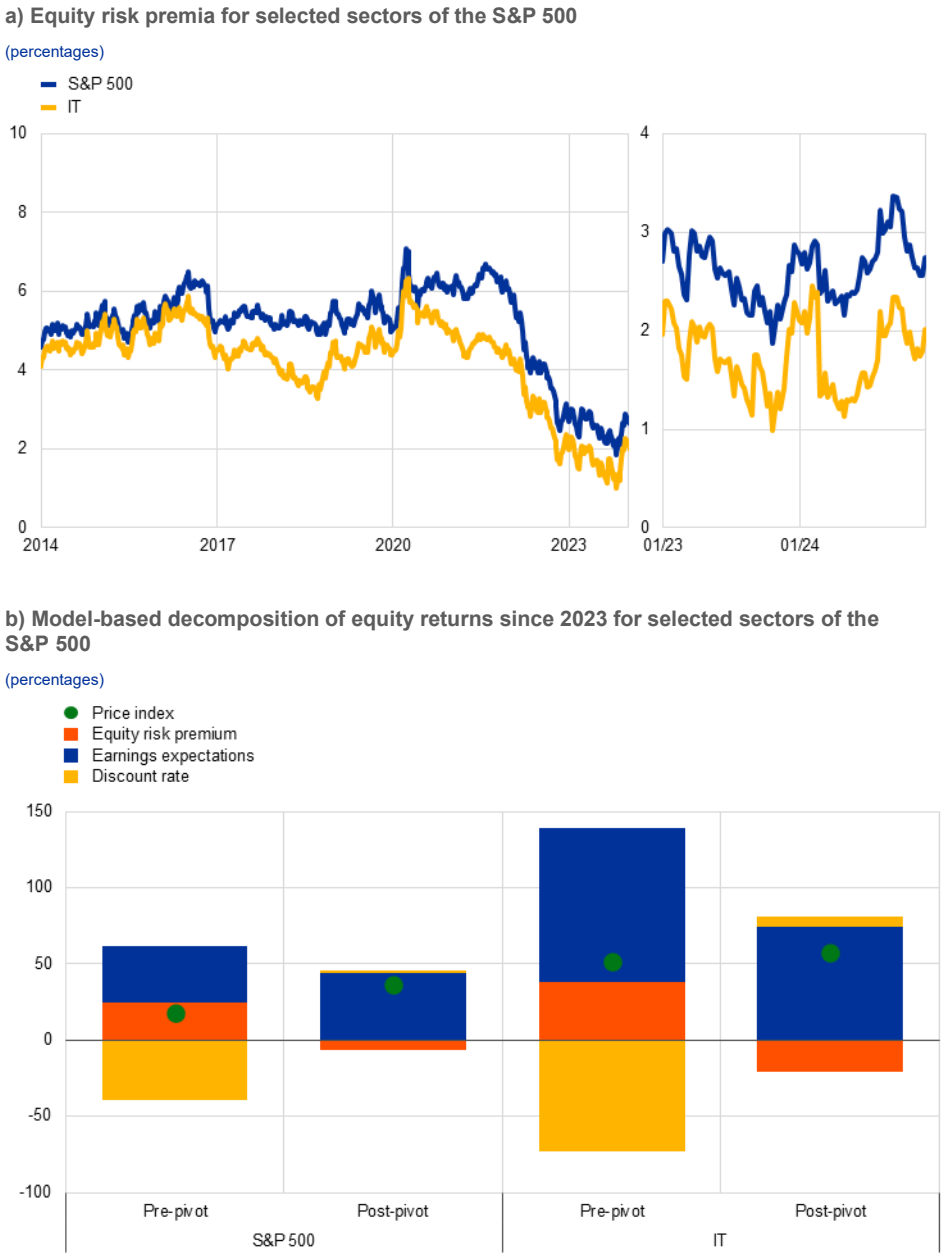
4 For example, see Chart 19 of the IMF Corporate Earnings Monitor, 17 June 2024.

5 For a broader discussion of equity market risks, see the box entitled "Low implied equity market volatility could underestimate financial stability vulnerabilities", *Financial Stability Review*, ECB, May 2024, and Chapter 2.2 of the *Financial Stability Review*, ECB, November 2024.

restrictive monetary policy stance, interest rates exerted a smaller drag on equity prices.

Chart C

The role of equity risk premia in S&P 500 and IT sector valuations



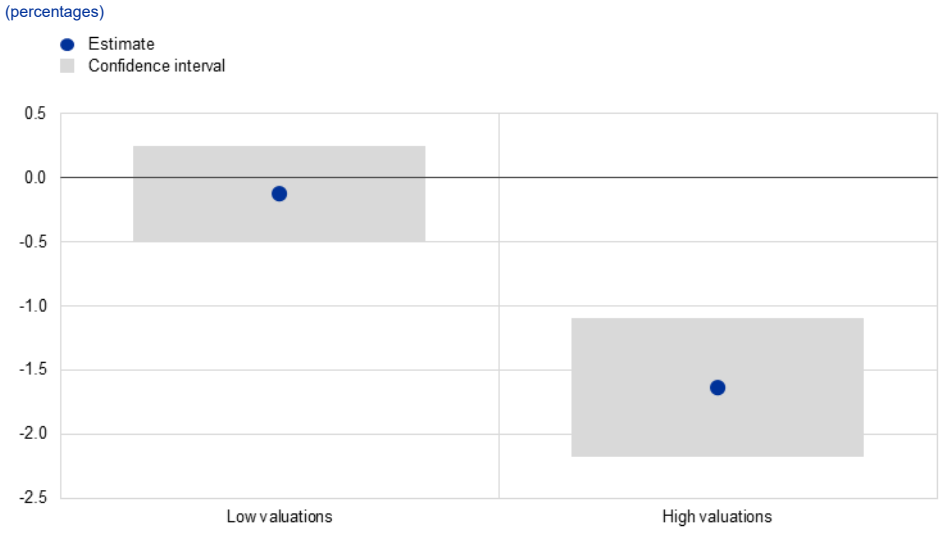
Sources: LSEG and ECB staff calculations.
Notes: The equity risk premium is obtained using a dividend discount model, a standard equity valuation model used for equity market monitoring and estimation of the equity risk premium. An increase in the equity risk premium means a rise in the risk compensation for holding equities, which can be interpreted as greater risk aversion. Analogously, a decline in the equity risk premium can be interpreted as decreasing risk aversion. To estimate this model for the IT sector our approach also relies on the methodology developed for the overall index in the article entitled "Measuring and interpreting the cost of equity in the euro area", *Economic Bulletin*, Issue 4, ECB, 2018. The model includes share buybacks, discounts future cash flows with interest rates of appropriate maturity and includes three expected dividend growth horizons. The first period, "Pre-pivot", refers to the change between January 2023 and the December 2023 FOMC meeting. The second period, "Post-pivot", refers to the change between the December 2023 FOMC meeting and the latest observations. The latest observations are for 29 November 2024 (weekly data).

In view of the elevated valuations and significant stock market concentration, equities remain exposed to adverse shocks. In the current environment of a

changing geopolitical landscape, elevated debt and uncertainty about both broader economic outcomes and, specifically, about future realised AI-related productivity gains, sudden shifts to "risk-off" positioning could be more likely. Model-based evidence indicates that, for example, downward revisions to the macroeconomic outlook may exert a greater impact on equity market prices during periods of elevated valuations (Chart D). In view of the currently high valuations and the significant concentration of the US equity market, such risks might become increasingly relevant.[6]

Chart D

US equity price response to negative US macroeconomic shocks, by equity valuation metrics



Sources: SEG and ECB staff calculations.
Notes: Impulse responses of US equity prices to adverse US macroeconomic shocks, by valuation metrics. The responses are estimated by applying threshold local projections methods to daily data, controlling for the Citi Economic Surprise Index, and are shown cumulated after one week. US macroeconomic shocks are identified in a daily Bayesian vector autoregression as proposed by Brandt, L., Saint Guilhem, A., Schröder, M. and Van Robays, I., "What drives euro area financial market developments? The role of US spillovers and global risk", *Working Paper Series*, No 2560, ECB, 2021. The estimation period is from July 2005 to August 2024.

6 A more detailed analysis of different types of adverse shocks and equity price responses suggests that strong expected earnings can cushion equity prices from the impact of unexpected risk-off and monetary policy shocks, as shown in Chițu, L., Grothe, M., Schulze, T. and Van Robays, I., "Financial shock transmission to heterogeneous firms: the earnings-based borrowing constraint channel", *Working Paper Series*, No 2860, ECB, 2023. Correspondingly, high equity valuations driven by expected earnings are likely to be less vulnerable to risk-off or monetary policy shocks but might be affected by adverse macroeconomic shocks.

2 The effects of the Emissions Trading System on European investment in the short run

Prepared by Pablo Anaya Longaric, Virginia Di Nino and Vasileios Kostakis

This box takes stock of the impact of the EU Emissions Trading System (EU ETS) on European investment, while testing empirically the effect of carbon pricing on international and domestic investment flows. The EU ETS has reduced greenhouse gas emissions, bringing long-term benefits for the environment, the European economy and Europe's energy independence. Empirical evidence on the long-term benefits indicates that the ETS also triggers green investment to reduce the carbon intensity of firms' production processes.[1] When compared with alternative policy instruments, carbon pricing is shown to be an efficient mechanism for providing incentives for the adoption of low-carbon technologies.[2] As a result, the ETS is instrumental in enhancing European energy independence from fossil fuels.

However, it is not immediately clear how investment has been affected in the short term. The environmental benefits might come at the cost of reduced investment since carbon pricing works as an energy tax levied on companies.[3] It might also divert investment towards countries that have not put in place comparable legislation to limit carbon emissions through pricing or taxation – so-called "carbon leakage". At the same time, it could provide incentives for firms to invest in green technologies, while ETS revenues, through EU programmes such as the Innovation Fund, Modernisation Fund and the REPowerEU component of the Recovery and Resilience facility, are deployed to stimulate green investment. As there is not yet a clear consensus on the effect on investment, an investigation into which of these forces have so far prevailed would help to fine-tune environmental policies so as to limit the risk of carbon leakage and mitigate possible economic costs.

The analysis below examines the impact of changes in the carbon price on international and European investment flows. It estimates the effects of carbon price shocks on greenfield foreign direct investment (FDI) and on gross fixed capital formation over time at both the country level and the sectoral level. To identify carbon price shocks, changes in the prices of futures contracts for emissions allowances that occur around the time of changes in the ETS regulations are included as an instrument in a vector autoregressive model.[4] Importantly, the analysis focuses on the near-term costs associated with carbon pricing, whereas the

1 See Colmer, J., Martin, R., Muuls, M. and Wagner, U.J., "Does Pricing Carbon Mitigate Climate Change? Firm-Level Evidence from the European Union Emissions Trading System", *The Review of Economic Studies*, May 2024

2 See Anderson et al., "Policies for a climate-neutral industry: Lessons from the Netherlands", *OECD Science, Technology and Industry Policy Papers*, No 108, April 2021.

3 For a discussion of the macroeconomic effects of tax-based carbon-transition policies, see the article entitled "The macroeconomic implications of the transition to a low-carbon economy", *Economic Bulletin*, Issue 5, ECB, August 2023; and Känzig, D.R., "The unequal economic consequences of carbon pricing", *National Bureau of Economic Research Working Papers*, No 31221, May 2023.

4 See Känzig, D.R., op. cit.

long-term benefits of cleaner energy and reduced dependence on fossil fuels are beyond the scope of the box.[5] The sample spans 2003-19, incorporating the period from the announcement of the implementation of the ETS until the end of the third phase of implementation. It excludes the pandemic period, when other types of major shock took place that could contaminate the analysis, but includes carbon price shocks associated with announcements in 2019 about future changes in the ETS regulations.

Empirical analysis suggests that flows of greenfield FDI in Europe are dampened temporarily when the carbon price rises. Following a carbon price shock normalised to result in a 1% increase in the energy component of the producer price index (PPI) – which corresponds to raising carbon futures prices by 25% on impact – flows of European greenfield FDI into non-European countries rise significantly (Chart A, panel a).[6] Moreover, FDI between non-European countries increases after a year. Similarly, there is a decline in European inward greenfield FDI flows, both from outside and from within Europe, with the latter continuing to contract over the medium term (Chart A, panel b). Overall, these reactions suggest that there might be a temporary diversion of funds away from Europe when carbon prices increase.[7]

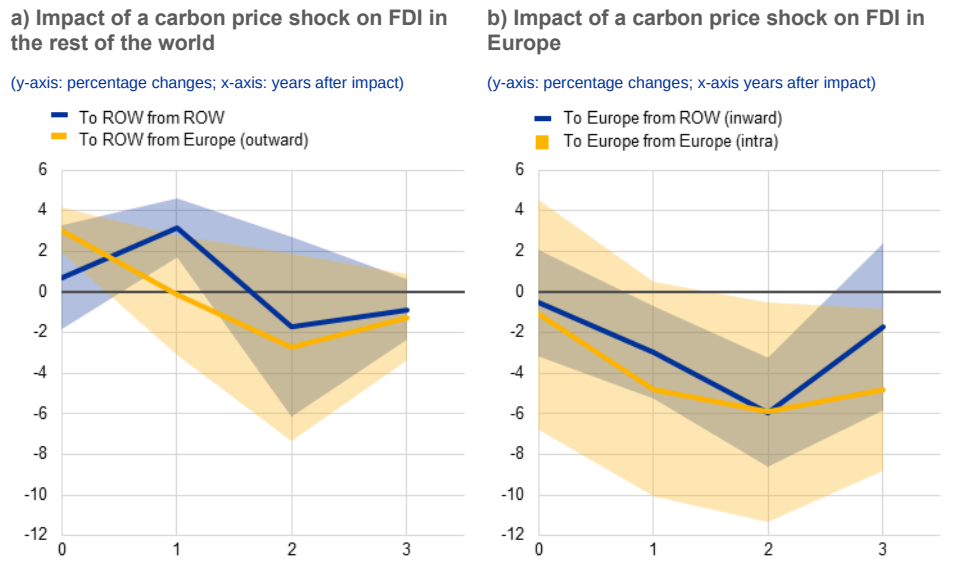
5 There is evidence that adopting the ETS triggered investments targeted at reducing firms' carbon emissions in the long term without harming their economic activity. See Anderson et al., op. cit.

6 The shock is identified up to scale and sign using instrumental variables within a vector autoregressive model. It has been scaled to prompt an immediate reading of the results. Nevertheless, the scaling makes it relatively large compared with the average response of carbon futures prices to past changes in ETS regulations. Thus, the actual impact on FDI and domestic investment in the past can be expected to have been considerably smaller.

7 See Böning, J., Di Nino, V. and Folger, T., "Stop carbon leakage at the border, can EU companies be both green and globally competitive?", *The ECB blog*, 1 June 2023; and Böning, J., Di Nino, V. and Folger, T., "Benefits and costs of the ETS in the EU, a lesson learned for the CBAM design", *Working Paper Series*, No 2764, ECB, January 2023.

Chart A

The impact of a carbon price shock on global greenfield FDI



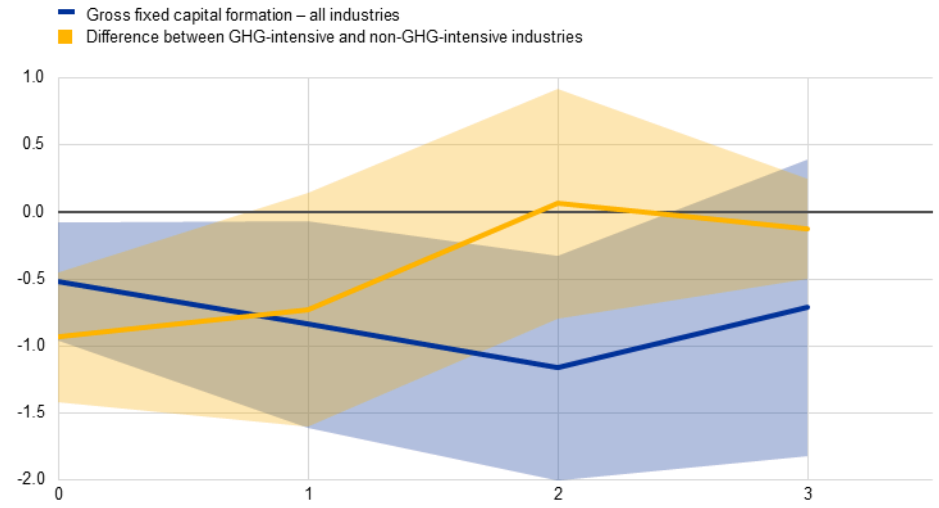
Sources: Eurostat, FT fDi Intelligence and ECB staff calculations.
Notes: "ROW" stands for "rest of the world". The chart shows the estimated effects on announced projects for greenfield FDI stemming from a carbon price shock that leads to a 1% increase in PPI energy on impact. The sample spans 2003-19. As the ETS became operational in 2005, the extended time series does not substantially influence the results. The specification follows $\Delta_h Y_{ij,t+h} = a_j^h + \beta_h S_t + \Xi_h X_{j,t-1} + \varepsilon_{j,t+h}$, where $Y_{ij,t+h}$ is the outcome variable of interest at horizon *h* between countries *i* and *j*, and $X_{j,t-1}$ includes a set of macroeconomic controls, including the lagged dependent variable. The solid lines show the estimated impulse responses, while the shaded areas represent 90% confidence intervals based on Driscoll-Kraay standard errors robust to serial correlation and cross-section dependence.

There also seems to be an adverse effect on domestic investment in Europe. In response to a carbon price shock that increases PPI energy by 1%, EU gross fixed capital formation falls by 0.5% in the first year, and the cumulative decrease amounts to more than 1% after two years (Chart B). It should be noted, however, that the level of uncertainty surrounding the estimates is high. This decline occurs because higher carbon prices act as a tax on firms' production and reduce overall economic activity, outweighing increased investment to rebalance firms' production processes towards green energy sources.

Chart B

The impact of a carbon price shock on gross fixed capital formation in the EU

(y-axis: percentage changes; x-axis: years after impact)



Sources: Eurostat and ECB calculations.
Notes: "GHG" stands for "greenhouse gas". The chart shows the estimated effect of a carbon price shock that leads to a 1% increase in PPI energy on impact. The specification is the same as the specification described in the notes to Chart A. Greenhouse gas-intensive sectors are those that have emissions (in proportion to their value added) greater than the median.

High-carbon sectors are the main industries affected by the carbon price shock.[8] The decrease in aggregate investment is driven mostly by the construction, transportation and manufacturing sectors (Chart C). Moreover, mining and quarrying, despite being very carbon-intensive activities, have not been significantly affected by carbon price shocks. This is most likely due to the rollout of free allowances in this sector.[9]

These findings should be seen in the context of other studies which show that the ETS has neither reduced economic activity nor led to significant carbon leakage.[10] In fact, the reduction in carbon emissions achieved through the ETS is largely attributed to genuine decreases in emissions rather than shifts in production to regions with laxer environmental regulations. In addition, European examples show that when carbon pricing is complemented with ambitious government support for advanced technology, they can be mutually reinforcing and make the business case for investing in decarbonisation.[11]

8 Emission-intensive industries are two-digit industries under the NACE classification with greenhouse gas emissions (in proportion to their value added) above the median.

9 For similar results, see Matzner, A. and Steiniger, L., "Firms' heterogeneous (and unintended) investment response to carbon price increases", *Working Paper Series*, No 2958, ECB, July 2024.

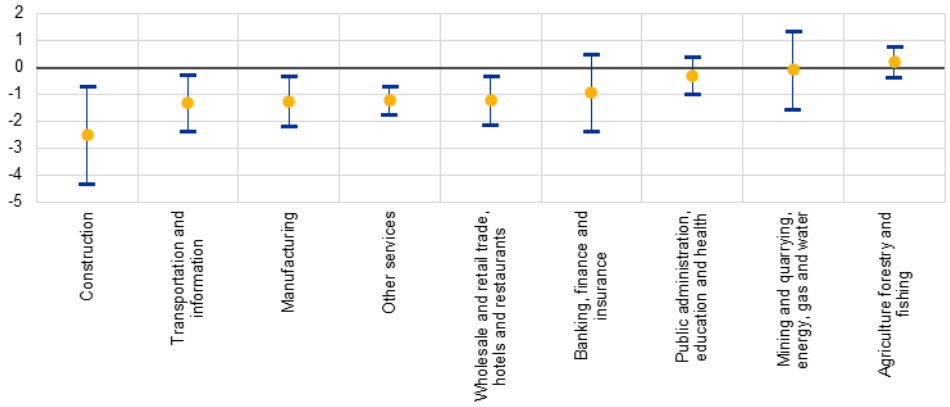
10 See Colmer et al., op. cit., who report no evidence of carbon leakage resulting from the ETS in its initial two phases, based on analysis of French administrative data.

11 See Anderson et al., op. cit.

Chart C

The impact of a carbon price shock on gross fixed capital formation in the EU, by sector

(percentage changes)



Sources: Eurostat and ECB calculations.
Notes: The whiskers show the impact on each sector. The groupings follow the methodology of Känzig, op. cit., as also employed in Matzner and Steiniger, op. cit. The regression specification is the same as described in the notes to Chart A.

The analysis suggests that higher carbon prices may temporarily dampen domestic investment and shift global FDI away from Europe, but the longer-term benefits can largely outweigh these short-term effects.[12] A more comprehensive analysis that also looks at the long-term benefits related to achieving independence from fossil fuels and enhancing European energy independence is warranted. In parallel with tighter regulations in terms of coverage of sectors and emission entitlement rights, the European Commission has introduced a carbon border adjustment mechanism (CBAM). This contributes to shielding European businesses from possible unfair foreign competition and to restoring level playing fields by charging EU importers a price proportional to the emissions entailed in foreign production processes.[13] Together with complementary policies that are currently under discussion, this will sustain Europe's future production capacity and its external competitiveness.[14]

12 The effects on investment and greenfield FDI flows are sizeable but in line with current literature that takes into consideration the fourth phase of ETS implementation resulting from changes in the regulations announced during the third phase, as does this box. Examples of such announcements include the Auctioning Regulation amendment and the adoption of the Delegated Decision on the carbon leakage list for 2021-30.

13 For details, see the webpage of the CBAM.

14 See Bijnens G., Duprex, C. and Hutchinson, J., "Obstacles to the greening of energy-intensive industries." *The ECB Blog*, 17 September 2024.

3 What are the economic signals from uncertainty measures?

Prepared by Malin Andersson, Alina Bobasu and Roberto A. De Santis

While uncertainty plays a prominent role in many economic decisions, it is not directly measurable, making its precise impact difficult to gauge. In times of high uncertainty, households and firms may delay or cancel spending and investment plans, which in turn dampens economic activity.[1] Given that uncertainty is not directly observable, this box assesses recent signals from different proxies, categorising them as those that are directly associated with the short-term economic situation and those that reflect longer-term policy issues. We also examine the implications of these measures for key macroeconomic variables.

Uncertainty about the short-term economic situation is usually tracked using a mix of statistical, survey-based and financial indicators. One key measure for the euro area is the macroeconomic uncertainty index developed by Jurado et al., which defines uncertainty as the volatility of the forecast errors three months ahead for a wide range of economic indicators.[2] Another proxy is the forecast disagreement from Consensus Economics, which captures the dispersion in predictions one year ahead for real GDP, industrial production, private consumption and private investment growth, as well as HICP inflation and long-term interest rates. Additionally, the survey-based economic uncertainty measure of the European Commission reflects the difficulty of business managers and consumers to make predictions about their business situation and household finances. Finally, the Composite Indicator of Systemic Stress (CISS) is a financial stress indicator developed by the ECB, constructed using a variety of market-based financial variables from multiple segments of the financial system.

There are also uncertainty measures related to longer-term policy issues. One such measure is the news-based Economic Policy Uncertainty index for the euro area, which tracks the frequency with which specific words related to economic policy uncertainty are mentioned in newspaper articles. Three other text-based indicators show uncertainty surrounding geopolitics, trade and climate policy.[3]

Measures that capture concerns about the short-term economic situation currently display relatively low levels of uncertainty, while those related to longer-term policies are showing higher levels (Chart A). While all these indicators peaked during the Russian invasion of Ukraine, measures related to the

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1 Certain types of uncertainty, such as that related to the recent surge in Artificial Intelligence investment, can also increase investment and economic activity (see Ludvigson, S.C., Ma, S. and Ng, S., "Uncertainty and Business Cycles: Exogenous Impulse or Endogenous Response?", *American Economic Journal: Macroeconomics*, Vol. 13, No 4, 2021, pp. 369-410.

2 Jurado, K., Ludvigson, S.C. and Ng, S., "Measuring uncertainty", *American Economic Review*, Vol. 105, No 3, 2015, pp. 1177-1216 and Scotti, C., "Surprise and uncertainty indexes: Real-time aggregation of real-activity macro-surprises", *Journal of Monetary Economics*, Vol. 82, 2016, pp. 1-19.

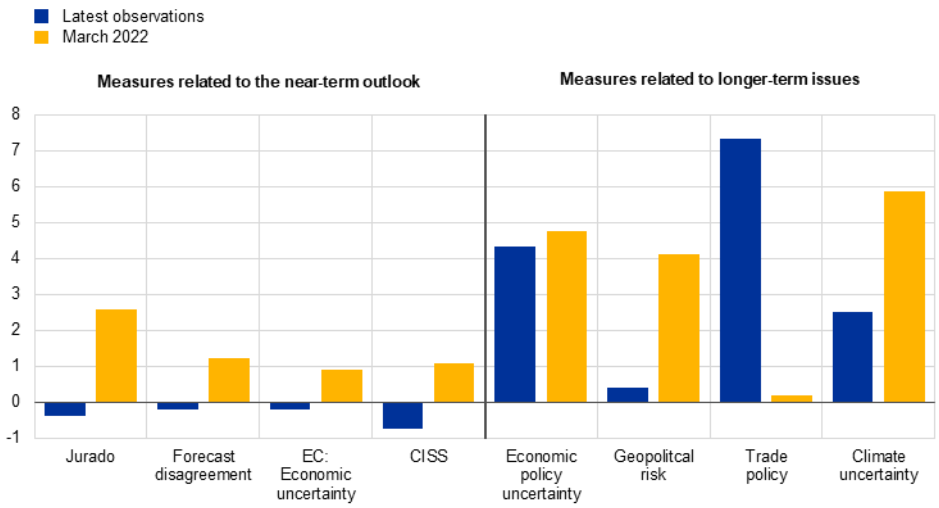
3 For more information on the methodology used see Baker, S.R., Bloom, N. and Davis, S.J., "Measuring Economic Policy Uncertainty", *The Quarterly Journal of Economics*, Vol. 131, No 4, 2016, pp. 1593-1636 and Gavriilidis, K., "Measuring Climate Policy Uncertainty", University of Stirling, May 2021.

near-term outlook have since returned to their historical averages.[4] By contrast, most policy-related measures of uncertainty are still significantly above their historical means, reflecting ongoing political polarisation, prospective regulation and the global energy transition.[5]

Chart A

Uncertainty measures

(standardised, percentage point changes)



Sources: Jurado et al.,[1)] Consensus Economics, European Commission, Baker et al.,[2)] Caldara et al.,[3)] Caldara et al.,[4)] Gavriilidis,[5)] and ECB staff calculations.
Notes: Series are standardised over the 1999-2019 sample with the exception of the European Commission economic uncertainty series which is standardised over the period from April 2019 to September 2024, given the limited sample availability. Economic policy uncertainty is the weighted average of standardised country-specific measures for Germany, France, Italy and Spain. The latest observations are for September 2024 for Jurado and climate uncertainty, October 2024 for forecast disagreement, and November 2024 for European Commission (EC) economic uncertainty, CISS, economic policy uncertainty, geopolitical risk and trade policy.
1) Jurado, K., Ludvigson, S.C. and Ng, S., "Measuring Uncertainty", *American Economic Review*, Vol. 105, No 3, March 2015.
2) Baker, S.R., Bloom, N. and Davis, S.J., "Measuring Economic Policy Uncertainty", Working Papers, No 21633, National Bureau of Economic Research, October 2015.
3) Caldara, D. and Iacoviello, M., "Measuring Geopolitical Risk", *American Economic Review*, Vol. 112, No 4, 2021, pp. 1194-1225.
4) Caldara, D., Iacoviello, M., Molligo, P., Prestipino, A. and Raffo, A., "The Economic Effects of Trade Policy Uncertainty", *International Finance Discussion Papers*, No 1256, September 2019.
5) Gavriilidis, K., "Measuring Climate Policy Uncertainty", University of Stirling, May 2021.

Moreover, a risk index derived from earnings calls suggests that risk perceptions for many of the uncertainties mentioned above have declined from the peaks reached in the spring of 2022 but remain above pre-pandemic levels (Chart B).[6] The index measures the percentage of a number of specific risks as a share of all risks mentioned in earnings calls among listed euro area firms.[7] While the risks cannot be exactly mapped to the categories of uncertainty shown above, this risk index corroborates the finding that risk perceptions for several perceived uncertainties have fallen back substantially from the peaks seen in the spring of

4 See the box entitled "The impact of the Russian invasion of Ukraine on euro area activity via the uncertainty channel", *Economic Bulletin*, Issue 4, ECB, 2022.

5 Economic policy uncertainty has been particularly elevated in Germany and France.

6 While comoving, "uncertainty" measures differ from "risk" measures in the sense that uncertainty occurs when the information for forecasting developments is insufficient or unavailable, while risk is associated with the probability of a specific economic event.

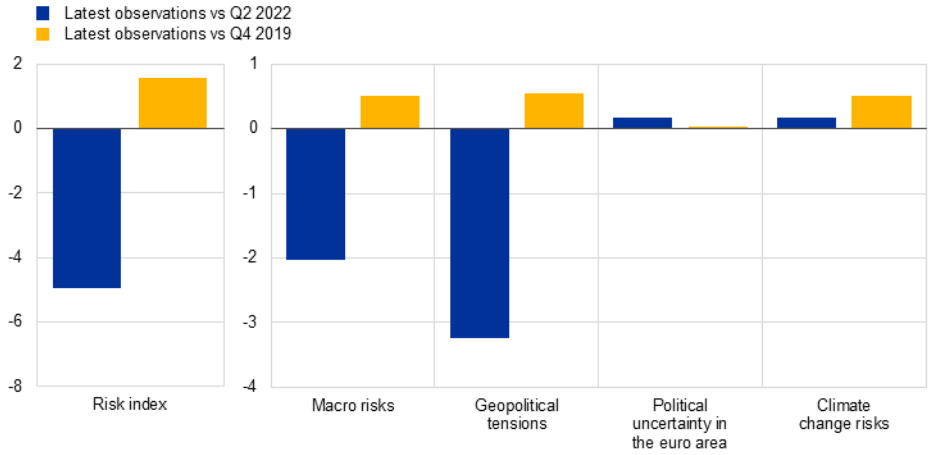
7 For more details on the methodology, see the box entitled "Insights from earnings calls – what can we learn from corporate risk perceptions and sentiment?", *Economic Bulletin*, Issue 4, ECB, 2024.

2022. Meanwhile, concerns about geopolitical tensions and the climate remain elevated.

Chart B

Risk index derived from earnings calls

(percentage of all risk mentions, changes in percentage points)



Sources: NL Analytics and ECB calculations.
Notes: "Macro risks" refer to mentions related to supply chain risks and financing conditions; "Geopolitical tensions" refer to geopolitical tensions in Ukraine and the Middle East; "Political uncertainty in the euro area" refers to political risks in the euro area as a whole or in euro area countries; and "Climate change risks" refer to mentions of words such as "carbon", "climate" and "policy". The latest observations are for the third quarter of 2024.

Increases in uncertainty are typically associated with lower real GDP and with a stronger adverse impact on business investment than on consumption (Chart C). To investigate the implications of rising uncertainty, Bayesian vector autoregression (BVAR) models are estimated over the period from the first quarter of 1999 to the second quarter of 2024.[8] The models incorporate real GDP, private consumption and business investment, the GDP deflator and one uncertainty (risk) measure at a time.[9] The results suggest that for all measures – with the exception of geopolitical risk – rises in uncertainty are associated with a decline in real GDP, private consumption and business investment, with business investment declining significantly more than consumption.[10]

8 The estimation is corrected in line with Lenza and Primiceri (2022) to account for the unique economic disruptions caused by the COVID-19 pandemic (see Lenza, M. and Primiceri, G.E., "How to estimate a vector autoregression after March 2020", *Journal of Applied Econometrics*, Vol. 37, No 4, 2022, pp. 688-699.

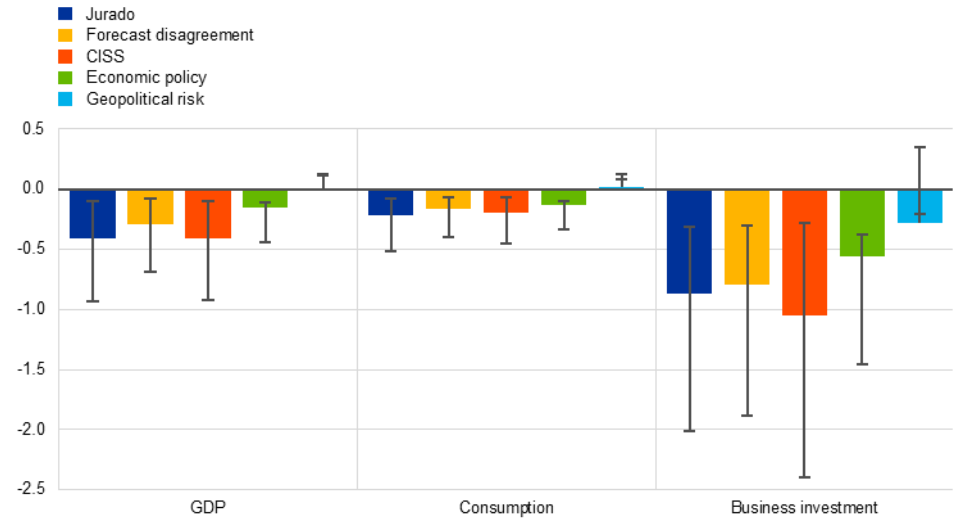
9 Given that trade and climate uncertainty measures relate to specific areas that are directly exposed to trade fluctuations and environmental policy, this box does not investigate their broader implications for economic activity. At the same time, the risk index is not included in the empirical exercise given its short time sample.

10 See also De Santis, R.A. and Van der Veken, W., "Deflationary financial shocks and inflationary uncertainty shocks: an SVAR Investigation", *Working Paper,* No 2727, ECB, 2022 and Bobasu, A., Quaglietti, L. and Ricci, M., "Tracking Global Economic Uncertainty: Implications for the Euro Area", *IMF Economic Review*, International Monetary Fund, Vol. 72, No 2, 2024, pp. 820-857.

Chart C

Impact of rises in uncertainty measures

(percentage deviation from the trend)



Source: ECB staff calculations.
Notes: The BVAR models include GDP, consumption, business investment, the GDP deflator and one of the uncertainty (risk) measures at a time. The models are estimated over a quarterly period, from the first quarter of 1999 to the second quarter of 2024, and identification is based on a "Cholesky decomposition" approach with the uncertainty measure ordered first. Nevertheless, the results are also robust in terms of their adverse implications for economic activity when the uncertainty measure is ordered last. The rise in uncertainty reflects an increase of one standard deviation in the uncertainty measure. The results reported in the chart refer to the effects after four quarters. The whiskers refer to 68% credible intervals.

Uncertainty about the short-term economic situation does not appear to have greatly affected ongoing economic activity so far; however, that surrounding longer-term policy issues is likely to remain relevant. While uncertainty derived from short-term economic indicators has been contained recently, compared with previous peak periods, economic policy uncertainty is likely to remain elevated, reflecting the persistent, evolving nature of domestic policy issues. Accordingly, uncertainty surrounding policy issues is expected to continue to weigh on economic activity, particularly on business investment, in the coming quarters.

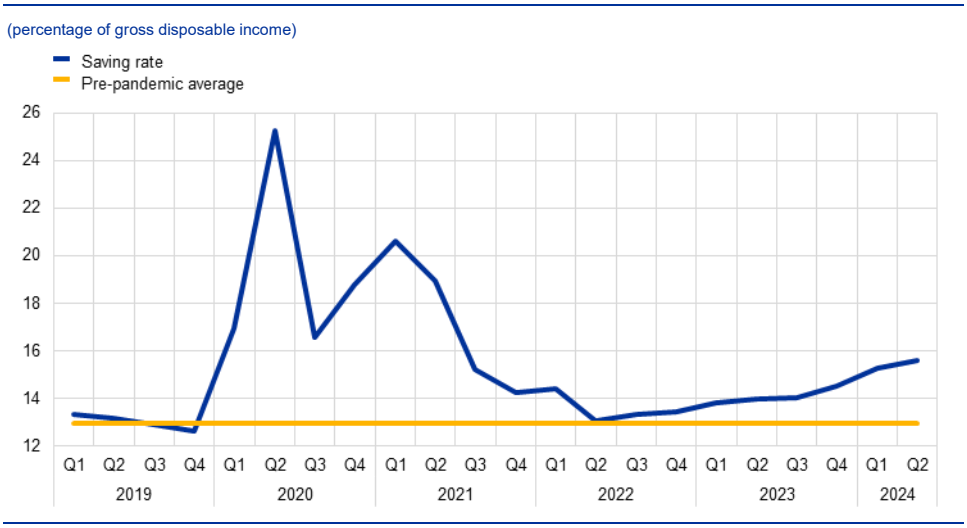
4 What explains the high household saving rate in the euro area?

Prepared by Alina Bobasu, Johannes Gareis and Grigor Stoevsky

Following a pandemic-related surge in 2020, the household saving rate in the euro area fell back to its pre-pandemic average by mid-2022 but has since risen again noticeably. The seasonally adjusted euro area household saving rate, as reported by Eurostat in the quarterly sector accounts, rose sharply after the outbreak of the COVID-19 pandemic.[1] This was mainly due to the lockdowns imposed to contain the spread of the virus, which dampened consumption, while government measures helped to support disposable incomes.[2] With the restrictions largely lifted by 2022, the saving rate returned to its pre-pandemic average (Chart A). It has, however, increased again over the last two years, while consumer spending has remained sluggish. This box analyses the main economic factors behind this recent rise in the saving rate and explores the near-term implications for private consumption.

Chart A

Household saving rate



Sources: ECB and Eurostat (QSA) and ECB calculations.
Notes: Seasonally adjusted data. The pre-pandemic average is computed from the first quarter of 1999 to the fourth quarter of 2019.

Strong income growth has contributed to the recent increase in the household saving rate. Real household income has increased by 3.8% over the last two years, thanks to strong growth in both labour and non-labour components (Chart B). The increase in non-labour income, which includes income from self-employment, net interest income, dividends and rents, is particularly favourable for savings.[3] This

1 The quarterly sectors accounts (QSA) for the euro area are jointly compiled by the ECB and Eurostat.

2 See the box entitled "COVID-19 and the increase in household savings: precautionary or forced?", *Economic Bulletin*, Issue 6, ECB, 2020.

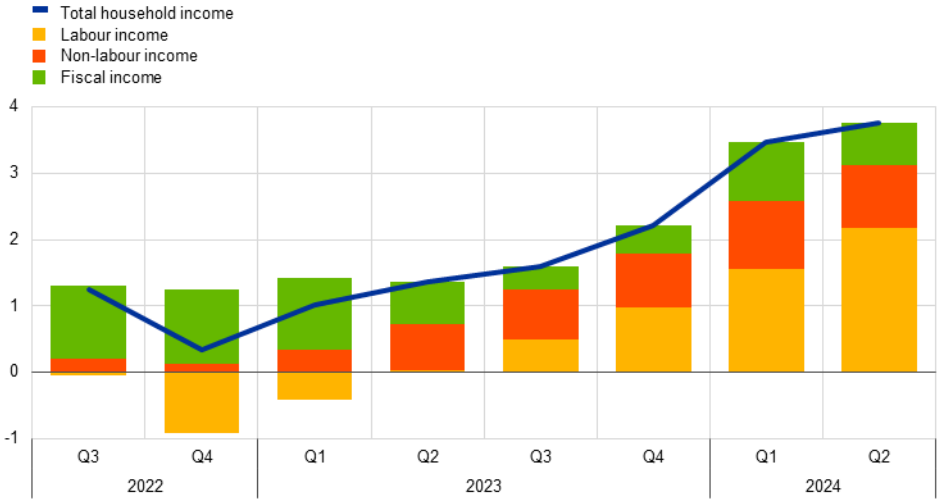
3 See also the box entitled "A primer on measuring household income", *Economic Bulletin*, Issue 8, ECB, 2023.

reflects the fact that non-labour income mainly accrues to richer households, who generally save more than poorer households.[4] In addition, fiscal policy has also supported real income growth since the third quarter of 2022. This can be largely attributed to the discretionary measures to mitigate the impact of the energy price shock, including substantial non-targeted income support. Since richer households have also benefited from the measures and consume a smaller share of their income, this may also have contributed to a higher saving rate.[5]

Chart B

Developments in real household income

(percentage changes since the second quarter of 2022 and percentage point contributions)



Sources: Eurostat, ECB and Eurostat (QSA) and ECB calculations.
Notes: Seasonally adjusted data. Labour income is calculated as compensation of employees and non-labour income includes income from self-employment, net interest income, dividends and rents; fiscal income is measured as a residual. To obtain real values, all household income components are deflated using the private consumption deflator from the national accounts.

Although their income has risen strongly over the last two years, households have remained cautious about their spending. Following a post-pandemic rebound, real private consumption growth weakened markedly in the context of surging inflation and the subsequent tightening of monetary policy. The rise in inflation was driven in large part by a strong increase in energy and food prices, which led to a relatively sharp decline in the consumption of these goods.[6] The subsequent increases in interest rates encouraged saving and likely dampened the consumption of goods more than the consumption of services. The consumption of durable goods was particularly affected, as it is more sensitive to interest rates than services are.[7] Overall, consumption of goods fell back below its pre-pandemic level at the beginning of 2023 and has largely stagnated in the last two years. At the same

4 See, for example, Bańkowska, K. et al., "ECB Consumer Expectations Survey: an overview and first evaluation", *Occasional Paper Series*, No 287, ECB, December 2021.

5 See the article entitled "Fiscal policy and high inflation", *Economic Bulletin*, Issue 2, ECB, 2023.

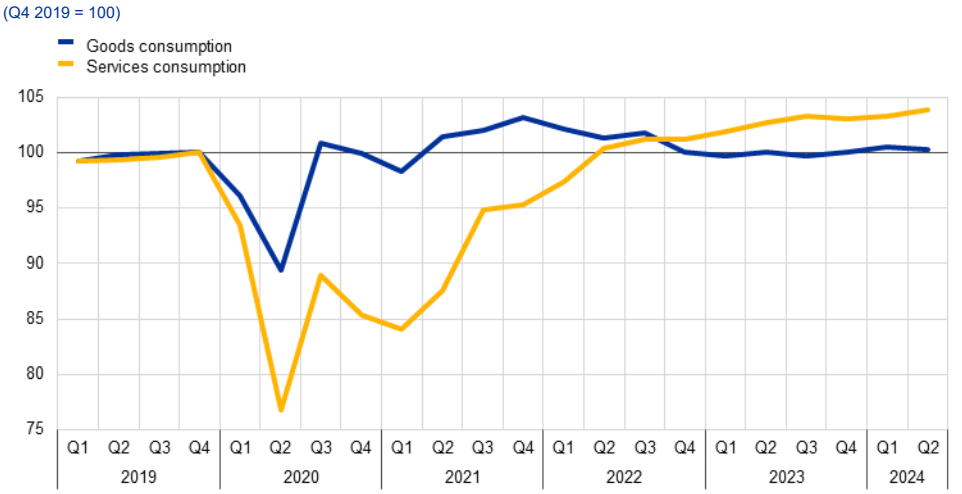
6 See the boxes entitled "The impact of higher energy prices on services and goods consumption in the euro area", *Economic Bulletin*, Issue 8, ECB, 2022, and "How have households adjusted their spending and saving behaviour to cope with high inflation?", *Economic Bulletin*, Issue 2, ECB, 2024.

7 See the box entitled "Monetary policy and the recent slowdown in manufacturing and services", *Economic Bulletin*, Issue 8, ECB, 2023.

time, consumption of services has continued to rise, but at a more moderate pace (Chart C).

Chart C

Real household consumption of goods and services



Sources: Eurostat and ECB calculations.
Notes: Seasonally adjusted data. Goods consumption and services consumption are based on the aggregation of available data on real household consumption by purpose.

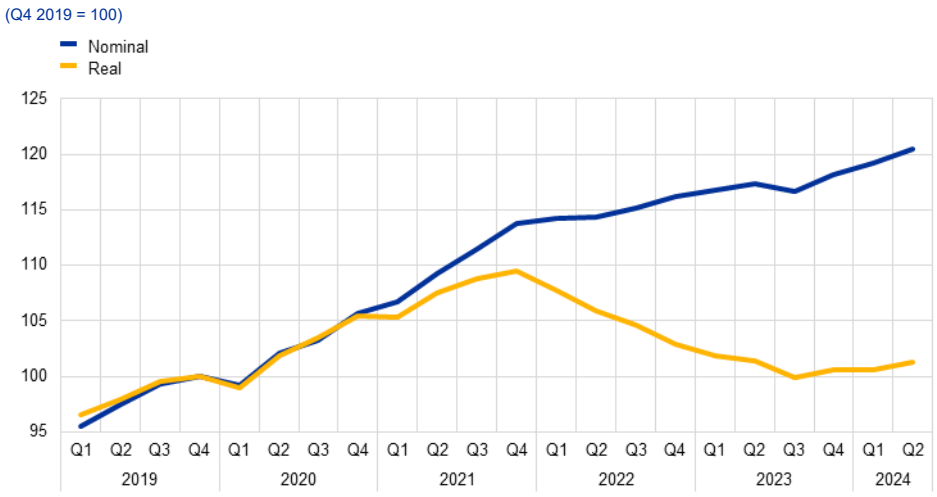
With the surge in inflation, households' real net wealth declined in the past two years, increasing the incentives for them to rebuild their wealth. The net wealth of households, which includes real estate assets, deposits, bonds and shares, minus debt liabilities, rose significantly in the wake of the pandemic, supported by the accumulation of pandemic-related savings. It continued to increase after the pandemic in nominal terms, albeit at a more moderate pace (Chart D).[8] In real terms, however, household net wealth began to decline in 2022 and fell back to its pre-pandemic level in the course of 2023. This decline has likely contributed to the recent increase in the household saving rate, as households have been incentivised to rebuild their real net wealth.[9]

8 See the box entitled "Household savings and wealth in the euro area – implications for private consumption", *Winter 2024 Economic Forecast*, European Commission, 2024.

