EUROPEAN CENTRAL BANK

EUROSYSTEM

Economic Bulletin

Issue 1 / 2025

Contents

Economic, financial and monetary developments

Summary

At its meeting on 30 January 2025, 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 – is 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. Inflation has continued to develop broadly in line with the December 2024 Eurosystem staff macroeconomic projections for the euro area and is set to return to the Governing Council's 2% medium-term target in the course of 2025. Most measures of underlying inflation suggest that inflation will settle at around the target on a sustained basis. Domestic inflation remains high, mostly because wages and prices in certain sectors are still adjusting to the past inflation surge with a substantial delay. But wage growth is moderating as expected, and profits are partially buffering the impact on inflation.

The Governing Council's recent interest rate cuts are gradually making new borrowing less expensive for firms and households. At the same time, financing conditions continue to be tight, also because monetary policy remains restrictive and past interest rate hikes are still transmitting to the stock of credit, with some maturing loans being rolled over at higher rates. The economy is still facing headwinds but rising real incomes and the gradually fading effects of restrictive monetary policy should support a pick-up in demand over time.

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 stagnated in the fourth quarter of 2024, according to Eurostat's preliminary flash estimate. It is set to remain weak in the near term. Surveys indicate that manufacturing continues to contract while services activity is expanding. Consumer confidence is fragile, and households have not yet drawn sufficient encouragement from rising real incomes to significantly increase their spending.

Nevertheless, the conditions for a recovery remain in place. While the labour market has softened over recent months it continues to be robust, with the unemployment rate staying low, at 6.3% in December. A solid job market and higher incomes should strengthen consumer confidence and allow spending to rise. More affordable credit should also boost consumption and investment over time. Provided trade tensions do not escalate, exports should support the recovery as global demand rises.

Fiscal and structural policies should make the economy more productive, competitive and resilient. The Governing Council welcomes the European Commission's Competitiveness Compass, which provides a concrete roadmap for action. It is crucial to follow up, with further concrete and ambitious structural policies, on Mario Draghi's proposals for enhancing European competitiveness and on Enrico Letta's proposals for empowering the Single Market. Governments should implement their commitments under the EU's economic governance 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 2.4% in December 2024, up from 2.2% in November. As in the previous two months, the increase was expected and primarily reflected past sharp drops in energy prices falling out of the calculation. Along with a month-on-month increase in December, this pushed up energy prices slightly on an annual basis, after four consecutive declines. Food price inflation edged down to 2.6% and goods inflation to 0.5%. Services inflation edged up to 4.0%.

Most underlying inflation indicators have been developing in line with a sustained return of inflation to the Governing Council's medium-term target. Domestic inflation, which closely tracks services inflation, has remained high, as wages and some services prices are still adjusting to the past inflation surge with a substantial delay. At the same time, recent signals point to continued moderation in wage pressures and to the buffering role of profits.

The Governing Council expects inflation to fluctuate around its current level in the near