9 For a detailed analysis of the impact of inflation and monetary policy on the wealth distribution, see the article entitled "Introducing the Distributional Wealth Accounts for euro area households", *Economic Bulletin*, Issue 5, ECB, 2024.

Chart D

Household net wealth



Sources: Eurostat, ECB and Eurostat (QSA) and ECB calculations.
Note: To obtain real values, household net wealth is deflated using the private consumption deflator from the national accounts.

A time-series model for household consumption using standard macroeconomic determinants helps to shed more light on the economic factors behind the recent increase in the saving rate. A reduced-form error correction model combines both long-term and short-term dynamics to explain quarterly consumption growth.[10] The level of real household consumption is driven in the long term by the level of real household income, the real net wealth of households and real interest rates. In the short term, other cyclical factors, such as consumer confidence which reflects precautionary saving motives, also play a role in explaining consumption dynamics. The model decomposes the change in the household saving rate into four factors – income, wealth, interest rates and consumer confidence – taking growth in real household income as given.[11]

Empirical evidence suggests that rising real incomes and high real interest rates, together with negative real wealth effects, have pushed up household savings over the past two years. According to the model results, the increase in the household saving rate between the second quarter of 2022 and the second quarter of 2024 can be largely attributed to income effects, as households' consumption did not adjust immediately to the strong rise in real incomes. Interest rate effects and wealth effects played an important role as well (Chart E). At the same time, precautionary motives also had a positive impact on savings − particularly in 2022 following the Russian invasion of Ukraine, which led to a fall in consumer confidence. However, the importance of such motives seems to have

10 See also de Bondt, G., Gieseck, A., Herrero, P. and Zekaite, Z., "Disaggregate income and wealth effects in the largest euro area countries", *Working Paper Series*, No 2343, ECB, December 2019.

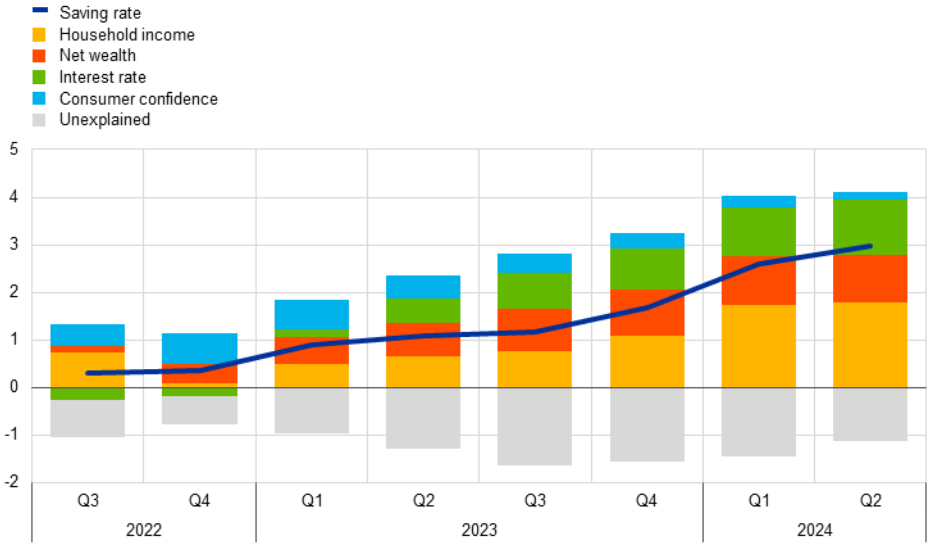
11 The model parameters are estimated using data from the first quarter of 1999 to the last quarter of 2019. In order to obtain real values, household income and net wealth are deflated using the private consumption deflator from the national accounts. The real interest rate is measured by the three-month EURIBOR adjusted for the expected annual consumer price inflation rate from the European Commission's consumer survey, which is backdated for the missing period from the first quarter of 1999 to the last quarter of 2003 using the actual annual HICP inflation rate. Consumer confidence is expressed in deviations from its long-term pre-pandemic average.

decreased, as consumer confidence has gradually recovered from its slump in the second half of 2022.[12] Finally, the change in the saving rate over the past two years cannot be fully explained by the factors outlined above. This is highlighted by the unexplained part in the decomposition, which points to unmodeled factors that together have weighed on the increase in the saving rate since mid-2022. However, this cumulative perspective masks the fact that the increase in savings over the last three quarters was larger than previously anticipated and suggested by the model. This most likely reflects stronger consumption inertia and a more gradual adjustment of households' spending to their increasing purchasing power and diminishing negative shocks than implied by historical regularities.[13]

Chart E

Contributions to the change in the household saving rate: a model-based decomposition

(percentage point changes since the second quarter of 2022 and percentage point contributions)



Sources: Eurostat, ECB, ECB and Eurostat (QSA) and ECB calculations.
Note: The chart shows the contributions of real household income, real net wealth, real interest rates and consumer confidence to the cumulative changes in the household saving rate since the second quarter of 2022, based on an estimated error correction model for private consumption growth and taking the growth in real household income as given.

Looking ahead, the household saving rate is likely to remain elevated in the near term but should decline below its current level further out. With the key factors – rising real incomes, elevated real interest rates and incentives to rebuild real wealth – likely to persist for some time, the saving rate is expected to remain high in the near term, albeit somewhat lower than its most recent peak, partly reflecting the moderating interest rates. The likely downtick in the saving rate together with continued strong growth in real labour income are expected to help the momentum of private consumption.

12 See the box entitled "Why are euro area households still gloomy and what are the implications for private consumption?", *Economic Bulletin*, Issue 6, ECB, 2024.

13 Another factor which is not included in the model and may have contributed to the recently elevated saving rates relates to the high level of uncertainty about longer-term policy issues; see the box entitled "What are the economic signals from uncertainty measures?" in this issue of the Economic Bulletin.

5 Monetary policy pass-through to goods and services inflation: a granular perspective

Prepared by Anastasia Allayioti, Bruno Fagandini, Lucyna Górnicka and Catalina Martínez Hernández

Monetary policy affects consumer prices through a number of channels, while its impact, in terms of both speed and magnitude, varies across consumption categories. The post-pandemic inflation surge was a result of an unprecedented combination of shocks, including supply chain disruptions, energy shocks and the pent-up demand from the re-opening of the economy. The ECB responded forcefully by unwinding the accommodative monetary policy stance that had supported the economy through the pandemic and moving it into restrictive territory. The overall disinflation process that followed reflected the fading of supply shocks and the effectiveness of the steep and decisive interest rate hiking policy. At the same time, the disinflation process was accompanied by persistent dynamics in core inflation – defined as the Harmonised Index of Consumer Prices excluding energy and food (HICPX). This box analyses the heterogeneous pass-through of monetary policy shocks to euro area inflation, with a focus on the distinct behaviour of the individual prices of the goods and services included in the HICPX. Focusing on this index provides considerable insight into developments in an inflation component that is considered to typically capture more persistent dynamics.

An assessment of the monetary policy pass-through to disaggregated prices can complement standard analyses of aggregate inflation. This box presents an estimate of the impact of monetary policy shocks on the prices of each of the 72 COICOP-4 items in the HICPX basket.[1] Following the estimation of item-specific Bayesian vector autoregressive models (BVARs),[2] the individual items across goods and services are classified, according to their responsiveness to monetary policy shocks over a three-year horizon, into three categories of sensitivity: (i) highly sensitive, (ii) moderately sensitive, and (iii) non-sensitive.[3,4] In this way, it is possible to assess which items from the core inflation basket respond strongly to monetary

1 The Classification of Individual Consumption by Purpose (COICOP) standardises the consumption basket items across countries. The four-digit classification in the euro area includes 93 categories of prices. For further details see the Eurostat website.

2 Based on Allayioti, A., Górnicka, L., Holton, S. and Martínez Hernández, C., "Monetary policy pass-through to consumer prices: evidence from granular price data", *Working Paper Series*, No 3003, ECB, Frankfurt am Main, 2024. The estimation uses item-specific Bayesian vector autoregressive models (BVARs) with a range of macro-financial controls. The sample varies across items, covering the period between the early 2000s and September 2023. Monetary policy shocks are as in Jarocinski, M. and Karadi, P., "Deconstructing Monetary Policy Surprises – The Role of Information Shocks", *American Economic Journal: Macroeconomics*, Vol. 12(2), 2020, pp. 1-43. The shocks were updated using the database of surprises by Altavilla, C., Brugnolini, L., Gürkaynak, R.S., Motto, R. and Ragusa, G., "Measuring euro area monetary policy", *Journal of Monetary Economics*, Vol. 108, 2019, pp. 162-179.

3 Within 36 months of the shock, items with at least three consecutive months of negative and statistically significant price responses are categorised as sensitive to monetary policy shocks. The remaining items are classified as non-sensitive. The sensitive items are further split into "highly" and "moderately" sensitive, depending on whether their maximum negative response is above (moderately sensitive) or below (highly sensitive) the median response across all sensitive items.

4 A similar classification for consumption, prices and earnings in the United States is conducted by Andreolli, M., Rickard, N. and Surico, P., "Non-Essential Business-Cycles", *NBER Working Paper*, 2024.

policy shocks, as well as which items respond swiftly or only with long lags. Such information provides valuable insights into the pass-through of monetary policy to aggregate inflation in the euro area.

The non-energy industrial goods (NEIG) category accounts for more items classified as sensitive to monetary policy than the services category. Items either highly or moderately sensitive to monetary policy make up 33% of the euro area HICPX basket and constitute a larger share of NEIG (44%) than of services (26%).[5] In general, the sensitive category (combining highly and moderately sensitive items) consists of a mix of durable, semi-durable and non-durable goods, while sensitive services are primarily related to recreation and transportation. Chart A illustrates the peak impact of monetary policy shocks on a selection of individual items identified as highly sensitive. Overall, there is considerable heterogeneity in the strength of the monetary policy pass-through to individual items within this category. On average, across the highly sensitive items shown in Chart A, the peak impact of monetary policy on prices is somewhat greater for services than for NEIG. Among services items, the peak impact is greatest for "Passenger transport by air", followed by "Combined passenger transport" and "Package holidays". Among NEIG items, it is greatest for "Recording media", followed by "Motor cars" and "Clothing materials". The stronger impact of monetary policy shocks on some highly sensitive services than on highly sensitive NEIG items might be explained by the discretionary, leisure-related nature of these services.[6]

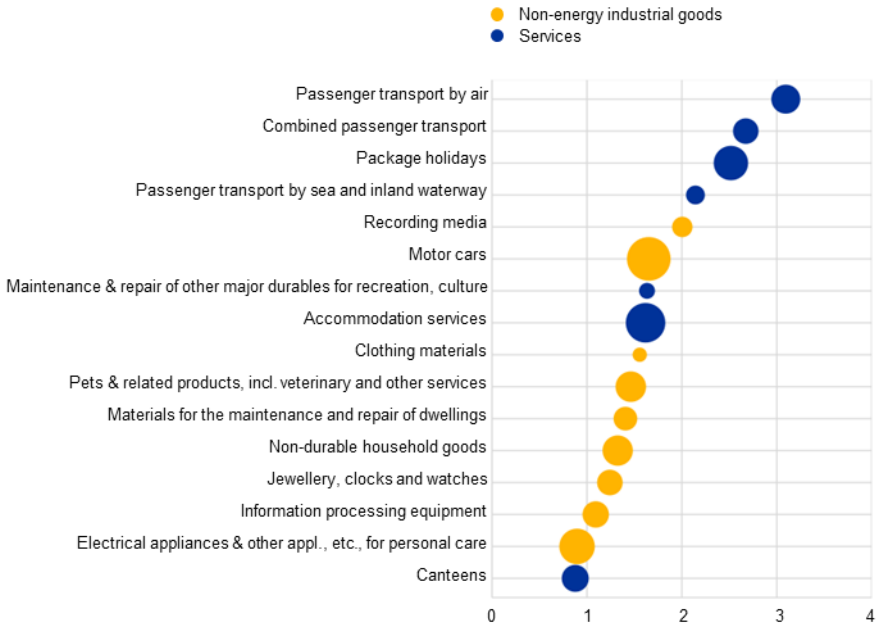
5 Taken together, the items classified as sensitive to monetary policy shocks contribute about one-third of the dynamics of the HICPX and are evenly split between NEIG (50.1%) and services (49.9%).

6 The literature documents a high sensitivity of consumer energy prices to monetary policy shocks. See, for example, Ampudia, M., Ehrmann, M. and Strasser, G., "The effect of monetary policy on inflation heterogeneity along the income distribution", *BIS Working Paper*, No 1124, September 2023.

Chart A

Peak impact of monetary policy on highly sensitive items

(x-axis: maximum cumulative percentage change; bubble size: weight of item in HICPX)



Sources: Eurostat and ECB calculations.
Notes: The bubbles depict the peak impact on the items most responsive to monetary policy shocks over the three-year horizon. The results are based on the median of the posterior distribution of impulse responses normalised to a 25 basis-point increase in the one-year German Bund. The size of the bubbles is related to the weight of a particular item in the HICPX and based on 2024 consumption weights.

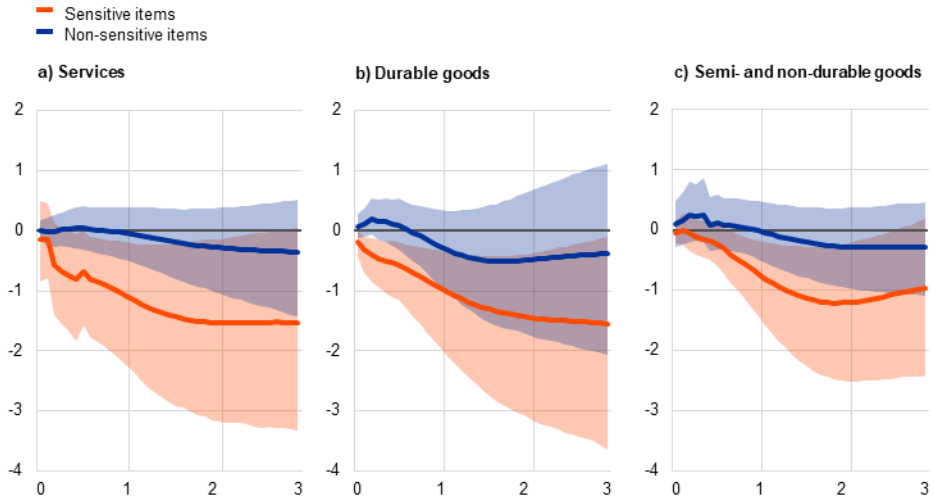
Monetary policy has a similar peak impact on goods and services items classified as sensitive. Chart B compares the impulse responses of sensitive and non-sensitive items to a 25-basis point monetary policy shock.[7] Despite the overlap of the credibility bands for both groupings, the impulse responses of sensitive items are more clearly concentrated in negative values and are different from zero based on the 68% credibility bands. After about 20 months, a 25-basis point tightening shock reduces the cumulative price change of sensitive services and sensitive durable goods by around 1.5 percentage points. Moreover, durable goods exhibit a more forceful response relative to semi- and non-durable goods items, in line with prior evidence.

7 Goods are further split into durables and others, following several studies that document how spending on durables tends to be more cyclical and more responsive to monetary policy changes than spending on non-durables or services. See for example Dedola, L. and Lippi, F., "The monetary transmission mechanism: Evidence from the industries of five OECD countries", *European Economic Review*, Vol. 49(6), 2005, pp.1543-1569.

Chart B

Responses of sensitive and non-sensitive NEIG and services aggregates to monetary policy shocks

(x-axis: years; y-axis: cumulative percentage changes)



Sources: Eurostat and ECB calculations.
Notes: The lines show the median posterior distribution of the impulse responses, while the shaded areas denote the 68% credibility bands. The impulse responses are normalised to a 25-basis point increase in the one-year German Bund.

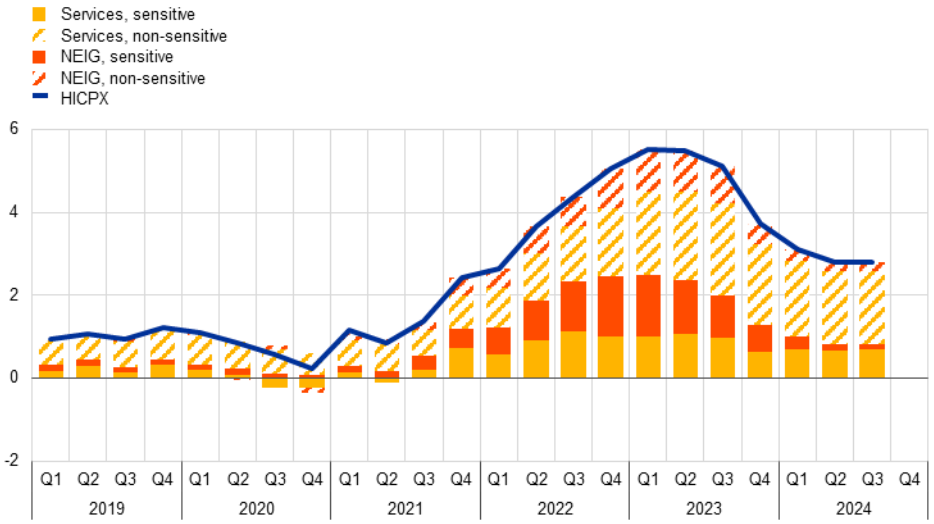
The inflation rates of items classified as sensitive to monetary policy has declined more than the inflation rates of non-sensitive items since the peak of core inflation. HICPX inflation peaked at 5.7% in March 2023, with both sensitive and non-sensitive items contributing significantly to the overall figure (sensitive items accounted for around 2.6 percentage points – Chart C). Since then, the impact of restrictive monetary policy, together with the fading of the extraordinary shocks, has gradually fed through to prices, particularly for sensitive items. Recent data shows a marked decline in the contribution of sensitive items, which accounted for only 0.8 percentage points of the 2.7% HICPX inflation in October 2024. This left non-sensitive items, in particular non-sensitive services such as rent, medical-related services and some insurance items, as the main driver of core inflation.[8] At the peak, non-sensitive services contributed 2.1 percentage points to the 5.7% HICPX inflation, while the latest figures show a contribution of 1.7 percentage points, which accounts for nearly two-thirds of the recent developments in HICPX inflation.

[8] 20 out of 28 items classified as late movers overlap with our classification of items not sensitive to monetary policy. See "The heterogeneous developments of the components of euro area core inflation", *Economic Bulletin*, No. 4, Banca d'Italia, October 2023. Examples of such items include rent, medical and dental-related services, and insurance linked to health and transport.

Chart C

HICPX inflation over time – decomposition into items sensitive and not sensitive to monetary policy shocks

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB staff calculations.
Note: The latest observations are for the third quarter of 2024.

While the granular analysis confirms the role of sticky services inflation as the main driver of aggregate inflation recently, it also highlights heterogeneity within the services category. Varying sensitivity is documented not only across the two core inflation subcomponents (NEIG and services), but also within each category. The disaggregated analysis also suggests that, despite most services items exhibiting a rather sluggish response to the latest tightening cycle, monetary policy has been successful in dampening price increases across a range of services items primarily related to recreation and transport services. Taken together, this evidence emphasises how identifying items with exceptionally strong responses in a granular way can help to assess the breadth of transmission to aggregate inflation and to monitor it in a timely manner.

6 Liquidity conditions and monetary policy operations from 24 July to 22 October 2024

Prepared by Yannik Schneider and Kristian Tötterman

This box describes Eurosystem liquidity conditions and monetary policy operations during the fifth and sixth reserve maintenance periods of 2024. Together, these two maintenance periods ran from 24 July to 22 October 2024 (the "review period").

Excess liquidity in the euro area banking system continued to decline during the review period. The fall in average excess liquidity was due to the maturing of the ninth operation under the third series of targeted longer-term refinancing operations (TLTRO III.9) on 25 September 2024 and to early repayments by banks of the tenth, and last, operation on the same day. Liquidity provision also diminished owing to lower holdings under the asset purchase programmes (APPs) following the discontinuation of APP reinvestments at the beginning of July 2023. Pandemic emergency purchasing programme (PEPP) holdings also began to decrease from the beginning of July 2024 given that principal payments from maturing securities are now only partially reinvested. The continuing decline in liquidity absorption through net autonomous factors partly offset the reduced liquidity provisioning, albeit at a slower pace compared with previous periods.

In line with its revised operational framework and as announced in March 2024**, the ECB reduced the spread between the deposit facility rate (DFR) and the main refinancing operation (MRO) rate from 50 basis points to 15 basis points from 18 September 2024.** The rate on the marginal lending facility (MLF) was also adjusted to keep the spread between the MLF and MRO rates unchanged at 25 basis points. Over the review period, the adjustments to the spread had no significant impact on banks' participation in Eurosystem credit operations and overall activity in the money market. Furthermore, money market rates were not affected by the narrowing of the DFR-MRO spread at the beginning of the sixth reserve maintenance period of 2024. In the unsecured market, the euro short-term rate (€STR) decreased in parallel with the 25 basis-point policy rate changes. Repo rates also adjusted smoothly to these changes.

Liquidity needs

The average daily liquidity needs of the banking system, defined as the sum of net autonomous factors and reserve requirements, decreased by €21.9 billion to €1,462.1 billion over the review period. This reflected the fact that liquidity-absorbing autonomous factors increased less than liquidity-providing autonomous factors (Table A). Minimum reserve requirements edged up slightly by €0.9 billion to €162.5 billion, having only a marginal effect on the change in aggregate liquidity needs.

Liquidity-absorbing autonomous factors increased by €45 billion over the review period, owing mainly to a rise in other autonomous factors. On average, net other autonomous factors grew by €36.5 billion. This was primarily due to an increase of €49.1 billion in the revaluation accounts owing to higher gold prices, the liquidity impact of which was offset by correspondingly higher liquidity-providing net foreign asset holdings. Government deposits rose, marginally, by €0.7 billion to €118.4 billion. This marked a first pause in the continuous decline of government deposits since their peak of €655.2 billion in spring 2022. The overall decrease reflected the normalisation of cash buffers held by national treasuries, as well as remuneration changes for government deposits with the Eurosystem that made it financially more attractive to place funds in the market. The average value of banknotes in circulation increased by €7.8 billion over the review period to €1,562.7 billion. Banknote demand continues to be stable after peaking in July 2022.

Liquidity-providing autonomous factors rose by €67.7 billion, owing primarily to an increase in net foreign assets of €53.8 billion. This rise in net foreign asset holdings was driven almost entirely by an average increase in the value of gold reserves of €49.9 billion attributable to higher gold prices.[1] Net assets denominated in euro grew by €13.9 billion over the review period, reflecting both a reduction in non-monetary policy deposits and an increase in non-monetary policy investments.

[1] While changes in gold prices caused most of the variation in the revaluation accounts over the review period, the accounts also reflect exchange rate movements and fluctuations in securities prices. This explains why the changes in the revaluation accounts closely track but are not equal to the changes in the value of the gold reserves.

Table A
Eurosystem liquidity conditions

Liabilities

(averages; EUR billions)

	Current review period: 24 July-22 October 2024						Previous review period: 17 April-23 July 2024	
	Fifth and sixth maintenance periods		Fifth maintenance period: 24 July-17 September 2024		Sixth maintenance period: 18 September-22 October 2024		Third and fourth maintenance periods	
Liquidity-absorbing autonomous factors	2,685.6	(+45.0)	2,675.3	(+23.8)	2,702.1	(+26.9)	2,640.6	(+20.8)
Banknotes in circulation	1,562.7	(+7.8)	1,564.2	(+4.7)	1,560.2	(-4.0)	1,554.9	(+10.3)
Government deposits	118.4	(+0.7)	119.2	(+4.0)	117.1	(-2.0)	117.7	(-36.9)
Other autonomous factors (net)[1]	1,004.5	(+36.5)	991.9	(+15.1)	1,024.8	(+32.9)	968.0	(+47.5)
Current accounts above minimum reserve requirements	6.7	(+1.0)	7.1	(+0.9)	6.1	(-1.0)	5.7	(-1.3)
Minimum reserve requirements[2]	162.5	(+0.9)	162.2	(+0.3)	162.9	(+0.7)	161.6	(+0.1)
Deposit facility	3,031.9	(-138.8)	3,058.7	(-54.5)	2,989.1	(-69.6)	3,170.8	(-250.6)
Liquidity-absorbing fine-tuning operations	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)

Source: ECB.
Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.
1) Computed as the sum of the revaluation accounts, other claims and liabilities of euro area residents, capital and reserves.
2) Memo item that does not appear on the Eurosystem balance sheet and should therefore not be included in the calculation of total liabilities.

Assets

(averages; EUR billions)

	Current review period: 24 July-22 October 2024						Previous review period: 17 April-23 July 2024	
	Fifth and sixth maintenance periods		Fifth maintenance period: 24 July-17 September 2024		Sixth maintenance period: 18 September-22 October 2024		Third and fourth maintenance periods	
Liquidity-providing autonomous factors	1,386.2	(+67.7)	1,373.0	(+44.6)	1,407.5	(+34.6)	1,318.6	(+68.3)
Net foreign assets	1,099.2	(+53.8)	1,083.7	(+20.0)	1,123.9	(+40.1)	1,045.4	(+65.8)
Net assets denominated in euro	287.1	(+13.9)	289.2	(+24.6)	283.6	(-5.6)	273.2	(+2.5)
Monetary policy instruments	4,500.8	(-159.7)	4,530.5	(-74.4)	4,453.0	(-77.5)	4,660.5	(-299.0)
Open market operations	4,500.8	(-159.7)	4,530.5	(-74.4)	4,453.0	(-77.5)	4,660.5	(-299.0)
Credit operations	76.4	(-57.7)	88.5	(-22.1)	56.9	(-31.6)	134.0	(-199.9)
- MROs	4.9	(+1.0)	3.0	(-2.7)	7.8	(+4.7)	3.9	(-0.0)
- Three-month LTROs	9.6	(+2.0)	9.1	(+2.1)	10.5	(+1.5)	7.7	(+1.3)
- TLTRO III	61.9	(-60.6)	76.4	(-21.5)	38.6	(-37.8)	122.5	(-201.2)
Outright portfolios[1]	4,424.4	(-102.1)	4,442.0	(-52.2)	4,396.1	(-45.9)	4,526.5	(-99.0)
Marginal lending facility	0.0	(+0.0)	0.0	(-0.0)	0.0	(+0.0)	0.0	(-0.0)

Source: ECB.
Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period. MROs stands for main refinancing operations, LTROs for longer-term refinancing operations and TLTRO III for the third series of targeted longer-term refinancing operations.
1) With the discontinuation of net asset purchases, the individual breakdown of outright portfolios is no longer shown.

Other liquidity-based information

(averages; EUR billions)

	Current review period: 24 July-22 October 2024						Previous review period: 17 April-23 July 2024	
	Fifth and sixth maintenance periods		Fifth maintenance period: 24 July-17 September 2024		Sixth maintenance period: 18 September-22 October 2024		Third and fourth maintenance periods	
Aggregate liquidity needs[1)]	1,462.1	(-21.9)	1,464.8	(-20.7)	1,457.9	(-6.9)	1,484.0	(-47.1)
Net autonomous factors[2)]	1,299.6	(-22.8)	1,302.6	(-21.0)	1,294.9	(-7.7)	1,322.5	(-47.2)
Excess liquidity[3)]	3,038.6	(-137.9)	3,065.8	(-53.6)	2,995.2	(-70.6)	3,176.5	(-251.8)

Source: ECB.
Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.
1) Computed as the sum of net autonomous factors and minimum reserve requirements.
2) Computed as the difference between autonomous liquidity factors on the liabilities side and autonomous liquidity factors on the assets side. For the purposes of this table, items in the course of settlement are also added to net autonomous factors.
3) Computed as the sum of current accounts above minimum reserve requirements and the recourse to the deposit facility minus the recourse to the marginal lending facility.

Interest rate developments

(averages; percentages and percentage points)

	Current review period: 24 July-22 October 2024				Previous review period: 17 April-23 July 2024			
	Fifth maintenance period: 24 July-17 September 2024		Sixth maintenance period: 18 September-22 October 2024		Third maintenance period: 17 April-11 June 2024		Fourth maintenance period: 12 June-23 July 2024	
MROs	4.25	(+0.00)	3.65	(-0.60)	4.50	(+0.00)	4.25	(-0.25)
Marginal lending facility	4.50	(+0.00)	3.90	(-0.60)	4.75	(+0.00)	4.50	(-0.25)
Deposit facility	3.75	(+0.00)	3.50	(-0.25)	4.00	(+0.00)	3.75	(-0.25)
€STR	3.663	(+0.001)	3.414	(-0.249)	3.907	(-0.00)	3.662	(-0.245)
RepoFunds Rate Euro	3.728	(+0.014)	3.493	(-0.235)	3.953	(+0.007)	3.714	(-0.239)

Sources: ECB, CME Group and Bloomberg.
Notes: Figures in brackets denote the change in percentage points from the previous review or maintenance period. MROs stands for main refinancing operations and €STR for euro short-term rate.

Liquidity provided through monetary policy instruments

The average amount of liquidity provided through monetary policy instruments decreased by €159.7 billion to €4,500.8 billion over the review period (Chart A). This decline in liquidity supply was driven primarily by a reduction in Eurosystem outright portfolios and, to a lesser extent, by repayments of Eurosystem credit operations.

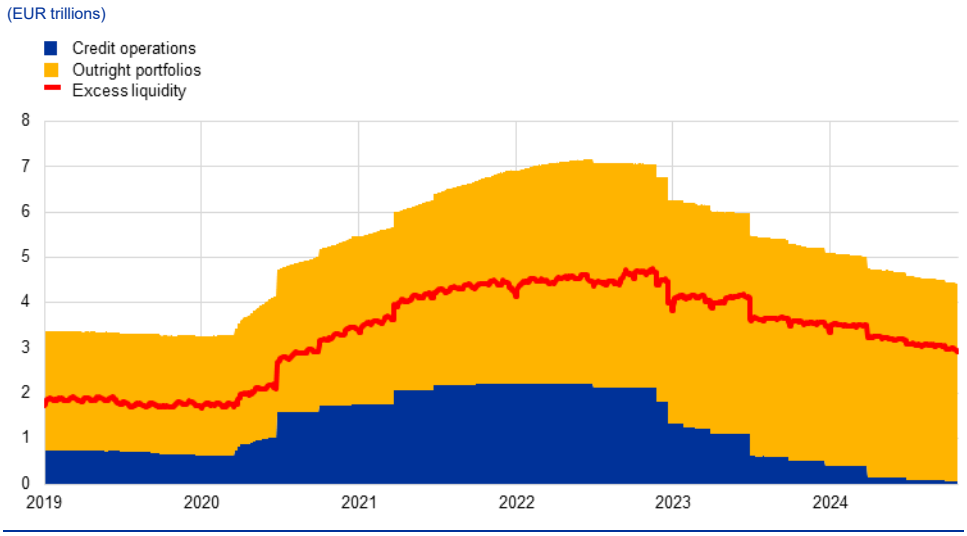
The average amount of liquidity provided through credit operations fell by €57.7 billion to €76.4 billion over the review period. This decrease largely reflects the fall in outstanding TLTRO III amounts as a result of the maturing of the ninth operation under TLTRO III (€42.2 billion) together with early repayments of other TLTRO funds (€5.1 billion) on 25 September. The average outstanding amount of three-month longer-term refinancing operations (LTROs) increased by €2.0 billion, while the MRO stock recorded on the Eurosystem balance sheet rose by €1.0 billion. The relatively limited participation of banks in these regular operations and their

ability to repay sizeable TLTRO funds without significant shifts to regular refinancing operations reflect banks' comfortable liquidity positions in aggregate and the availability of alternative funding sources at attractive rates. Box 7 in this issue of the Economic Bulletin provides a detailed discussion of TLTRO repayments in general and the impact on bank lending conditions of the phase-out of these operations.

The average amount of liquidity provided through holdings of outright portfolios decreased by €102.1 billion to €4,424.4 billion over the review period. This decline was due to the discontinuation of reinvestments under the APP from 1 July 2023 and, to a lesser extent, to partial reinvestments under the PEPP since 1 July 2024.[2,3]

Chart A

Changes in daily liquidity provided through open market operations and excess liquidity



Source: ECB.
Note: The latest observations are for 22 October 2024.

Excess liquidity

Average excess liquidity decreased by €137.9 billion over the review period to stand at €3,038.6 billion (Chart A). Excess liquidity is the sum of the reserves that banks hold in excess of their minimum reserve requirements and of their recourse to the deposit facility net of their recourse to the MLF. It reflects the difference between the total liquidity provided to the banking system and the liquidity needs of banks to cover minimum reserves. After peaking at €4,748 billion in November 2022, excess liquidity has steadily declined, falling to slightly below €3,000 billion towards the end of the review period.

2 Securities held in the outright portfolios are carried at amortised cost and revalued at the end of each quarter, which also has an impact on the total averages and the changes in the outright portfolios.

3 In June 2024 the Governing Council confirmed that, in the second half of 2024, the ECB would only partially reinvest the principal payments from maturing securities under the PEPP. The Governing Council intends to discontinue reinvestments under the PEPP entirely at the end of 2024.

Interest rate developments

Over the review period, the Governing Council twice reduced all three ECB policy rates, including the DFR (the rate through which it steers the monetary policy stance), by 25 basis points, and hence by an overall total of 50 basis points. The rates on the deposit facility, MROs and the MLF stood at 3.25%, 3.40% and 3.65% respectively at the end of the review period.

Together with the two reductions in the policy rates that came on top of the narrowing of the spread between the DFR and MRO rate, both the MRO and MLF rates had decreased by 85 basis points by the end of the review period. The narrowing of the DFR-MRO spread had no significant impact on banks' take-up of refinancing operations and overall money market activity.

The average €STR reflected the cuts in the policy rates while maintaining a broadly stable spread with the DFR. On average, the €STR traded 8.3 basis points below the DFR over the review period, compared with an average of 9.0 basis points in the third and fourth maintenance periods of 2024. The pass-through of policy rate changes to unsecured money market rates was complete and immediate.

The average euro area repo rate, as measured by the RepoFunds Rate Euro index, continued to trade closer to the DFR. On average, the repo rate was 1.2 basis points below the DFR over the review period, compared with the average of 4.2 basis points in the third and fourth maintenance periods of 2024. This reflects the ongoing reversal of the factors that had exerted downward pressure on repo rates. This, in turn, led to repo rates rising as a result of factors such as higher net issuance since the beginning of the year, the release of mobilised collateral pledged against maturing/repaid TLTROs and the increased availability of public securities as a consequence of the decline in outstanding APP and PEPP holdings. The factors exerting upward pressure on repo rates also included greater demand from leveraged investors to finance long-positions in bonds. The policy rate changes were passed through smoothly to secured money market rates.

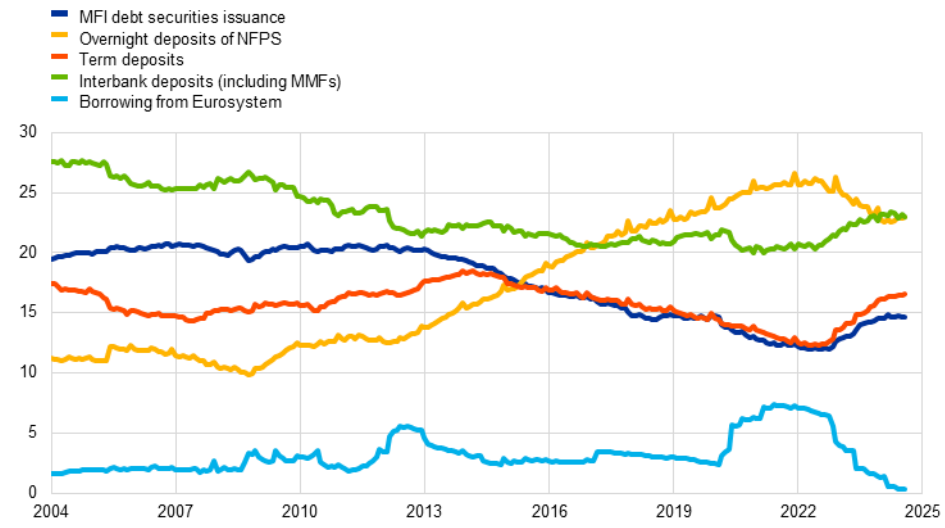
7 TLTRO III phase-out and bank lending conditions

Prepared by Francesca Barbiero, Alessandro Ferrari and Franziska Maruhn

From late 2022 to the end of 2024, euro area banks repaid more than €2 trillion in funding from the third series of targeted longer-term refinancing operations (TLTRO III) in a context of rising interest rates, reducing borrowing from the Eurosystem to an all-time low. With the finalisation of TLTRO III repayments and in the context of the higher interest rate environment that emerged from the recent hiking cycle, the liability structure of banks has changed. As banks increased their reliance on securities issuance and deposit funding in relative terms, the liability composition moved closer to that prevailing before the introduction of TLTROs in 2014 (Chart A). At the same time, Eurosystem refinancing operations now represent a smaller share of bank funding than ever before owing to the limited recourse to shorter-term standard refinancing operations, the costs of which are currently well above those of alternative funding sources, and still ample central bank reserves, which are supporting bank liquidity.[1]

Chart A

Bank liability structure over time



Sources: ECB (balance sheet items (BSI) statistics) and ECB calculations.
Notes: Composition of bank liabilities excluding capital and reserves, external liabilities and deposits from other euro area residents. "MFI" refers to monetary financial institutions. "NFPS" refers to the non-financial private sector. "MMFs" refers to money market funds. The latest observations are for August 2024.

The extraordinary pace at which policy rates increased, combined with market expectations of future rate cuts, made shorter-term central bank refinancing operations less attractive than alternative funding sources, such as deposits and longer-term bonds. Roll-over into currently available central bank financing

[1] Standard refinancing operations include main refinancing operations (MROs) and three-month longer-term refinancing operations (three-month LTROs), both of which are conducted at the MRO rate.

may also have been limited owing to its significantly shorter maturity compared to TLTRO III and owing to regulatory requirements such as the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR).[2] Moreover, the still ample central bank reserves imply limited need for banks to resort to central bank funding for the time being. However, as the run-off of the ECB asset portfolio continues, further reducing excess liquidity, demand for central bank funding may increase again. As lending conditions appear to be sensitive to how reserves are supplied to the banking system, the impact of central bank liquidity on bank intermediation will also crucially depend on the instruments providing liquidity in the future.[3]

The recalibration of TLTRO III in October 2022 brought about the fastest and largest decline in Eurosystem borrowing ever recorded (Chart B) and reinforced the transmission of policy rates to bank lending conditions. Since their inception in 2014, TLTROs have supported the transmission of monetary policy easing by incentivising lending through their targeted nature and by reducing bank funding costs. The third series initiated in 2019 was a key tool of monetary policy accommodation during the pandemic.[4] In view of the unexpected and extraordinary rise in inflation that started in 2021, the ECB embarked on a path of monetary policy normalisation at the end of 2021 by adjusting asset purchases and, as of mid-2022, increasing policy rates, which led to tighter financing conditions for the euro area economy. In this context, the Governing Council also decided to recalibrate TLTRO III in October 2022 to reinforce the transmission of higher policy rates to bank lending conditions. Specifically, the interest rate on remaining TLTRO III amounts was increased from 23 November 2022 onwards.[5] The higher TLTRO interest rates raised the opportunity costs of TLTRO funding. At the same time excess liquidity remained abundant and the benefits of TLTROs for fulfilling liquidity and stable funding requirements decreased as the operations approached maturity. Therefore, at the first opportunity for voluntary early repayments since the recalibration, banks repaid €296 billion in November 2022 out of an outstanding amount of €2,113 billion. This was followed by further large voluntary repayments in December 2022 and over the subsequent six months. Thus, the recalibration contributed to a significant frontloading of the TLTRO reduction and smoothed repayments over time compared

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2 Compared to refinancing operations with longer maturity, borrowing via the standard refinancing operations (weekly MROs and three-month LTROs) is not considered stable funding in the context of the NSFR. For the LCR, borrowing via standard refinancing operations can increase banks' high-quality liquid assets (HQLA) if they use non-HQLA collateral. However, for the weekly MROs, the unwind mechanism of the LCR could – depending on the HQLA composition – reduce this positive effect.

3 See Altavilla, C., Rostagno, M. and Schumacher, J., "Anchoring QT: Liquidity, credit and monetary policy implementation", *CEPR Discussion Paper*, No 18581, Centre for Economic Policy Research, November 2023.

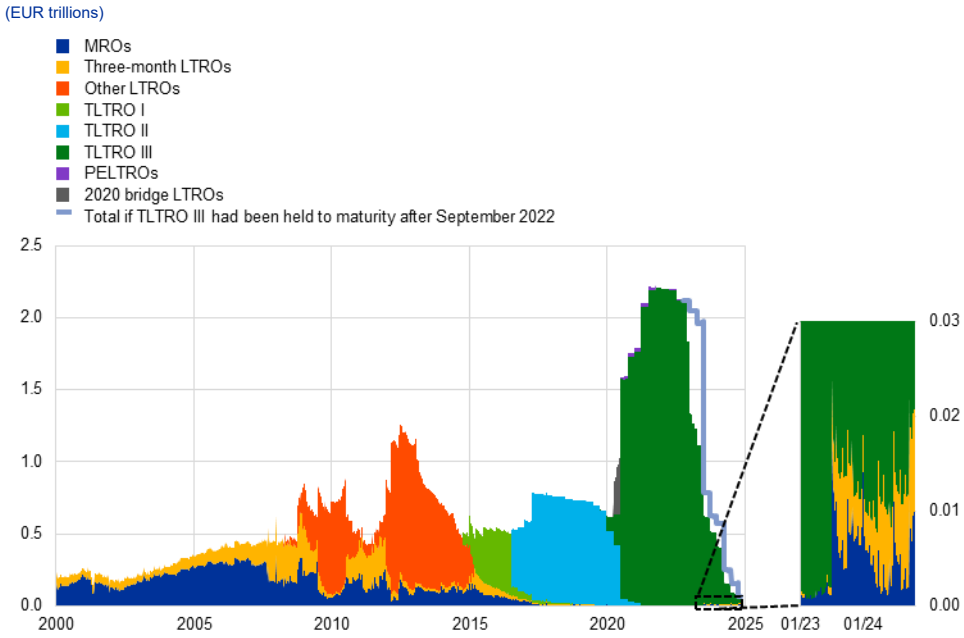
4 TLTRO III was introduced in 2019 and adjusted in 2020 to support monetary policy transmission during the COVID-19 pandemic. For details on the adjustment of TLTRO III and its impact on bank lending conditions during the pandemic, see the article entitled "TLTRO III and bank lending conditions", *Economic Bulletin*, Issue 6, ECB, 2021.

5 The adjustment of TLTRO III consisted of a change in the pricing formula for all outstanding operations. For details, see the Governing Council Decision of 27 October 2022 and the related press release. The recalibration increased the final expected average TLTRO rate over the life of each operation by around 40 basis points as of the end of 2022, driven by the increase of around 2 percentage points in the TLTRO rate applicable after 23 November 2022. Heterogeneity across banks was large, with differences reflecting which operations each bank had participated in and the applicable interest rates based on past lending performance.

to what would have been the case if banks had held all TLTRO funds to maturity (dashed line in Chart B).

Chart B

Recourse to Eurosystem refinancing operations



Sources: ECB (Market Operations Database) and ECB calculations.
Notes: MROs are main refinancing operations. LTROs are longer-term refinancing operations. TLTROs are targeted longer-term refinancing operations. PELTROs are pandemic emergency longer-term refinancing operations. The light blue line shows hypothetical total borrowing from the Eurosystem assuming banks had held to maturity all TLTRO III funds outstanding as of 30 September 2022 (before the recalibration in October 2022), and assuming borrowing from other refinancing operations remained the same as realised. The latest observation is for 31 October 2024.

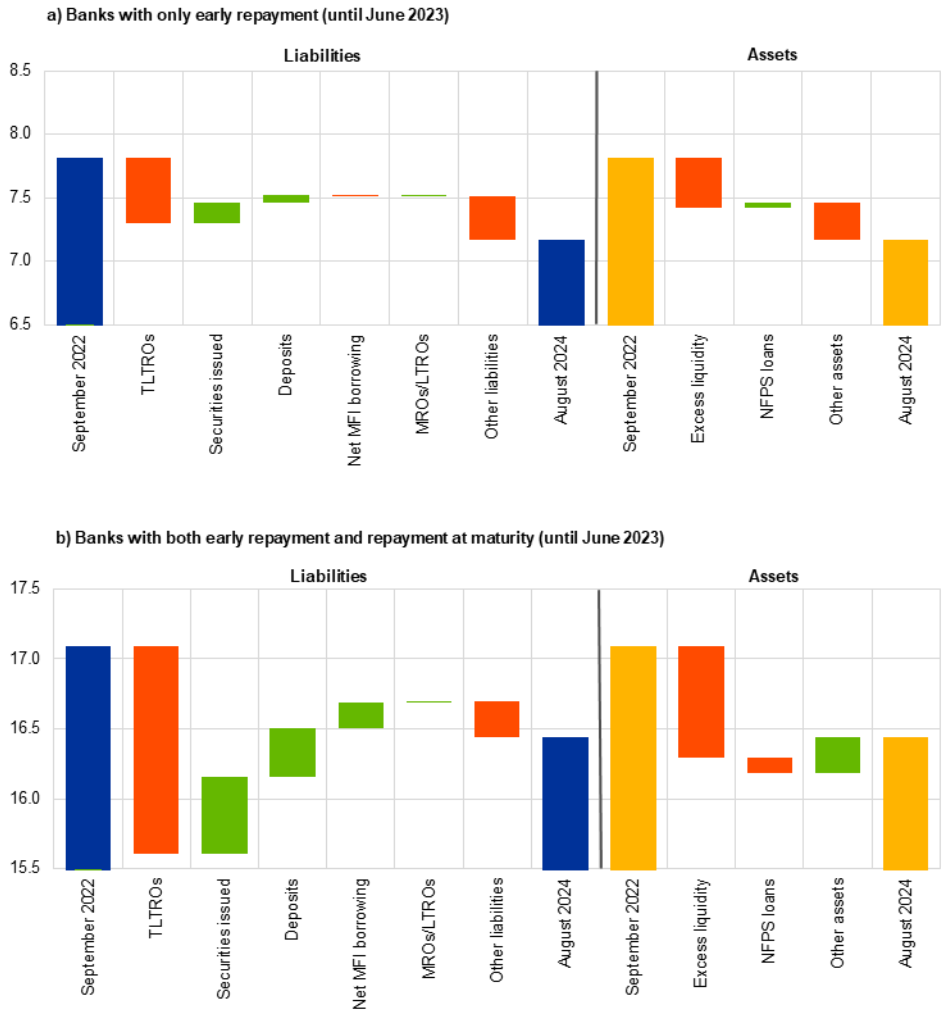
Banks adapted their balance sheets to cover the frontloaded TLTRO repayments, with some banks relying more on their own outstanding excess liquidity, while others raised additional funding in bond markets and via deposits (Chart C). Following the October 2022 recalibration, banks which had borrowed under TLTRO III could be divided into two groups: those which repaid all their TLTRO III borrowing early and those which repaid at least part of their borrowing only at maturity until June 2023 (when the largest TLTRO III operation matured). The two groups differed mainly in their level of reliance on TLTRO III funding and in the size of their excess liquidity prior to the recalibration. Banks which fully made use of early repayment options had on average almost twice as much excess liquidity as their outstanding TLTRO III borrowing prior to October 2022, while banks which also repaid at maturity had on average an amount of excess liquidity that was similar to their outstanding TLTRO III borrowing. Accordingly, the first group of banks reduced their excess liquidity by the equivalent of around 75% of their TLTRO repayments, thus relying primarily on existing excess liquidity, while also experiencing an outflow of deposits (Chart C, panel a). By contrast, the second group of banks raised a significant amount of additional funding to repay TLTRO funds at maturity – predominantly via securities, followed by deposit inflows and borrowing on the interbank market – and only reduced their excess liquidity by the equivalent of around 50% of their TLTRO repayments (Chart C, panel b). The

second group also increased their deposit rates more than the other banks, thereby managing to preserve and, to a certain extent even increase, their overall deposit volumes to compensate for the ongoing decrease in central bank liquidity.

Chart C

Changes in bank balance sheets since the recalibration of TLTRO III

(EUR trillions)



Sources: ECB (individual balance sheet items (iBSI) statistics, Market Operations Database) and ECB calculations.
Notes: The panels show movements in bank assets and liabilities based on bank-level data. Red bars refer to decreases and green bars to increases in liabilities/assets over the period from September 2022 to August 2024. Blue bars refer to total liabilities and yellow bars to total assets at the beginning/end of the period. Net MFI borrowing is deposits from MFIs minus loans to MFIs. Total assets and liabilities are adjusted to reflect the netting of MFI borrowing. Panel a) shows banks for which all TLTRO III repayments between October 2022 and June 2023 were voluntary early repayments. Panel b) shows banks for which TLTRO III repayments between October 2022 and June 2023 included both voluntary early repayments and repayments at maturity.

The reduction in bank liquidity and the increase in TLTRO rates induced banks to resort to more expensive sources of funding, leading to tighter lending conditions. The TLTRO repayments using outstanding excess liquidity reduced available liquidity positions, while the roll-over into other liabilities increased funding costs. This in turn seems to have led to tighter lending conditions to firms and households. According to survey evidence, banks experienced the first negative impact of TLTRO III on their overall funding conditions after the recalibration, suggesting that the less favourable TLTRO III conditions effectively induced a

tightening of bank funding conditions.[6] Moreover, banks reported a negative impact of the phase-out of TLTRO III on their liquidity positions. This was also reflected in a further tightening of banks' credit standards for all loan categories and a further slightly negative impact on bank lending volumes in the context of an overall reduction in credit supply due to the policy rate hiking cycle.[7] In line with this, banks which had less outstanding excess liquidity available to make TLTRO III repayments have also seen a small reduction in outstanding loan volumes since the TLTRO recalibration (Chart C, panel b). Analyses controlling for loan demand and other confounding factors confirm the negative impact of the TLTRO recalibration on lending.[8] In conclusion, the recalibration further supported the tightening of bank funding costs and, in turn, financing conditions. In addition, it removed deterrents to the voluntary early repayment of outstanding TLTRO III funds, thereby accelerating the reduction of the Eurosystem balance sheet and contributing to the overall tightening of monetary policy.

6 See "The euro area bank lending survey – First quarter of 2023" and "The euro area bank lending survey – Third quarter of 2023".

7 See Lane, P.R., "The effectiveness and transmission of monetary policy in the euro area", contribution to the panel on "Reassessing the effectiveness and transmission of monetary policy" at the Federal Reserve Bank of Kansas City Economic Symposium, 24 August 2024.

8 See Burlon, L., Ferrari, A., Kho, S. and Tushteva, N., "Why gradual and predictable? Bank lending during the sharpest quantitative tightening ever", *Working Paper Series*, ECB, 2024, forthcoming.

Articles

1 Energy shocks, corporate investment and potential implications for future EU competitiveness

Prepared by Pablo Anaya Longaric, Alessandro De Sanctis, Charlotte Grynberg, Vasileios Kostakis and Francesca Vinci

1 Introduction

The surge in energy prices following the unjustified Russian invasion of Ukraine exposed the EU to the largest energy shock since the 1970s. As a key input in virtually any production process, the sharp rise in energy prices not only contributed to a surge in inflation and a loss of purchasing power for households but also to a significant increase in input costs, with ripple effects across all economic sectors.

Shocks that increase the cost of energy can negatively influence economic dynamics not only in the short run but also in the medium to long run through the investment channel. In the short term, higher input costs put downward pressure on production.[1] This can also result in lower investment, with negative consequences for productivity growth in the long term.[2]

The economic literature has long identified the importance of investment for productivity. Corporate investment, especially in fixed capital and research and development (R&D), is at the heart of productivity growth, which is in turn directly linked to the ability of firms to compete in international markets.[3] Productivity improvements reduce the cost of production per unit of output, allowing firms to lower prices and/or increase profit margins. Productivity increases can also enhance export competitiveness, as more productive firms are better positioned to capture and expand their market share.[4]

Energy shocks can also dampen a country's competitiveness through their negative impact on investment and productivity. Following a positive shock to energy costs, compressed profit margins (especially for energy-intensive firms), subdued economic activity, heightened uncertainty and, in some cases, tighter

1 See Lardic, S. and Mignon, V., "The impact of oil prices on GDP in European countries: An empirical investigation based on asymmetric cointegration", *Energy Policy*, Vol. 34(18), December 2006, pp. 3910-3915.

2 Evidence presented in the article entitled "The impact of recent shocks and ongoing structural changes on euro area productivity growth", *Economic Bulletin*, Issue 2, ECB, 2024, also shows that higher energy prices can lead to a reduction in productivity owing to the reallocation of factors of production within firms away from energy.

3 See Romer, P.M., "Increasing Returns and Long-Run Growth", *Journal of Political Economy*, Vol. 94, No 5, 1986, pp. 1002-1037; and Romer, P.M., "Endogenous Technological Change", *Journal of Political Economy*, Vol. 98, No 5, Part 2, 1990, pp. S71-S102.

4 See Melitz, M.J., "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity", *Econometrica*, Vol. 71, No 6, November 2003, pp. 1695-1725.

financing conditions may reduce investment by firms, paving the way for future competitiveness losses.[5] This may occur particularly when producers are unable to fully pass on the cost increases to consumers, for instance due to a high price elasticity of demand.[6]

However, energy shocks can also incentivise firms to invest in energy generation and energy-saving projects.[7] Recent surveys indicate that firms are adapting to the evolving energy landscape by reducing their dependence on traditional energy sources in order to shelter against future energy shocks and secure competitive advantages.[8] These efforts to reduce the energy bill can lead to an increase in green investment, which can mitigate the overall impact of energy shocks on total investment. However, despite their potential to mitigate future energy shocks (and to reduce future energy prices), green investments may also be adversely affected by the direct and indirect consequences of an increase in energy prices.[9]

This article explores how energy shocks influence investment by European firms, focusing on fixed capital and R&D expenditure. Empirical analysis shows that energy shocks can have a negative impact on corporate investment and thus, potentially, undermine European productivity growth and future competitiveness. The analysis also shows that financially constrained firms and firms in energy-intensive sectors are more affected by energy shocks and respond by cutting investment more than other firms.

From a policy perspective, both national and EU measures are needed to reduce the exposure of the EU to future energy shocks. Further integration of European energy markets and progress in the green transition would contribute to reducing energy prices and strengthening energy supply, making the EU less vulnerable to adverse energy price developments.

2 The European energy mix

The main energy sources used in production in the EU are electricity and natural gas, together with oil and petroleum products. Electricity and natural gas are key inputs, each making up around a third of the EU's industrial energy mix. These are followed by "oil and petroleum products" and "renewables and biofuels" at 11% each (Chart 1, panel a).[10] The industrial energy mix has remained largely

5 See Lee, K., Kang, W. and Ratti, R.A., "Oil Price Shocks, Firm Uncertainty, And Investment", *Macroeconomic Dynamics*, Vol. 15, No S3, November 2011, pp. 416-436.

6 See Matzner, A. and Steininger, L., "Firms' heterogeneous (and unintended) investment response to carbon price increases", *Working Paper Series*, No 2958, ECB, July 2024.

7 See Hassler, J., Krusell, P. and Olovsson, C., "Directed Technical Change as a Response to Natural Resource Scarcity", *Journal of Political Economy*, Vol. 129, No 11, November 2021, pp. 3039-3072.

8 See "EIB Investment Survey 2023 – European Union overview", European Investment Bank, October 2023; and "EIB Investment Survey 2024 – European Union overview", European Investment Bank, October 2024.

9 See Bijnens, G., Duprez, C. and Hutchinson, J., "Obstacles to the greening of energy-intensive industries", *The ECB Blog*, ECB, 17 September 2024.

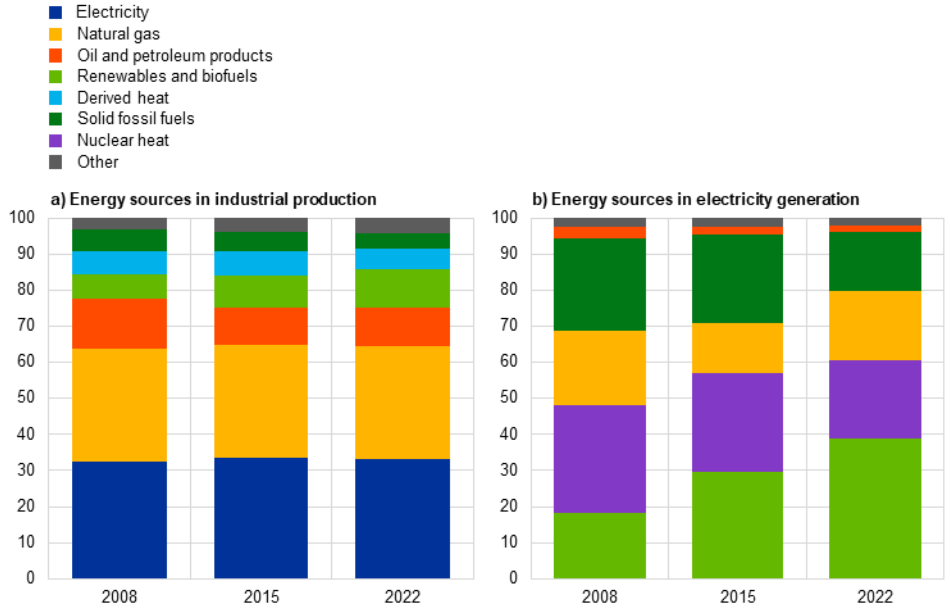
10 The oil and petroleum products most commonly used by industry are gas oil and diesel oil, while the renewables and biofuels most commonly used by industry are solid biofuels such as wood.

unchanged over the past 15 years. When considering the energy landscape in which industry operates, it is also relevant to consider how the consumed electricity is generated, as this has a significant impact on its price. While the share of renewables in the EU electricity generation mix is growing, natural gas and other fossil fuels still play an important role (Chart 1, panel b), indirectly increasing their importance in the energy supply of firms.

Chart 1

Energy sources in industrial processes and electricity generation in the EU

(percentages)



Source: Eurostat.
Notes: Annual frequency. Panel a) refers to final consumption in the industrial sector. Panel b) refers to gross electricity generation. Oil and petroleum products exclude the biofuel portion. The category "other" includes manufactured gases, non-renewable waste, oil shale and oil sands, and peat and peat products.

Due to the marginal pricing system, the price of electricity is closely linked to fossil fuels. Electricity prices in short-term markets are determined by the most expensive facility used to generate electricity at any given point in time. In the EU, gas-fired power plants are typically the most expensive way of generating electricity, followed by coal, lignite and nuclear power. Renewables are typically the cheapest, as their variable costs are close to zero. A consequence of this mechanism is that gas often acts as the price-setter even though it generates a relatively low share of the EU's electricity. According to the European Commission, in 2022 gas-fired power plants generated 19% of the EU's electricity but set the price 55% of the time.[11]

Wholesale energy prices in the EU began rising significantly in the second half of 2021. As the EU imports nearly all the oil and gas it consumes, it is strongly exposed to price fluctuations in global markets, which can be affected by geopolitical developments and production decisions outside of the EU. Wholesale oil and gas prices started to go up in the second half of 2021, in part because of the recovery in

11 See Gasparella, A., Koolen, D. and Zucker, A., "The Merit Order and Price-Setting Dynamics in European Electricity Markets", JRC134300, European Commission, 2023.

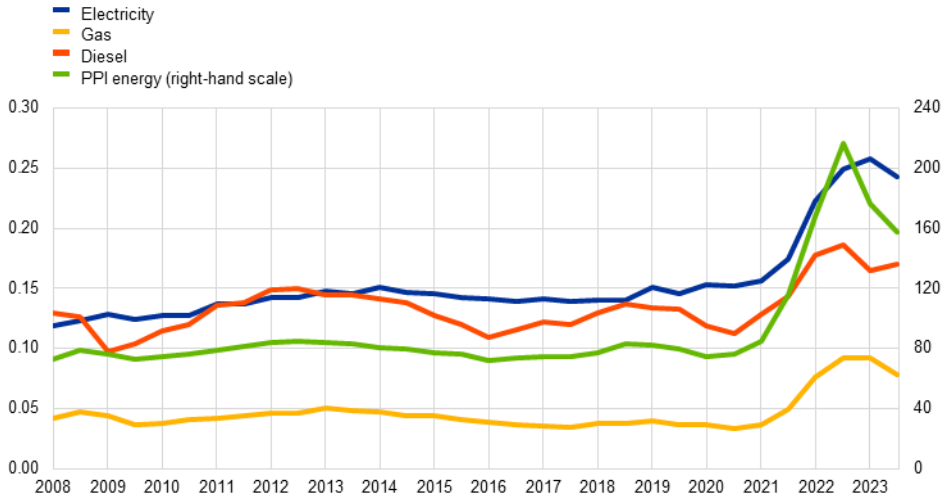
economic activity following the pandemic and in part due to constraints in the supply of oil and gas. This was exacerbated by the Russian invasion of Ukraine in 2022, which drove up gas and oil prices further.[12] High gas prices had, in turn, a knock-on effect on electricity prices due to the marginal pricing system.

The spike in wholesale prices had a strong impact on the price of energy for EU industry. Wholesale prices are not transmitted perfectly to retail prices, as the latter are also influenced by factors such as taxation, regulatory frameworks, infrastructure availability, the electricity generation mix and contract structures. From 2021 onwards, many public policy measures were also taken to cushion energy shocks. Nevertheless, Chart 2 shows that the increase in wholesale prices was strongly transmitted to the retail prices paid by EU firms for electricity, natural gas and diesel. This had a significant impact on their production costs, with the producer price index for energy (PPI energy) more than doubling between 2020 and 2022.

Chart 2

Retail energy prices for firms in the EU

(left-hand scale: EUR/kWh; right-hand scale: index: 2021 = 100)



Sources: Eurostat and European Commission Oil Bulletin.
Notes: Frequency is semi-annual. Prices include all taxes and levies. For electricity and gas prices, data refer to medium-sized industrial consumers (band IC for electricity and I3 for gas). Gas prices for Cyprus and Malta are not included because Eurostat does not report the relevant data. As there is no Eurostat indicator for oil prices for non-household consumers, diesel is shown as an example of an oil product commonly used by EU industry, applying a conversion factor of 10 kWh per litre.

These developments spurred an intense policy debate about the EU's dependence on imported energy and on the implications for its competitiveness in the face of energy shocks.[13] The EU relies significantly on imported energy and is thus more exposed to energy shocks than other major economies, such as the United States.[14]

12 See the article entitled "Energy price developments in and out of the COVID-19 pandemic – from commodity prices to consumer prices", *Economic Bulletin*, Issue 4, ECB, 2022; and the article entitled "Geopolitical risk and oil prices" , *Economic Bulletin*, Issue 8, ECB, 2023.

13 See Draghi, M., "The future of European competitiveness", September 2024.

14 For example, in 2022 the EU was reliant on imports for 62.5% of its energy needs. Import dependency was particularly high for natural gas (97.6%) and oil and petroleum products (97.7%). In contrast, the United States was a net energy exporter. See "Energy statistics – an overview", Eurostat, May 2024; and "U.S. energy facts explained", US Energy Information Administration, July 2024.

3 The impact of energy shocks on EU corporate investment

While quantifying the effects of energy shocks on investment decisions is challenging, owing to the multitude of transmission channels as well as data limitations, exploring historical patterns can provide useful insights. To pin down the effect of energy shocks on investment, this article employs balance sheet data on publicly listed firms from Standard & Poor's Compustat for the period 1999-2022 and estimates the response of fixed capital and R&D investment using local projections.[15]

Energy shocks can originate from different energy sources, and correctly identifying them is a major challenge. The energy crisis of 2022 was triggered by the disruption of natural gas supplies in Europe, which led to an increase in fossil fuel and electricity prices. However, given the historical importance of oil shocks, these have attracted more attention from academic literature than gas shocks, resulting in only a few reliable and readily available measures for the latter.[16] Furthermore, oil accounts for a significant share of energy consumed by the EU industrial sector, and prices of other energy sources, such as gas, are influenced by oil prices. Oil shocks can therefore be a good proxy for energy shocks, albeit with some caveats.[17] One of the most recent methods for identifying and measuring oil shocks concerns oil supply news shocks.[18] These shocks capture shifts in expectations about future oil production and prices rather than immediate disruptions, making them particularly relevant for investment decisions.[19]

Oil supply news shocks increase energy prices and reduce aggregate investment. As shown in Chart 3, an oil supply news shock leads to a contemporaneous increase of 7% in oil prices and of 1% in PPI energy.[20] Moreover,

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15 Over the period, investment by Compustat firms was on average equivalent to approximately 20% of total gross fixed capital formation and 55% of R&D investment at the European level.

16 See Hamilton, J.D., "This is what happened to the oil price-macroeconomy relationship", *Journal of Monetary Economics*, Vol. 38, No 2, October 1966, pp. 215-220; and Raduzzi, R. and Ribba, A., "The macroeconomics outcome of oil shocks in the small Eurozone economies", *The World Economy*, Vol. 43, No 1, January 2020, pp. 191-211.

17 Until 2015 the oil and gas markets were strongly linked. While they have gradually been decoupling in Europe since 2015, as the degree of indexation of gas contracts to oil prices has decreased, several studies suggest that such decoupling is not structurally complete. See the article entitled "Energy price developments in and out of the COVID-19 pandemic – from commodity prices to consumer prices", op. cit.; Szafranek, K. and Rubaszek, M., "Have European natural gas prices decoupled from crude oil prices? Evidence from TVP-VAR analysis", *Studies in Nonlinear Dynamics & Econometrics*, Vol. 28, No 3, June 2024, pp. 507-530; and Zhang, D. and Ji, Q., "Further evidence on the debate of oil-gas price decoupling: A long memory approach", *Energy Policy*, Vol. 113, February 2018, pp. 68-75.

18 See Känzig, D.R., "The Macroeconomic Effects of Oil Supply News: Evidence from OPEC Announcements", *American Economic Review*, Vol. 111, No 4, April 2021, pp. 1092-1125. Känzig proposes a novel method for identifying and quantifying oil supply news shocks by exploiting the high-frequency variation in oil futures prices surrounding OPEC announcements.

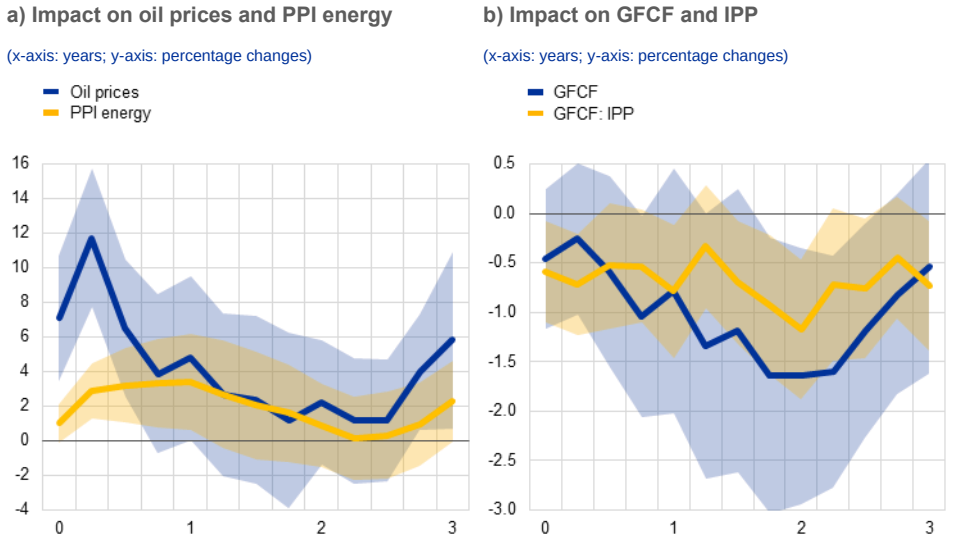
19 Alternative ways to identify oil supply shocks range from using a narrative shock series to structured vector autoregressions (VARs) identified with sign restrictions. See, for instance, Caldara, D., Cavallo, M. and Iacoviello, M., "Oil price elasticities and oil price fluctuations", *Journal of Monetary Economics*, Vol. 103(C), May 2019, pp. 1-20; and Kilian, L., "Not All Oil Price Shocks Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market", *American Economic Review*, Vol. 99, No 3, June 2009, pp. 1053-1069. However, these measures lack the forward-looking dimension that characterises oil news shocks.

20 The shock is identified using instrumental variables within a VAR; hence it is identified up to sign and scale. To facilitate the interpretation of the results, in the article the oil supply news shock series is normalised to increase PPI energy by 1% on impact, which corresponds to a shock size of slightly above one standard deviation.

total gross fixed capital formation (GFCF) declines immediately after the shock, reaching a trough of -1.5% after two years. Investment in intellectual property products (IPP), which includes R&D, also decreases by 1% two years after the shock.[21]

Chart 3

Impact of oil supply news shocks on aggregate variables



Sources: Eurostat and ECB calculations.
Notes: The panels illustrate local projection estimation results on macroeconomic aggregates. The data for all regressions span the period from the first quarter of 1999 to the third quarter of 2023. For oil prices, the regression specification follows: $\Delta_h Y_{j,t+h} = a^h + \beta_h S_t + \Xi_h X_{t-1} + \varepsilon_{t+h}$. PPI energy (index), GFCF (real 2015 EUR) and IPP (real 2015 EUR) include panel data for EU28 countries and the specification follows $\Delta_h Y_{j,t+h} = a_j^h + \beta_h S_t + \Xi_h X_{j,t-1} + \varepsilon_{j,t+h}$, where $Y_{j,t+h}$ is the outcome variable of interest at horizon h for country j, and $X_{j,t-1}$ includes a set of macroeconomic controls, including the lagged dependent variable. The shock S_t is normalised such that it increases PPI energy by 1% on impact. The solid lines show the estimated impulse responses, while the shaded areas represent 90% confidence intervals based on Newey-West standard errors robust to serial correlation (for oil prices) or Driscoll-Kraay standard errors robust to serial correlation and cross-section dependence.

Consistent with the aggregate evidence, firm-level analysis based on publicly listed firms shows that oil supply news shocks exert downward pressure on investment.[22] As shown in panel a) of Chart 4, following an oil supply news shock that increases PPI energy by 1%, capital expenditure of publicly listed firms decreases by 2.9% on impact and 4.1% after one year.[23] R&D expenditure displays a smaller decline of around 0.85% both on impact and one year after the oil shock (Chart 4, panel b). Compared to the aggregate analysis, firm-level results show a larger impact of the shocks on capital expenditure and a similar impact on R&D expenditure. A possible explanation for this discrepancy lies in the sample coverage. In the Compustat sample analysed, R&D expenditure accounts for approximately 60% of aggregate R&D spending on average during the sample period. In contrast, the sample coverage for capital expenditure is only around 20%. This suggests that the firm-level R&D response is likely to be more aligned with the aggregate results than the capital expenditure response. However, the exact nature of the difference in

21 IPP pertains to investment in intangible assets, including R&D, software and databases, mineral exploration, and entertainment, literary and artistic originals.

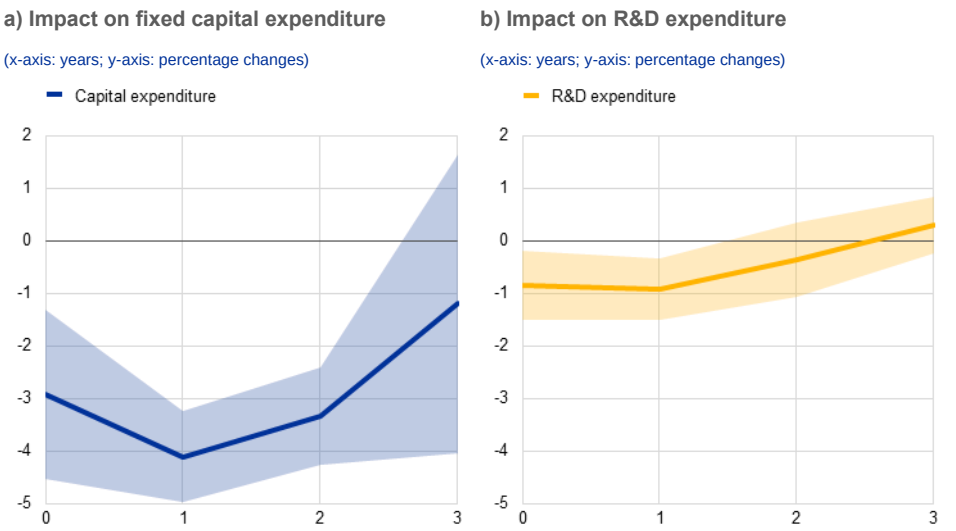
22 The results are robust to the exclusion of the pandemic and the recent energy crisis, namely data after 2020.

23 Capital expenditure pertains to long-term fixed assets owned by companies and used to produce goods or provide services, including land, buildings, machinery, vehicles and equipment.

terms of capital expenditure is not known beforehand, meaning that the response could be either larger or smaller than the aggregate result. Examining the sectoral coverage reveals that energy-intensive firms are represented more in the firm-level sample than in the aggregated data. Specifically, the capital expenditure of energy-intensive firms makes up about 40% of total capital expenditure in the Compustat sample, whereas it only accounts for 12% in the aggregate data.[24] To the extent that energy-intensive firms are more susceptible to energy shocks and hence reduce investment more than non-energy-intensive firms, the firm-level results are consistent with the aggregate findings. This is discussed in more detail in the next paragraph.

Chart 4

Impact of oil supply news shocks on firms' fixed capital and R&D expenditure



Source: ECB calculations.
Notes: Data cover publicly listed firms from Standard and Poor's Compustat Global incorporated in EU28 countries over the period 1999-2022. Financial and utilities sectors are excluded. The econometric specification closely follows Cloyne, J. et al., "Monetary Policy, Corporate Finance, and Investment", *Journal of the European Economic Association*, Vol. 21, No 6, 2023, pp. 2586-2634, which uses state-dependent local projections (see Jordà, Ò. and Taylor, A.M., "Local Projections", *NBER Working Paper*, No 32822, August 2024) to estimate the response of corporate investment to a monetary policy shock. We estimate the effects of oil supply news shocks (*S*) on long-difference percentage changes in firm-level capital and R&D expenditure (*Y*), accounting for firm characteristics that drive the overall effect: $\Delta_h Y_{j,t+h} = a_j^h + \beta_h S_t + \Xi_h X_{j,t-1} + \varepsilon_{j,t+h}$.
The state-dependent local projections extend over a horizon of three years after the oil shock, with firm-level fixed effects and standard errors clustered at the firm and time level following Driscoll-Kraay. Matrix *X* includes controls for the lagged real assets of the firm, its equity to debt ratio, its liquidity ratio (defined as liquid assets over total liabilities), profit margin, sales growth and the GDP growth of the country where it is located, along with the corresponding central bank policy rate. The shock S_t is normalised such that it increases PPI energy by 1% on impact.
The solid lines show the estimated impulse responses, while the shaded areas show the 90% confidence intervals.

The role played by energy intensity warrants consideration because energy-intensive industries (EIIs) are particularly vulnerable to energy shocks owing to their energy needs. EIIs include sectors such as chemicals, metals, cement and glass and account for about 45% of electricity, gas and oil used by EU industries,

[24] Not every country in the sample reports fixed capital expenditure at NACE 2 level, which is required to distinguish between energy-intensive and non-energy-intensive sectors. Therefore, the figure of 12% is calculated only on the sub-sample of countries for which this information is available, namely: Belgium, Bulgaria, Czech Republic, Denmark, Greece, Cyprus, Latvia, Hungary, Austria, Portugal, Romania, Slovakia, Finland, Sweden, Norway and the United Kingdom.

despite representing less than 4% of EU gross value added in 2021.[25] These provide key materials for industries such as construction, the automotive industry and electronics and are important suppliers to sectors driving the green and digital transitions.[26] As a result, these are pivotal both to the EU's decarbonisation goals and to its open strategic autonomy. However, European EIIs are burdened with electricity prices that are significantly higher than in some other economies, such as the United States, resulting in a competitive disadvantage.[27]

Financial constraints also play an important role in the investment decisions of firms. Financing conditions have long been recognised in the academic literature as critical enablers of investment, significantly influencing firms' capacity to respond to shocks.[28] Survey evidence further indicates that financial constraints frequently emerge as major barriers to investment, particularly during periods of economic uncertainty.[29] Measuring financing constraints is challenging, as there is no agreed definition, but balance sheet data can be used to construct relevant estimates. The literature indicates that firms with relatively high debt (defined as a leverage ratio higher than the sample median) that are also of young age can be considered financially constrained.[30] High leverage constrains financing because firms with significant debt can be considered riskier, which leads to higher borrowing costs and stricter financing terms, while being a young firm compounds this constraint, as younger firms may lack established credit histories, collateral and proven revenue streams, making lenders more cautious when lending to them and thus limiting the availability of affordable external financing.

The joint occurrence of high energy intensity and financing constraints can amplify the effects of energy shocks. Recent survey data suggest that firms that self-identify as financially constrained are more likely to consider increases in energy costs as an impediment to investment than their non-financially constrained counterparts.[31] Empirical analysis reveals that financially constrained firms in energy-intensive sectors consistently reduce investment more sharply than other firms after an oil shock. Chart 5 shows the effect on firms, grouped according to energy intensity and financial constraints, of an oil supply news shock that raises PPI energy by 1% on impact. The analysis reveals that all groups reduce investment, but

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25 According to the European Commission's Annual Single Market Report 2021, EIIs encompass several manufacturing sectors, including wood and wood products (excluding furniture), straw and plaiting materials, paper and paper products, coke and refined petroleum, chemicals and chemical products, rubber and plastic products, other non-metallic mineral products and basic metals.

26 For instance, every €100 of downstream private sector production contains on average €5 of inputs from chemicals, minerals and basic metals (see Draghi, M., op. cit.).

27 See Dashboard for energy prices in the EU and main trading partners 2023, European Commission. For example, between 2020 and mid-2022 the retail prices of electricity and natural gas (excluding recoverable taxes and levies) for EU firms were, on average, more than double the prices paid by their US counterparts. The retail price of diesel (including taxes) in the EU was slightly less than double the price in the United States.

28 For an overview, see Cloyne, J., Ferreira, C., Froemel, M. and Surico, P., "Monetary Policy, Corporate Finance, and Investment", *Journal of the European Economic Association*, Vol. 21, No 6, December 2023, pp. 2586-2634.

29 See "EIB Investment Survey 2024 – European Union overview", op. cit.

30 See, for example, Durante, E., Ferrando, A. and Vermeulen, P., "Monetary policy, investment and firm heterogeneity", *European Economic Review*, Vol. 148, 104251, 2022; and Cloyne, J. et al., op. cit.

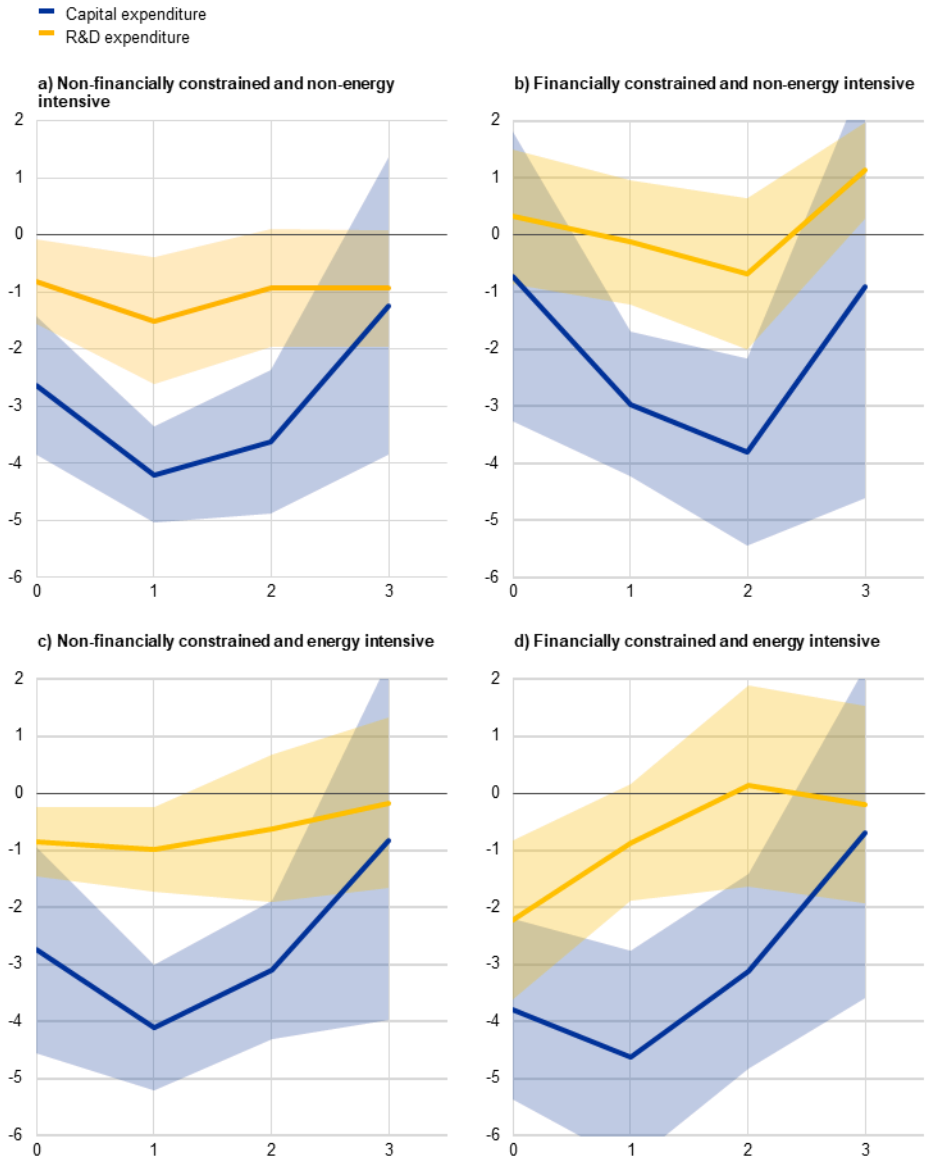
31 See "EIB Investment Survey 2023 – European Union overview", op. cit.

being in an energy-intensive sector and being financially constrained amplifies the impact of the shock on both capital and R&D expenditure.[32]

Chart 5

Impact of oil supply news shocks on capital and R&D expenditure by firm characteristics (energy intensity and financing constraints)

(x-axis: years; y-axis: percentage changes)



Source: ECB calculations.
Notes: For the econometric specification, see the notes to Chart 4. For the purposes of this analysis, financially constrained firms are those that are less than 20 years old and have a leverage ratio higher than the yearly sample median, which implies that whether a firm is financially constrained or not changes over time. The median was chosen to maximise observations per group, but results are robust to the choice of different thresholds. Energy-intensive firms are firms in NACE 2 sectors defined as EIIs by the European Commission.
The solid lines show the estimated impulse responses, while the shaded areas show the 90% confidence intervals.

[32] The difference between the groups in panels a) and d) in Chart 5 is statistically significant on impact and after one year.

4 Conclusion

The evidence presented in this article suggests that energy shocks tend to decrease investment and innovation in Europe, especially for financially constrained firms in energy-intensive sectors. Publicly listed firms in the EU reduce investment in response to energy shocks (as proxied by oil shocks). Empirical analysis indicates that a 1% increase in energy prices driven by oil shocks leads to a significant decrease in fixed capital expenditure (-4.1% after one year), while R&D spending drops by almost 1%, showing a more muted impact. Moreover, firms that are financially constrained and energy-intensive experience sharper reductions in investment following an oil price increase.

These findings are in line with a broad body of literature documenting the negative macroeconomic effects of oil shocks and confirm the importance of reducing the EU's vulnerability to such shocks. The EU is heavily reliant on imported energy, making it more exposed to energy shocks than other major economies. As energy shocks put downward pressure on investment, and to the extent that investment slowdowns can lead to a decline in productivity, the EU is at risk of gradually losing competitiveness. This may threaten not only current but also future prosperity.[33]

Policy measures at both national and European level should therefore aim to secure the energy supply of the EU, lower energy prices and mitigate the exposure of firms to future energy shocks. While national interventions are best suited to address country-specific issues, EU actions should be aimed at tackling shared problems and fostering cross-country collaboration. The Draghi and Letta reports contain several proposals to address these issues.[34] These include strengthening joint procurement of gas imports to increase the EU's market power and expanding the use of long-term electricity contracts. The two reports also emphasise that accelerating and simplifying permitting processes, channelling EU funds, and promoting cross-border projects to boost renewable energy production would enhance energy security and reduce energy prices in the medium term. Moreover, the Draghi report suggests targeted support measures for EIIs to ensure they remain competitive while contributing to decarbonisation. Finally, advancing the capital markets union could help ease financing constraints for firms, enabling them to invest in improving their energy efficiency. Together, these measures would have the potential to strengthen the resilience of the EU to future shocks and increase its long-term competitiveness.

33 See Draghi, M., op. cit.

34 See Letta, E., "Much More Than a Market – Speed, Security, Solidarity: Empowering the Single Market to deliver a sustainable future and prosperity for all EU Citizens", April 2024; and Draghi, M., op. cit.

2 Explaining the resilience of the euro area labour market between 2022 and 2024

Prepared by Clémence Berson, Vasco Botelho, António Dias da Silva, Claudia Foroni, Matthias Mohr, Christofer Schroeder and Marco Weissler

1 Introduction

In the aftermath of the pandemic, the euro area labour market has shown remarkable resilience. The unemployment rate has remained at record lows and employment has grown steadily despite weak economic growth and various challenges to the economy, such as the energy crisis triggered by Russia's invasion of Ukraine, geopolitical tensions and the subsequent monetary policy tightening. From the fourth quarter of 2021 to the second quarter of 2024, cumulative employment growth (3.3%) outpaced cumulative real GDP growth (2.4%) by 0.9 percentage points. This is remarkable given that both employment and output had fully recovered to their respective pre-pandemic levels by the end of 2021. The resilience of employment has, however, led to a decline in labour productivity growth, measured in terms of average output per employee, which has dipped below its already weak historical trend.

Higher profit margins and lower real wages, together with lower average hours worked per employee, have allowed firms to hire more workers and retain staff during weak economic growth, while increased labour force participation has helped address potential labour shortages. The surge in inflation at the onset of the energy crisis significantly reduced real wages, making hiring less costly for firms. This created incentives for them to favour labour input, given rising prices for energy and intermediate inputs, thereby contributing to resilient labour market dynamics during a period of weak economic growth. Additionally, substantially higher profit margins allowed firms to hire additional workers or maintain their current labour force. Faced with actual, or expected, labour shortages, firms chose to retain their workers, seeing labour hoarding as a less costly option than seeking replacement workers upon recovery from what was regarded as a temporary weak economic environment. Lower average hours worked per employee, amid still robust labour demand, encouraged companies to hire more workers to maintain their overall labour input. Recent survey evidence suggests that labour hoarding was one of the factors behind the decline in average hours worked per employee, with firms reducing working time in response to what they perceived as temporary lower demand. Moreover, sustained labour force growth in the post-pandemic period has incentivised firms to get new workers on board to address actual or expected labour shortages. The labour force participation rate has risen above pre-pandemic levels, driven primarily by transitions from inactivity to employment. Women, older workers, persons with a higher education and foreign workers have contributed the most to this increase. Faced with the possibility of labour shortages, firms hired these

additionally available workers by way of precaution, despite subdued economic activity.

This article closely examines each of these four factors, focusing on labour market dynamics in the euro area as a whole. The favourable aggregate dynamics reveal increasing heterogeneity across sectors, with low productivity sectors driving the aggregated data. While recognising the significant differences at the country level, analysing the euro area labour market at the aggregated level is key to a comprehensive understanding of the real economy and of the choices made by firms and workers that determine price and wage inflation. It also provides the ECB with important insight, which it needs to make effective policy decisions in line with its price stability mandate.

2 Post-pandemic labour market developments

The post-pandemic period was characterised by a remarkably robust labour market in the euro area. The recovery in economic activity following the pandemic was swift and accompanied by strong growth in employment. This stands in contrast to the periods following the global financial crisis and the euro area sovereign debt crisis, which saw slower employment growth despite a rebound in economic activity. By the end of 2021, the number of workers in job retention schemes – a feature of labour markets during the pandemic – came down significantly, pointing to the absence of hysteresis effects in the labour market and of any significant need for major job reallocation in the euro area.[1] Even the slowdown in economic activity following Russia's invasion of Ukraine, and the resulting spike in energy prices, had no visible negative impact on the labour market.

The euro area labour market's performance has been exceptional as compared with changes in output (Chart 1, panel a). The relationship between employment and output growth, known as Okun's law, suggests that employment and GDP developments were broadly aligned in 2022, while a gap emerged in 2023. In the third quarter of 2024, the difference between actual employment and that suggested by GDP growth, rose to nearly 600 thousand workers, or around 0.35% of persons employed. The strong growth in employment in comparison with GDP was supported by firms retaining their workers, facilitated by rising corporate profits, declining real wages and lower average hours worked per person employed, as well as by robust growth in the labour force (Chart 1, panel b).[2] The fall in the average hours worked reflects the fact that the total hours worked has risen only modestly since late 2019 compared with the increase in the number of persons employed – a development which is discussed in detail in Section 5 of this article.

1 These patterns have also been observed in the United States; see Consolo, A. and Petroulakis, F., "Did COVID-19 induce a reallocation wave?", *Economica*, Vol. 91, Issue 364, October 2024, pp. 1349-1390. For the euro area, see the article entitled "Hours worked in the euro area", *Economic Bulletin*, Issue 6, ECB, 2021.

2 For a comprehensive review of the concept of labour hoarding, see Biddle, J., "The Cyclical Behavior of Labour Productivity and the Emergence of the Labour Hoarding Concept", *Journal of Economic Perspectives*, Vol. 28, No 2, 2014, pp. 197-212.

Strong employment growth and weak GDP dynamics have led to a decline in productivity growth. The slowdown in productivity growth predates the pandemic but has gathered pace since 2022, under the combined effect of various adverse shocks to the euro area.[3] Quarter-on-quarter productivity growth turned negative in the fourth quarter of 2022 and has remained well below its pre-pandemic trend since then. On a cumulative basis, it has declined by 1.3% since the fourth quarter of 2021. Recently, however, there have been signs that the fall in labour productivity is slowing, given that quarter-on-quarter growth has been zero or slightly positive since the first quarter of 2024.

The trends for aggregate employment and productivity mask heterogeneity across sectors. While employment growth was most prominent in the construction, public, and professional services sectors, it was weak in the manufacturing sector. Gross value added also developed differently across sectors, as did productivity. Strong growth in employment in the public and construction sectors between the fourth quarter of 2019 and the second quarter of 2024 (8.9% and 7.1% respectively) outpaced that of gross value added (2.3% and 3.0% respectively), leading to a pronounced slowdown in productivity growth in these two sectors. By contrast, information and communication services saw a substantial increase in productivity growth, driven by robust growth in gross value added. For some sectors, changes in productivity growth evolved into two distinct phases: the acute pandemic period, from the fourth quarter of 2019 to the fourth quarter of 2021, and the post-pandemic period after the first quarter of 2022. In the manufacturing sector, for example, cumulative growth in productivity per person and per hour stood at 8.6% and 7.8% respectively during the acute pandemic period. With the spike in energy prices in 2022, however, productivity growth turned negative and cumulative growth in productivity per person and per hour in the post-pandemic period fell to -2.4% and -2.9% respectively. Contact-intensive service sectors, such as the hospitality and food services industries, also saw growth in productivity of 1.6% per person and per hour during the acute pandemic period. While cumulative growth in productivity per person in these sectors remained positive during the post-pandemic period, rising to 1.6%, productivity growth per hour declined by 0.1%.

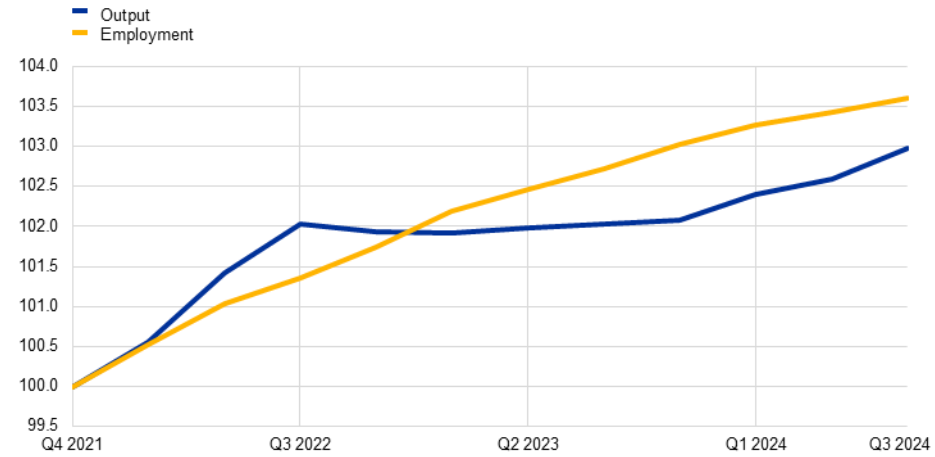
[3] See, for example, the article entitled "The slowdown in euro area productivity in a global context", *Economic Bulletin*, Issue 3, ECB, 2017.

Chart 1

Labour market developments

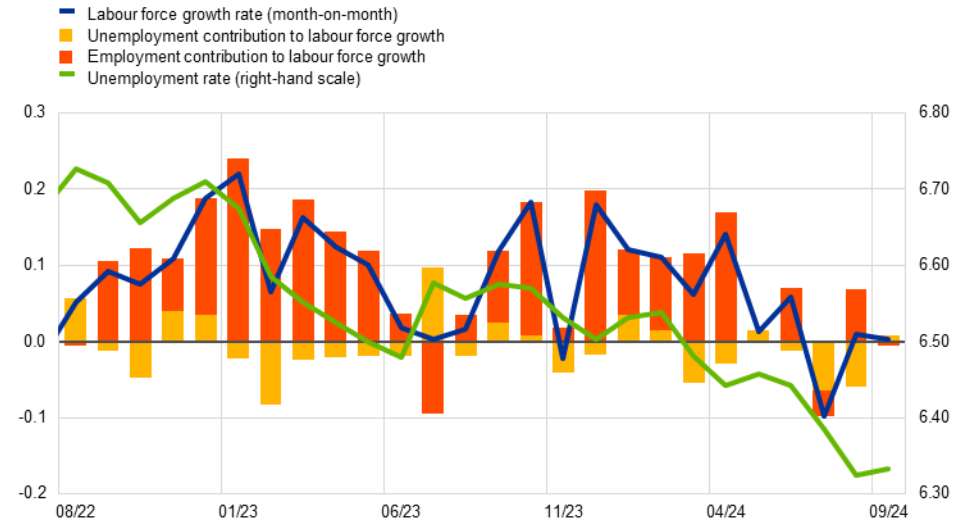
a) Growth in real GDP and employment

(index: Q4 2021 = 100)



b) Growth in the labour force and contributions from employment and unemployment

(contributions and percentages)



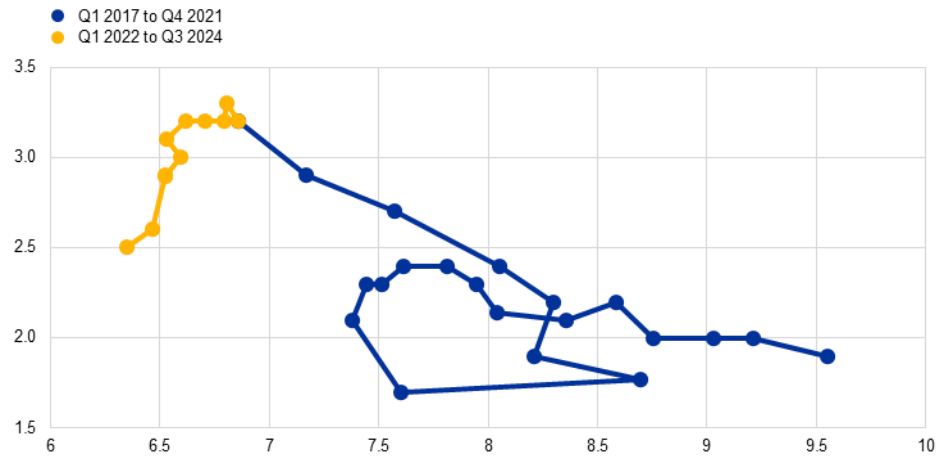
Sources: Eurostat and ECB calculations.
Note: The latest observations are for the third quarter of 2024 for growth in real GDP and employment (panel a) and for September 2024 for growth in the labour force (panel b).

The unemployment rate has remained at record lows. In September 2024 the unemployment rate in the euro area stood at 6.3% – the lowest ever to be recorded since the introduction of the euro and 1.1 percentage points below the pre-pandemic level observed in January 2020. The decline in the unemployment rate was broad-based across countries, with some variations. Spain and Italy, for example, experienced the largest reductions in unemployment rates over this period (-2.6 percentage points and -3.5 percentage points respectively), whereas Germany saw a slight rise (+0.3 percentage points). The fall at the euro area level was driven by a slight drop in the number of unemployed, of around 1.3 million persons, coupled with a significant increase in the labour force of 8.6 million compared with January 2020.

Chart 2

The Beveridge curve

(x-axis: unemployment rates; y-axis: vacancy rates)



Source: Eurostat.
Note: The latest observations are for the third quarter of 2024.

Labour demand has remained robust over the post-pandemic period, albeit it has started to ease more recently. The job vacancy rate spiked at 3.3% in the second quarter of 2022, pointing to a tight labour market, despite a deterioration in matching efficiency as regards job vacancies and job seekers. Since then, this rate has gradually declined, having fallen to 2.5% in the third quarter of 2024 – only 0.2 percentage points higher than its pre-pandemic level. Waning labour demand in recent quarters, coupled with a stable unemployment rate, has resulted in a vertical Beveridge curve and improved efficiency matching (Chart 2**Chart 2**).

Box 1

Labour market developments in the euro area compared with other advanced economies

Prepared by António Dias da Silva, Ramon Gomez-Salvador, Isabella Moder and Matthias Mohr

The growth rate of total hours worked in the euro area between the first quarter of 2022 and the second quarter of 2024 compares favourably with that of the United Kingdom and of the United States.[4] From a structural perspective, however, the euro area has a much higher unemployment rate and much lower participation and employment rates than in the United Kingdom and the United States.

Labour input increased by around 3% in the euro area and the United States, but was more contained in the United Kingdom at around 1.5% (Chart A).[5] Population growth and increases in labour force participation rates were both factors contributing to the rise in hours worked in the euro area and the United States. By contrast, average hours worked declined in the euro area but

4 See also the box entitled "The post-pandemic recovery – why is the euro area growing more slowly than the United States?", *Economic Bulletin*, Issue 4, ECB, 2024, and the box entitled "Labour productivity growth in the euro area and the United States: short and long-term developments", *Economic Bulletin*, Issue 6, ECB, 2024.

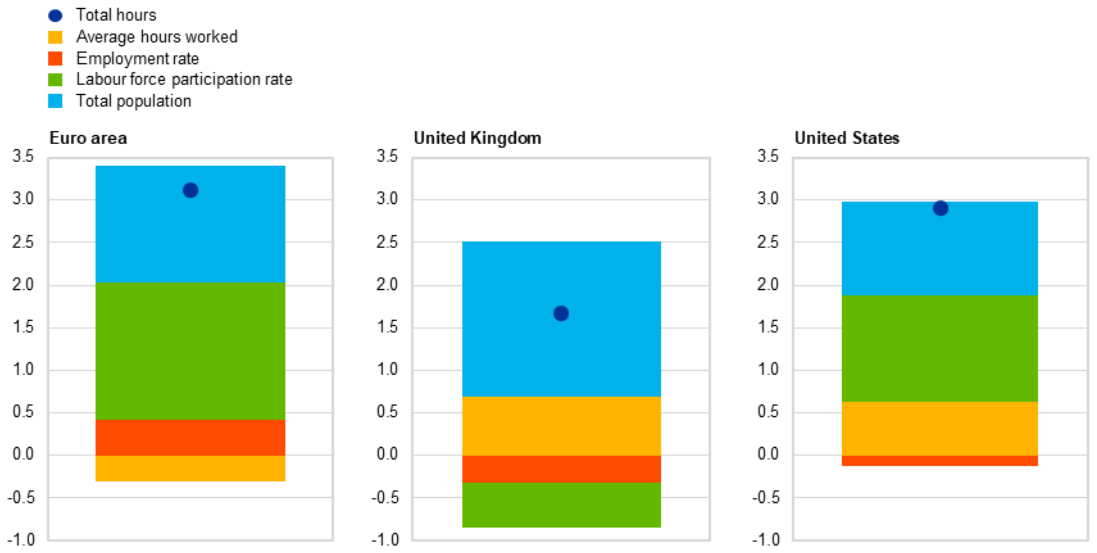
5 It should be noted that there is considerable uncertainty surrounding statistics derived from the UK's Office for National Statistics Labour Force Survey, see the article entitled "Uncertainties around Labour Force Survey data", *Monetary policy report*, Bank of England, May 2024.

increased in the United States, while the employment rate rose in the euro area and fell in the United States. For the United Kingdom, two key factors pulled down total hours worked: first, a decline in the labour force participation rate and, second, a fall in the employment rate. Conversely, the contribution of population growth was significantly stronger in the United Kingdom than in the euro area or the United States.

Chart A

Labour market contributions to total hours worked

(cumulative percentage changes between Q1 2022 and Q2 2024, and percentage point contributions)



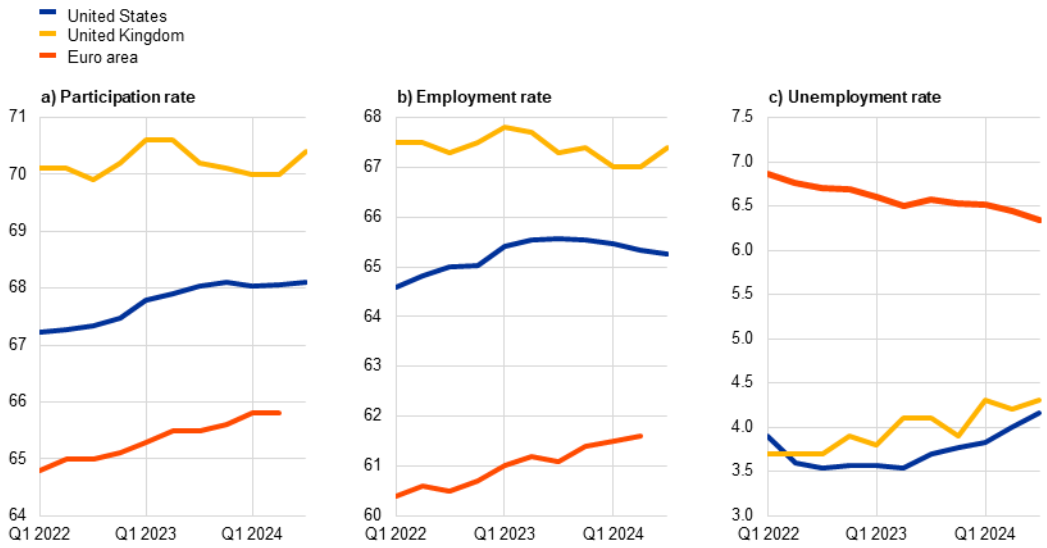
Sources: OECD, Eurostat, UK's Office for National Statistics and US Bureau of Labor Statistics.

Changes in key labour market variables over time show that the labour market in the euro area has remained relatively robust in recent quarters (Chart B). The participation rate in the euro area has continued to increase, albeit at a slower pace in the first half of 2024. The employment rate has been steadily rising, in contrast to the United States, where it has noticeably slowed down, and in the United Kingdom, where it has remained broadly unchanged during this period. While the unemployment rate continues to decline in the euro area, it has begun to rise in both the United Kingdom and the United States.

Chart B

Key labour market variables in the United States, United Kingdom and the euro area

(percentages)



Sources: OECD, Eurostat, UK's Office for National Statistics and US Bureau of Labor Statistics.
Note: The latest observations are for the third quarter of 2024 for the United States and the United Kingdom, for the third quarter of 2024 for the euro area unemployment rate, and for the second quarter of 2024 for the euro area participation rate and employment rate.

Overall, the euro area labour market requires structural improvements if it is to achieve the levels of employment, participation and unemployment observed in the United Kingdom and the United States. Recent developments show that some progress has been made, given that the labour market in the euro area is seeing higher employment and participation rates and a stronger decline in the unemployment rate. However, improvements in the euro area labour market may become more difficult to achieve if weak productivity prevails.

3 The role of factor substitution in explaining employment dynamics

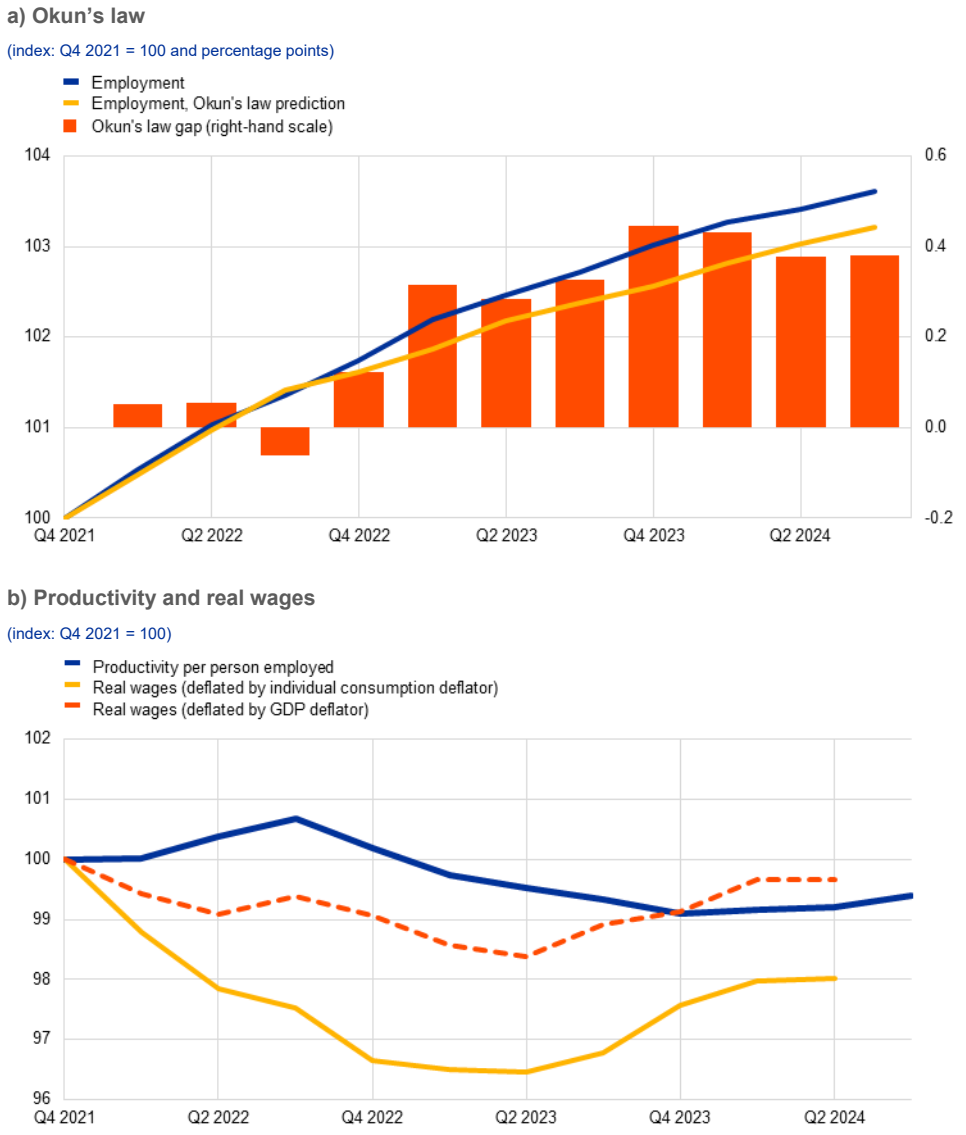
Since the end of the pandemic, growth in employment has significantly exceeded that of economic activity. Historically, based on Okun's law, employment growth typically expands at approximately half the rate of real GDP growth, with Okun's elasticities estimated to range between 0.2 and 0.5. Employment growth has, however, surpassed GDP growth since 2022, with elasticities double the conventional estimates (Chart 3, panel a). This phenomenon mirrors the sluggish productivity trends observed within the euro area.

The initial decrease in real wages at the onset of the energy crisis contributed to the disconnect between employment and output growth. The surge in inflation during the recent energy crisis led to a fall in real wages as nominal wages adjusted with a time lag. Initially, moreover, the decline in real wages outpaced the

decline in productivity.[6] This gap between real wages and productivity has supported job creation by incentivising firms to hire, or retain, more workers given that labour input was perceived as being less expensive than other inputs (Chart 3, panel b).

Chart 3

Okun's law, productivity and real wages



Sources: Eurostat and ECB calculations.
Notes: The latest observations are for the third quarter of 2024, except for real wages for which they are the second quarter of 2024. In panel a), the red bars show the deviations (in percentage points) from Okun's law, estimated as an autoregressive distributed lag (1,1) model on the sample for the period from the first quarter of 1995 to the second quarter of 2024, with dummies to take into account the extraordinary dynamics in the second and third quarters of 2020. Panel b) shows real wages deflated both by the private consumption deflator (in yellow) and by the GDP deflator (in dashed red). Productivity is measured as output per employee.

A key factor behind the decoupling of output and employment, leading to negative productivity growth, is the substitution of production factors. An analysis based on a structural Bayesian vector autoregressive model sheds light on

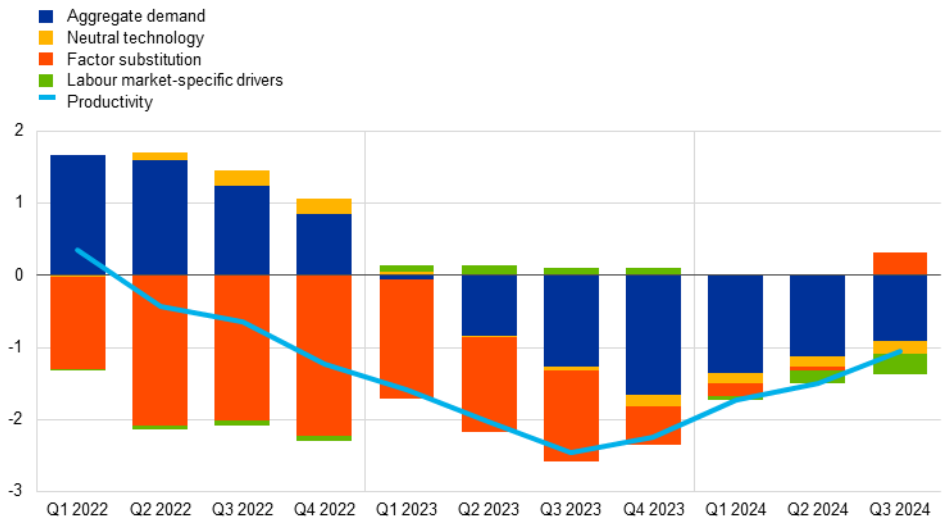
[6] The fall in real wages in the aftermath of the energy crisis is visible when nominal wages are deflated by the real GDP deflator (appropriate for a comprehensive analysis of economic activity, as done using a Bayesian vector autoregressive model). It is even starker when nominal wages are deflated by the consumption deflator (to reflect changes in the cost of living).

the key factors underlying the decoupling of output and employment fluctuations, as well as the procyclicality of labour productivity. The model incorporates a factor substitution shock, capturing the direct substitution of labour with other production inputs, such as intermediate goods, energy and capital.[7] For periods in which there are energy crises and supply chain disruptions, this shock aims to capture the reallocation among inputs following a relative price shock, favouring the cheaper option. When real wages fall compared with other input prices, labour becomes more affordable than energy, capital and intermediate goods, naturally resulting in reallocation and substitution effects. The significance of the factor substitution shock is illustrated by the red bars in Chart 4, showing its substantial impact on productivity growth by driving output down and employment up. Consequently, the model attributes much of the recent productivity decline to cyclical factors. The resilience of the labour market, bolstered by the factor substitution shock, exacerbated this productivity drop. With the dissipation of the factors driving the factor substitution shock, such as the normalisation of energy and intermediate input prices, there has been a modest recovery in productivity.

Chart 4

Historical decomposition of labour productivity

(percentage changes and percentage point contributions)



Source: Box entitled "Drivers of employment growth in the euro area after the pandemic: a model-based perspective", *Economic Bulletin,* Issue 4, ECB 2024.
Notes: Productivity is measured as output per employee. The light blue line depicts year-on-year productivity growth in terms of its deviation from the deterministic component. The bars show the percentage point contribution of each shock. The latest observations are for the third quarter of 2024.

Additional drivers sustained employment dynamics amid economic stagnation. Recovering demand supported employment and output growth until early 2023. Since then, weakening demand has led to a sharper slowdown in economic activity compared with employment growth, exacerbating the deviations

[7] The factor substitution shock is a technological shock, which features a negative conditional correlation between output and employment. The substitution of factors captured by this shock can take place at both firm level – with a change in production inputs – or at the sectoral level – with labour-intensive sectors gaining a share relative to other sectors. For a more detailed description of the model, see the box entitled "Drivers of employment growth in the euro area after the pandemic: a model-based perspective", *Economic Bulletin*, Issue 4, ECB, 2024.

from Okun's law (Chart 4, blue bars). A neutral technology shock (Chart 4**Chart** , yellow bars), indicative of a decline in total factor productivity, exerted a largely negative impact on both output and employment growth, primarily on account of global supply bottlenecks, leaving productivity virtually unaffected. For 2022 the model attributes minimal negative effects to labour market-specific drivers (Chart 4, green bars), such as changes in labour force participation and increased worker bargaining power. These effects were partially reversed in 2023. The catch-up of real wages makes factor substitution less relevant and favours a realignment of employment and output dynamics, as well as a recovery in productivity.

4 The role of profits in labour hoarding in the euro area

Rising profit margins enabled firms to retain their workers for longer than usual, despite falling revenues.[8] Recent ECB estimates show that higher profit margins have improved the ability of firms to hoard labour in the event of an adverse shock to their economic outlook.[9] The decision by firms to hoard labour is rational and consistent with long-term profit maximisation goals. Profit maximising firms choose to favour labour hoarding when the costs of redundancies, re-employment or training exceed the costs of worker retention. Increased labour hoarding occurs only when firms expect a temporary decline in demand for their goods or services. If a permanent fall in demand is anticipated, there is no incentive for firms to retain workers, given that their labour input would not be needed.

The ECB labour hoarding indicator has remained above the historical average since the first quarter of 2022 but started to weaken in 2024, primarily on account of lower economic activity.[10] The proportion of euro area firms to hoard workers had been relatively flat, at around 12.2%, until the onset of the pandemic, when it sharply increased from 14.7% in the fourth quarter of 2019 to 26.7% in the first quarter of 2020. The indicator has remained elevated since then, albeit showing some cyclical variations including a second sharp increase when energy prices surged. The labour hoarding indicator weakened during the first half of 2024, decreasing from 22% in the third quarter of 2023 to 16% in the second quarter of

8 In the recent ECB Corporate Telephone Survey, around one-third of the respondents agreed that recent profitability had made labour hoarding more affordable. See the box entitled "Findings from a survey of leading firms on labour market trends and the adoption of generative AI", *Economic Bulletin*, Issue 6, ECB, 2024.

9 See the box entitled "Higher profit margins have helped firms hoard labour", *Economic Bulletin*, Issue 4, ECB, 2024. In this article, the increase in profit margins was calculated using firm-level data from the Survey on the Access to Finance of Enterprises and from the Moody's Orbis dataset on the balance sheets of firms. In this dataset, profit margins are defined as the ratio of a firm's profits before taxes to its operating revenues. The growth in profit margins using firm-level data for 2021-22 is consistent, albeit not directly comparable, with the increase in unit profits recorded at the macro level using aggregated data from the National Accounts. For the macro indicator of unit profits, see the box entitled "Profit indicators for inflation analysis considering the role of total costs", *Economic Bulletin*, Issue 4, ECB, 2024.

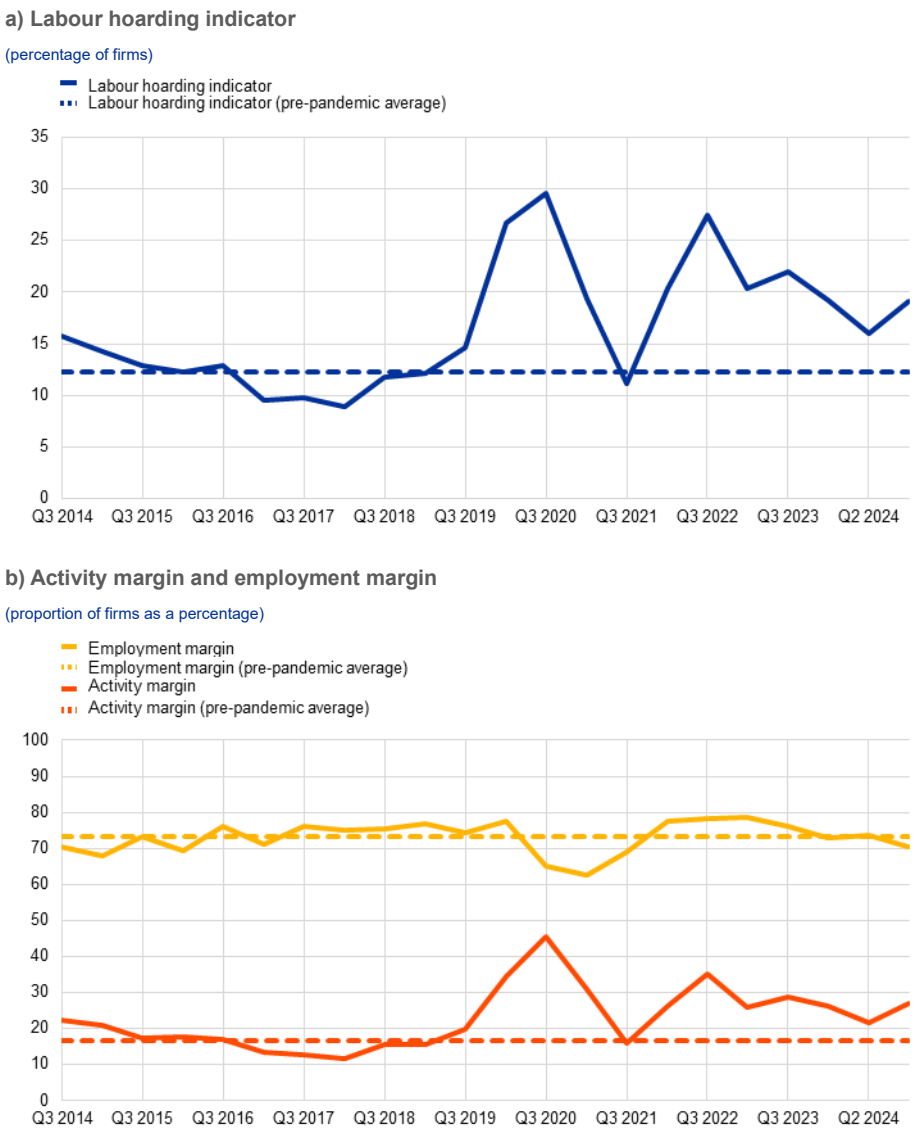
10 The ECB labour hoarding indicator measures the proportion of firms that did not reduce their number of employees despite facing a deterioration in their firm's economic outlook. This indicator is measured using data from the Survey on the Access to Finance of Enterprises. It is defined as the proportion of firms with a deteriorating outlook that did not reduce their number of employees in the current quarter. The labour hoarding indicator can be broken down into two margins: (i) an activity margin that captures the proportion of firms that face a deterioration in their firm's outlook; and (ii) an employment margin that shows the proportion of firms that reported a deterioration in their outlook but that did not reduce their number of employees.

2024 (Chart 5, panel a). The indicator for the third quarter of 2024 points to a slight cyclical pick-up in labour hoarding, but to levels significantly lower than those at its peak of 27.4% in the third quarter of 2022. The main driver behind the broad weakening of the labour hoarding indicator is the lower activity margin (Chart 5, panel b). Given that this margin depicts the extent to which adverse shocks affect firms' outlooks, this suggests that euro area firms are gradually recovering from the energy price shock. In addition, the employment margin, which reflects the ability of firms to retain their workers while contending with these shocks, has been gradually decreasing, suggesting that the buffers that allowed firms to retain their workforce are dissipating. The employment margin of labour hoarding returned to its pre-pandemic level of 73% in the second quarter of 2024, but fell to 70% in the third quarter, 8 percentage points below its peak of 78% in 2022-23. This suggests that firms that are still being affected by negative shocks now have less scope for retaining their workers than in the past, which could be of relevance given that negotiated wages, and consequently labour costs, have been increasing in 2024.[11]

[11] See Bing, M., Holton, S, Koester, G. and Roca I Llevadot, M., "Tracking euro area wages in exceptional times", *The ECB Blog*, ECB, 23 May 2024.

Chart 5

ECB labour hoarding indicator



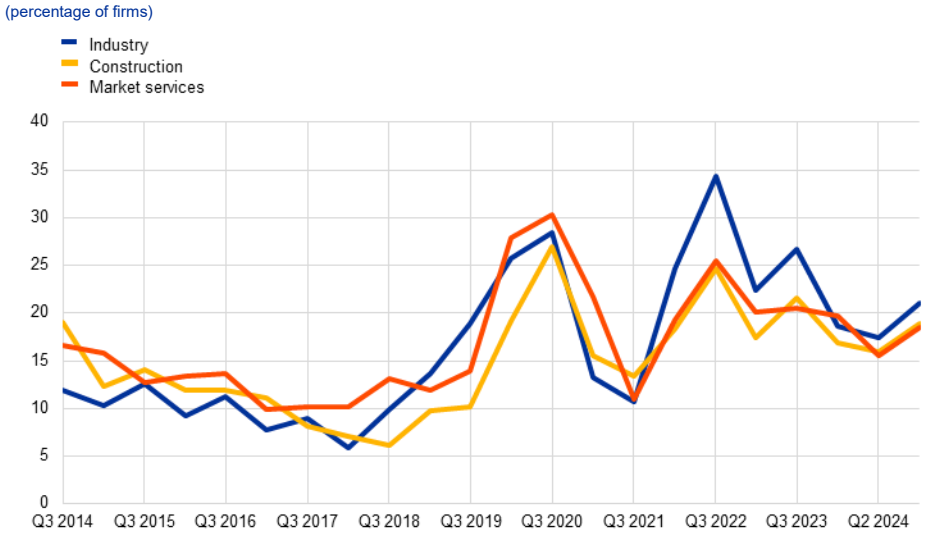
Source: Survey on the Access to Finance of Enterprises (SAFE).
Notes: In panel a), the labour hoarding indicator shows the percentage of firms that did not reduce their workforce despite facing a deterioration in their firm's outlook. In panel b), the activity margin captures the percentage of firms that faced a deterioration in their firm's outlook over the previous six-month period, while the employment margin refers to the percentage of firms that reported a deterioration in their firm's outlook but did not reduce their workforce over that same period. Until the end of 2023, the SAFE waves for the first quarter covered the period from October of one year to March of the subsequent year; the waves for the third quarter covered the period from April to September of the same year. Since 2024 onwards, the SAFE waves have been set at a quarterly frequency. The latest observations are for the third quarter of 2024.

Despite the cyclical increase, the ECB labour hoarding indicator still points to a gradual diminishing of the ability or willingness of firms to retain their workforce, which is broad-based across sectors and particularly strong in market services (Chart 6). The cyclical increase in the labour hoarding indicator in the third quarter of 2024 was common to the industry, construction and market services sectors. This is indicative of an aggregate systemic weakness in the economy that is not being led by any individual sector. While the labour hoarding indicator increased slightly in the third quarter of 2024, the overall trend points to a gradual return to its pre-pandemic levels in all broad sectors of economic activity. In

the third quarter of 2024, the labour hoarding indicator also decreased year on year in all sectors, falling by 5.6 percentage points in industry, by 2.7 percentage points in construction and by 2.0 percentage points in the market services sector as compared with the same quarter in 2023. The decline in labour hoarding observed in the market services sector in the third quarter of 2024 was driven both by a lower activity margin (down by 1.2 percentage points as compared with the third quarter of 2023) and by a narrower employment margin (down by 4.3 percentage points). By contrast, the fall in the activity margin in the industry and construction sectors in the third quarter of 2024 (of around 3.5 percentage points for industry and 1.7 percentage points for construction as compared with the same quarter in 2023) was offset by an increase in the employment margin in both sectors, leading to a smaller decrease in the ECB labour hoarding indicator in these sectors than that which the activity margin would otherwise suggest.

Chart 6

ECB labour hoarding indicator by sector of economic activity



Source: Survey on the Access to Finance of Enterprises (SAFE).
Notes: The labour hoarding indicator is the percentage of firms that did not reduce their workforce despite facing a deterioration in their firm's outlook. Until the end of 2023, the SAFE waves for the first quarter covered the period from October of one year to March of the subsequent year; the waves for the third quarter covered the period from April to September of the same year. The latest observations are for the third quarter of 2024.

It is important to continue to monitor the resilience of firms to adverse shocks and their ability to hoard labour when needed. Euro area firms proved to be highly resilient to the very adverse economic conditions arising from the pandemic-induced lockdowns and the surge in energy prices. The ensuing high profit margins and strong labour hoarding have supported employment growth since the surge in inflation. The expected normalisation of these factors could lead to a gradual deceleration in employment growth over the next few years and may give increasing importance to other channels of adjustment within the euro area labour market, such as changes in labour supply owing to increased workforce participation or cyclical fluctuations in unemployment rates and in labour market transitions from employment into inactivity in the event of a weakness in labour demand.

5 Developments in average hours worked

Average hours worked per employee remained at a relatively lower level following the pandemic, yet helped the labour market to remain resilient in terms of the extensive margin. In the second quarter of 2024, average hours worked were still 1.2% lower than in the fourth quarter of 2019 (Chart 7**Chart** , panel a), meaning that the average person employed in the euro area worked five hours less per quarter in 2024 compared with before the pandemic. The decline in average hours worked was primarily driven by the public sector and manufacturing (-2.0% and -1.3% respectively), but no sector, other than real estate, has recovered to its pre-pandemic level owing to changes in both labour demand and supply.

Employment growth has remained resilient, despite a slowdown in demand in some sectors and lower average hours worked. Recent evidence provided by the Survey on the Access to Finance of Enterprises and the ECB Corporate Telephone Survey shows that the lower hours worked were, to some extent, also driven by a reduced need for workers. Firms, in particular in the manufacturing sector, reported weaker demand as a key factor for reduced working time. Alongside current demand levels, firms confirmed that labour hoarding was an important factor behind the declining number of hours worked per employee. For firms, the decrease in average hours worked attributable to lower demand therefore had a structural component, owing to difficulties in hiring new workers, but also had a cyclical component that could be expected to disappear as demand rises.

On the labour supply side, lower average hours worked are mainly driven by less overtime and a higher prevalence of persons who did not work in the reference week. Overall, average hours worked in 2022, as measured in the European Union Labour Force Survey, were 0.71 hours per week below their 2019 level.[12] Around one-third of this difference (0.26 hours) was due to a higher proportion of people working zero hours during the reference week compared with before the pandemic (Chart 7, panel b). While this was initially attributable primarily to sick leave during and after the pandemic, more recently, new contract types introduced in France and Spain have increased the frequency of zero hours worked.[13] Another third of the difference (0.23 hours) was driven by a fall in the number of long hours worked (defined as more than 49 hours per week). Although those working long hours are only a very small percentage of the total workforce, they saw a stark reduction in their working time, reflecting a long-term trend. As regards the last third, average hours worked for the remaining population are 0.22 hours below their pre-pandemic level. This means that a significant proportion of the lower average hours worked is due to a rise in the proportion of zero hours worked and a fall in the proportion of long hours worked.

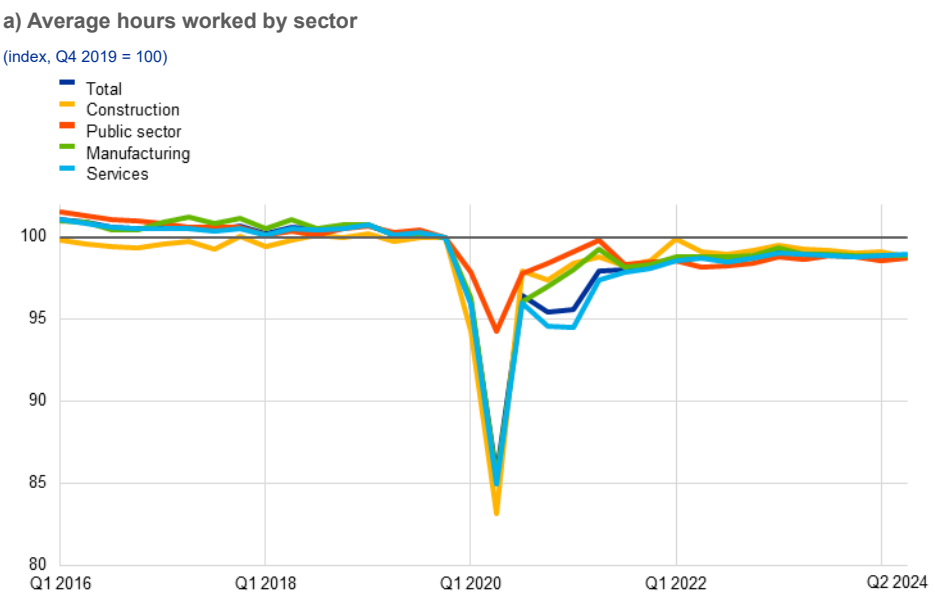
12 In the European Union Labour Force Survey, the average of “actual hours worked” during a reference week is the closest measure to the average hours worked as defined in the National Accounts.

13 In France, this is potentially affected by a higher number of apprentices with frequent school-based training periods, and in Spain by new contract types allowing for spells of non-employment to curb the seasonality of spells of employment. Both might have led to more hiring of workers with lower average hours.

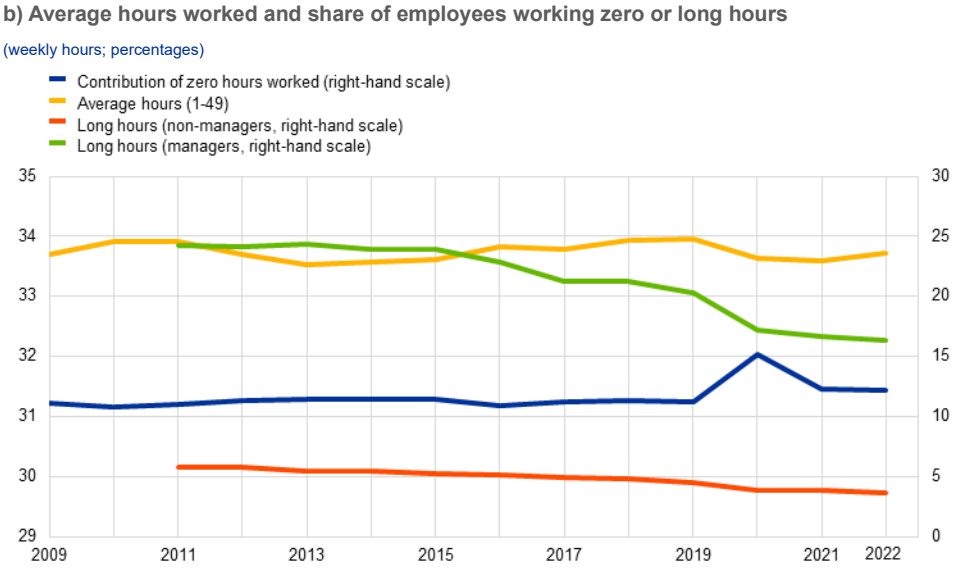
Chart 7

Average hours worked

a) Average hours worked by sector



b) Average hours worked and share of employees working zero or long hours



Sources: Eurostat, National Accounts, European Union Labour Force Survey.
Notes: The latest observations are for the second quarter of 2024 (panel a) and for 2022 (panel b). "Long hours" are the percentage of employees who worked more than 49 hours per week. "Average hours (1-49)" are the average weekly hours of employees who worked between 1-49 hours in the past week.

There would seem to have been little change in employees working time preferences following the pandemic, suggesting that there will be no future increase in the number of hours supplied and that these preferences will continue to act as a drag on average hours worked. In line with the fall in average hours worked, the European Union Labour Force Survey shows that the preference for working fewer hours is on a declining trend which was not affected by the pandemic. In 2023, while full-time workers and persons employed in managerial positions had no desire to work more hours, part-time workers and workers in elementary occupations were looking to work more intensively. Given that the lower

hours worked are explained by lower labour demand in certain sectors only, a closure of the gap in hours worked compared with the pre-pandemic level would require an increase in supplied hours worked. However, working time preferences overall suggest only limited support for a rise in average hours worked in the future and therefore limited downward risks for employment growth.

6 Labour force dynamics

The euro area labour force has increased strongly over recent years and remains substantially higher than its pre-pandemic trend, helping firms to address labour shortages. While the pandemic temporarily discouraged participation in the labour market, the labour force participation rate has since recovered and even surpassed its pre-pandemic levels (Chart , panel a). That rate decreased by 2.5 percentage points between the fourth quarter of 2019 and the second quarter of 2020. This reflected a fall in the euro area active working age population of 3.8%, with more than 6 million workers temporarily leaving the labour force during the pandemic according to the data from the European Union Labour Force Survey. Thereafter, the labour force quickly recovered. The labour force participation rate returned to its pre-pandemic level in the fourth quarter of 2021 and by July 2024 the labour force was some 8.6 million above the figure in January 2020, standing 5.3% higher than during the pre-pandemic period. This rate equates to an upwards trajectory of 0.2% per year since 2022, compared with 0.1% between 2009 and 2020.[14] The increased availability of workers may have supported the behaviour of firms in terms of hiring the workers they lacked, or expected to lack, during a period of labour shortages, despite the weak economic environment.

Transitions from inactivity to employment were the main driver of employment growth. The widespread support from job retention schemes helped to contain the flow from employment to inactivity during the pandemic, thereby preventing a larger and more permanent decline in the labour force. While the increase in labour market discouragement following the pandemic was temporary, the recovery followed different paths across different countries. Chart 8, panel a) shows that France, Spain and the Netherlands recovered to their pre-pandemic levels in the third quarter of 2021, while Germany and Italy took longer (second quarter of 2022 and first quarter of 2023 respectively). The pandemic also had a strong impact on teleworking possibilities, increasing the participation of the most impacted groups (women, older workers and workers with a tertiary education).

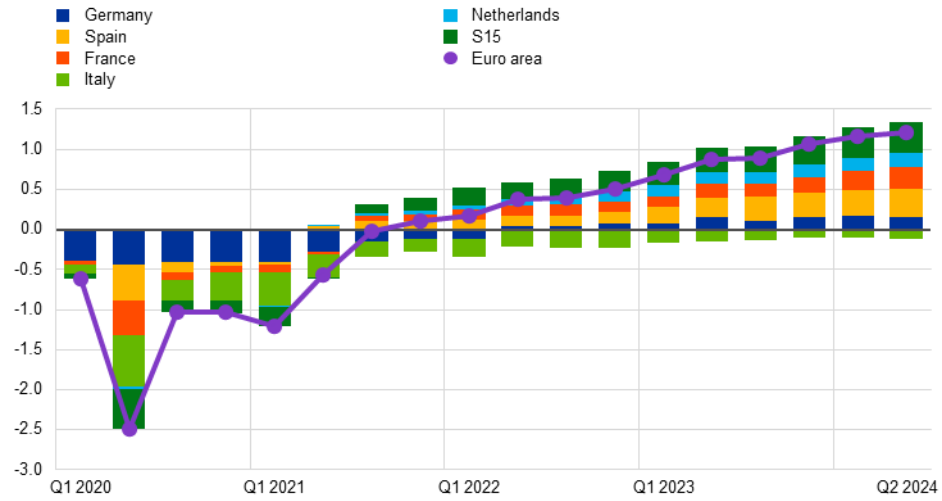
[14] For an earlier take on this topic, see the box entitled "Labour supply development during the COVID-19 pandemic", *Economic Bulletin*, Issue 7, ECB 2021, and Berson, C. and Botelho, B., "Record labour participation: workforce gets older, better educated and more female", *The ECB Blog*, ECB, 8 November 2023.

Chart 8

Labour force participation rate

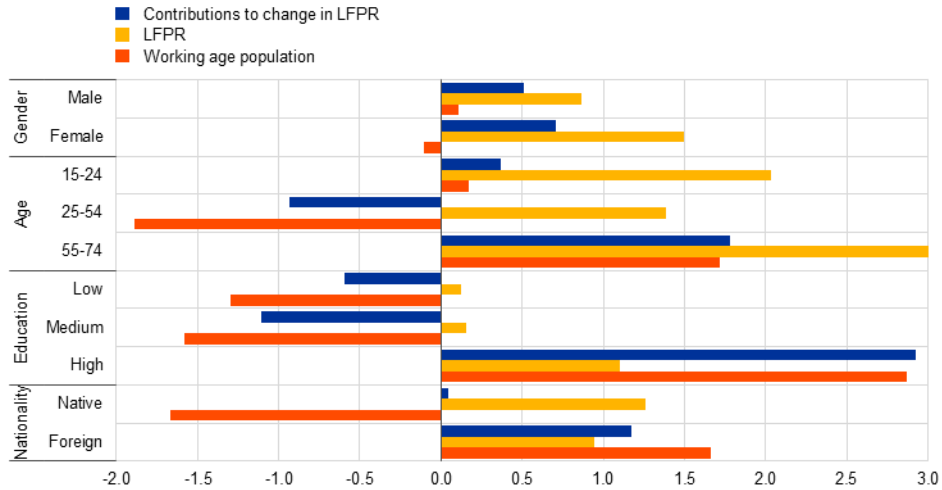
a) Changes in the euro area labour force participation rate since the fourth quarter of 2019 and country contributions

(percentage points)



b) Change in labour force participation rate and working age population shares by sociodemographic characteristics between the fourth quarter of 2019 and the second quarter of 2024

(percentage points)



Sources: Eurostat, European Union Labour Force Survey, Integrated Economic and Social Statistics, and authors' calculations.
Notes: S15 stands for the other 15 countries of the euro area and LFPR stands for labour force participation rate. The latest observations are for the second quarter of 2024.

Compared with the fourth quarter of 2019, the higher labour force participation rate is currently accounted for primarily by women, older workers, workers with a tertiary education and foreign workers (Chart 8, panel b). Across gender groups, men accounted for a 0.5 percentage point increase in the labour force participation rate as compared with its pre-pandemic level, while a 0.7 percentage point rise was attributable to women. As regards age groups, both young and older workers contributed to the higher labour force participation rate, accounting for 0.4 percentage points and 1.8 percentage points respectively, with prime-aged workers

having a downward impact on the labour force participation rate, standing at -0.9 percentage points. With regard to educational level (or skills) groups, those with a tertiary education were responsible for most of the increase in the labour force participation rate, seeing a 2.9 percentage point rise. Conversely, those with a lower level of education contributed negatively to the labour force participation rate, with a fall of 0.6 percentage points, as did workers with a secondary education (medium-skilled workers), down by 1.1 percentage points. In terms of nationality, the contribution of native workers to the rise in the labour force participation rate was insignificant, whereas foreign workers contributed by 1.2 percentage points.

Two factors underlie the increase in the labour force participation rate across sociodemographic groups: (i) the increase in each group's participation rates and (ii) changes in each group's share in the working age population since the onset of the pandemic. Changes in the composition of the working age population are important for quantifying the contributions of each group to the increase in the labour force participation rate. For example, the ageing of the population can be seen from the sharp reduction in prime-aged workers in the working age population and the strong rise in older workers.[15] While the labour force participation rate for prime-aged workers strengthened between the fourth quarter of 2019 and the second quarter of 2024, the sharp decline of this group in the working age population contributed negatively to the overall increase in the labour force participation rate. The same was true for persons with a secondary education. As regards nationality, there was a rise in the working age population for foreign workers in the euro area and a corresponding reduction in the working age population for native workers. Given that both groups saw labour force participation rate increases, their contributions were still positive, albeit around zero for native workers.

7 Survey-based expectations of employment and unemployment

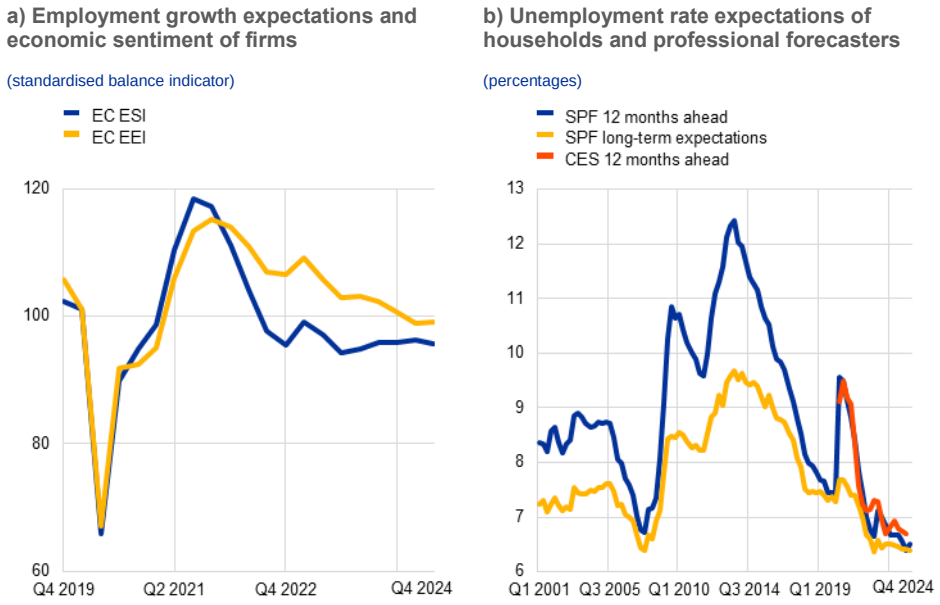
Recent survey results suggest that firms expect employment growth to slow over the near term (Chart 9, panel a). The quarterly Survey on the Access to Finance of Enterprises asks euro area firms about their employment expectations over the coming 12 months. The results of the most recent survey for the third quarter of 2024 suggest that firms were expecting a continued slowdown in their employment growth. Average employment growth expectations in the euro area as indicated by the survey stood at 1% year on year in the third quarter of 2024, down from 1.3% in the second quarter. This is broadly in line with the near-term slowdown in employment growth foreseen in the December 2024 Eurosystem staff macroeconomic projections for the euro area. The European Commission's survey-based Employment Expectations Indicator, which captures firms' employment growth expectations for the next three months, also points to muted employment growth expectations. Across sectors, employment growth expectations remain the highest for services and the lowest for the industrial sector. In addition, employment growth

[15] For the impact on public spending and potential output growth, see the box entitled "Ageing cost projections – new evidence from the 2024 Ageing Report", *Economic Bulletin*, Issue 5, ECB, 2024.

expectations have become more aligned with the European Commission's Economic Sentiment Indicator (Chart 9, panel a), suggesting that productivity growth will improve. While the two indicators co-moved until the end of 2021, from 2022 onwards employment growth expectations remained consistently higher than economic sentiment, reflecting the lower productivity growth observed during that period.

Chart 9

Expectations of firms, households and professional forecasters



Sources: European Commission Consumer and Business surveys, ECB Survey of Professional Forecasters (SPF) and ECB Consumer Expectations Survey (CES).
Notes: EC ESI stands for the European Commission Economic Sentiment Indicator and EC EEI for the European Commission Employment Expectations Indicator. CES expectations are demeaned by the deviation of national unemployment rate perceptions from the euro area average unemployment rate. The latest observations are for the fourth quarter of 2024 for the European Commission data (approximated by October values) (panel a), for the third quarter of 2024 for the CES and for the fourth quarter of 2024 for the SPF data (panel b).

The unemployment rate is expected to remain low over the coming quarters. Following a spike at the outbreak of the pandemic, the unemployment rate expectations of professional forecasters and consumers have fallen steadily. The ECB Survey of Professional Forecasters indicates that the unemployment rate in the euro area is expected to remain stable over the near and long term, and close to its lowest level since the introduction of the euro (Chart 9, panel b). In the latest wave of the survey from the fourth quarter of 2024, the average 12-month ahead forecast stood at 6.5% and the distribution of estimates was roughly balanced around the average. Expectations of the unemployment rate five years ahead were slightly lower, averaging 6.4%. These expectations for the near-term unemployment rate are closely aligned with the average unemployment rate for 2025 of 6.5% foreseen in the December 2024 Eurosystem staff macroeconomic projections for the euro area. They are also broadly in line with the expectations of households elicited from the ECB Consumer Expectations Survey. In the most recent wave of this survey,

respondents reported lower unemployment rate expectations than in the previous survey,[16] albeit slightly above those of professional forecasters (Chart 9, panel b).

Overall, survey data suggest a relatively stable labour market looking ahead. Employment growth is expected to moderate, whereas unemployment is expected to remain low. Employment expectations also seem to be aligning more closely with expectations for economic activity, which suggests a recovery in productivity growth going forward. Survey-based expectations would therefore appear to support a cyclical adjustment in the labour market.

8 Concluding remarks

Labour market resilience is an important determinant in assessing future wage and inflation developments. By closely monitoring labour market resilience, policymakers can better predict and manage inflation, ensuring sustainable economic growth and stability. The factors determining labour market resilience affect the response of inflation to economic shocks differently. The current resilience in employment has been driven primarily by the labour hoarding tendencies of firms and by the immediate adjustment of real wages in response to the energy crisis. Much of the recent strength observed in the euro area labour market can therefore be attributed largely to cyclical factors, which are generally expected to dissipate going forward.

Looking ahead, the euro area labour market is expected to return closer to its historical correlation with output, given that it is anticipated that some of the cyclical factors that sustained employment will abate. Energy and intermediate input prices are normalising, albeit at a higher level, while inflation is falling and real wages are rebounding. This will make the substitution between labour and other inputs less relevant. As profits stabilise and demand weakens, the incentive for firms to hoard labour will diminish. Structural factors, such as a negative trend in average hours worked and labour force dynamics, are likely to persist over the medium term. Other structural elements are poised to significantly influence future developments in labour markets. Key among these are the ongoing reallocation of resources and the efforts being made to support a green and digital transition. Furthermore, sociodemographic changes will play a critical role in shaping labour market dynamics.

[16] This is in line with the unemployment expectations of households, as reported by the European Commission Business and Consumer survey. In the latest survey, households expected the number of unemployed to grow at a rate below its long-term average.

3 Four years into the Next Generation EU programme: an updated preliminary evaluation of its economic impact

Prepared by Krzysztof Bańkowski, Nicholai Benalal, Othman Bouabdallah, Roberta De Stefani, Christian Huber, Pascal Jacquinot, Carolin Nerlich, Marta Rodríguez-Vives, Bela Szörfi, Nico Zorell and Christoph Zwick

1 Introduction

Four years into the implementation of the Next Generation EU programme (NGEU), this article provides an updated assessment of its economic effects. To support Europe's economic recovery from the pandemic and to make its economies more competitive and resilient, with a focus on digital and green transformation, in July 2020 European Union Member States agreed to launch the EU's largest ever funding programme, NGEU. To achieve these objectives, the programme offers financial support to EU Member States on the condition that they implement specified investment and reform projects over the period 2021-2026. Earlier ECB staff analysis concluded that NGEU had the potential to deliver these objectives, provided that the planned investments and reforms were implemented in good time and effectively.[1] Now, more than halfway into the implementation period of NGEU, this article provides a description of the situation to date, as well as an updated assessment of the economic impact of the programme. It focuses on the impact of the Recovery and Resilience Facility (RRF) – the centrepiece of NGEU – on the euro area economy. Among euro area countries, particular attention is paid to Italy and Spain as the main recipients of RRF funds in absolute terms.

2 Stocktaking of RRF implementation

The original budget set aside to fund NGEU was more than €800 billion for the whole EU. Among the several programmes initiated under NGEU, the RRF was by far the largest, accounting for almost €724 billion, around 90% of the total envelope. Under the RRF, funding was made available to EU Member States in the form of grants (up to €338 billion) and loans (up to nearly €386 billion).

EU Member States **have since applied for €650 billion in RRF funds.** While all of them requested the RRF grants in full, several chose not to apply for RRF loans, or requested less than they were entitled to ask for by the deadline of August 2023. Moreover, the envelope itself was subsequently revised.[2] As a result of updated national recovery and resilience plans (RRPs) and the updated total envelope, EU

1 See the article entitled "Next Generation EU: a euro area perspective", *Economic Bulletin*, Issue 1, ECB, 2022. For more details, see Bańkowski, K. et al., "The economic impact of Next Generation EU: a euro area perspective", *Occasional Paper Series,* No. 291, ECB, 2022.

2 The revisions included additional grants under the Emissions Trading System (ETS) and transfers from the Brexit Adjustment Reserve, for a total of €20 billion and €2 billion respectively.

countries had applied for €650 billion in RRF funds as at 26 August 2024. This equals 4.6% of 2019 EU gross domestic product (GDP). Additionally, Member States are entitled to €83 billion (0.6% of 2019 EU GDP) in funds from other programmes under NGEU. It should be pointed out that although the size of NGEU disbursements to Member States has increased significantly, this is in part offset by an erosion caused by the unanticipated inflationary shock which occurred after the inception of the programme. In the case of investment financing grants, which are the most relevant in terms of the stimulative macro effect, the nominal increase (around 10% to euro area countries) means that the real value is broadly maintained.

Focusing on the euro area, member countries are entitled to use RRF funds of up to €532 billion, that is, 82% of the EU total of €650 billion. Out of this amount, it is estimated that a little less – €486 billion – will actually be spent.[3] It is on the basis of this latter figure – almost half a trillion euro in RRF-funded public expenditure – that this article builds estimates of the macroeconomic impact of the RRF on the euro area via the fiscal channel.

In order to disburse these funds to EU Member States, at the time of drafting this article the Commission had already borrowed more than €320 billion. Out of this amount, €265.4 billion were paid to the Member States after their satisfactory fulfilment of the qualitative milestones and quantitative targets related to the completion of the reforms and investments associated with each tranche of the RRF. This means that, at that time, around 60% of RRF grants and loans still had to be paid to the EU Member States (50% for euro area countries).

The implementation of the RRF allowed for joint borrowing and risk sharing among Member States. This is particularly the case for the grant component. As the grants are intended to be repaid through the EU budget, these do not add to the national debt. However, this does not mean it is a cost-free measure for Member States as a group. While repayment risks are minimal owing to the budgetary safeguards in place, the burden of repayment will ultimately fall almost entirely on Member States. The incidence and distribution of this burden across countries remains uncertain.

RRF borrowing, payments and expenditure

NGEU borrowing and repayment

With the implementation of NGEU, the volume of the European Commission's issuance to international capital markets markedly increased. While the Commission's issuance on behalf of the European Union to finance EU policy

[3] Estimate by the Working Group on Public Finance (WGPF) of the European System of Central Banks in June 2024 (Broad Macroeconomic Projection Exercise). The discrepancy between the RRF funds allocated to the euro area countries and the RRF funds estimated to be spent is due to the fact that in a few countries the loan entitlements are not expected to be used in full. As a result, RRF expenditure in the euro area is expected to be funded by €295 billion in grants (the discrepancy with the WGPF estimate is mainly due to the subsequent inclusion of an REPowerEU chapter in Germany's recovery and resilience plan) and €194 billion in loans, although countries could use up to €237 billion in loans.

programmes had previously been limited, between January 2020 and May 2024 its net issuance reached almost €500 billion, primarily for NGEU. This surpassed issuances by other EU entities, including the European Stability Mechanism and the European Investment Bank. This large-scale borrowing will continue until the end of 2026 at the latest, with an approximate estimate of €150 billion in issuances per year. In accordance with the Own Resources Decision[4], after 2026 the Commission will not be able to conduct new net borrowing. However, it does have the leeway to shift to regular liquidity management operations and debt roll-over, aiming to smooth the schedule for repayment of EU borrowing allocated to NGEU until 31 December 2058 at the latest.

The loans will be repaid by the borrowing Member States and the grant component of NGEU will be financed through the EU budget, with budgetary safeguards in place to mitigate risks on future repayments. In particular, the Member States have committed to ensuring that the budget of the Commission will have enough funds to repay the grants. The refinancing is guaranteed by the temporary "budgetary headroom", that is, the commitment by Member States of up to 0.6% of gross national income (GNI) designed to ensure that the EU can meet its commitments towards investors. In addition, the Commission has proposed to raise an additional 0.2% of GNI through a mix of traditional EU revenues and additional transfers. However, it is still uncertain whether the Council of the European Union will approve the proposal.

While we do not foresee material repayment risk arising from NGEU borrowing, the financial burden will ultimately fall on EU Member States, which should account for it in their medium-term plans. Assuming that the Commission will use the available leeway to ensure a steady and predictable reduction of liabilities, we estimate that the annual repayment cost of the grant component of the RRF will peak at €26 billion in 2028 and steadily fall thereafter. Repayments remain well below the temporary budgetary headroom and could be fully covered through either new EU own resources or higher GNI-based contributions, both of which are sufficient in size. Regardless of the agreement on the Commission's proposal, repayment will largely rely on national transfers to the EU budget, potentially leading to higher taxes or constraints on investments. Nevertheless, there are country-specific risks, with each option having diverse distributional effects.

RRF payments to Member States

By August 2024, RRF payments of over €238 billion had been made, €156 billion of which were in the form of grants. These payments to Member States followed 45 finalised payment requests to the Commission. In addition, eight further requests had been submitted but not yet finalised at that point in time (Table 1 shows evidence for the euro area, non-euro area and the whole EU).

4 Council Decision (EU, Euratom) 2020/2053 of 14 December 2020 on the system of own resources of the European Union, OJ L 424, 15.12.2020.

Table 1

RRF-funded expenditure in the euro area and the rest of the EU: payment requests, disbursements and plan modifications

	August 2024				
	Payment requests submitted	Tranches disbursed	Submitted revisions of recovery and resilience plans	Funds disbursed	
				Grants	Loans
Euro area	53	45	34	€156.6 bn	€82.1 bn
Non-euro area	11	9	8	€14.2 bn	€12.5 bn
Total EU	**64**	**54**	**42**	**€170.8 bn**	**€94.6 bn**

Source: European Commission; last updated on 26 August 2024.
Notes: By August 2024 the Commission had already issued around €325 billion (about half of the total) to finance RRF payments to EU Member States. "Tranches disbursed" does not include pre-financing. The figures take into account partial disbursements due to initial payment suspension.

RRF-funded expenditure in the euro area

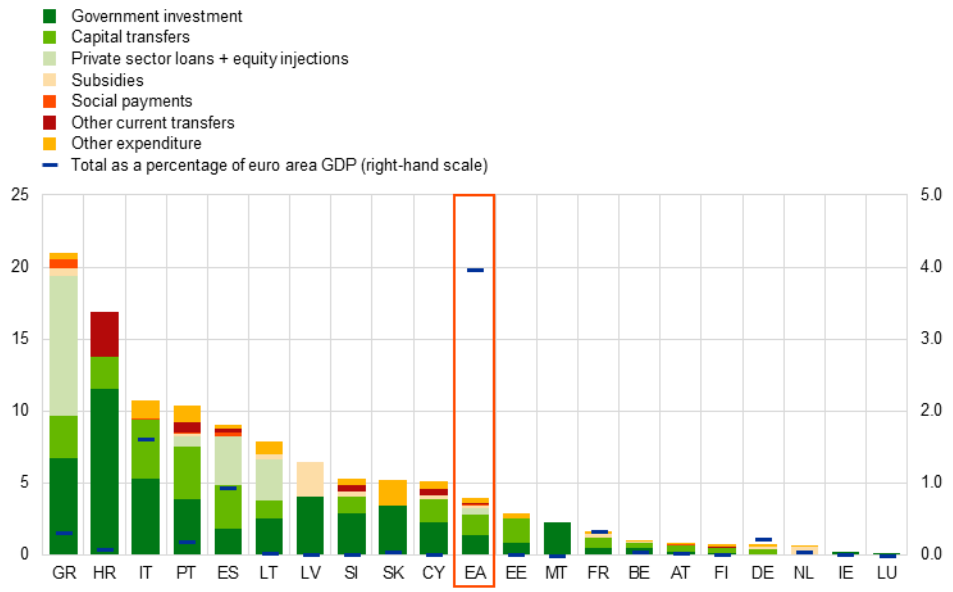
The composition of RRF expenditure across euro area countries varies greatly both in terms of the share of national GDP and the share of total euro area GDP (Chart 1). Some differences can also be observed in terms of distribution of the spending categories within countries, although government capital spending – the sum of government investment and government capital transfers – accounts for the bulk of expenditure in nearly all countries.

A large part of the RRF expenditure aims to support the green and digital transitions. In line with the NGEU legislation, countries need to commit at least 37% of expenditure under the RRF to green projects and 20% to digital projects. Yet the actual amounts of RRF funds that euro area countries have committed to spending on those two objectives by end-2026 significantly exceed these targets. According to the Commission, the commitments reach on average 42% (green spending) and 27% (digital spending) of total RRF funds. Contributions of national plans to the climate and digital objectives are heterogenous across euro area countries.

Chart 1

RRF-funded expenditure: distribution across euro area countries

(percentage of 2019 GDP; 2021-2026)



Sources: European System of Central Banks (ESCB) Working Group on Public Finance and ECB staff calculations.
Notes: Based on NCBs' estimates of national expenditure plans. For Spain, only about half of RRF loans are estimated to be absorbed. The difference between the total loans included in the revised Spanish RRP (€83 billion) and the Banco de España's estimate (€41.5 billion) is due to assumptions regarding the final demand for such loans, and it is subject to high uncertainty. Slightly lower RRF absorption is also estimated for Slovakia (€0.85 billion shortfall) and Croatia (€0.7 billion shortfall). All in all, the total cumulated expenditure is estimated at €486 billion, i.e., €43 billion less than requested in the revised RRPs at the time. The official euro area envelope had increased by over €2 billion to €532 billion by August. Government investment + government capital transfers = government capital spending.

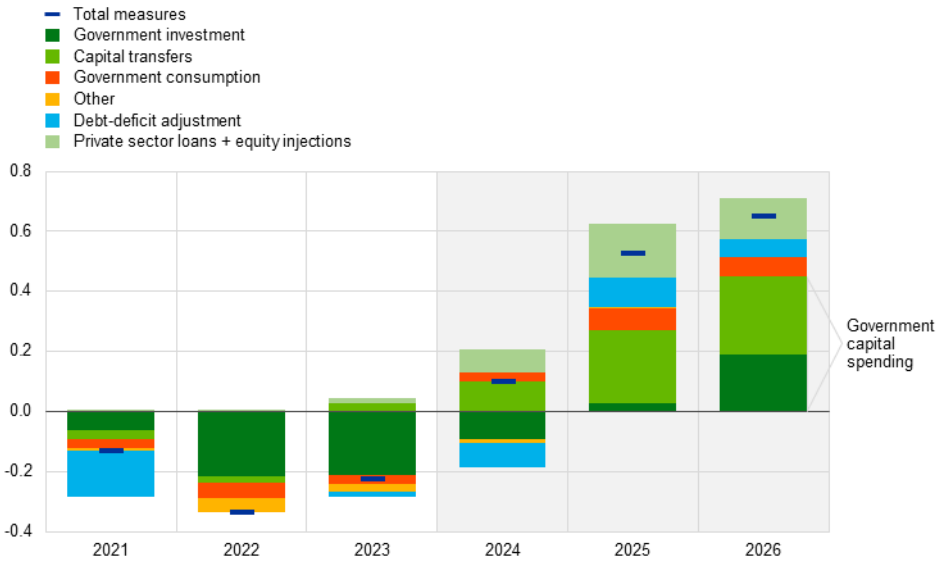
On average, fiscal experts within the European System of Central Banks (ESCB) estimate that around 80% of RRF-based expenditure in the euro area is additive in nature. In other words, this share of expenditure provides a genuine fiscal stimulus rather than a substitute for already planned expenditure. This is the basis for the macroeconomic estimates in this article.

RRF expenditure is heavily backloaded to the second half of the programme, with clear implications for the assessment of macroeconomic impact. In each of the years between 2021 and 2023, there was significant under-execution of RRF-funded expenditure in most euro area countries when compared with their original plans (Chart 2). The pattern is observed for both relatively high and low funding recipients. This is mainly because of (i) limits to the administrative capacity to spend; and (ii) a sequence of shocks which resulted in supply-side bottlenecks and downscaling of procurement contracts because of higher-than-expected inflation. As a result, ECB staff estimate that in 2021-2023 the RRF increased the level of euro area GDP by 0.1 to 0.2% only (see Section 3). This is much lower than the previously estimated effect of around 0.5%, which assumed swift and full implementation of the original plans in the absence of the inflation surge.

Chart 2

RRF-funded expenditure in the euro area: difference between estimated actual spending following the plan revisions and initial ESCB estimates

(percentage of 2019 GDP; year-by-year differences)



Sources: ESCB Working Group on Public Finance (June 2024) and ECB staff calculations.
Notes: The higher endpoint in 2026 is mostly the result of two developments that occurred in 2023, namely: (i) an increase of the euro area RRF envelope by €15.4 billion; and (ii) the take-up of additional RRF loans totalling €98 billion by some euro area Member States before the deadline of August 2026. Government investment + government capital transfers = government capital spending. The shaded area represents planned execution.

RRF-linked structural reforms

Structural reforms are an essential part of RRPs and complement RRF-linked investments.[5] The planned reforms aim to modernise the euro area economies and increase their resilience over the medium term. To this end, the RRF regulation requires that the reforms be tailored to Member States' structural weaknesses, commensurate with the size of the individual RRF envelopes and complementary to RRF-financed public expenditure. The reforms also support institutional and economic convergence across euro area countries, since the initial framework conditions in the countries with the most comprehensive RRF-linked reform plans were generally weaker than in many peer countries. Recent RRP modifications have left the overall balance of reforms and investments broadly unchanged compared with the initial plans (with reforms accounting for 40% of all milestones and targets), but planned reforms have become "greener" and less frontloaded overall.

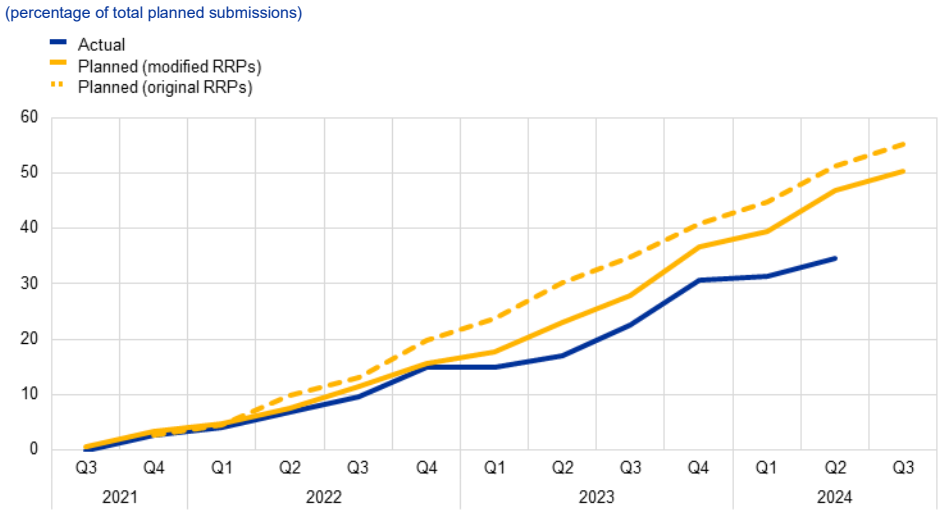
Although the implementation of RRF-linked structural reforms has progressed, significant delays in RRP implementation have materialised. By early September 2024 euro area countries had fulfilled around 40% of all milestones and targets in relation to structural reforms, according to the European Commission's assessment. Even so, only around one third of all envisaged payment requests had

5 See Bańkowski et al. (2022), op. cit., for a detailed ECB staff assessment of the initial RRP-linked reform plans.

been submitted by that time. This falls short of the indicative timetable included in the RRPs, according to which around one half of all planned payment requests should have been submitted by then (Chart 3). Euro area countries featuring a combination of relatively weak administrative capacity and a large RRF allocation have recorded the longest RRP implementation delays overall.

Chart 3

Cumulative number of RRF payment requests



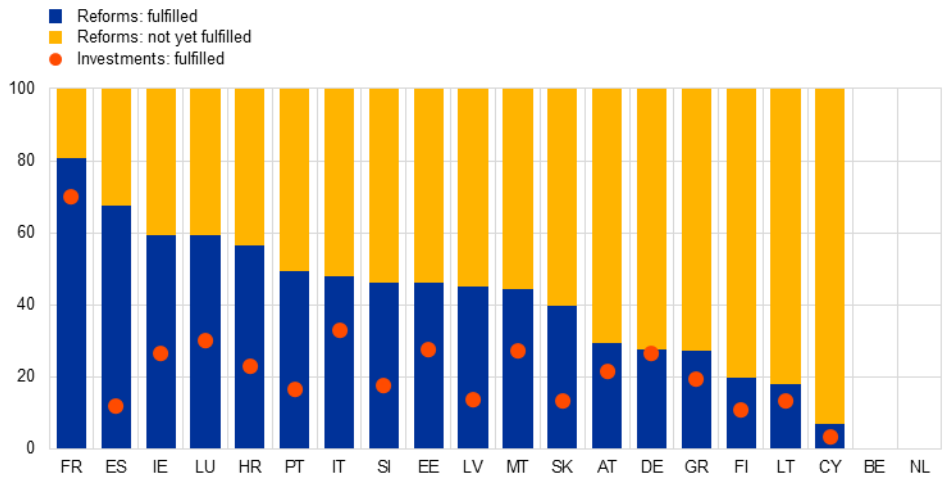
Sources: European Commission and ECB staff calculations.
Notes: The chart compares the number of submitted RRF payment requests ("actual") with the number of payment requests envisaged in the original and modified RRPs ("planned"). Data cover all euro area countries.

Many euro area countries still need to fulfil most or even all of their RRF-linked reform commitments. Although the RRF has already entered the second half of its envisaged lifespan, the share of reform-related milestones and targets already assessed and deemed to have been fulfilled by the Commission is well below 50% in many euro area countries (Chart 4). All milestones and targets will need to be completed by 31 August 2026 at the latest according to the RRF regulation. Only a few countries have already been assessed and deemed by the Commission to have implemented more than 50% of their reform-related milestones and targets.

Chart 4

RRP implementation progress

(percentage of all relevant milestones and targets)



Sources: European Commission and ECB staff calculations.
Notes: Only includes milestones and targets for which the European Commission's final assessment is available. No such assessment is available for Belgium or the Netherlands yet.

In view of these challenges, there is a risk that the effectiveness of RRFs will be diminished by incomplete or ineffective implementation. Incomplete implementation could arise if Member States were to implement only a subset of the agreed policy measures by August 2026. The 2024 country-specific recommendations issued under the European Semester therefore call on many Member States to accelerate the implementation of their RRPs. However, speeding up implementation of the plans is not sufficient for the RRF to achieve its full potential. Member States will need to ensure that speed does not come at the expense of the quality of measures implemented. If a trade-off between speed and quality were to emerge, prioritising quality over speed would help ensure the effectiveness of the reforms.

By taking targeted policy action, euro area countries can ensure that NGEU-linked investments and reforms are implemented more effectively. Member States could redirect administrative resources towards implementing their RRPs and make more intensive use of available technical support at EU level. In addition, they could take advantage of the streamlining options offered by the European Commission's updated RRP guidance, which include simplified reporting requirements and synergies between different audit procedures.[6] Member States could also seek to identify targeted regulatory changes outside the RRF framework; this would facilitate the roll-out of the RRPs without overly absorbing administrative resources.[7] Overall, such corrective policy measures would help improve reform implementation under the RRPs and might even alleviate any emerging trade-off between the speed and quality of RRP implementation.

6 See "Updated guidance on recovery and resilience plans", European Commission, 23 July 2024.

7 The European Commission has encouraged Member States to include such policy measures in their revised RRPs. These additional measures can cover areas such as training, IT systems, changes to public procurement and permitting procedures and the digitalisation of public administrations.

3 Estimating the impact of the RRF on the euro area economy

Assessing how NGEU affects the euro area economy involves examining multiple transmission channels. Building on previous analyses, we will consider three primary channels: (i) the risk premium channel; (ii) the fiscal channel; and (iii) the structural reform channel. Given significant implementation delays, the fiscal and structural reform channels warrant re-evaluation.

The risk-premia effects that followed the announcement of NGEU continue to benefit recipient countries. The period following the Franco-German recovery fund proposal was marked by notable spread compression among beneficiaries. Bańkowski et al. (2022) concluded that a sustained reduction in risk premia could permanently increase euro area output by up to 0.2%, with Italy and Spain experiencing the most substantial benefits. We have refrained from updating this evaluation, as no significant developments warranting reassessment have occurred since then.

The fiscal channel operates through increased public expenditure, primarily directed toward capital expenditure through government investment and capital transfers. For analytical purposes, both categories are treated as government investment, as NGEU-induced capital transfers are typically dedicated to private entities, such as railway companies, that are executing projects similar to public investment. The economic impact manifests through short-term demand stimulus during execution and long-term productive capacity enhancement through capital stock increases.[8]

The structural reform channel, crucial for long-term economic potential, needs to be reassessed owing to implementation delays. These reforms boost potential output by improving the efficiency of resource utilisation. As the reforms extend beyond cyclical factors, they are not expected to have a direct impact on inflation – as a result, this study focuses primarily on output effects. However, the uncertainty inherent in quantifying structural reforms warrants caution when interpreting estimates.

Models and tools

The analysis of the economic impact of NGEU makes use of two large-scale macroeconomic models: the ESCB's public debt sustainability analysis (DSA) tool and input from a Eurosystem expert group. Applying multiple approaches in this study allows us to tailor methodologies to address the key questions. The use of two different types of macroeconomic model also makes the results more robust and enables us to highlight the specific channels driving particular economic outcomes.

8 While NGEU also foresees private sector financing through loans and equity injections, which reduces financing costs, analysis suggests that this channel only has minimal euro area effects. Given that it may only increase GDP by up to 0.1% in implementing countries, a detailed exploration of this channel is unnecessary.

The macroeconomic effects of the fiscal channel are assessed using the EAGLE and the ECB-MC model. EAGLE (euro area and global economy) is a global dynamic stochastic general equilibrium (DSGE) model with forward-looking expectations, while the ECB-MC (multi-country) model is a semi-structural model of the five largest euro area countries which balances empirical fit with theoretical foundations.[9] Both models demonstrate fiscal multipliers for government investment of approximately unity, aligning with literature that identifies public investment as a potent fiscal instrument owing to its direct impact on GDP and enhancement of productive capital. However, the models exhibit important differences in their expectation mechanisms: EAGLE's forward-looking approach enables prominent anticipation effects, while ECB-MC's backward-looking expectations largely preclude such effects, leading to distinct simulated outcomes, especially when it comes to price dynamics.

The analysis is complemented by two additional tools which shed light on potential output and debt-to-GDP ratio effects. A Eurosystem expert group made up of staff from seven euro area central banks has provided an assessment of NGEU's impact on euro area potential output, considering both reforms and investments across all NGEU instruments. Furthermore, the DSA tool estimates NGEU's impact on government debt-to-GDP ratios through a detailed decomposition of debt dynamics.[10]

Data and scenarios

The quantification of the fiscal impact of RRF-funded expenditures relies on data collected by ESCB experts. The data captures essential programme characteristics, including composition, implementation timeline and the distinction between additive and substitutive projects. Differentiation along the last dimension is crucial for identifying projects that would have occurred independently of the programme, thus preventing overestimation of macroeconomic effects.

The quantification is based on scenario analysis across two key dimensions: fund absorption rates and public capital productivity. For absorption, we consider both full absorption by 2026 and an alternative scenario maintaining the observed 50% absorption rate, reflecting implementation challenges (Chart 5, panels a) and b). Regarding productivity, the baseline assumes a Cobb-Douglas production function parameter of 0.1 for public capital in EAGLE, with alternative scenarios of 0.05 and 0.15, while ECB-MC treats public and private capital as equally

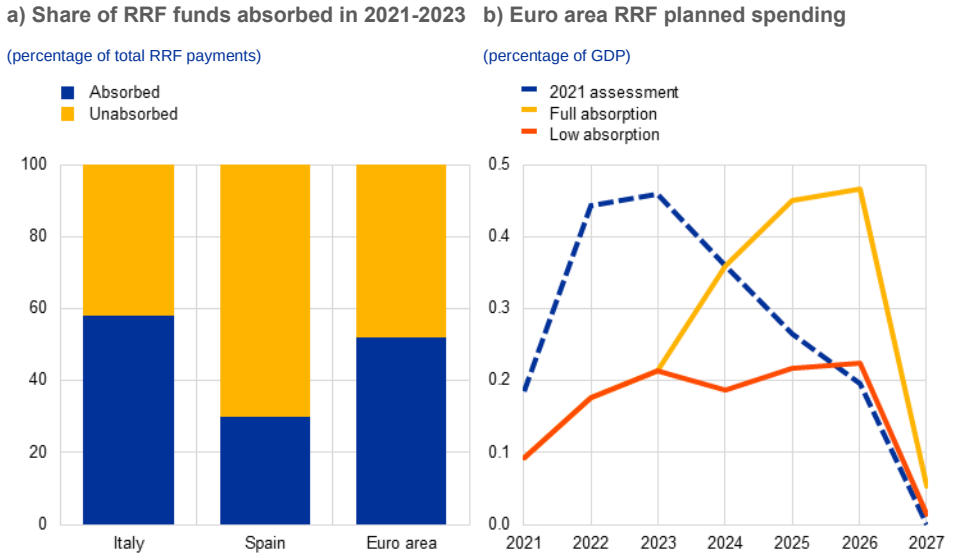
9 A comprehensive overview of EAGLE is provided in Gomes, S., Jacquinot, P. and Pisani, M., "The EAGLE: A model for policy analysis of macroeconomic interdependence in the euro area", *Economic Modelling*, Vol. 29, Issue 5, 2012, pp. 1686-1714, while Bańkowski, K., "Fiscal policy in the semi-structural model ECB-BASE", *Working Paper Series,* No 2802, ECB, March 2021 details the semi-structural ECB-BASE model for the euro area, which serves as the foundation for ECB-MC.

10 See Bouabdallah et al., "Debt sustainability analysis for euro area sovereigns: a methodological framework", *Occasional Paper Series*, No 185, ECB, April 2017.

productive.[11] In practical terms, these different productivity parameters determine how effectively public capital translates into economic output: a higher parameter of 0.15 generates stronger economic benefits, while a lower value of 0.05 implies more modest returns from public spending.

Chart 5

Modelling assumptions on the absorption of the RRF programme



Source: ECB staff calculations on the basis of data collected by the ESCB Working Group on Public Finance.

Overall impact on the euro area economy

Our study finds that the NGEU programme could deliver substantial macroeconomic benefits for the euro area through various transmission channels. This section distinguishes between the impact on output and inflation via the fiscal channel, potential output gains from structural reforms and implications for the debt-to-GDP ratio.

The impact of the programme on the level of GDP is estimated to range between 0.4% and 0.9% above the non-programme baseline by 2026, with gains increasing to 0.8-1.2% up to 2031 (Table 2). This trajectory reflects two main drivers: initial gains due to the fiscal stimulus, followed by growth-enhancing effects created by structural reforms. The increase in benefits over time primarily stems from the growing returns of structural reforms, even as NGEU spending effects diminish. However, structural reform channel effects carry greater uncertainty than fiscal channel impacts. The output estimates exclude both the already-realised confidence effects stemming from the programme's announcement and the minimal expected impact of private sector financing facilitation.

[11] For details on the production function and public capital productivity incorporation, see Clancy, D., Jacquinot, P. and Lozej, M. "Government expenditure composition and fiscal policy spillovers in small open economies within a monetary union", *Journal of Macroeconomics*, Vol. 48, Issue C, 2016, pp. 305-26.

Table 2

Estimated total impact of the RRF on euro area GDP and inflation

(Impact on GDP: percentage deviation from the non-NGEU baseline. Impact on inflation: percentage-point deviation from the non-NGEU baseline)

	Impact on GDP		
	Up to 2026	Up to 2031	Impact on inflation
Fiscal measures	0.3 to 0.8	0.2 to 0.6	0.1
Structural reforms	0.1	0.6	-
Combined results	**0.4 to 0.9**	**0.8 to 1.2**	**-**

Sources: ECB and Eurosystem staff calculations.
Notes: ECB estimates of the impact of fiscal measures are based on the EAGLE (euro area and global economy) model and the ECB-MC (multi-country) model. The estimates of the structural reform effects are from the national central banks of the Eurosystem and consider only the productivity component of potential output (total factor productivity, **Chart 9**) to avoid double counting with the long-run effects of fiscal measures. The estimates reported in ranges depend on the assumptions made with regard to (i) the productivity of capital (medium, high, and low), and (ii) the high vs low absorption of RRF funds. The inflation figures in the table represent peak values.

Impact of the fiscal channel on GDP and inflation

Our macroeconomic simulations indicate that NGEU-induced fiscal stimulus can generate significant gains for euro area output (Table 3). These gains are projected to range between 0.3% and 0.8% by 2026, the final implementation year, with persistent effects of 0.2% to 0.6% by 2031. This lasting impact reflects the durable nature of NGEU investment projects, which primarily target government investment and contribute to long-term productive capacity. Effects are particularly pronounced in the main beneficiary countries, including Italy and Spain, where gains are two to three times higher than for the euro area average.

The assumptions regarding both RRF fund absorption and productivity are important, with absorption being particularly decisive. In the low-absorption scenario, where implementation maintains the slow pace observed in the past, output gains halve compared with the full absorption scenario, both assuming medium productivity (Table 3, bottom row). Productivity assumptions also significantly influence final outcomes, with low and high productivity scenarios showing notable differences from the central case (Table 3, top rows). Governments aiming to maximise the programme's impact should prioritise efficient projects offering the highest economic returns.

Table 3

Estimated impact of the fiscal channel of the RRF on the GDP level of the euro area, Italy and Spain

(percentage deviations from the non-programme baseline)

Assumption 1: Absorption of RRF funds	Assumption 2: Productivity of RRF expenditure	Up to 2026			Up to 2031		
		Euro area	IT	ES	Euro area	IT	ES
High in 2024-2026	High	0.8	1.9	1.7	0.6	1.5	1.4
	Medium	0.5	1.4	1.4	0.3	0.7	0.9
	Low	0.5	1.3	1.2	0.2	0.6	0.7
Low in 2024-2026	Medium	0.3	0.9	0.5	0.2	0.4	0.5

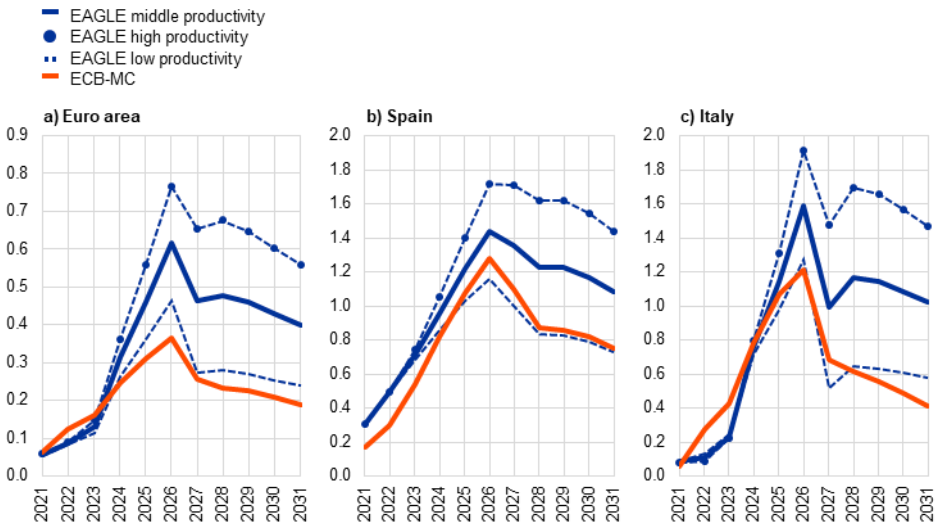
Source: ECB staff calculations based on data from the ESCB Working Group on Public Finance (WGPF).
Notes: We use an original dataset developed by the WGPF, which captures the time profile of expenditure, its composition, and the degree of additivity vs substitutivity. Given the uncertainty surrounding our quantitative estimates, we: (i) use two distinct ECB models (a forward-looking DSGE model with forward-looking rational expectations (EAGLE), and a semi-structural model with backward-looking expectations (ECB-MC)); (ii) use different multipliers depending on the expenditure items and in line with the existing literature; (iii) distinguish between high, medium and low productivity of public capital; (iv) provide estimates under the assumptions of both high and low absorption of RRF funds in the residual lifetime of NGEU. Low absorption in 2024-2026 is defined here as the same rate of spending of RRF disbursements as in 2021-2023.

The output gains from NGEU are still largely to materialise, contingent on implementation catch-up. The programme has experienced significant backloading compared with the previous assessment, resulting in modest output benefits thus far. However, substantial resources should be deployed in the coming years. Assuming high absorption of the remaining funds, the catch-up in implementation should result in output gains that nearly double those observed to date (Chart 6).

Chart 6

Estimated impact of the RRF on GDP, assuming full absorption (euro area, Italy and Spain)

(percentage deviations from the non-programme baseline)



Source: ECB staff calculations.

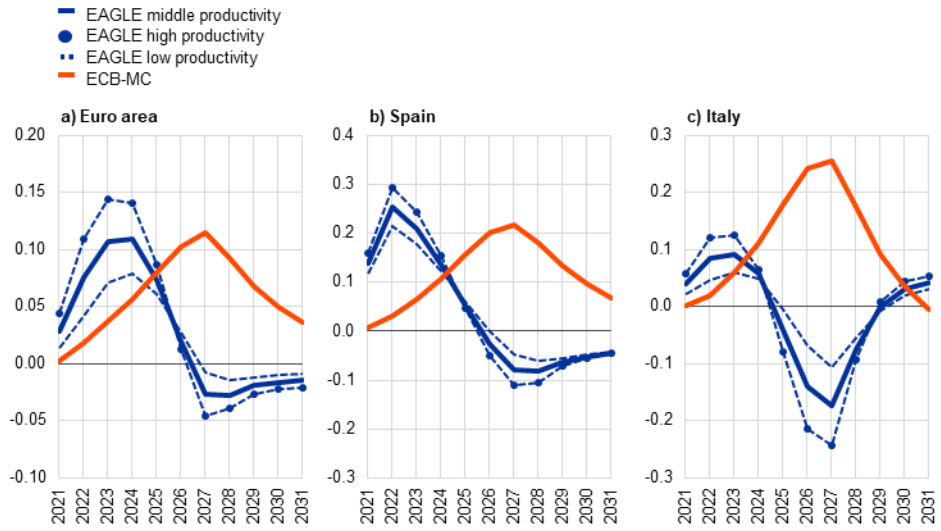
Regarding inflation, the analysis identifies a modest impact on the euro area (Chart 7). Our simulations suggest a peak difference of around 0.1 percentage points compared with the non-programme baseline. In the main beneficiary countries – Italy and Spain – effects could temporarily reach 0.3 percentage points. Inflation

dynamics are largely model-dependent: forward-looking models like EAGLE show rapid demand-driven inflation offset by anticipated productivity increases, while backward-looking models like ECB-MC capture gradual price adjustments to demand pressures.

Chart 7

Estimated impact of the RRF on inflation, assuming full absorption (euro area, Italy and Spain)

(percentage-point deviations from the non-programme baseline)



Source: ECB staff calculations.

The current assessment reflects significant time reprofiling compared with a previous evaluation. The 2021 assessment assumed ambitious and rapid implementation from the outset, with early output gains.[12] However, implementation delays have pushed execution into the second half of NGEU's lifespan, shifting the timing of the programme's impact. Despite these delays, the magnitude of the overall effect remains broadly in line with initial estimates.

Impact of structural reforms on potential output

Updated estimates by an ESCB expert team suggest that NGEU could raise the level of euro area potential output by 1.0% by 2031 and 1.3% by 2033 if the RRPs are fully implemented. These estimates encompass the impact of both fiscal expenditure and structural reforms. The estimates are not identical to those presented for the fiscal channel in the previous section, since they are based on a different methodology and look at potential as opposed to actual output.[13] Potential growth could be boosted by 0.10-0.15 percentage points per annum over 2020-2033 (Chart 8). Until around 2027 a significant part of the impact is expected to arrive via the capital contribution, representing the impact of investments. Afterwards, the

12 See Bańkowski et al. (2022), op. cit.

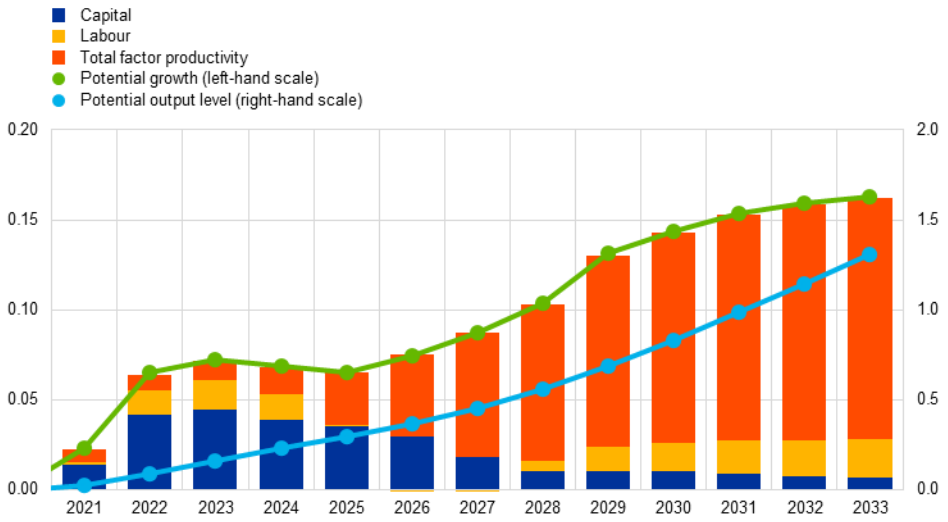
13 The impact on potential and actual output should converge in the long run, as the long-term impact on the output gap, which is the difference between actual and potential output, should be zero.

largest part of the impact is expected to operate via structural reforms, mostly affecting the contribution of total factor productivity to potential growth, and to some extent the labour contribution. These estimates cover the impacts of both reforms and investment.[14] Moreover, the estimates include the RRF as well as the other NGEU instruments.

Chart 8

Impact of NGEU on potential output in euro area 11

(Left-hand scale: percentage-point deviation from counterfactual; right-hand scale: percentage deviation from counterfactual)



Source: Eurosystem calculations.
Note: The euro area aggregate is represented by the weighted average of the following 11 countries: Germany, Greece, Spain, France, Croatia, Italy, Malta, the Netherlands, Austria, Portugal and Slovenia.

The updated estimates indicate a smaller impact of NGEU on potential output over the period 2020 to 2030 than estimated in 2022.[15] The ex-ante exercise expected a 0.5% impact on the level of euro area potential output by 2024. In the updated exercise, the estimated impact in 2024 is only 0.2% and the long-term impact of 1.3% is expected to materialise in 2033 instead of 2030 (Chart 9, panel a). The delay is also visible in the expected impact on potential growth: in 2022-2023, the growth impact is estimated to have been around half of what was originally foreseen. A lower growth impact is also expected over the long term, that is, 2025-2030 (Chart 9, panel b). The smaller expected impact on potential growth also reflects the fact that the previously anticipated effects of investments hardly materialised in 2022-2023, with 2024 being a transition year. From 2025 onwards, a pick-up in the impact on potential growth is expected as structural reforms start having an effect on potential growth. In the most recent update, however, this impact is also estimated to be slower. Overall, the lower and delayed impact stemming from investments and the lower impact coming from structural reforms leads to a smaller impact on the near-term potential growth profile than in the initial estimates.

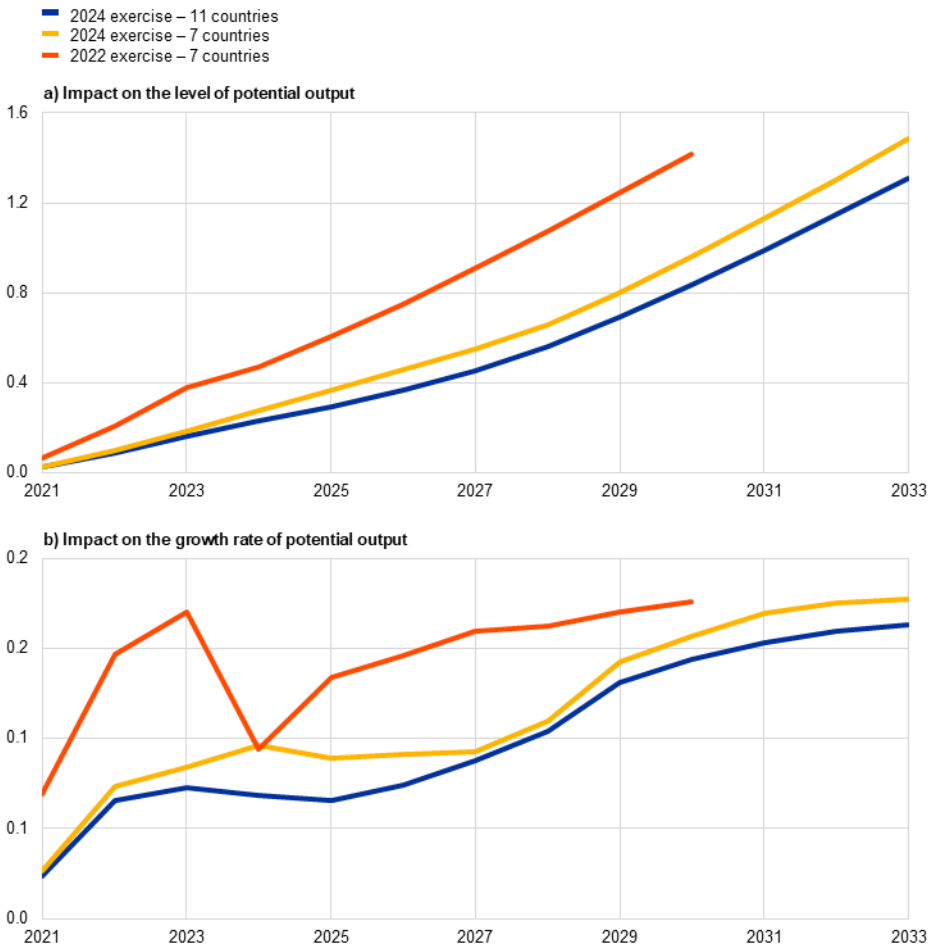
14 The estimates on the impact of investments were prepared by the NCBs. However, they are very similar to the model-based ECB staff estimates presented in the previous section.

15 See Box 6 in "The economic impact of Next Generation EU: a euro area perspective", *Occasional Paper Series*, No 291, ECB, April 2022.

Chart 9

Impact of NGEU on euro area potential output: 2022 vs 2024 exercises

(percentage deviation from counterfactual)



Source: Eurosystem calculations.
Notes: In the 2024 exercise, the euro area aggregate is represented by the weighted average of the following 11 countries: Germany, Greece, Spain, France, Croatia, Italy, Malta, the Netherlands, Austria, Portugal and Slovenia. In 2022, Croatia, Malta, the Netherlands and Austria were not covered.

The revisions to the potential output estimates mainly reflect a backloading of previously expected effects on account of observed implementation delays. In fact, the long-term estimates regarding potential output growth converge to a similar level in both estimation vintages.[16] The differences between the two vintages mainly lie in the time profile over the short to medium term. This reflects the assumption of the ESCB expert group that the RRPs will eventually be fully implemented, despite the delays observed in the first half of NGEU's envisaged lifespan. Notwithstanding this, the downside risks surrounding the potential output baseline estimates have increased since 2022 owing to the observed implementation delays.

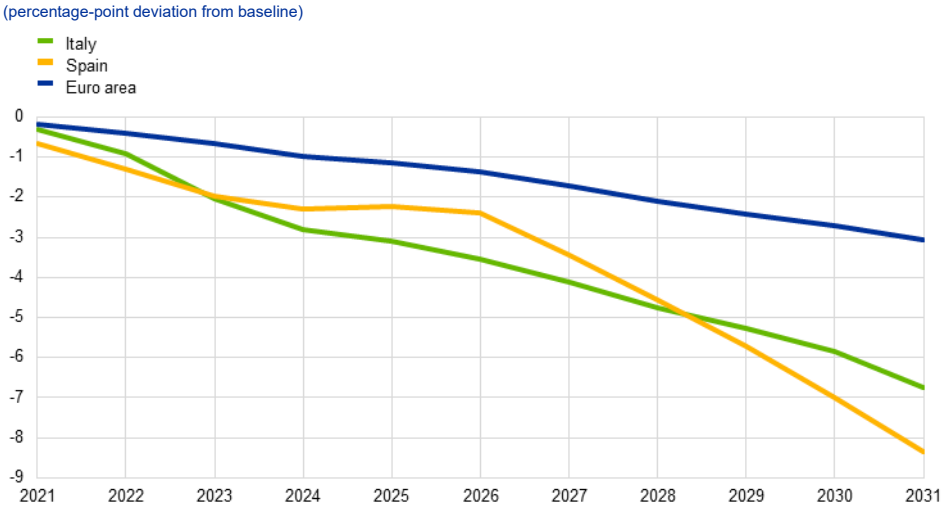
[16] In the Eurosystem estimates, NGEU has a long-term impact on the growth rate of potential output, although this effect might fade over the very long term. In the EAGLE model, steady-state or long-term growth is not influenced by NGEU.

Impact on public debt and quality of public finance

The impact of the RRF on government debt-to-GDP ratios is estimated to be favourable and significant for the main beneficiary countries, as well as for the euro area as whole. For the debt impact, the analysis starts from the June 2024 Eurosystem staff macroeconomic projections under the assumption that all currently expected RRF effects are at play, including a GNI-based repayment as of 2028 (see Section 2.1).[17] A counterfactual scenario without the RRF is built by subtracting all the RRF's debt-reducing and debt-increasing effects. For Italy and Spain, the overall debt-reducing impact of the RRF is estimated to be around 7-8 percentage points in the central scenario assuming middle productivity (Chart 10). The overall impact on debt does not change significantly when applying high or low productivity assumptions. Turning to the whole euro area, the impact of the RRF on its debt ratio is also estimated to be favourable.[18]

Chart 10

Estimated impact on the government debt of Italy, Spain and the euro area



Sources: Eurostat and ECB staff calculations using the ESCB's debt sustainability analysis (DSA) tool.
Notes: Impact on the debt-to-GDP ratio is calculated using the GDP and inflation impact derived under the middle productivity scenario of capital spending. Estimates for the euro area are just an aggregate of national debt ratios, net of intra-area flows (e.g. bilateral loans to Greece). The chart does not account for debt contracted at EU level, as it is not possible to single out the euro area share of this debt.

The effects of the RRF on government debt ratios operate via four main channels, as illustrated in Chart 11:

1. a **direct channel** with two opposite effects – (i) a favourable effect through the RRF grant component (recorded as a revenue, with a significant impact on the budget balance of the main beneficiary countries); and (ii) a debt-increasing effect via RRF loans. The latter is the only debt-increasing factor, although it has a lower marginal cost than it would if the individual countries, especially the

[17] The staff projections cover the period 2024-2026. Afterwards, the standard long-term assumptions used in ESCB debt sustainability analysis are used for debt projections, including ESCB potential growth estimates.

[18] We define "euro area debt" as the weighted sum of national debt ratios, including RRF loans but excluding intra-area flows and EU-level debt for NGEU grants.

high-debt ones, were to finance themselves on the market. As this second effect prevails, in net terms the direct channel increases the public debt ratio in the two main beneficiary countries (Chart 11, yellow bars);[19]

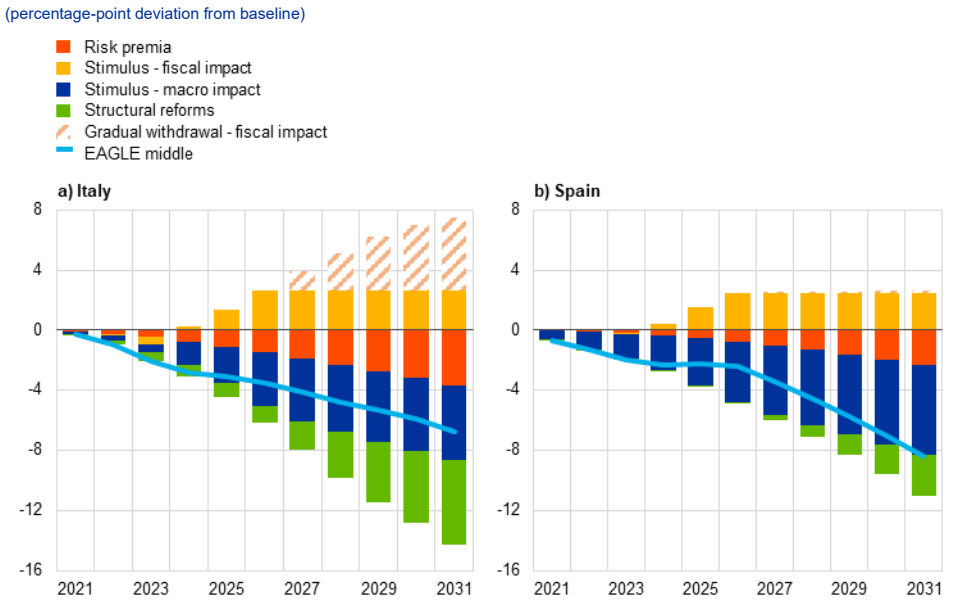
2. a **confidence channel** via lower sovereign risk premia and, therefore, lower financing costs. This effect has been more pronounced in the case of Italy, where the spread vis-à-vis German Bunds widened more substantially at the beginning of the COVID-19 crisis. Therefore, the mere announcement of the NGEU agreement in May 2020 shifted the entire sovereign yield curve, including the long end of it, significantly downward (Chart 11, red bars);

3. the **demand-driven stimulative impact of the RRF on the economy**, which leads to higher government revenues and a higher real GDP denominator in the public debt ratio, consistent with the GDP and inflation impact as estimated by EAGLE under the different assumptions for productivity illustrated in Chart 6 and Chart 7 (blue bars);

4. the **effects on the supply side**, that is, on potential GDP due to investment and reforms. The more favourable impact on potential growth estimated for Italy compared with Spain partly offsets the larger debt-increasing impact of higher RRF loan uptakes (Chart 11, green bars).

Chart 11

Decomposition of the estimated impact on the government debt of Italy and Spain



Sources: Eurostat; ECB staff calculations using the ESCB's debt sustainability analysis (DSA) tool.
Notes: The impact on the debt-to-GDP ratio stems from four main effects, which are highlighted here under the middle productivity scenario: (i) yellow bars = direct budgetary impact of additive loans (debt-increasing) and substitutive grants (debt decreasing); (ii) red bars = interest savings from lower risk premia; (iii) blue bars = stimulus effect of NGEU on the economy, which leads to higher revenues and a higher denominator in the debt ratio; (iv) green bars = impact on the supply side (potential GDP) due to investment and structural reforms. The striped bars represent the effect of a slower fiscal consolidation after the NGEU period (as of 2027), reflecting the new EU fiscal rules.

[19] The striped bars represent the effect of a looser fiscal position, compared with what an abrupt end to NGEU would have suggested, which mechanically results in a further rise in the debt ratio. This effect is particularly noticeable for Italy but almost absent for Spain.

Although the favourable effects on the debt-to-GDP ratios of the main beneficiaries remain significant, this update points to a significant downward revision compared with initial ECB staff estimates. For Italy and Spain, the projected impact by 2031 has been revised down to 7-8 percentage points from 12-14, as per Bańkowski et al. (2022). This is mainly due to delays in implementation, which have reduced the impact on both budget outcomes and GDP. More crucially, these delays have led to a significant downward revision in potential GDP, affecting long-term debt projections.

Lastly, the RRF implementation may also be driving some improvement in the quality of public finance at the national level. Preliminary evidence on the changes in the composition of public expenditure in the main beneficiary countries suggests that the implementation of the RRF has resulted in a shift towards items with stronger effects on GDP growth, such as renewable energy, charging stations for electric vehicles, the digitalisation of small and medium-sized enterprises and artificial intelligence.[20]

4 Conclusion

NGEU is expected to have a positive impact on euro area output in the long run, while the impact on inflation is expected to be relatively muted. Model-based estimates suggest that public expenditure and structural reforms linked to NGEU have the potential to increase the level of euro area GDP by around 0.4 to0.9% by 2026 and 0.8 to 1.2% by 2031. The estimation ranges reflect the prevailing uncertainty around key assumptions, most notably whether the planned investments and reforms will be implemented completely and effectively. The favourable impacts of NGEU are projected to contribute to a decline in the government debt-to-GDP ratios of the main beneficiary countries. On the nominal side, NGEU is only likely to have a muted impact on euro area inflation owing to countervailing demand and supply effects.

However, the expected positive impact on output is likely to materialise later than initially expected and subject to downside risks. Even the upper bound of the updated estimates of NGEU's impact on the level of euro area output in 2031 is lower than what was envisaged in ECB staff estimates from early 2022. This downward revision largely reflects delays in the implementation of the national investment and reform plans. These delays, in turn, mainly reflect administrative constraints and the ramifications of the energy inflation shock following the Russian war on Ukraine. Despite the inflation surge, the programme's real value has remained approximately stable through concurrent increases in RRF-related investment financing grants to euro area countries. Also, the projected long-run impact of NGEU on the growth rate of euro area output is largely in line with previous results. Therefore, the revisions to the output estimates overall constitute a *reprofiling* rather than a reassessment of NGEU's long-run effectiveness. Given the transmission lags involved, it is arguably too early to draw firm conclusions regarding

[20] See Bańkowski, K. et al., "Four years into NextGenerationEU- What impact on the euro area economy?", *Occasional Paper Series,* No. 362, ECB, 2024.

the effectiveness of NGEU-linked investments and reforms. Even so, the risk of ineffective or incomplete implementation of NGEU-linked investments and reforms has increased since 2022. The implementation delays observed so far, combined with the fixed end-date of NGEU, suggest that some projects could either be "rushed through" at the expense of implementation quality, or cancelled altogether.

By taking targeted policy action, euro area countries can ensure that NGEU-linked investments and reforms are implemented more effectively. Most notably, Member States could redirect administrative resources, make more intensive use of available technical support at EU level and identify targeted regulatory changes that would facilitate the roll-out of their NGEU projects. Such corrective policy measures might alleviate any emerging trade-off between the speed and quality of plan execution in the second half of the NGEU's envisaged lifespan, that is, until August 2026. More generally, such policy efforts are vital to ensuring that NGEU can unlock its transformative potential and act as a catalyst for the modernisation and strengthening of the euro area economies.

Statistics

Contents

Further information

Data published by the ECB can be accessed from the ECB Data Portal:	https://data.ecb.europa.eu/
Detailed tables are available in the ”Publications” section of the ECB Data Portal:	https://data.ecb.europa.eu/publications
Methodological definitions, general notes and technical notes to statistical tables can be found in the ”Methodology” section of the ECB Data Portal:	https://data.ecb.europa.eu/methodology
Explanations of terms and abbreviations can be found in the ECB’s statistics glossary:	https://www.ecb.europa.eu/home/glossary/html/glossa.en.html

Conventions used in the tables

-	data do not exist/data are not applicable
.	data are not yet available
...	nil or negligible
(p)	provisional
s.a.	seasonally adjusted
n.s.a.	non-seasonally adjusted

1 External environment

1.1 Main trading partners, GDP and CPI

	GDP [1] (period-on-period percentage changes)						CPI (annual percentage changes)						
							OECD countries						
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	Total	excluding food and energy	United States	United Kingdom (HICP)	Japan	China	Memo item: euro area [2] (HICP)
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021	6.8	6.1	8.6	2.7	8.4	6.3	4.0	3.0	4.7	2.6	-0.2	0.9	2.6
2022	3.3	2.5	4.8	0.9	3.0	3.5	9.5	6.8	8.0	9.1	2.5	2.0	8.4
2023	3.4	2.9	0.3	1.5	5.2	0.4	6.9	7.0	4.1	7.4	3.2	0.2	5.4
2023 Q4	0.7	0.8	-0.3	0.2	1.3	0.0	5.9	6.8	3.2	4.2	2.9	-0.3	2.7
2024 Q1	0.8	0.4	0.7	-0.6	1.5	0.3	5.7	6.4	3.2	3.5	2.6	0.0	2.6
Q2	0.6	0.7	0.5	0.5	0.5	0.2	5.7	6.1	3.2	2.1	2.7	0.3	2.5
Q3	0.7	0.7	0.1	0.3	0.9	0.4	4.8	5.2	2.6	2.0	2.8	0.5	2.2
2024 June	-	-	-	-	-	-	5.6	5.9	3.0	2.0	2.8	0.2	2.5
July	-	-	-	-	-	-	5.3	5.5	2.9	2.2	2.8	0.5	2.6
Aug.	-	-	-	-	-	-	4.7	5.2	2.5	2.2	3.0	0.6	2.2
Sep.	-	-	-	-	-	-	4.4	5.1	2.4	1.7	2.5	0.4	1.7
Oct.	-	-	-	-	-	-	4.5	5.0	2.6	2.3	2.3	0.3	2.0
Nov.	-	-	-	-	-	-	.	.	.	.	.	.	2.3

Sources: Eurostat (col. 6, 13); BIS (col. 9, 10, 11, 12); OECD (col. 1, 2, 3, 4, 5, 7, 8).
1) Quarterly data seasonally adjusted; annual data unadjusted.
2) Data refer to the changing composition of the euro area.

1.2 Main trading partners, Purchasing Managers' Index and world trade

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports [1]		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index [2]					
	Global [2]	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders	Global	Advanced economies	Emerging market economies
	1	2	3	4	5	6	7	8	9	10	11	12
2021	-	-	-	-	-	-	-	-	-	11.1	9.4	12.8
2022	-	-	-	-	-	-	-	-	-	3.1	4.6	1.8
2023	52.0	51.2	51.2	51.8	52.5	49.7	49.8	52.3	47.6	-0.7	-3.9	2.5
2023 Q4	51.1	50.8	50.5	50.0	51.4	47.2	49.4	50.9	47.9	0.7	0.8	0.6
2024 Q1	52.6	52.2	52.9	51.3	52.6	49.2	51.1	52.4	49.2	0.0	0.6	-0.6
Q2	53.2	53.5	53.1	51.5	53.2	51.6	52.1	53.3	50.1	1.3	1.9	0.7
Q3	52.9	54.3	53.1	52.5	50.9	50.3	49.8	53.3	48.4	1.2	1.9	0.6
2024 June	53.2	54.8	52.3	49.7	52.8	50.9	52.2	53.1	49.3	1.3	1.9	0.7
July	53.0	54.3	52.8	52.5	51.2	50.2	50.2	53.3	49.3	0.5	1.4	-0.3
Aug.	53.2	54.6	53.8	52.9	51.2	51.0	50.0	53.8	48.4	1.3	2.1	0.5
Sep.	52.4	54.0	52.6	52.0	50.3	49.6	49.2	52.9	47.5	1.2	1.9	0.6
Oct.	52.8	54.1	51.8	49.6	51.9	50.0	50.1	53.1	48.3	.	.	.
Nov.	53.2	54.9	50.5	50.1	52.2	48.3	50.4	53.1	48.6	.	.	.

Sources: S&P Global Market Intelligence (col. 1-9); CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations (col. 10-12)
1) Global and advanced economies exclude the euro area. Annual and quarterly data are period-on-period percentages; monthly data are 3-month-on-3-month percentages. All data are seasonally adjusted.
2) Excluding the euro area.

2 Economic activity

2.1 GDP and expenditure components

(quarterly data seasonally adjusted; annual data unadjusted)

	GDP											
	Total	Domestic demand								External balance [1]		
		Total	Private consumption	Government consumption	Gross fixed capital formation				Changes in inventories [2]	Total	Exports [1]	Imports [1]
					Total	Total construction	Total machinery	Intellectual property products				
	1	2	3	4	5	6	7	8	9	10	11	12
	Current prices (EUR billions)											
2021	12,612.9	12,106.2	6,453.7	2,785.8	2,734.4	1,403.8	785.7	539.0	132.3	-506.7	6,111.6	5,605.0
2022	13,724.0	13,446.3	7,228.9	2,941.9	3,018.2	1,558.7	869.2	584.1	257.3	-277.8	7,395.1	7,117.4
2023	14,594.5	14,077.8	7,736.2	3,093.3	3,195.0	1,641.8	925.8	621.1	53.3	-516.7	7,375.6	6,858.9
2023 Q4	3,706.5	3,570.3	1,960.5	791.7	814.6	411.8	230.6	170.6	3.5	-136.2	1,834.4	1,698.2
2024 Q1	3,738.8	3,564.1	1,981.3	796.5	798.9	413.6	226.6	157.1	-12.7	-174.7	1,852.2	1,677.5
Q2	3,764.1	3,577.5	1,989.6	810.3	781.9	410.6	227.9	141.8	-4.3	-186.6	1,894.9	1,708.3
Q3	3,800.2	3,638.3	2,009.0	818.3	802.4	412.2	225.2	163.3	8.7	-161.9	1,871.0	1,709.2
	as percentage of GDP											
2023	100.0	96.5	53.0	21.2	21.9	11.2	6.3	4.3	0.4	-3.5	-	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2023 Q4	0.0	0.0	0.0	0.7	1.4	-0.4	-2.0	11.1	-	-	0.3	0.2
2024 Q1	0.3	-0.4	0.3	0.1	-2.3	-0.2	-1.2	-8.8	-	-	1.1	-0.3
Q2	0.2	-0.1	0.0	1.2	-2.4	-0.9	0.3	-10.5	-	-	1.5	1.1
Q3	0.4	1.3	0.7	0.5	2.0	-0.1	-1.8	14.8	-	-	-1.5	0.2
	annual percentage changes											
2021	6.3	5.1	4.7	4.3	3.8	6.2	8.0	-6.8	-	-	11.4	9.0
2022	3.5	3.8	4.9	1.1	2.0	0.0	3.7	4.9	-	-	7.3	8.3
2023	0.4	0.1	0.6	1.6	1.6	0.5	2.2	3.6	-	-	-0.7	-1.3
2023 Q4	0.1	-0.1	0.9	2.2	2.2	1.2	-0.7	9.3	-	-	-2.5	-3.0
2024 Q1	0.4	0.0	1.0	1.9	-1.1	-1.8	-3.0	3.5	-	-	-0.7	-1.7
Q2	0.5	-0.7	0.5	2.7	-3.2	-1.9	-2.3	-8.4	-	-	1.9	-0.6
Q3	0.9	0.8	1.0	2.4	-1.3	-1.5	-4.6	4.1	-	-	1.4	1.2
	contributions to quarter-on-quarter percentage changes in GDP; percentage points											
2023 Q4	0.0	0.0	0.0	0.2	0.3	0.0	-0.1	0.5	-0.5	0.1	-	-
2024 Q1	0.3	-0.4	0.2	0.0	-0.5	0.0	-0.1	-0.4	0.0	0.7	-	-
Q2	0.2	-0.1	0.0	0.2	-0.5	-0.1	0.0	-0.4	0.2	0.3	-	-
Q3	0.4	1.3	0.4	0.1	0.4	0.0	-0.1	0.6	0.4	-0.9	-	-
	contributions to annual percentage changes in GDP; percentage points											
2021	6.3	5.1	2.5	1.0	0.9	0.7	0.5	-0.3	0.6	1.5	-	-
2022	3.5	3.8	2.6	0.2	0.5	0.0	0.2	0.2	0.5	-0.2	-	-
2023	0.4	0.1	0.3	0.3	0.4	0.1	0.1	0.2	-0.9	0.3	-	-
2023 Q4	0.1	-0.1	0.5	0.5	0.5	0.1	0.0	0.4	-1.5	0.2	-	-
2024 Q1	0.4	0.0	0.5	0.4	-0.2	-0.2	-0.2	0.1	-0.7	0.5	-	-
Q2	0.5	-0.7	0.3	0.6	-0.7	-0.2	-0.1	-0.3	-0.8	1.2	-	-
Q3	0.9	0.8	0.5	0.5	-0.3	-0.2	-0.3	0.2	0.1	0.1	-	-

Sources: Eurostat and ECB calculations.
1) Exports and imports cover goods and services and include cross-border intra-euro area trade.
2) Including acquisitions less disposals of valuables.

2 Economic activity

2.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services	Taxes less subsidies on products
	1	2	3	4	5	6	7	8	9	10	11	12
Current prices (EUR billions)												
2021	11,253.2	185.1	2,158.3	592.5	2,017.7	602.8	521.9	1,275.7	1,363.7	2,208.1	327.5	1,359.7
2022	12,339.7	217.9	2,421.3	647.1	2,342.5	633.0	543.3	1,341.1	1,490.9	2,324.5	377.9	1,384.3
2023	13,203.5	225.2	2,584.7	721.4	2,440.3	678.4	605.2	1,477.4	1,602.1	2,460.1	408.7	1,391.0
2023 Q4	3,350.4	55.8	643.3	182.7	616.4	172.5	154.3	379.0	410.3	632.7	103.4	356.0
2024 Q1	3,370.0	55.8	631.9	184.6	623.5	176.2	157.7	384.9	412.6	637.8	105.0	368.8
Q2	3,389.8	56.0	627.5	184.7	628.5	177.2	159.4	386.9	418.4	645.4	105.9	374.3
Q3	3,417.9	56.7	632.2	185.1	632.3	179.6	160.6	386.9	422.9	654.6	107.1	382.3
as percentage of value added												
2023	100.0	1.7	19.6	5.5	18.5	5.1	4.6	11.2	12.1	18.6	3.1	-
Chain-linked volumes (prices for the previous year)												
quarter-on-quarter percentage changes												
2023 Q4	0.3	0.3	0.2	-0.3	-0.1	1.4	-0.1	0.8	0.8	0.5	-1.6	-2.4
2024 Q1	0.2	0.6	-0.6	0.1	0.4	0.7	0.9	1.0	-0.1	0.2	1.3	1.2
Q2	0.1	-1.9	-0.2	-1.0	0.3	0.4	-0.1	0.2	0.6	0.3	0.1	0.9
Q3	0.3	-0.7	0.4	-0.5	0.4	1.2	-0.1	-0.1	0.4	0.5	1.3	1.1
annual percentage changes												
2021	6.2	2.6	8.1	3.7	8.2	10.6	6.1	2.2	9.0	3.7	5.2	7.1
2022	3.9	-0.9	0.7	0.1	8.1	5.6	-1.8	2.8	6.2	2.9	16.3	0.2
2023	0.7	0.7	-1.5	1.2	0.0	4.4	-1.7	2.3	1.5	1.0	3.9	-2.2
2023 Q4	0.5	0.4	-2.4	1.7	-0.2	4.6	-2.0	2.3	1.8	1.1	2.5	-3.3
2024 Q1	0.6	0.3	-1.9	-1.3	0.6	4.0	0.0	2.1	1.8	1.2	1.7	-1.1
Q2	0.6	-2.1	-1.8	-1.9	0.7	3.2	0.2	2.2	2.0	1.5	1.2	-0.2
Q3	1.0	-1.7	-0.3	-1.8	0.9	3.8	0.5	1.9	1.8	1.6	1.1	0.8
contributions to quarter-on-quarter percentage changes in value added; percentage points												
2023 Q4	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	-0.1	-
2024 Q1	0.2	0.0	-0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	-
Q2	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	-
Q3	0.3	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	-
contributions to annual percentage changes in value added; percentage points												
2021	6.2	0.0	1.6	0.2	1.5	0.6	0.3	0.3	1.1	0.8	0.2	-
2022	3.9	0.0	0.1	0.0	1.5	0.3	-0.1	0.3	0.8	0.6	0.5	-
2023	0.7	0.0	-0.3	0.1	0.0	0.2	-0.1	0.3	0.2	0.2	0.1	-
2023 Q4	0.5	0.0	-0.5	0.1	0.0	0.2	-0.1	0.3	0.2	0.2	0.1	-
2024 Q1	0.6	0.0	-0.4	-0.1	0.1	0.2	0.0	0.2	0.2	0.2	0.1	-
Q2	0.6	0.0	-0.4	-0.1	0.1	0.2	0.0	0.2	0.2	0.3	0.0	-
Q3	1.0	0.0	-0.1	-0.1	0.2	0.2	0.0	0.2	0.2	0.3	0.0	-

Sources: Eurostat and ECB calculations.

2 Economic activity

2.3 Employment [1)]

(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity									
		Employees	Self-employed	Agriculture forestry and fishing	Manufacturing, energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
as a percentage of total persons employed													
2021	100.0	85.9	14.1	3.0	14.3	6.3	24.0	3.2	2.4	1.0	14.0	25.1	6.6
2022	100.0	86.0	14.0	2.9	14.2	6.4	24.2	3.3	2.3	1.1	14.2	24.9	6.6
2023	100.0	86.1	13.9	2.8	14.1	6.4	24.4	3.4	2.3	1.1	14.2	24.8	6.5
annual percentage changes													
2021	1.6	1.7	0.7	0.5	0.0	3.2	0.6	4.4	0.4	1.3	3.0	2.2	1.0
2022	2.4	2.5	1.9	-0.6	1.2	3.7	3.3	6.1	0.1	3.4	3.8	1.5	1.3
2023	1.4	1.5	0.8	-2.0	0.9	1.3	1.9	3.6	0.6	1.9	1.7	1.3	1.0
2023 Q4	1.3	1.4	0.9	-0.9	0.5	1.7	1.6	2.9	0.6	1.2	1.2	1.5	1.4
2024 Q1	1.1	1.1	0.8	-0.5	0.2	1.6	1.4	2.8	0.9	0.3	0.9	1.5	0.4
Q2	0.9	1.0	0.9	-0.5	0.5	1.2	0.7	2.0	0.7	-1.3	0.8	1.6	0.9
Q3	0.9	0.9	0.8	-1.0	0.2	0.7	1.0	1.6	0.8	-1.8	1.0	1.6	1.0
Hours worked													
as a percentage of total hours worked													
2021	100.0	81.7	18.3	4.0	15.0	7.3	24.2	3.5	2.5	1.1	14.0	22.6	5.8
2022	100.0	81.8	18.2	3.8	14.7	7.4	25.1	3.6	2.4	1.1	14.1	22.0	5.9
2023	100.0	82.0	18.0	3.7	14.6	7.3	25.2	3.6	2.4	1.1	14.2	22.0	5.9
annual percentage changes													
2021	6.1	5.9	7.3	1.6	5.0	9.2	7.2	7.5	2.6	6.3	8.6	4.3	6.5
2022	3.5	3.6	3.3	-1.3	1.1	4.2	7.4	6.4	-0.7	5.4	4.4	0.8	4.8
2023	1.3	1.6	0.2	-1.9	0.6	0.9	1.7	3.5	0.1	1.5	1.7	1.5	1.6
2023 Q4	1.4	1.6	0.4	-1.0	0.5	1.6	1.5	3.3	0.4	0.4	1.4	1.8	1.5
2024 Q1	0.7	0.7	0.4	-2.0	-0.4	1.3	0.9	2.4	0.0	-0.7	1.1	1.0	0.4
Q2	0.8	0.9	0.5	-0.9	0.3	0.9	0.4	2.0	0.4	-1.9	1.1	1.4	1.5
Q3	0.5	0.6	-0.1	-1.7	-0.3	0.5	0.5	1.6	0.6	-2.6	1.0	0.8	1.1
Hours worked per person employed													
annual percentage changes													
2021	4.5	4.1	6.5	1.0	4.9	5.8	6.5	3.0	2.2	5.0	5.5	2.0	5.5
2022	1.1	1.1	1.4	-0.6	-0.1	0.5	4.0	0.2	-0.8	1.9	0.5	-0.7	3.4
2023	-0.1	0.0	-0.6	0.1	-0.3	-0.4	-0.2	-0.1	-0.5	-0.4	0.0	0.1	0.5
2023 Q4	0.1	0.2	-0.5	-0.1	0.0	-0.2	-0.1	0.4	-0.2	-0.8	0.3	0.4	0.1
2024 Q1	-0.4	-0.4	-0.5	-1.6	-0.5	-0.3	-0.5	-0.4	-0.9	-1.0	0.2	-0.4	0.0
Q2	-0.2	-0.1	-0.4	-0.3	-0.1	-0.3	-0.3	0.0	-0.3	-0.7	0.3	-0.2	0.6
Q3	-0.5	-0.4	-0.9	-0.7	-0.5	-0.2	-0.5	-0.1	-0.2	-0.9	0.0	-0.8	0.1

Sources: Eurostat and ECB calculations.
1) Data for employment are based on the ESA 2010.

2 Economic activity

2.4 Labour force, unemployment and job vacancies

(seasonally adjusted, unless otherwise indicated)

	Labour force, millions	Under-employment, % of labour force	Unemployment [1]												Job vacancy rate [3]
			Total		Long-term unemploy-ment, % of labour force [2]	By age				By gender					
						Adult		Youth		Male		Female			
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force		
	1	2	3	4	5	6	7	8	9	10	11	12	13		14
% of total in 2020			100.0			80.1		19.9		51.3		48.7			
2021	165.075	3.4	12.822	7.8	3.2	10.344	6.9	2.479	16.9	6.547	7.4	6.275	8.2		2.5
2022	167.962	3.1	11.400	6.8	2.7	9.147	6.0	2.252	14.6	5.732	6.4	5.668	7.2		3.2
2023	170.273	2.9	11.183	6.6	2.4	8.886	5.8	2.297	14.5	5.649	6.2	5.535	6.9		3.0
2023 Q4	171.064	2.9	11.161	6.5	2.3	8.793	5.7	2.367	14.8	5.649	6.2	5.511	6.9		2.9
2024 Q1	171.606	2.9	11.195	6.5	2.3	8.870	5.7	2.325	14.5	5.660	6.2	5.535	6.9		2.9
Q2	171.896	2.8	11.115	6.5	2.1	8.787	5.6	2.329	14.6	5.629	6.2	5.487	6.8		2.6
Q3	.	.	.	6.3	.	.	5.4	.	14.9	.	6.2	.	6.5		2.5
2024 May	-	-	11.083	6.4	-	8.744	5.6	2.339	14.6	5.640	6.2	5.442	6.8		-
June	-	-	11.076	6.4	-	8.735	5.6	2.341	14.6	5.676	6.2	5.400	6.7		-
July	-	-	10.957	6.4	-	8.574	5.5	2.383	14.9	5.702	6.2	5.256	6.5		-
Aug.	-	-	10.834	6.3	-	8.450	5.4	2.384	14.9	5.630	6.1	5.204	6.5		-
Sep.	-	-	10.844	6.3	-	8.452	5.4	2.392	14.9	5.629	6.1	5.215	6.5		-
Oct.	-	-	10.841	6.3	-	8.414	5.4	2.427	15.0	5.612	6.1	5.229	6.5		-

Sources: Eurostat and ECB calculations.
1) Where annual and quarterly Labour Force Survey data have not yet been published, they are estimated as simple averages of the monthly data. There is a break in series from the first quarter of 2021 due to the implementation of the Integrated European Social Statistics Regulation. Owing to technical issues with the introduction of the new German system of integrated household surveys, including the Labour Force Survey, the figures for the euro area include data from Germany, starting in the first quarter of 2020, which are not direct estimates from Labour Force Survey microdata, but based on a larger sample including data from other integrated household surveys.
2) Not seasonally adjusted.
3) The job vacancy rate is equal to the number of job vacancies divided by the sum of the number of occupied posts and the number of job vacancies, expressed as a percentage. Data are non-seasonally adjusted and cover industry, construction and services (excluding households as employers and extra-territorial organisations and bodies).

2.5 Short-term business statistics

	Industrial production						Construc-tion production	Retail sales				Services produc-tion [1]	New passenger car regis-trations
	Total (excluding construction)		Main Industrial Groupings										
	Total	Manu-facturing	Inter-mediate goods	Capital goods	Consumer goods	Energy		Total	Food, beverages, tobacco	Non-food	Fuel		
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	88.7	32.4	33.2	22.5	11.9	100.0	100.0	38.1	54.4	7.5	100.0	100.0
	annual percentage changes												
2021	8.8	9.8	9.6	9.4	8.1	0.7	5.7	5.4	0.9	8.7	9.1	7.9	-2.9
2022	2.2	3.0	-1.5	5.1	6.3	-2.9	3.4	1.1	-2.7	3.4	4.5	9.9	-4.3
2023	-2.2	-1.7	-5.6	2.4	-1.6	-5.5	1.5	-1.9	-2.6	-1.0	-1.7	2.6	14.6
2023 Q4	-3.9	-4.2	-4.7	-2.5	-6.5	-0.6	1.5	-0.6	-0.5	0.1	-4.1	1.7	4.1
2024 Q1	-4.7	-4.9	-2.9	-6.0	-5.6	-1.8	-0.3	-0.1	-0.5	0.2	-0.6	2.7	4.6
Q2	-3.7	-4.0	-2.5	-7.2	0.3	-0.1	-1.6	0.2	0.0	0.4	0.6	1.8	4.1
Q3	-1.8	-2.2	-2.9	-3.9	2.0	1.9	-2.0	1.9	0.5	2.7	2.3	1.4	-9.5
2024 May	-3.6	-3.9	-3.4	-7.7	1.4	0.2	-2.4	0.4	0.5	0.6	0.3	1.9	-3.7
June	-4.2	-4.7	-1.6	-8.4	-0.1	2.0	-1.4	-0.8	-0.3	-1.0	-0.3	-0.3	11.9
July	-2.1	-2.4	-3.0	-4.3	1.0	1.1	-2.3	0.2	-0.2	0.2	0.0	1.2	-8.2
Aug.	-0.1	-0.4	-3.1	0.4	1.0	2.6	-2.5	2.5	1.4	2.4	4.8	1.7	-12.8
Sep.	-2.8	-3.3	-2.6	-6.4	3.9	1.9	-1.6	3.0	0.2	5.5	2.1	1.2	-7.3
Oct.	.	.	.	.	.	.	.	1.9	0.6	2.7	1.9	.	.
	month-on-month percentage changes (s.a.)												
2024 May	-0.9	-0.9	-0.9	-2.7	1.2	0.6	-0.9	0.2	1.1	-0.4	0.0	-0.3	-6.4
June	0.1	0.0	0.7	0.8	-1.1	1.7	0.6	-0.7	-0.4	-0.6	-0.4	-1.2	13.8
July	-0.3	-1.0	-1.5	-1.0	1.0	0.0	-0.5	0.5	-0.1	0.8	-0.1	1.0	-11.3
Aug.	1.5	1.4	-0.3	3.8	0.4	0.3	0.0	1.1	1.1	1.3	1.2	0.5	0.0
Sep.	-2.0	-2.1	0.0	-3.8	1.2	-1.5	-0.1	0.5	-0.7	1.3	-0.6	-0.5	3.1
Oct.	.	.	.	.	.	.	.	-0.5	0.1	-0.9	-0.3	.	.

Sources: Eurostat, ECB calculations and European Automobile Manufacturers Association (col. 13).
1) Excluding trade and financial services.

2 Economic activity

2.6 Opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances, unless otherwise indicated)								Purchasing Managers' Surveys (diffusion indices)			
	Economic sentiment indicator (long-term average = 100)	Manufacturing industry		Consumer confidence indicator	Construction confidence indicator	Retail trade confidence indicator	Service industries		Purchasing Managers' Index (PMI) for manufacturing	Manufacturing output	Business activity for services	Composite output
		Industrial confidence indicator	Capacity utilisation (%)				Services confidence indicator	Capacity utilisation (%)				
	1	2	3	4	5	6	7	8	9	10	11	12
1999-20	99.5	-4.3	80.1	-11.1	-12.5	-6.6	6.4	.	-	-	-	-
2022	102.1	5.0	82.4	-21.9	5.2	-3.5	9.2	89.9	-	-	-	-
2023	96.4	-5.6	80.9	-17.4	-2.0	-4.0	6.7	90.5	45.0	45.8	51.2	49.7
2024	.	.	78.5	.	.	.	.	90.2	.	.	.	.
2024 Q1	96.0	-9.2	79.4	-15.4	-5.2	-6.2	7.1	90.1	46.4	46.7	50.0	49.2
Q2	95.9	-10.2	79.0	-14.3	-6.3	-7.1	6.5	90.0	46.2	47.6	53.1	51.6
Q3	96.2	-10.4	78.3	-13.2	-6.0	-8.3	6.1	90.3	45.5	45.4	52.1	50.3
Q4	.	.	77.3	.	.	.	.	90.4	.	.	.	.
2024 June	96.0	-10.2	.	-14.0	-6.8	-7.8	6.5	.	45.8	46.1	52.8	50.9
July	95.9	-10.5	78.3	-13.0	-6.3	-9.0	5.1	90.3	45.8	45.6	51.9	50.2
Aug.	96.4	-9.9	.	-13.5	-6.2	-7.9	6.3	.	45.8	45.8	52.9	51.0
Sep.	96.3	-10.8	.	-13.0	-5.5	-8.2	6.8	.	45.0	44.9	51.4	49.6
Oct.	95.7	-12.6	77.3	-12.5	-4.8	-7.2	6.8	90.4	46.0	45.8	51.6	50.0
Nov.	95.8	-11.1	.	-13.7	-4.8	-4.4	5.3	.	45.2	45.1	49.5	48.3

Sources: European Commission (Directorate-General for Economic and Financial Affairs) (col. 1-8) and S&P Global Market Intelligence (col. 9-12).

2.7 Summary accounts for households and non-financial corporations
(current prices, unless otherwise indicated; not seasonally adjusted)

	Households							Non-financial corporations					
	Saving rate (gross)	Debt ratio	Real gross disposable income	Financial investment	Non-financial investment (gross)	Net worth[2]	Housing wealth	Profit rate[3]	Saving rate (gross)	Debt ratio[4]	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted)[1]		Annual percentage changes					Percentage of gross value added		Percentage of GDP	Annual percentage changes		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021	17.2	94.3	2.4	3.5	17.9	7.7	7.5	36.8	7.5	79.2	5.8	10.2	3.5
2022	13.6	91.3	0.5	2.3	12.7	2.3	8.2	37.7	5.4	74.5	5.1	10.0	3.4
2023	14.1	85.3	1.2	1.9	3.0	2.0	-1.5	35.8	5.4	70.1	1.8	1.7	0.8
2023 Q3	13.9	86.5	0.5	1.8	1.3	1.6	-0.6	36.5	5.6	70.7	2.4	-11.4	1.2
Q4	14.1	85.3	1.4	1.9	2.2	2.0	-1.5	35.8	5.4	70.1	1.8	-0.7	0.8
2024 Q1	14.5	84.1	2.8	2.0	-3.3	2.2	-0.7	34.9	4.6	69.4	1.9	-6.3	0.8
Q2	14.9	83.4	2.1	2.3	-1.8	2.9	0.9	34.3	3.9	69.3	2.1	-8.1	1.0

Sources: ECB and Eurostat.
1) Based on four-quarter cumulated sums of saving, debt and gross disposable income (adjusted for the change in pension entitlements).
2) Financial assets (net of financial liabilities) and non-financial assets. Non-financial assets consist mainly of housing wealth (residential structures and land). They also include non-financial assets of unincorporated enterprises classified within the household sector.
3) The profit rate is gross entrepreneurial income (broadly equivalent to cash flow) divided by gross value added.
4) Defined as consolidated loans and debt securities liabilities.

2 Economic activity

2.8 Euro area balance of payments, current and capital accounts

(EUR billions; seasonally adjusted unless otherwise indicated; transactions)

	Current account											Capital account [1]	
	Total			Goods		Services		Primary income		Secondary income			
	Credit	Debit	Balance	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
	1	2	3	4	5	6	7	8	9	10	11	12	13
2023 Q4	1,410.0	1,331.3	78.7	694.0	620.0	346.3	314.8	320.7	303.9	49.2	92.6	62.4	41.1
2024 Q1	1,430.2	1,327.2	103.0	704.9	600.5	368.5	336.4	310.8	310.8	46.1	79.6	18.9	31.6
Q2	1,490.9	1,360.2	130.7	716.8	613.9	390.7	339.8	336.7	316.1	46.6	90.3	25.4	22.1
Q3	1,487.9	1,375.2	112.7	722.9	618.9	380.8	328.7	339.7	340.2	44.5	87.4	18.3	15.5
2024 Apr.	498.0	454.9	43.1	240.3	205.8	128.9	112.8	112.6	106.6	16.3	29.6	6.9	8.7
May	493.6	458.7	34.9	237.7	205.0	129.5	110.4	112.5	113.9	13.9	29.3	8.2	7.6
June	499.2	446.6	52.7	238.8	203.1	132.4	116.5	111.6	95.6	16.4	31.4	10.3	5.8
July	497.1	456.9	40.2	240.7	204.1	127.2	109.6	114.0	114.2	15.2	28.9	6.4	6.7
Aug.	500.1	464.7	35.4	242.0	207.5	130.6	111.9	112.7	115.3	14.8	30.0	7.3	3.9
Sep.	490.7	453.7	37.0	240.2	207.2	123.1	107.2	112.9	110.7	14.5	28.5	4.6	4.9
12-month cumulated transactions													
2024 Sep.	5,819.0	5,393.9	425.1	2,838.5	2,453.3	1,486.3	1,319.6	1,307.8	1,271.0	186.4	349.9	125.1	110.4
12-month cumulated transactions as a percentage of GDP													
2024 Sep.	38.8	35.9	2.8	18.9	16.3	9.9	8.8	8.7	8.5	1.2	2.3	0.8	0.7

1) The capital account is not seasonally adjusted.

2.9 Euro area external trade in goods [1], values and volumes by product group [2]

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
			Total				Memo item:	Total				Memo items:	
	Exports	Imports	Total	Intermediate goods	Capital goods	Consumption goods	Manufacturing	Total	Intermediate goods	Capital goods	Consumption goods	Manufacturing	Oil
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2023 Q4	-4.8	-16.4	708.7	333.8	144.4	215.5	586.0	671.6	384.3	108.2	159.4	476.6	81.3
2024 Q1	-2.7	-11.8	715.2	336.6	142.8	219.1	590.6	655.8	372.0	105.8	159.0	467.9	75.8
Q2	1.7	-4.5	717.5	338.7	136.7	223.5	592.9	671.5	383.8	109.1	162.0	480.2	78.9
Q3	2.4	0.2	711.7	.	.	.	589.2	674.4	.	.	.	486.9	.
2024 Apr.	14.0	1.9	243.9	114.6	46.5	76.3	201.0	225.6	130.1	36.4	55.0	160.5	28.0
May	-0.8	-6.3	236.8	112.9	44.8	73.6	196.0	225.2	128.6	36.6	53.5	160.6	27.2
June	-6.4	-8.7	236.8	111.1	45.3	73.6	195.9	220.7	125.1	36.2	53.5	159.0	23.8
July	9.3	3.7	237.4	112.7	45.2	73.5	196.0	224.4	127.3	37.4	54.0	162.2	26.5
Aug.	-2.8	-2.7	236.8	113.0	44.8	73.5	196.9	226.0	127.0	36.6	55.3	163.2	25.9
Sep.	0.6	-0.6	237.6	.	.	.	196.3	224.1	.	.	.	161.5	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2023 Q3	-4.3	-10.3	96.3	94.4	96.4	102.4	95.8	106.5	104.6	111.8	110.7	109.0	172.5
Q4	-3.8	-8.7	96.2	93.3	96.2	103.1	95.3	104.4	102.0	105.3	109.2	106.0	164.9
2024 Q1	-3.5	-6.6	96.7	94.3	93.5	104.2	95.5	102.9	100.4	102.1	108.1	103.3	164.3
Q2	-0.9	-4.3	95.6	93.3	88.7	105.4	94.4	103.7	101.3	105.2	108.5	104.7	168.8
2024 Mar.	-9.9	-7.0	96.1	93.7	92.4	105.3	95.0	103.7	100.5	104.6	111.4	105.4	165.4
Apr.	11.4	3.8	97.1	94.5	90.6	107.3	95.9	105.1	103.0	104.7	110.1	106.1	172.6
May	-3.6	-6.9	95.0	93.3	87.6	104.3	93.8	103.1	101.0	105.1	107.6	103.8	172.1
June	-8.7	-9.2	94.8	92.1	88.0	104.4	93.6	103.0	99.8	105.7	107.7	104.2	161.8
July	5.6	0.8	93.8	92.5	86.4	102.3	92.5	103.0	100.2	107.3	107.5	105.1	160.9
Aug.	-5.1	-4.3	95.5	92.8	86.7	106.4	94.9	104.3	101.6	106.5	110.4	106.7	167.9

Sources: ECB and Eurostat.
1) Differences between ECB's b.o.p. goods (Table 2.8) and Eurostat's trade in goods (Table 2.9) are mainly due to different definitions.
2) Product groups as classified in the Broad Economic Categories.

3 Prices and costs

3.1 Harmonised Index of Consumer Prices [1)]

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) [2)]						Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unprocessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Administered prices
		Total	Total excluding food and energy										
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2024	100.0	100.0	70.6	55.1	44.9	100.0	15.1	4.3	25.7	9.9	44.9	88.5	11.5
2021	107.8	2.6	1.5	3.4	1.5	-	-	-	-	-	-	2.5	3.1
2022	116.8	8.4	3.9	11.9	3.5	-	-	-	-	-	-	8.5	7.8
2023	123.2	5.4	4.9	5.7	4.9	-	-	-	-	-	-	5.5	4.9
2023 Q4	124.1	2.7	3.7	1.7	4.2	0.3	0.6	0.6	0.0	-1.1	0.7	3.0	1.3
2024 Q1	124.4	2.6	3.1	1.5	4.0	0.7	0.7	-0.1	0.2	0.2	1.1	2.7	2.3
Q2	126.3	2.5	2.8	1.3	4.0	0.6	0.4	-0.3	0.0	-0.5	1.2	2.5	2.8
Q3	126.6	2.2	2.8	0.6	4.0	0.5	0.8	1.0	0.3	-1.4	1.0	1.9	4.0
2024 June	126.6	2.5	2.9	1.2	4.1	0.1	0.3	0.4	0.1	-0.8	0.3	2.4	3.4
July	126.5	2.6	2.9	1.4	4.0	0.3	0.3	0.4	0.2	0.8	0.3	2.4	4.1
Aug.	126.7	2.2	2.8	0.5	4.1	0.1	0.3	0.2	0.0	-1.1	0.4	1.9	4.0
Sep.	126.6	1.7	2.7	0.0	3.9	0.0	0.3	0.6	0.0	-1.7	0.1	1.5	3.9
Oct.	127.0	2.0	2.7	0.4	4.0	0.3	0.4	1.3	0.0	0.4	0.3	1.7	4.1
Nov. [3)]	126.7	2.3	2.7	.	3.9	0.1	0.2	0.3	0.1	0.6	-0.1	.	.

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing		Transport	Communication	Recreation and personal care	Miscellaneous
	Total	Processed food	Unprocessed food	Total	Non-energy industrial goods	Energy	Total	Rents				
	14	15	16	17	18	19	20	21	22	23	24	25
% of total in 2024	19.5	15.1	4.3	35.6	25.7	9.9	9.6	5.6	7.4	2.2	16.4	9.3
2021	1.5	1.5	1.6	4.5	1.5	13.0	1.4	1.2	2.1	0.3	1.5	1.6
2022	9.0	8.6	10.4	13.6	4.6	37.0	2.4	1.7	4.4	-0.2	6.1	2.1
2023	10.9	11.4	9.1	2.9	5.0	-2.0	3.6	2.7	5.2	0.2	6.9	4.0
2023 Q4	6.8	7.1	5.9	-1.1	2.9	-9.8	3.5	2.7	3.2	0.4	5.9	4.0
2024 Q1	4.0	4.4	2.8	0.1	1.6	-3.9	3.4	2.8	3.6	-0.2	5.3	3.8
Q2	2.6	2.9	1.4	0.6	0.7	0.0	3.3	2.8	3.7	-0.5	5.1	4.0
Q3	2.3	2.7	1.2	-0.3	0.5	-2.7	3.3	3.0	4.5	-0.9	4.8	4.0
2024 June	2.4	2.7	1.3	0.6	0.7	0.2	3.3	2.8	4.3	-0.4	5.1	4.1
July	2.3	2.7	1.0	0.9	0.7	1.2	3.4	3.0	4.0	-0.4	4.8	4.0
Aug.	2.3	2.7	1.1	-0.5	0.4	-3.0	3.3	2.9	5.0	-0.6	4.8	4.0
Sep.	2.4	2.6	1.6	-1.4	0.4	-6.1	3.3	3.0	4.3	-1.7	4.7	4.0
Oct.	2.9	2.8	3.0	-0.9	0.5	-4.6	3.3	3.0	4.8	-2.2	4.7	4.0
Nov. [3)]	2.8	2.9	2.4	.	0.7	-1.9	.	.	.	.	.	.

Sources: Eurostat and ECB calculations.
1) Data refer to the changing composition of the euro area.
2) In May 2016 the ECB started publishing enhanced seasonally adjusted HICP series for the euro area, following a review of the seasonal adjustment approach as described in Box 1, Economic Bulletin, Issue 3, ECB, 2016 (https://www.ecb.europa.eu/pub/pdf/ecbu/eb201603.en.pdf).
3) Flash estimate.

3 Prices and costs

3.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction [1]										Construction [2]	Residential property prices	Experimental indicator of commercial property prices [3]
		Total		Industry excluding construction and energy						Energy			
							Consumer goods						
	Total (index: 2021 = 100)	Total	Manufacturing	Total	Intermediate goods	Capital goods	Total	Food, beverages and tobacco	Non-food				
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	100.0	77.8	72.3	30.9	19.3	22.2	15.7	6.5	27.7			
2021	100.0	12.2	7.5	5.7	10.9	2.6	2.2	3.3	1.7	30.3	5.8	7.9	0.6
2022	132.8	32.8	17.0	13.8	19.8	7.1	12.2	16.5	6.8	81.1	11.9	7.1	0.6
2023	130.0	-2.1	1.9	3.8	-0.2	5.2	8.3	8.3	5.6	-13.3	6.9	-1.2	-8.1
2023 Q4	128.1	-8.4	-1.1	0.0	-4.8	3.3	3.6	2.1	3.1	-22.9	4.5	-1.2	-9.0
2024 Q1	124.9	-8.0	-1.6	-1.3	-5.3	2.0	1.5	-0.3	1.4	-20.5	3.6	-0.3	-8.0
Q2	122.9	-4.4	-0.2	-0.5	-3.1	1.6	1.1	-0.4	1.0	-12.2	2.4	1.3	-6.8
Q3	124.4	-2.6	-0.6	0.4	-0.9	1.4	1.4	0.4	0.9	-8.9	3.0	.	.
2024 May	122.6	-4.2	-0.1	-0.5	-3.1	1.7	1.1	-0.5	1.1	-11.8	-	-	-
June	123.2	-3.4	0.1	-0.2	-2.3	1.5	1.2	0.2	0.9	-9.8	-	-	-
July	124.2	-2.2	0.3	0.2	-1.1	1.3	1.2	0.1	0.9	-7.3	-	-	-
Aug.	124.9	-2.3	-0.7	0.4	-0.8	1.4	1.3	0.3	0.8	-7.7	-	-	-
Sep.	124.2	-3.4	-1.6	0.6	-0.8	1.3	1.7	0.9	0.9	-11.5	-	-	-
Oct.	124.7	-3.2	-0.9	0.8	-0.5	1.3	2.0	1.3	1.1	-11.2	-	-	-

Sources: Eurostat, ECB calculations, and ECB calculations based on MSCI data and national sources (col. 13).
1) Domestic sales only.
2) Input prices for residential buildings.
3) Experimental data based on non-harmonised sources (see https://www.ecb.europa.eu/stats/ecb_statistics/governance_and_quality_framework/html/experimental-data.en.html for further details).

3.3 Commodity prices and GDP deflators

(annual percentage changes, unless otherwise indicated)

	GDP deflators								Oil prices (EUR per barrel)	Non-energy commodity prices (EUR)					
			Domestic demand				Exports [1]	Imports [1]		Import-weighted [2]			Use-weighted [2]		
	Total (s.a.; index: 2020 = 100)	Total	Total	Private consumption	Government consumption	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
% of total										100.0	45.5	54.6	100.0	50.4	49.6
2021	102.1	2.1	2.8	2.2	2.0	4.0	5.9	8.0	59.8	29.5	21.4	37.1	29.0	22.0	37.0
2022	107.3	5.1	7.0	6.7	4.5	8.2	12.8	17.4	95.0	18.3	28.8	9.6	19.4	27.7	10.9
2023	113.7	5.9	4.6	6.4	3.5	4.2	0.5	-2.3	76.4	-12.8	-11.6	-14.0	-13.7	-12.5	-15.0
2023 Q4	115.4	5.0	3.9	4.0	2.9	2.5	-1.7	-4.2	78.5	-8.8	-9.3	-8.3	-9.8	-10.4	-9.0
2024 Q1	116.0	3.6	2.6	3.3	3.3	2.1	-0.7	-2.9	76.5	-2.3	3.1	-7.5	-2.7	1.8	-7.8
Q2	116.6	2.9	2.6	2.6	2.9	1.7	0.7	-0.1	85.0	13.0	16.5	9.4	11.4	13.1	9.4
Q3	117.2	2.7	2.2	2.1	2.5	1.8	1.3	0.2	.	9.8	11.3	8.2	10.8	12.2	9.1
2024 May	-	-	-	-	-	-	-	-	.	13.1	13.5	12.6	11.8	11.4	12.2
June	-	-	-	-	-	-	-	-	.	13.2	15.6	10.7	12.0	12.7	11.2
July	-	-	-	-	-	-	-	-	.	12.0	14.0	10.0	12.2	13.4	10.8
Aug.	-	-	-	-	-	-	-	-	.	10.4	11.5	9.2	11.6	12.8	10.1
Sep.	-	-	-	-	-	-	-	-	.	7.0	8.4	5.6	8.7	10.5	6.5
Oct.	-	-	-	-	-	-	-	-	.	12.8	13.3	12.3	12.6	12.3	13.0

Sources: Eurostat, ECB calculations and Bloomberg (col. 9).
1) Deflators for exports and imports refer to goods and services and include cross-border trade within the euro area.
2) Import-weighted: weighted according to 2009-11 average import structure; use-weighted: weighted according to 2009-11 average domestic demand structure.

3 Prices and costs

3.4 Price-related opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balance)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 12 months	Input prices		Prices charged	
	Manu-facturing	Retail trade	Services	Construction		Manu-facturing	Services	Manu-facturing	Services
	1	2	3	4	5	6	7	8	9
1999-20	4.7	5.7	4.0	-3.4	28.9	-	-	-	-
2021	31.7	23.9	10.3	19.7	30.4	-	-	-	-
2022	48.6	52.9	27.4	42.4	71.6	-	-	-	-
2023	9.5	28.5	19.2	13.9	74.5	43.7	64.6	50.0	57.4
2023 Q4	3.7	18.6	17.5	9.8	69.5	42.8	62.0	47.5	54.8
2024 Q1	4.6	16.5	17.5	5.1	64.5	44.9	62.3	48.2	56.0
Q2	6.1	13.9	13.7	3.4	56.7	49.9	60.5	48.6	54.6
Q3	6.5	13.0	12.3	2.0	50.1	52.0	57.9	50.1	53.0
2024 June	6.2	13.6	13.9	4.3	54.7	51.4	59.3	49.5	53.5
July	6.8	14.7	12.3	2.0	53.0	53.6	60.0	49.9	52.9
Aug.	6.3	12.8	12.5	1.6	50.6	53.4	57.8	51.1	53.7
Sep.	6.4	11.4	12.2	2.3	46.8	49.1	56.0	49.2	52.4
Oct.	6.7	11.9	13.9	2.0	46.5	48.2	56.5	48.2	52.8
Nov.	7.1	14.0	12.7	4.1	49.1	49.3	57.9	47.9	53.3

Sources: European Commission (Directorate-General for Economic and Financial Affairs) and S&P Global Market Intelligence.

3.5 Labour cost indices
(annual percentage changes, unless otherwise indicated)

			By component		For selected economic activities		
	Total (index: 2020=100)	Total	Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	Memo item: Indicator of negotiated wages [1]
	1	2	3	4	5	6	7
% of total in 2020	100.0	100.0	75.3	24.7	69.0	31.0	
2021	101.1	1.1	1.2	0.8	1.0	1.2	1.4
2022	105.8	4.7	3.9	7.2	5.0	4.0	2.9
2023	110.7	4.6	4.5	4.8	4.9	3.7	4.4
2023 Q4	118.4	3.7	3.6	4.0	4.2	2.7	4.5
2024 Q1	108.5	5.4	5.5	4.9	5.1	6.0	4.8
Q2	119.8	5.0	4.9	5.6	4.9	5.2	3.5
Q3	112.1	4.6	4.5	4.9	4.6	3.7	5.4

Sources: Eurostat and ECB calculations.
1) Experimental data based on non-harmonised sources (see https://www.ecb.europa.eu/stats/ecb_statistics/governance_and_quality_framework/html/experimental-data.en.html for further details).

3 Prices and costs

3.6 Unit labour costs, compensation per labour input and labour productivity

(annual percentage changes, unless otherwise indicated; quarterly data seasonally adjusted; annual data unadjusted)

			By economic activity									
	Total (index: 2020 =100)	Total	Agriculture, forestry andfishing	Manu-facturing, energy and utilities	Con-struction	Trade, transport, accom-modation and food services	Information and commu-nication	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12
Unit labor costs												
2021	99.7	-0.3	1.6	-3.0	4.8	-1.9	-0.2	-1.7	5.2	-1.0	1.1	-0.8
2022	103.0	3.4	4.3	4.4	7.9	1.4	3.0	5.1	5.8	3.3	2.1	-5.8
2023	109.7	6.4	3.1	7.9	5.0	7.9	4.3	7.9	3.5	6.6	5.1	2.3
2023 Q4	111.9	6.4	3.9	8.5	4.5	7.2	3.1	8.5	3.0	4.7	5.5	3.9
2024 Q1	113.2	5.5	3.3	7.0	7.0	4.9	2.7	6.0	2.1	4.2	5.6	5.0
Q2	114.1	5.2	5.8	7.1	7.1	4.8	2.8	6.4	0.2	3.5	5.1	4.7
Q3	114.8	4.3	4.9	4.7	7.2	4.5	2.0	5.5	-0.1	3.5	4.4	4.0
Compensation per employee												
2021	104.3	4.3	3.6	4.8	5.3	5.5	5.8	3.9	6.2	4.7	2.6	3.3
2022	109.0	4.5	4.1	3.9	4.2	6.1	2.5	3.1	5.2	5.7	3.5	8.1
2023	114.9	5.4	5.9	5.4	4.9	5.8	5.0	5.3	4.0	6.4	4.7	5.2
2023 Q4	117.1	5.2	5.2	5.4	4.5	5.3	4.8	5.7	4.2	5.4	5.1	5.1
2024 Q1	118.5	4.8	4.1	4.8	4.0	4.1	3.9	5.1	4.0	5.1	5.3	6.3
Q2	119.5	4.7	4.1	4.7	3.8	4.8	4.0	5.8	3.7	4.7	4.9	5.0
Q3	120.5	4.4	4.2	4.2	4.6	4.4	4.2	5.2	3.7	4.3	4.5	4.1
Labour productivity per person employed												
2021	104.7	4.7	2.0	8.0	0.5	7.6	6.0	5.6	0.9	5.8	1.4	4.2
2022	105.8	1.1	-0.3	-0.5	-3.4	4.7	-0.5	-1.9	-0.6	2.3	1.3	14.8
2023	104.8	-1.0	2.7	-2.3	-0.1	-1.9	0.7	-2.4	0.4	-0.2	-0.3	2.9
2023 Q4	104.6	-1.2	1.3	-2.9	0.0	-1.8	1.7	-2.5	1.1	0.7	-0.4	1.1
2024 Q1	104.6	-0.6	0.7	-2.0	-2.8	-0.8	1.2	-0.9	1.8	0.9	-0.3	1.3
Q2	104.6	-0.4	-1.6	-2.2	-3.1	0.0	1.1	-0.5	3.5	1.2	-0.2	0.3
Q3	104.9	0.0	-0.7	-0.5	-2.5	0.0	2.1	-0.3	3.7	0.8	0.0	0.1
Compensation per hour worked												
2021	100.2	0.2	1.6	0.1	0.5	-0.8	3.0	1.9	2.3	0.0	0.7	-1.5
2022	103.6	3.4	5.5	4.0	4.0	2.0	2.5	3.8	3.8	4.6	4.2	5.0
2023	109.1	5.3	5.7	5.7	5.0	5.8	5.0	5.8	4.6	6.3	4.5	4.5
2023 Q4	110.8	4.9	5.4	5.4	4.0	5.3	4.2	5.6	4.0	4.9	4.7	4.6
2024 Q1	112.2	5.2	5.8	5.3	4.1	4.6	4.2	5.9	4.4	5.0	5.8	6.5
Q2	113.1	4.9	3.5	4.9	4.2	5.1	3.7	6.1	4.2	4.4	5.2	4.2
Q3	114.2	4.7	3.8	4.8	4.3	4.8	4.1	5.3	2.9	4.5	5.2	3.7
Hourly labour productivity												
2021	100.2	0.2	1.0	2.9	-5.0	1.0	2.9	3.4	-3.9	0.3	-0.6	-1.2
2022	100.2	0.0	0.4	-0.4	-4.0	0.7	-0.7	-1.1	-2.5	1.8	2.1	11.0
2023	99.2	-0.9	2.6	-2.1	0.3	-1.7	0.9	-1.9	0.9	-0.2	-0.4	2.3
2023 Q4	98.7	-1.2	1.4	-2.9	0.2	-1.7	1.3	-2.4	1.9	0.4	-0.7	1.0
2024 Q1	98.9	-0.2	2.3	-1.5	-2.5	-0.3	1.6	0.0	2.8	0.7	0.1	1.3
Q2	98.9	-0.3	-1.2	-2.1	-2.8	0.3	1.1	-0.2	4.2	1.0	0.0	-0.3
Q3	99.3	0.5	0.1	0.0	-2.3	0.5	2.2	-0.1	4.7	0.8	0.8	0.0

Sources: Eurostat and ECB calculations.

4 Financial market developments

4.1 Money market interest rates
(percentages per annum, period averages)

	Euro area [1]					United States	Japan
	Euro short-term rate (€STR)	1-month deposits (EURIBOR)	3-month deposits (EURIBOR)	6-month deposits (EURIBOR)	12-month deposity (EURIBOR)	Secured overnight financing rate (SOFR)	Tokyo overnight average rate (TONAR)
	1	2	3	4	5	6	7
2021	-0.57	-0.56	-0.55	-0.52	-0.49	0.04	-0.02
2022	-0.01	0.09	0.35	0.68	1.10	1.63	-0.03
2023	3.21	3.25	3.43	3.69	3.86	5.00	-0.04
2024 June	3.75	3.63	3.72	3.71	3.65	5.33	0.08
July	3.66	3.62	3.68	3.64	3.53	5.34	0.08
Aug.	3.66	3.60	3.55	3.42	3.17	5.33	0.23
Sep.	3.56	3.44	3.43	3.26	2.94	5.15	0.23
Oct.	3.34	3.21	3.17	3.00	2.69	4.85	0.23
Nov.	3.16	3.07	3.01	2.79	2.51	4.66	0.23

Source: LSEG and ECB calculations.
1) Data refer to the changing composition of the euro area.

4.2 Yield curves
(End of period; rates in percentages per annum; spreads in percentage points)

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1]					Euro area [1] [2]	United States	United Kingdom	Euro area [1] [2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2021	-0.73	-0.72	-0.68	-0.48	-0.19	0.53	1.12	0.45	-0.69	-0.58	-0.12	0.24
2022	1.71	2.46	2.57	2.45	2.56	0.09	-0.84	-0.24	2.85	2.48	2.47	2.76
2023	3.78	3.05	2.44	1.88	2.08	-0.96	-0.92	-1.20	2.25	1.54	1.76	2.64
2024 June	3.41	3.10	2.80	2.42	2.50	-0.60	-0.73	-0.51	2.74	2.31	2.22	2.91
July	3.29	2.92	2.58	2.19	2.33	-0.59	-0.72	-0.49	2.50	2.04	2.03	2.86
Aug.	3.26	2.74	2.36	2.14	2.39	-0.35	-0.51	-0.46	2.21	1.85	2.27	2.87
Sep.	3.12	2.43	2.03	1.93	2.24	-0.20	-0.23	-0.39	1.81	1.58	2.19	2.78
Oct.	2.88	2.47	2.24	2.25	2.52	0.05	0.00	-0.19	2.10	2.00	2.52	2.96
Nov.	2.73	2.18	1.91	1.92	2.19	0.00	-0.12	-0.26	1.72	1.65	2.20	2.59

Source: ECB calculations.
1) Data refer to the changing composition of the euro area.
2) ECB calculations based on underlying data provided by Euro MTS Ltd and ratings provided by Fitch Ratings.

4.3 Stock market indices
(index levels in points; period averages)

	Dow Jones EURO STOXX Indices												United States	Japan
	Benchmark		Main industry indices											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2021	448.3	4,023.6	962.9	289.8	183.0	95.4	164.4	819.0	874.3	377.7	279.6	886.3	4,277.6	28,836.5
2022	414.6	3,757.0	937.3	253.4	171.3	110.0	160.6	731.7	748.4	353.4	283.2	825.8	4,098.5	27,257.8
2023	452.0	4,272.0	968.5	292.7	169.2	119.2	186.7	809.8	861.5	367.8	283.1	803.6	4,285.6	30,716.6
2024 June	510.0	4,952.0	997.7	309.2	160.7	125.2	231.2	951.1	1,159.0	377.0	288.9	772.9	5,415.1	38,858.9
July	506.3	4,913.9	978.1	296.9	159.0	125.6	235.8	943.7	1,138.0	374.7	295.7	780.5	5,538.0	40,102.9
Aug.	494.1	4,788.5	958.1	283.8	159.7	122.8	229.2	922.6	1,055.6	380.0	303.8	819.4	5,478.2	36,873.3
Sep.	505.0	4,877.0	987.6	281.9	165.0	121.6	241.8	950.5	1,029.0	402.8	320.1	843.4	5,621.3	37,307.4
Oct.	511.2	4,948.4	1,000.1	285.2	164.7	123.6	244.9	977.8	1,036.0	402.4	327.0	840.7	5,792.3	38,843.8
Nov.	497.5	4,795.1	939.9	271.5	155.5	121.6	241.8	975.3	997.8	386.1	328.9	816.8	5,929.9	38,617.4

Source: LSEG.

4 Financial market developments

4.4 MFI interest rates on loans to and deposits from households (new business) [1), 2)]

(percentages per annum, period average, unless otherwise indicated)

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase					
			With an agreed maturity of:				By initial period of rate fixation		APRC [3)]		By initial period of rate fixation				APRC [3)]	Composite cost-of-borrowing indicator
	Overnight	Redeemable at notice of up to 3 months	Up tp 2 years	Over 2 years			Floating rate and up to 1 year	Over 1 year			Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2023 Nov.	0.36	1.62	3.32	3.41	7.99	16.76	7.21	7.90	8.53	5.57	4.93	4.32	3.90	3.70	4.36	4.03
Dec.	0.37	1.66	3.28	3.46	8.04	16.89	7.47	7.71	8.42	5.38	4.91	4.24	3.81	3.63	4.34	3.98
2024 Jan.	0.39	1.69	3.20	3.15	8.14	16.91	7.93	8.02	8.72	5.37	4.88	4.08	3.67	3.52	4.16	3.88
Feb.	0.38	1.70	3.18	3.07	8.19	16.86	7.61	7.93	8.62	5.30	4.85	4.02	3.64	3.49	4.13	3.85
Mar.	0.39	1.72	3.18	2.91	8.19	16.96	8.03	7.79	8.54	5.15	4.82	4.00	3.57	3.44	4.05	3.81
Apr.	0.39	1.73	3.13	2.89	8.14	17.00	8.04	7.85	8.57	5.20	4.84	3.98	3.59	3.43	4.05	3.81
May	0.39	1.73	3.10	2.81	8.21	17.04	7.65	7.94	8.68	5.26	4.81	3.97	3.62	3.42	4.05	3.81
June	0.38	1.74	3.03	2.84	8.18	17.01	7.42	7.71	8.45	5.15	4.82	3.96	3.64	3.39	4.03	3.78
July	0.38	1.74	3.01	2.77	8.16	17.00	7.55	7.79	8.49	5.03	4.76	3.93	3.64	3.38	4.00	3.75
Aug.	0.38	1.75	2.97	2.69	8.16	16.99	7.85	7.82	8.60	5.05	4.70	3.88	3.62	3.37	4.00	3.73
Sep.	0.37	1.75	3.00	2.73	8.23	17.04	7.56	7.76	8.53	4.89	4.59	3.79	3.55	3.28	3.89	3.64
Oct.	0.36	1.74	2.73	2.62	8.05	16.90	7.24	7.71	8.47	4.65	4.37	3.70	3.47	3.22	3.79	3.55

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) Including non-profit institutions serving households.
3) Annual percentage rate of charge (APRC).

4.5 MFI interest rates on loans to and deposits from non-financial corporations (new business) [1), 2)]

(Percentages per annum; period average, unless otherwise indicated)

	Deposits			Revolving loans and overdrafts	Other loans by size and initial period of rate fixation									Composite cost-of-borrowing indicator
		With an agreed maturity of:			Up to EUR 0.25 million			over EUR 0.25 and up to 1 million			over EUR 1 million			
	Overnight	Up tp 2 years	Over 2 years		Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2023 Nov.	0.83	3.71	3.92	5.33	5.78	5.94	5.79	5.53	5.32	4.54	5.12	5.18	4.39	5.25
Dec.	0.84	3.71	4.08	5.38	5.56	5.75	5.68	5.45	5.12	4.51	5.26	5.10	4.37	5.24
2024 Jan.	0.89	3.70	3.37	5.38	5.38	5.72	5.65	5.47	5.25	4.43	5.15	5.00	4.21	5.20
Feb.	0.89	3.65	3.50	5.37	5.52	5.76	5.60	5.49	5.15	4.38	5.10	4.83	4.00	5.16
Mar.	0.91	3.68	3.60	5.37	5.47	5.73	5.52	5.44	5.18	4.33	5.18	5.17	4.15	5.20
Apr.	0.91	3.67	3.34	5.37	5.31	5.64	5.63	5.38	5.11	4.30	5.19	5.01	4.15	5.20
May	0.91	3.65	3.61	5.33	5.37	5.77	5.68	5.40	5.09	4.29	4.99	4.96	4.18	5.12
June	0.87	3.54	3.54	5.25	5.33	5.69	5.67	5.24	4.99	4.23	5.02	5.05	4.14	5.08
July	0.87	3.48	3.28	5.21	5.13	5.44	5.50	5.27	4.93	4.17	5.08	5.00	4.13	5.06
Aug.	0.89	3.42	3.12	5.18	5.14	5.40	5.48	5.17	4.85	4.11	5.03	4.78	4.06	5.01
Sep.	0.88	3.28	2.97	5.12	5.03	5.29	5.49	5.01	4.64	4.04	4.72	4.47	3.87	4.80
Oct.	0.82	3.06	2.96	4.89	4.82	5.10	5.29	4.80	4.39	3.92	4.65	4.29	3.86	4.68

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector.

4 Financial market developments

4.6 Debt securities issued by euro area residents, by sector of the issuer and original maturity

(EUR billions; transactions during the month and end-of-period outstanding amounts; market values)

	Outstanding amounts							Gross issues [1]						
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Non-MFI corporations			General government	
			Financial corporations other than MFIs		Non-financial corporations	Total	of which central government			Financial corporations other than MFIs		Non-financial corporations	Total	of which central government
			Total	FVCs						Total	FVCs			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Short-term														
2021	1,414.2	431.4	128.4	52.5	89.6	764.7	674.9	386.6	137.9	79.0	26.4	32.1	137.6	104.8
2022	1,383.1	478.8	142.7	52.0	94.6	667.0	621.7	480.5	182.7	115.9	48.3	48.1	133.9	97.1
2023	1,553.4	612.7	152.7	63.9	86.2	701.8	659.1	502.6	212.6	113.6	39.4	48.8	127.5	103.8
2024 May	1,512.6	559.6	166.1	56.8	93.0	693.9	639.8	451.8	172.7	104.8	39.5	41.4	132.9	101.9
June	1,529.2	566.0	162.2	56.5	89.2	711.8	658.2	426.6	162.2	94.0	40.0	39.7	130.7	94.2
July	1,544.1	564.0	174.5	57.5	94.6	711.1	651.1	495.3	183.0	120.5	45.3	48.8	142.9	114.7
Aug.	1,552.2	560.4	174.1	54.0	94.5	723.2	659.5	445.5	190.1	102.0	40.8	30.5	123.0	101.3
Sep.	1,547.3	588.6	168.6	51.3	84.1	706.0	642.4	475.1	202.4	90.6	37.1	38.2	143.9	112.8
Oct.	1,532.3	569.0	167.0	52.4	83.6	712.6	655.4	453.9	156.1	120.7	41.0	38.1	139.0	124.0
Long-term														
2021	19,863.2	4,124.5	3,357.1	1,377.6	1,617.9	10,763.7	9,942.7	316.6	68.5	83.4	34.0	23.2	141.5	128.0
2022	17,813.1	3,911.3	3,218.4	1,372.8	1,412.7	9,270.7	8,558.7	295.3	76.9	71.1	29.7	16.9	130.4	121.0
2023	19,457.7	4,450.3	3,382.2	1,380.5	1,524.2	10,101.0	9,361.3	325.6	94.1	72.2	28.2	21.2	138.2	129.7
2024 May	19,765.2	4,620.3	3,505.8	1,377.4	1,548.0	10,091.2	9,341.0	399.1	76.0	106.6	23.3	35.1	181.5	163.3
June	19,903.9	4,624.5	3,535.6	1,388.8	1,563.3	10,180.5	9,425.9	321.7	70.1	81.6	29.1	30.7	139.2	130.9
July	20,149.7	4,667.9	3,564.4	1,380.1	1,565.5	10,351.9	9,588.3	317.9	83.4	97.4	18.2	15.9	121.2	116.9
Aug.	20,247.3	4,686.0	3,566.5	1,375.0	1,569.5	10,425.2	9,657.6	212.3	43.9	56.2	13.9	10.5	101.7	97.0
Sep.	20,557.9	4,739.6	3,627.6	1,384.5	1,595.5	10,595.1	9,819.3	372.1	85.1	97.8	25.6	38.9	150.4	143.2
Oct.	20,461.2	4,745.5	3,623.8	1,366.9	1,594.2	10,497.7	9,723.4	339.6	78.4	83.8	15.0	23.5	153.9	143.8

Source: ECB.
1) In order to facilitate comparison, annual data are averages of the relevant monthly data.

4.7 Annual growth rates and outstanding amounts of debt securities and listed shares

(EUR billions and percentage changes; market values)

	Debt securities							Listed shares			
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations
			Financial corporations other than MFIs		Non-financial corporations	Total	of which central government				
			Total	FVCs							
	1	2	3	4	5	6	7	8	9	10	11
Outstanding amount											
2021	21,277.4	4,556.0	3,485.6	1,430.1	1,707.5	11,528.4	10,617.5	10,357.1	600.3	1,484.6	8,271.2
2022	19,196.2	4,390.0	3,361.1	1,424.8	1,507.3	9,937.7	9,180.4	8,701.5	525.2	1,285.9	6,889.8
2023	21,011.1	5,063.1	3,534.9	1,444.4	1,610.4	10,802.8	10,020.4	9,672.7	619.7	1,411.8	7,640.7
2024 May	21,277.8	5,179.9	3,671.8	1,434.2	1,641.0	10,785.1	9,980.8	10,363.6	740.0	1,565.3	8,057.9
June	21,433.1	5,190.5	3,697.8	1,445.3	1,652.5	10,892.3	10,084.0	10,058.5	687.2	1,515.2	7,855.6
July	21,693.8	5,231.9	3,738.8	1,437.6	1,660.1	11,063.0	10,239.5	10,114.4	724.0	1,533.7	7,856.2
Aug.	21,799.5	5,246.4	3,740.6	1,429.0	1,664.1	11,148.4	10,317.1	10,246.0	723.8	1,557.5	7,964.2
Sep.	22,105.2	5,328.2	3,796.2	1,435.8	1,679.6	11,301.2	10,461.6	10,410.1	746.5	1,560.7	8,102.4
Oct.	21,993.4	5,314.5	3,790.8	1,419.3	1,677.8	11,210.3	10,378.8	10,097.2	751.1	1,548.1	7,797.5
Growth rate [1]											
2024 Mar.	5.9	11.5	4.7	2.8	2.4	4.3	4.6	-1.4	-3.1	0.9	-1.6
Apr.	5.7	10.3	4.4	1.1	3.0	4.4	4.6	-1.4	-3.1	0.5	-1.6
May	5.4	8.7	3.6	-2.0	2.9	4.8	4.8	-1.2	-3.2	0.4	-1.3
June	4.7	7.2	3.4	-2.6	3.4	4.2	4.2	-0.6	-3.3	-0.9	-0.3
July	4.3	5.5	4.0	-3.1	2.5	4.2	4.2	-0.3	-3.5	-0.6	0.0
Aug.	4.5	5.1	4.3	-2.9	3.1	4.5	4.4	-0.3	-3.4	-0.5	0.0
Sep.	4.6	5.9	4.5	-2.7	3.0	4.2	4.0	-0.2	-2.1	-0.4	0.0
Oct.	4.6	5.3	3.9	-4.1	3.1	4.6	4.6	0.3	-2.2	-0.3	0.6

Source: ECB.
1) For details on the calculation of growth rates, see the Technical Notes.

4 Financial market developments

4.8 Effective exchange rates [1)]

(period averages; index: 1999 Q1=100)

	EER-19						EER-42	
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM	Real ULCT	Nominal	Real CPI
	1	2	3	4	5	6	7	8
2021	99.6	93.7	93.7	89.3	69.6	87.2	120.5	94.3
2022	95.3	90.8	93.6	84.5	64.4	82.3	116.1	90.9
2023	98.1	94.0	98.1	89.0	66.5	85.9	121.8	94.7
2023 Q4	98.3	94.2	98.3	89.8	66.5	86.8	123.0	95.0
2024 Q1	98.4	94.4	98.4	89.7	67.5	86.8	123.7	95.2
Q2	98.7	94.6	98.5	89.8	67.1	86.9	124.1	95.2
Q3	99.0	95.0	98.7	.	.	.	125.1	95.6
2024 June	98.5	94.5	98.3	-	-	-	124.0	95.0
July	99.0	95.1	98.8	-	-	-	124.8	95.5
Aug.	99.0	95.0	98.7	-	-	-	125.2	95.7
Sep.	98.8	94.8	98.6	-	-	-	125.2	95.5
Oct.	98.2	94.3	98.0	-	-	-	124.4	95.0
Nov.	97.5	93.6	97.4	-	-	-	123.5	94.1
Percentage change versus previous month								
2024 Nov.	-0.7	-0.8	-0.7	-	-	-	-0.7	-1.0
Percentage change versus previous year								
2024 Nov.	-1.2	-1.1	-1.3	-	-	-	0.1	-1.3

Source: ECB.
1) For a definition of the trading partner groups and other information see the General Notes to the Statistics Bulletin.

4.9 Bilateral exchange rates

(period averages; units of national currency per euro)

	Chinese renminbi	Croatian kuna	Czech koruna	Danish krone	Hungarian forint	Japanese yen	Polish zloty	Pound sterling	Romanian leu	Swedish krona	Swiss franc	US Dollar
	1	2	3	4	5	6	7	8	9	10	11	12
2021	7.628	7.528	25.640	7.437	358.516	129.877	4.565	0.860	4.9215	10.146	1.081	1.183
2022	7.079	7.535	24.566	7.440	391.286	138.027	4.686	0.853	4.9313	10.630	1.005	1.053
2023	7.660	.	24.004	7.451	381.853	151.990	4.542	0.870	4.9467	11.479	0.972	1.081
2023 Q4	7.771	.	24.517	7.458	382.125	159.118	4.420	0.867	4.9697	11.478	0.955	1.075
2024 Q1	7.805	.	25.071	7.456	388.182	161.150	4.333	0.856	4.9735	11.279	0.949	1.086
Q2	7.797	.	24.959	7.460	391.332	167.773	4.300	0.853	4.9750	11.504	0.974	1.077
Q3	7.870	.	25.195	7.461	394.101	163.952	4.283	0.845	4.9746	11.451	0.952	1.098
2024 June	7.805	.	24.779	7.459	394.763	169.813	4.321	0.846	4.9767	11.285	0.962	1.076
July	7.875	.	25.299	7.461	392.836	171.171	4.282	0.843	4.9730	11.532	0.968	1.084
Aug.	7.874	.	25.179	7.461	394.695	161.055	4.292	0.852	4.9766	11.456	0.945	1.101
Sep.	7.861	.	25.099	7.460	394.863	159.081	4.276	0.840	4.9744	11.358	0.941	1.111
Oct.	7.728	.	25.298	7.459	401.901	163.197	4.317	0.835	4.9750	11.405	0.939	1.090
Nov.	7.662	.	25.301	7.458	409.251	163.234	4.332	0.834	4.9762	11.583	0.936	1.063
Percentage change versus previous month												
2024 Nov.	-0.9	0.0	0.0	0.0	1.8	0.0	0.3	-0.1	0.0	1.6	-0.3	-2.5
Percentage change versus previous year												
2024 Nov.	-1.9	.	3.3	0.0	7.9	0.9	-1.6	-4.2	0.1	0.3	-2.9	-1.6

Source: ECB.

4 Financial market developments

4.10 Euro area balance of payments, financial account

(EUR billions, unless otherwise indicated; outstanding amounts at end of period; transactions during period)

	Total [1]			Direct investment		Portfolio investment		Net financial derivatives	Other investment		Reserve assets	Memo: Gross external debt
	Assets	Liabilities	Net	Assets	Liabilities	Assets	Liabilities		Assets	Liabilities		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts (international investment position)												
2023 Q3	32,639.4	32,277.1	362.3	12,689.0	10,401.4	12,038.4	13,986.1	-41.8	6,840.2	7,889.6	1,113.6	16,574.5
Q4	32,481.5	32,087.7	393.8	12,196.3	9,946.6	12,472.2	14,559.1	-29.0	6,694.2	7,582.0	1,147.8	16,225.4
2024 Q1	33,769.5	33,180.7	588.8	12,451.0	10,032.5	13,140.5	15,297.8	-26.0	6,989.0	7,850.4	1,215.1	16,671.9
Q2	34,313.4	33,303.1	1,010.3	12,443.6	9,914.5	13,567.6	15,592.8	-23.1	7,057.7	7,795.8	1,267.6	16,595.7
Outstanding amounts as percentage of GDP												
2024 Q2	230.9	224.1	6.8	83.7	66.7	91.3	104.9	-0.2	47.5	52.5	8.5	111.7
Transactions												
2023 Q4	-324.7	-441.1	116.4	-323.5	-300.6	46.2	90.7	21.9	-75.7	-231.2	6.4	-
2024 Q1	571.6	461.0	110.6	140.1	49.4	167.1	189.3	13.0	250.1	222.3	1.2	-
Q2	163.7	32.5	131.2	-51.3	-117.5	180.1	261.3	12.2	18.9	-111.2	3.7	-
Q3	444.4	281.3	163.2	45.4	22.4	157.3	144.9	-7.4	253.0	114.0	-3.9	-
2024 Apr.	71.7	48.5	23.2	-3.2	-29.1	28.6	42.6	12.7	32.8	34.9	0.8	-
May	100.0	82.1	17.8	-31.6	-39.4	77.1	75.2	-1.5	54.3	46.4	1.6	-
June	-8.0	-98.1	90.2	-16.5	-49.0	74.4	143.5	1.0	-68.2	-192.6	1.3	-
July	122.2	61.2	61.0	20.8	-0.1	55.5	33.1	-3.2	52.2	28.1	-3.2	-
Aug.	115.9	88.3	27.6	3.7	11.2	37.7	37.0	1.2	76.3	40.1	-3.0	-
Sep.	206.4	131.8	74.6	20.9	11.3	64.1	74.7	-5.4	124.5	45.8	2.4	-
12-month cumulated transactions												
2024 Sep.	855.0	333.6	521.4	-189.2	-346.3	550.7	686.0	39.8	446.3	-6.1	7.4	-
12-month cumulated transactions as percentage of GDP												
2024 Sep.	5.7	2.2	3.5	-1.3	-2.3	3.7	4.6	0.3	3.0	0.0	0.0	-

Source: ECB.
1) Net financial derivatives are included in total assets.

5 Financing conditions and credit developments

5.1 Monetary aggregates [1)]

(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	M3											
	M2							M3-M2				Total
	M1			M2-M1			Total					
	Currency in circulation	Overnight deposits	Total	Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months	Total		Repos	Money market fund shares	Debt securities with a maturity of up to 2 years	Total	
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2021	1,469.1	9,820.7	11,289.7	913.0	2,505.7	3,418.7	14,708.4	117.8	644.2	25.5	787.5	15,495.9
2022	1,538.9	9,758.1	11,297.0	1,366.9	2,565.3	3,932.2	15,229.2	123.0	646.3	49.8	819.1	16,048.2
2023	1,535.6	8,809.5	10,345.1	2,294.1	2,460.4	4,754.6	15,099.6	184.9	739.7	71.0	995.5	16,095.2
2023 Q4	1,535.6	8,809.5	10,345.1	2,294.1	2,460.4	4,754.6	15,099.6	184.9	739.7	71.0	995.5	16,095.2
2024 Q1	1,526.2	8,740.0	10,266.3	2,440.1	2,431.0	4,871.1	15,137.4	192.4	786.5	72.9	1,051.8	16,189.3
Q2	1,533.9	8,792.8	10,326.7	2,535.8	2,425.4	4,961.3	15,288.0	210.4	814.8	59.3	1,084.4	16,372.4
Q3 [p]	1,541.7	8,842.5	10,384.2	2,590.7	2,424.8	5,015.5	15,399.7	237.3	857.4	47.3	1,142.1	16,541.8
2024 May	1,530.0	8,733.1	10,263.1	2,509.5	2,427.2	4,936.7	15,199.8	206.7	792.6	66.2	1,065.5	16,265.4
June	1,533.9	8,792.8	10,326.7	2,535.8	2,425.4	4,961.3	15,288.0	210.4	814.8	59.3	1,084.4	16,372.4
July	1,536.5	8,746.8	10,283.3	2,540.8	2,424.8	4,965.6	15,248.9	226.0	825.9	57.9	1,109.8	16,358.7
Aug.	1,538.8	8,791.8	10,330.5	2,558.5	2,426.5	4,985.0	15,315.5	242.4	838.6	52.0	1,133.0	16,448.5
Sep.	1,541.7	8,842.5	10,384.2	2,590.7	2,424.8	5,015.5	15,399.7	237.3	857.4	47.3	1,142.1	16,541.8
Oct. [p]	1,545.6	8,894.8	10,440.3	2,557.3	2,427.6	4,984.9	15,425.2	248.9	853.1	50.2	1,152.2	16,577.4
Transactions												
2021	106.5	905.3	1,011.9	-123.6	66.0	-57.5	954.3	11.9	20.2	13.6	45.7	1,000.0
2022	69.9	-57.3	12.6	425.5	55.6	481.1	493.7	3.6	2.4	76.8	82.8	576.5
2023	-4.7	-969.2	-973.9	920.7	-99.5	821.2	-152.7	40.3	93.8	23.6	157.7	5.1
2023 Q4	0.7	-144.5	-143.8	204.9	-6.5	198.5	54.7	31.5	26.5	-5.1	52.9	107.6
2024 Q1	-8.8	-75.0	-83.8	144.1	-28.9	115.2	31.4	9.9	46.7	7.1	63.7	95.1
Q2	7.7	52.0	59.7	71.4	-5.6	65.9	125.5	17.6	25.2	-13.3	29.5	155.0
Q3 [p]	7.8	28.0	35.8	59.5	-0.5	58.9	94.7	28.2	38.7	-11.1	55.8	150.6
2024 May	-1.2	5.1	3.9	36.4	-1.5	34.9	38.8	2.5	-3.1	-4.6	-5.2	33.5
June	3.9	57.4	61.3	13.7	-1.8	12.0	73.2	3.3	20.8	-8.6	15.4	88.6
July	2.6	-44.0	-41.5	5.7	-0.7	4.9	-36.5	15.8	9.9	-1.9	23.8	-12.7
Aug.	2.3	18.7	20.9	20.5	1.9	22.4	43.3	17.1	11.4	-5.8	22.7	66.0
Sep.	3.0	53.4	56.3	33.3	-1.7	31.6	87.9	-4.7	17.4	-3.3	9.4	97.3
Oct. [p]	3.9	45.4	49.3	-36.9	2.7	-34.2	15.1	10.6	-5.3	3.5	8.8	23.9
Growth rates												
2021	7.8	10.2	9.8	-12.0	2.7	-1.7	6.9	11.8	3.2	165.7	6.2	6.9
2022	4.8	-0.6	0.1	45.9	2.2	14.0	3.4	2.9	0.4	457.9	11.1	3.7
2023	-0.3	-9.9	-8.6	67.0	-3.9	20.9	-1.0	32.7	14.5	44.6	19.3	0.0
2023 Q4	-0.3	-9.9	-8.6	67.0	-3.9	20.9	-1.0	32.7	14.5	44.6	19.3	0.0
2024 Q1	-1.1	-7.6	-6.7	49.9	-4.5	16.7	-0.3	68.7	18.1	-16.8	20.7	0.9
Q2	-0.1	-4.1	-3.5	34.8	-3.5	12.8	1.2	62.6	16.9	-29.4	18.8	2.2
Q3 [p]	0.5	-1.6	-1.3	22.9	-1.7	9.6	2.0	61.5	19.2	-34.4	21.6	3.2
2024 May	-0.5	-5.8	-5.0	41.3	-3.9	14.7	0.6	64.7	14.6	-21.7	17.6	1.6
June	-0.1	-4.1	-3.5	34.8	-3.5	12.8	1.2	62.6	16.9	-29.4	18.8	2.2
July	0.2	-3.6	-3.0	30.7	-3.3	11.5	1.2	65.4	18.3	-26.1	21.4	2.4
Aug.	0.3	-2.5	-2.0	26.2	-2.2	10.5	1.7	79.0	19.0	-37.6	22.6	2.9
Sep.	0.5	-1.6	-1.3	22.9	-1.7	9.6	2.0	61.5	19.2	-34.4	21.6	3.2
Oct. [p]	0.7	0.1	0.2	16.9	-1.1	7.3	2.4	55.6	18.5	-37.2	20.0	3.4

Sources: ECB.
1) Data refer to the changing composition of the euro area.

5 Financing conditions and credit developments

5.2 Deposits in M3 [1)]

(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	Non-financial corporations [2)]					Households [3)]							
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Financial corporations other than MFIs and ICPFs [2)]	Insurance corporations and pension funds	Other general government [4)]
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2021	3,228.3	2,802.0	290.9	128.2	7.3	8,087.9	5,381.4	372.4	2,333.3	0.7	1,264.5	225.6	550.9
2022	3,361.5	2,721.2	499.5	134.7	6.2	8,374.2	5,542.6	437.9	2,392.9	0.9	1,282.8	231.5	563.3
2023	3,334.2	2,419.5	771.8	131.3	11.6	8,421.5	5,110.8	1,015.9	2,293.3	1.4	1,223.9	227.0	542.3
2023 Q4	3,334.2	2,419.5	771.8	131.3	11.6	8,421.5	5,110.8	1,015.9	2,293.3	1.4	1,223.9	227.0	542.3
2024 Q1	3,337.8	2,381.4	817.8	127.8	10.9	8,457.8	5,056.9	1,133.0	2,266.9	1.0	1,243.9	223.6	540.4
Q2	3,380.3	2,409.1	833.1	127.3	10.8	8,529.0	5,060.9	1,203.4	2,263.4	1.3	1,299.6	221.8	533.8
Q3 [p)]	3,364.8	2,404.7	823.6	125.6	11.0	8,618.9	5,091.3	1,260.4	2,266.2	1.0	1,330.8	230.1	550.8
2024 May	3,358.1	2,390.6	831.4	127.1	9.0	8,499.7	5,051.9	1,182.5	2,264.3	1.0	1,275.4	216.0	527.3
June	3,380.3	2,409.1	833.1	127.3	10.8	8,529.0	5,060.9	1,203.4	2,263.4	1.3	1,299.6	221.8	533.8
July	3,364.7	2,398.2	830.0	126.9	9.6	8,550.5	5,057.8	1,227.8	2,264.0	0.9	1,268.2	215.3	539.7
Aug.	3,363.8	2,395.9	831.9	126.3	9.7	8,589.4	5,089.2	1,232.9	2,266.3	1.0	1,304.4	218.0	543.5
Sep.	3,364.8	2,404.7	823.6	125.6	11.0	8,618.9	5,091.3	1,260.4	2,266.2	1.0	1,330.8	230.1	550.8
Oct. [p)]	3,378.1	2,422.2	815.8	127.5	12.7	8,658.6	5,122.7	1,267.6	2,267.3	0.9	1,320.6	220.5	550.7
Transactions													
2021	246.2	270.9	-21.2	-6.9	3.4	423.0	411.7	-65.1	76.5	-0.2	151.2	-10.0	49.3
2022	122.9	-89.2	207.7	5.9	-1.5	295.8	166.8	74.9	54.0	0.1	-10.2	6.2	12.5
2023	-31.5	-306.8	271.1	-1.4	5.6	18.9	-459.8	572.6	-94.5	0.6	-64.2	-3.0	-27.8
2023 Q4	20.4	-10.4	34.0	-0.3	-2.9	72.3	-88.3	165.2	-5.3	0.6	-9.6	17.7	-15.3
2024 Q1	2.4	-40.1	45.1	-3.0	0.3	33.4	-54.8	115.1	-26.5	-0.4	20.1	-3.9	-1.9
Q2	40.1	27.7	12.9	-0.4	-0.2	70.5	3.7	70.0	-3.4	0.2	34.9	-2.1	-7.9
Q3 [p)]	-9.4	-0.6	-7.3	-1.9	0.4	60.8	0.1	58.1	2.9	-0.3	37.9	9.3	16.5
2024 May	10.5	6.6	5.9	0.0	-2.0	14.8	-8.6	23.9	-0.5	0.0	15.5	4.9	-3.2
June	17.7	17.5	-1.7	0.2	1.7	28.3	8.5	20.5	-0.9	0.3	14.6	5.6	6.3
July	-14.2	-9.9	-2.6	-0.6	-1.1	21.9	-2.9	24.6	0.6	-0.3	-30.5	-6.4	5.9
Aug.	3.1	0.0	3.3	-0.6	0.3	8.1	0.0	5.7	2.4	0.0	40.2	3.1	3.8
Sep.	1.8	9.2	-8.0	-0.7	1.3	30.8	3.0	27.9	-0.1	0.0	28.2	12.6	6.8
Oct. [p)]	9.3	14.9	-9.1	1.9	1.6	36.4	28.8	6.6	1.0	0.0	-13.2	-10.1	-0.6
Growth rates													
2021	8.3	10.7	-6.8	-5.0	99.3	5.5	8.3	-14.9	3.4	-18.2	13.5	-4.3	9.9
2022	3.8	-3.2	70.3	4.6	-17.5	3.7	3.1	20.6	2.3	19.9	-0.5	2.8	2.3
2023	-0.9	-11.2	54.2	-1.1	90.8	0.2	-8.3	129.3	-4.0	67.7	-4.9	-1.3	-4.9
2023 Q4	-0.9	-11.2	54.2	-1.1	90.8	0.2	-8.3	129.3	-4.0	67.7	-4.9	-1.3	-4.9
2024 Q1	0.1	-8.3	36.4	-3.2	38.9	0.9	-7.1	101.7	-4.6	11.9	1.3	-2.0	-6.0
Q2	1.7	-3.4	21.3	-2.8	-8.9	2.0	-4.8	71.5	-3.6	48.4	6.8	-2.1	-5.5
Q3 [p)]	1.6	-1.0	11.5	-4.2	-15.0	2.8	-2.7	48.0	-1.4	21.7	6.9	10.0	-1.6
2024 May	1.8	-5.3	31.6	-3.1	-11.2	1.6	-5.7	81.4	-3.9	10.9	2.9	-5.4	-6.8
June	1.7	-3.4	21.3	-2.8	-8.9	2.0	-4.8	71.5	-3.6	48.4	6.8	-2.1	-5.5
July	1.7	-2.7	18.0	-3.0	2.4	2.2	-4.1	62.4	-3.2	10.5	5.6	-3.0	-4.8
Aug.	1.8	-2.0	15.5	-3.8	10.4	2.3	-3.4	51.9	-2.1	16.3	10.3	-1.3	-3.0
Sep.	1.6	-1.0	11.5	-4.2	-15.0	2.8	-2.7	48.0	-1.4	21.7	6.9	10.0	-1.6
Oct. [p)]	1.7	0.5	5.9	-2.5	17.5	3.2	-1.2	39.1	-0.9	25.2	8.0	3.6	0.6

Sources: ECB.
1) Data refer to the changing composition of the euro area.
2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).
3) Including non-profit institutions serving households.
4) Refers to the general government sector excluding central government.

5 Financing conditions and credit developments

5.3 Credit to euro area residents [1)]

(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	Credit to general government			Credit to other euro area residents								
	Total	Loans	Debt securities	Total	Loans						Debt securities	Equity and non-money market fund investment fund shares
					Total		To non-financial corporations [3)]	To households [4)]	To financial coprorations other than MFIs and ICPFs [3)]	To insurance corporations and pension funds		
					Total	Adjusted loans [2)]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2021	6,523.3	991.9	5,529.7	14,804.4	12,338.2	12,720.1	4,862.0	6,372.3	943.6	160.2	1,578.1	888.1
2022	6,352.0	1,001.3	5,325.7	15,389.8	12,987.5	13,174.9	5,126.5	6,631.8	1,082.5	146.7	1,565.9	836.4
2023	6,305.3	990.6	5,289.3	15,493.3	13,034.1	13,253.2	5,123.2	6,648.1	1,124.8	138.0	1,560.8	898.4
2023 Q4	6,305.3	990.6	5,289.3	15,493.3	13,034.1	13,253.2	5,123.2	6,648.1	1,124.8	138.0	1,560.8	898.4
2024 Q1	6,220.9	977.6	5,217.8	15,545.4	13,045.5	13,276.9	5,115.5	6,642.2	1,150.6	137.2	1,569.9	930.1
Q2	6,195.5	978.6	5,191.1	15,572.5	13,101.2	13,339.7	5,127.6	6,644.8	1,197.9	130.9	1,554.2	917.1
Q3	6,255.1	975.4	5,253.9	15,633.8	13,143.5	13,377.8	5,138.7	6,661.4	1,210.6	132.8	1,561.7	928.6
2024 May	6,181.8	974.2	5,181.9	15,538.0	13,070.7	13,305.8	5,117.2	6,641.9	1,180.9	130.6	1,546.3	921.0
June	6,195.5	978.6	5,191.1	15,572.5	13,101.2	13,339.7	5,127.6	6,644.8	1,197.9	130.9	1,554.2	917.1
July	6,222.2	973.9	5,222.6	15,597.0	13,125.3	13,357.4	5,124.8	6,645.6	1,222.7	132.2	1,547.0	924.7
Aug.	6,234.1	976.8	5,231.7	15,614.8	13,133.2	13,366.9	5,128.0	6,655.4	1,216.5	133.3	1,556.4	925.2
Sep.	6,255.1	975.4	5,253.9	15,633.8	13,143.5	13,377.8	5,138.7	6,661.4	1,210.6	132.8	1,561.7	928.6
Oct.	6,245.7	986.6	5,233.4	15,660.4	13,165.4	13,415.3	5,143.5	6,661.0	1,225.2	135.7	1,565.7	929.2
Transactions												
2021	660.6	-1.9	672.1	562.9	475.4	508.5	176.4	261.6	47.4	-9.9	77.8	9.6
2022	173.8	8.5	163.8	636.4	623.8	680.5	269.0	241.8	126.3	-13.3	18.6	-5.9
2023	-160.8	-17.4	-143.7	55.6	24.6	72.4	-5.7	7.7	30.8	-8.2	-15.1	46.1
2023 Q4	-3.8	3.7	-7.9	32.8	38.0	62.4	6.0	15.9	16.0	0.2	-20.5	15.3
2024 Q1	-61.1	-11.6	-49.6	59.2	28.6	42.1	-2.1	-2.4	33.9	-0.8	9.0	21.6
Q2	-4.7	1.5	-6.4	19.8	38.9	49.1	14.2	4.9	26.3	-6.5	-14.7	-4.4
Q3	-4.2	-3.2	-1.0	68.6	59.6	53.5	10.2	20.0	27.3	2.1	4.1	4.9
2024 May	-23.3	0.0	-23.4	-2.8	5.8	7.2	7.1	0.1	4.3	-5.6	-10.2	1.6
June	8.4	4.2	4.1	26.8	19.8	25.1	10.3	4.1	5.3	0.1	7.6	-0.6
July	-8.6	-4.5	-4.0	23.5	29.1	23.0	-0.1	1.5	26.2	1.4	-9.8	4.2
Aug.	9.3	2.8	6.5	23.5	15.1	15.8	7.2	10.7	-3.9	1.2	9.6	-1.3
Sep.	-5.0	-1.6	-3.5	21.6	15.4	14.7	3.0	7.8	5.0	-0.4	4.3	1.9
Oct.	7.9	9.6	-1.7	26.8	20.7	38.9	5.5	0.1	12.2	2.8	3.5	2.6
Growth rates												
2021	11.2	-0.2	13.8	3.9	4.0	4.1	3.8	4.3	5.2	-4.6	5.2	1.0
2022	2.7	0.9	3.0	4.3	5.0	5.4	5.5	3.8	13.4	-7.9	1.2	-0.6
2023	-2.5	-1.7	-2.7	0.4	0.2	0.5	-0.1	0.1	2.8	-5.5	-1.0	5.4
2023 Q4	-2.5	-1.7	-2.7	0.4	0.2	0.5	-0.1	0.1	2.8	-5.5	-1.0	5.4
2024 Q1	-2.5	-1.6	-2.8	0.8	0.4	0.8	-0.2	-0.2	6.4	-1.3	0.5	7.1
Q2	-1.4	-0.5	-1.6	0.8	0.9	1.1	0.2	0.3	8.5	-8.5	-1.7	4.6
Q3	-1.2	-1.0	-1.2	1.2	1.3	1.6	0.6	0.6	9.3	-3.7	-1.4	4.3
2024 May	-1.4	-1.4	-1.4	0.6	0.6	0.8	-0.1	0.3	7.0	-7.7	-2.4	5.2
June	-1.4	-0.5	-1.6	0.8	0.9	1.1	0.2	0.3	8.5	-8.5	-1.7	4.6
July	-1.1	-0.9	-1.1	0.9	1.0	1.3	0.2	0.4	9.4	-2.5	-2.2	4.3
Aug.	-1.1	-0.6	-1.2	1.2	1.3	1.5	0.4	0.5	10.2	1.5	-1.5	4.0
Sep.	-1.2	-1.0	-1.2	1.2	1.3	1.6	0.6	0.6	9.3	-3.7	-1.4	4.3
Oct.	-0.8	-0.1	-1.0	1.2	1.2	1.6	0.6	0.5	8.6	0.3	-0.5	3.8

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.
3) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).
4) Including non-profit institutions serving households.

5 Financing conditions and credit developments

5.4 MFI loans to euro area non-financial corporations and households [1)]

(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	Non-financial corporations [2)]					Households [3)]				
	Total		Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total		Loans for consumption	Loans for house purchase	Other loans
	Total	Adjusted loans [4)]				Total	Adjusted loans [4)]			
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2021	4,862.0	4,992.8	882.4	1,004.6	2,975.1	6,372.3	6,637.6	696.1	4,970.4	705.9
2022	5,126.5	5,127.5	960.0	1,076.9	3,089.6	6,631.8	6,832.5	715.1	5,214.2	702.6
2023	5,123.2	5,139.6	907.3	1,090.3	3,125.6	6,648.1	6,866.2	731.3	5,228.8	688.0
2023 Q4	5,123.2	5,139.6	907.3	1,090.3	3,125.6	6,648.1	6,866.2	731.3	5,228.8	688.0
2024 Q1	5,115.5	5,132.8	890.3	1,088.1	3,137.1	6,642.2	6,873.7	738.9	5,221.4	682.0
Q2	5,127.6	5,145.7	899.9	1,087.7	3,140.1	6,644.8	6,880.6	737.5	5,227.1	680.1
Q3	5,138.7	5,159.3	912.4	1,088.8	3,137.4	6,661.4	6,899.2	742.4	5,245.1	674.0
2024 May	5,117.2	5,131.8	889.0	1,086.7	3,141.6	6,641.9	6,878.6	739.5	5,223.1	679.3
June	5,127.6	5,145.7	899.9	1,087.7	3,140.1	6,644.8	6,880.6	737.5	5,227.1	680.1
July	5,124.8	5,141.0	898.6	1,086.8	3,139.5	6,645.6	6,883.9	739.4	5,230.7	675.5
Aug.	5,128.0	5,135.5	898.0	1,086.3	3,143.6	6,655.4	6,890.7	741.5	5,239.5	674.3
Sep.	5,138.7	5,159.3	912.4	1,088.8	3,137.4	6,661.4	6,899.2	742.4	5,245.1	674.0
Oct.	5,143.5	5,159.0	919.5	1,089.2	3,134.8	6,661.0	6,907.5	743.0	5,240.6	677.4
Transactions										
2021	176.4	207.7	-0.3	2.2	174.5	261.6	267.5	10.5	254.8	-3.8
2022	269.0	308.7	78.0	77.3	113.7	241.8	250.0	23.2	217.7	0.9
2023	-5.7	24.3	-43.9	10.3	27.9	7.7	26.8	18.9	10.1	-21.3
2023 Q4	6.0	27.5	3.3	4.0	-1.3	15.9	4.8	4.0	15.7	-3.8
2024 Q1	-2.1	0.5	-14.9	-1.1	13.9	-2.4	9.7	8.4	-6.1	-4.7
Q2	14.2	16.6	13.5	-1.2	2.0	4.9	10.5	0.4	5.9	-1.4
Q3	10.2	12.0	6.2	3.5	0.5	20.0	20.9	7.2	17.9	-5.1
2024 May	7.1	3.9	8.8	-0.2	-1.6	0.1	3.8	1.0	-0.1	-0.8
June	10.3	15.2	10.1	1.0	-0.9	4.1	3.7	-1.0	3.9	1.3
July	-0.1	-2.0	-0.3	-0.5	0.8	1.5	4.1	2.8	3.0	-4.3
Aug.	7.2	-1.7	1.3	0.5	5.4	10.7	7.5	2.5	9.0	-0.8
Sep.	3.0	15.7	5.2	3.5	-5.7	7.8	9.3	1.9	5.9	0.0
Oct.	5.5	3.1	5.9	0.4	-0.8	0.1	8.9	2.8	-3.2	0.5
Growth rates										
2021	3.8	4.3	0.0	0.2	6.2	4.3	4.2	1.5	5.4	-0.5
2022	5.5	6.4	8.8	7.7	3.8	3.8	3.8	3.3	4.4	0.1
2023	-0.1	0.5	-4.6	1.0	0.9	0.1	0.4	2.6	0.2	-3.0
2023 Q4	-0.1	0.5	-4.6	1.0	0.9	0.1	0.4	2.6	0.2	-3.0
2024 Q1	-0.2	0.3	-3.9	-0.2	1.0	-0.2	0.2	3.3	-0.2	-3.0
Q2	0.2	0.7	-1.0	-0.1	0.7	0.3	0.3	2.7	0.4	-2.5
Q3	0.6	1.1	0.9	0.5	0.5	0.6	0.7	2.8	0.6	-2.2
2024 May	-0.1	0.3	-2.5	-0.8	0.9	0.3	0.3	2.9	0.4	-2.8
June	0.2	0.7	-1.0	-0.1	0.7	0.3	0.3	2.7	0.4	-2.5
July	0.2	0.6	-0.8	-0.3	0.6	0.4	0.5	2.8	0.5	-2.7
Aug.	0.4	0.8	0.0	0.1	0.7	0.5	0.6	2.9	0.6	-2.5
Sep.	0.6	1.1	0.9	0.5	0.5	0.6	0.7	2.8	0.6	-2.2
Oct.	0.6	1.2	1.6	0.3	0.4	0.5	0.8	3.1	0.4	-1.8

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).
3) Including non-profit institutions serving households.
4) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

5 Financing conditions and credit developments

5.5 Counterparts to M3 other than credit to euro area residents [1)]

(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	MFI liabilities						MFI assets			
		Longer-term financial liabilities vis-à-vis other euro area residents						Other		
	Central government holdings [2)]	Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves	Net external assets	Total	Repos with central counter-parties [3)]	Reverse repos to central counter-parties [3)]
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2021	736.6	6,888.2	1,839.9	37.0	1,999.1	3,012.3	1,376.0	416.9	128.5	136.8
2022	639.4	6,732.9	1,783.0	45.7	2,110.7	2,793.4	1,332.5	346.2	137.2	147.2
2023	447.4	7,326.8	1,827.5	90.2	2,416.7	2,992.4	1,858.3	212.6	155.0	152.6
2023 Q4	447.4	7,326.8	1,827.5	90.2	2,416.7	2,992.4	1,858.3	212.6	155.0	152.6
2024 Q1	395.4	7,457.1	1,828.2	103.9	2,492.2	3,032.8	2,049.8	225.6	178.0	174.2
Q2	410.5	7,526.1	1,828.2	109.9	2,530.1	3,057.9	2,242.6	298.4	182.6	176.5
Q3 (p)	402.8	7,679.4	1,833.1	114.3	2,541.1	3,190.9	2,488.9	246.2	184.9	188.5
2024 May	441.5	7,490.2	1,823.9	108.5	2,518.8	3,039.0	2,219.9	257.3	159.1	165.0
June	410.5	7,526.1	1,828.2	109.9	2,530.1	3,057.9	2,242.6	298.4	182.6	176.5
July	404.8	7,578.3	1,821.5	111.6	2,528.5	3,116.8	2,341.3	181.3	166.9	154.9
Aug.	419.2	7,608.9	1,822.6	112.7	2,537.4	3,136.3	2,396.4	231.3	193.2	170.7
Sep.	402.8	7,679.4	1,833.1	114.3	2,541.1	3,190.9	2,488.9	246.2	184.9	188.5
Oct. (p)	445.3	7,750.8	1,831.7	115.7	2,561.0	3,242.3	2,598.8	268.6	169.6	172.2
Transactions										
2021	21.2	-37.9	-74.8	-5.0	-39.8	81.7	-112.6	-127.5	-8.3	-4.3
2022	-93.4	39.5	-88.8	-4.6	0.4	132.5	-69.0	-218.7	10.4	18.0
2023	-198.2	338.4	25.2	40.0	231.0	42.2	459.3	-208.8	19.7	9.0
2023 Q4	-7.3	62.2	-11.1	16.4	63.4	-6.5	166.5	-32.9	1.2	-10.7
2024 Q1	-51.7	112.3	3.4	13.6	89.3	5.9	138.7	18.8	25.6	21.5
Q2	15.7	43.3	-0.1	6.0	32.7	4.7	149.6	49.3	4.6	2.3
Q3 (p)	-7.7	68.4	7.5	4.4	40.7	15.9	173.6	-26.7	2.4	12.0
2024 May	2.3	11.8	-2.0	1.8	6.6	5.4	58.0	15.7	-4.5	-12.4
June	-31.1	18.5	3.5	1.4	4.9	8.8	4.7	36.2	23.5	11.4
July	-5.7	8.8	-6.0	1.6	6.1	7.1	66.0	-90.5	-15.7	-21.6
Aug.	14.4	26.7	2.4	1.1	20.7	2.5	46.3	28.0	26.4	15.8
Sep.	-16.4	32.9	11.1	1.6	13.9	6.3	61.3	35.9	-8.3	17.8
Oct. (p)	42.9	8.7	-3.1	1.4	5.1	5.3	43.9	-3.1	-15.3	-16.3
Growth rates										
2021	3.0	-0.5	-3.9	-12.0	-2.0	2.8	-	-	-6.0	-3.0
2022	-12.7	0.6	-4.8	-13.0	-0.1	4.6	-	-	7.8	12.7
2023	-30.8	5.0	1.4	80.3	10.8	1.5	-	-	14.3	6.0
2023 Q4	-30.8	5.0	1.4	80.3	10.8	1.5	-	-	14.3	6.0
2024 Q1	-31.8	5.1	1.4	89.7	12.0	0.7	-	-	20.3	7.1
Q2	-16.1	4.5	0.7	78.5	10.1	0.9	-	-	11.1	4.3
Q3 (p)	-11.2	3.9	0.0	54.7	9.6	0.6	-	-	22.1	15.4
2024 May	-10.7	4.5	0.6	84.9	11.2	0.2	-	-	-6.1	-8.6
June	-16.1	4.5	0.7	78.5	10.1	0.9	-	-	11.1	4.3
July	-12.7	4.1	0.2	72.2	9.3	0.9	-	-	11.3	1.0
Aug.	-4.6	4.0	0.2	63.4	9.5	0.7	-	-	19.5	7.6
Sep.	-11.2	3.9	0.0	54.7	9.6	0.6	-	-	22.1	15.4
Oct. (p)	0.7	3.7	0.1	47.0	8.7	0.8	-	-	5.6	13.7

Sources: ECB.
1) Data refer to the changing composition of the euro area.
2) Comprises central government holdings of deposits with the MFI sector and of securities issued by the MFI sector.
3) Not adjusted for seasonal effects.

6 Fiscal developments

6.1 Deficit/surplus

(as a percentage of GDP; flows during one-year period)

	Deficit (-)/surplus (+)					Memo item:
	Total	Central government	State government	Local government	Social security funds	Primary deficit (-)/ surplus (+)
	1	2	3	4	5	6
2020	-7.0	-5.7	-0.4	0.0	-0.9	-5.5
2021	-5.1	-5.1	0.0	0.0	0.0	-3.7
2022	-3.5	-3.7	0.0	0.0	0.3	-1.8
2023	-3.6	-3.6	-0.2	-0.2	0.4	-1.8
2023 Q3	-3.8	.	.	.	.	-2.0
Q4	-3.6	.	.	.	.	-1.8
2024 Q1	-3.5	.	.	.	.	-1.7
Q2	-3.4	.	.	.	.	-1.6

Sources: ECB for annual data; Eurostat for quarterly data.

6.2 Revenue and expenditure

(as a percentage of GDP; flows during one-year period)

	Revenue						Expenditure						
		Current revenue						Current expenditure					
	Total	Total	Direct taxes	Indirect taxes	Net social contribu-tions	Capital revenue	Total	Total	Compen-sation of employ-ees	Inter-mediate consump-tion	Interest	Social benefits	Capital expenditure
	1	2	3	4	5	6	7	8	9	10	11	12	13
2020	46.6	46.1	12.7	12.9	15.4	0.5	53.6	48.9	10.7	6.0	1.5	25.1	4.7
2021	46.9	46.2	13.0	13.2	15.0	0.8	52.0	46.9	10.3	6.0	1.4	23.7	5.1
2022	46.5	45.8	13.3	12.9	14.6	0.8	50.0	44.8	9.8	5.9	1.7	22.4	5.2
2023	46.0	45.1	13.2	12.3	14.6	0.8	49.5	44.2	9.8	5.9	1.7	22.3	5.3
2023 Q3	45.9	45.1	13.2	12.4	14.5	0.8	49.6	44.3	9.8	5.9	1.7	22.3	5.3
Q4	45.9	45.1	13.2	12.3	14.6	0.8	49.5	44.2	9.8	5.9	1.7	22.3	5.3
2024 Q1	45.9	45.2	13.2	12.3	14.6	0.8	49.5	44.2	9.8	5.9	1.8	22.4	5.3
Q2	46.1	45.3	13.3	12.3	14.6	0.8	49.5	44.3	9.9	5.9	1.8	22.6	5.2

Sources: ECB for annual data; Eurostat for quarterly data.

6.3 Government debt-to-GDP ratio

(as a percentage of GDP; outstanding amounts at end of period)

	Total	Financial instrument			Holder			Original maturity		Residual maturity			Currency	
		Currency and de-posits	Loans	Debt securi-ties	Resident creditors		Non-resident credi-tors	Up to 1 year	Over 1 year	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Euro or participating currencies	Other curren-cies
					Total	MFIs								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2020	96.5	3.1	14.5	78.8	53.9	38.8	42.6	11.1	85.4	18.7	30.7	47.1	94.8	1.6
2021	93.8	2.9	13.8	77.1	54.4	40.9	39.4	9.8	84.1	17.3	29.8	46.8	92.4	1.4
2022	89.5	2.6	13.1	73.7	52.5	39.6	37.0	8.7	80.8	16.0	28.4	45.2	88.5	1.0
2023	87.4	2.4	12.2	72.8	49.3	35.9	38.1	7.9	79.5	15.0	28.1	44.3	86.6	0.8
2023 Q3	88.4	2.5	12.1	73.8	.	.	.	.	.	.	.	.	.	.
Q4	87.4	2.4	12.2	72.8	.	.	.	.	.	.	.	.	.	.
2024 Q1	87.8	2.3	12.0	73.6	.	.	.	.	.	.	.	.	.	.
Q2	88.1	2.2	11.8	74.0	.	.	.	.	.	.	.	.	.	.

Sources: ECB for annual data; Eurostat for quarterly data.

6 Fiscal developments

6.4 Annual change in the government debt-to-GDP ratio and underlying factors [1)]

(as a percentage of GDP; flows during one-year period)

	Change in debt-to-GDP ratio [2)]	Primary deficit (+)/ surplus (-)	Deficit-debt adjustment								Interest-growth differential	Memo item: Borrowing requirement
			Total	Transactions in main financial assets					Revaluation effects and other changes in volume	Other		
				Total	Currency and deposits	Loans	Debt securities	Equity and investment fund shares				
	1	2	3	4	5	6	7	8	9	10	11	12
2020	12.9	5.5	2.2	2.5	2.0	0.5	-0.1	0.1	-0.3	0.0	5.2	9.5
2021	-2.7	3.7	-0.1	0.6	0.4	0.1	0.0	0.1	-0.1	-0.7	-6.2	5.0
2022	-4.3	1.8	-0.2	-0.2	-0.7	0.3	0.1	0.1	0.6	-0.6	-5.9	2.7
2023	-2.1	1.8	-0.4	-0.4	-0.5	-0.2	0.1	0.1	0.6	-0.5	-3.6	2.6
2023 Q3	-2.5	2.0	-0.3	-0.6	-0.8	-0.2	0.2	0.1	0.6	-0.4	-4.2	2.8
Q4	-2.1	1.8	-0.4	-0.4	-0.5	-0.2	0.1	0.1	0.6	-0.5	-3.6	2.6
2024 Q1	-1.5	1.7	-0.5	-0.7	-0.8	-0.1	0.1	0.1	0.4	-0.2	-2.7	2.6
Q2	-0.7	1.6	-0.2	-0.6	-0.6	-0.1	0.1	0.1	0.4	0.0	-2.1	2.8

Sources: ECB for annual data; Eurostat for quarterly data.
1) Intergovernmental lending in the context of the financial crisis is consolidated except in quarterly data on the deficit-debt adjustment.
2) Calculated as the difference between the government debt-to-GDP ratios at the end of the reference period and a year earlier.

6.5 Government debt securities [1)]

(debt service as a percentage of GDP; flows during debt service period; average nominal yields in percentages per annum)

	Debt service due within 1 year [2)]					Average residual maturity in years [3)]	Average nominal yields [4)]						
	Total	Principal		Interest			Outstanding amounts					Transactions	
										Fixed rate			
		Total	Maturities of up to 3 months	Total	Maturities of up to 3 months		Total	Floating rate	Zero coupon	Total	Maturities of up to 1 year	Issuance	Redemption
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021	13.8	12.6	4.1	1.2	0.3	7.9	1.6	1.1	-0.4	1.9	1.9	-0.1	0.5
2022	12.9	11.7	4.1	1.2	0.3	8.0	1.6	1.2	0.4	1.9	2.0	1.1	0.5
2023	12.9	11.6	4.1	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2023 Q4	12.9	11.6	4.1	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2024 Q1	12.8	11.4	3.8	1.4	0.3	8.3	2.1	1.3	2.3	2.0	1.6	3.7	2.5
Q2	13.0	11.6	3.6	1.4	0.4	8.3	2.1	1.3	2.1	2.1	1.6	3.7	2.7
Q3	13.0	11.5	3.9	1.4	0.4	8.2	2.1	1.3	2.1	2.1	1.7	3.7	2.9
2024 May	12.7	11.3	3.2	1.4	0.4	8.3	2.1	1.3	2.1	2.1	1.4	3.7	2.6
June	13.0	11.6	3.6	1.4	0.4	8.3	2.1	1.3	2.1	2.1	1.6	3.7	2.7
July	12.9	11.5	3.7	1.4	0.4	8.3	2.1	1.4	2.1	2.1	1.6	3.7	2.8
Aug.	13.1	11.6	4.1	1.4	0.4	8.2	2.1	1.3	2.1	2.1	1.6	3.7	2.8
Sep.	13.0	11.5	3.9	1.4	0.4	8.2	2.1	1.3	2.1	2.1	1.7	3.7	2.9
Oct.	13.1	11.7	3.8	1.4	0.4	8.2	2.1	1.3	2.2	2.1	1.7	3.6	2.9

Source: ECB.
1) At face value and not consolidated within the general government sector.
2) Excludes future payments on debt securities not yet outstanding and early redemptions.
3) Residual maturity at the end of the period.
4) Outstanding amounts at the end of the period; transactions as 12-month average.

6 Fiscal developments

6.6 Fiscal developments in euro area countries

(as a percentage of GDP; flows during one-year period and outstanding amounts at end of period)

	Belgium	Germany	Estonia	Ireland	Greece	Spain	France	Croatia	Italy	Cyprus
	1	2	3	4	5	6	7	8	9	10
	Government deficit (-)/surplus (+)									
2020	-9.0	-4.4	-5.4	-4.9	-9.6	-9.9	-8.9	-7.2	-9.4	-5.6
2021	-5.4	-3.2	-2.6	-1.4	-6.9	-6.7	-6.6	-2.6	-8.9	-1.6
2022	-3.6	-2.1	-1.1	1.7	-2.5	-4.6	-4.7	0.1	-8.1	2.6
2023	-4.2	-2.6	-2.8	1.5	-1.3	-3.5	-5.5	-0.9	-7.2	2.0
2023 Q3	-4.1	-3.1	-2.1	1.4	-1.4	-4.3	-5.4	-0.4	-7.1	2.3
Q4	-4.3	-2.6	-2.8	1.5	-1.3	-3.5	-5.5	-0.9	-7.2	2.0
2024 Q1	-4.1	-2.6	-3.0	1.5	-0.6	-3.7	-5.6	-0.8	-6.6	3.7
Q2	-4.4	-2.5	-3.6	1.9	0.3	-3.3	-5.7	-1.7	-6.1	4.3
	Government debt									
2020	111.2	68.0	19.1	57.0	209.4	119.3	114.8	86.5	154.3	113.6
2021	108.4	68.1	18.4	52.6	197.3	115.7	112.7	78.2	145.7	96.5
2022	102.6	65.0	19.1	43.1	177.0	109.5	111.2	68.5	138.3	81.0
2023	103.1	62.9	20.2	43.3	163.9	105.1	109.9	61.8	134.8	73.6
2023 Q3	107.7	63.8	18.7	43.0	170.7	107.4	111.4	63.3	135.5	75.1
Q4	105.2	62.9	20.2	43.3	167.5	105.1	109.9	61.8	134.8	73.6
2024 Q1	108.4	62.6	24.1	42.5	165.4	106.3	110.6	62.0	135.2	72.6
Q2	108.0	61.9	23.8	42.8	163.6	105.3	112.2	60.1	137.0	70.5

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	11	12	13	14	15	16	17	18	19	20
	Government deficit (-)/surplus (+)									
2020	-4.1	-6.3	-3.1	-8.7	-3.6	-8.2	-5.8	-7.7	-5.3	-5.5
2021	-7.2	-1.1	1.0	-7.0	-2.2	-5.7	-2.8	-4.6	-5.1	-2.7
2022	-4.9	-0.7	0.2	-5.2	0.0	-3.3	-0.3	-3.0	-1.7	-0.2
2023	-2.4	-0.7	-0.7	-4.5	-0.4	-2.6	1.2	-2.6	-5.2	-3.0
2023 Q3	-3.5	-1.0	-0.6	-3.4	-0.5	-3.2	0.4	-2.9	-3.6	-2.2
Q4	-2.4	-0.7	-0.7	-4.5	-0.4	-2.6	1.2	-2.6	-5.2	-3.0
2024 Q1	-1.9	-0.6	0.0	-3.8	-0.3	-2.9	0.9	-2.1	-5.1	-3.4
Q2	-1.8	-0.9	0.1	-3.4	0.1	-3.4	1.3	-2.0	-5.5	-4.0
	Government debt									
2020	44.0	45.9	24.5	48.7	53.3	83.2	134.1	80.2	58.4	75.4
2021	45.9	43.3	24.4	49.6	50.4	82.4	123.9	74.8	60.2	73.2
2022	44.4	38.1	24.6	49.4	48.3	78.4	111.2	72.7	57.7	74.0
2023	45.0	37.3	25.5	47.4	45.1	78.6	97.9	68.4	56.1	77.1
2023 Q3	44.2	36.7	25.7	46.9	44.4	78.2	106.3	71.0	58.3	74.7
Q4	45.0	37.3	25.5	47.4	45.1	77.7	97.9	68.4	56.1	77.1
2024 Q1	46.3	39.1	27.1	47.2	43.9	79.8	99.4	70.1	60.6	78.1
Q2	46.4	37.4	26.8	46.7	43.2	81.6	100.6	69.6	60.4	80.0

Source: Eurostat.

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For specific terminology please refer to the ECB glossary (available in English only).

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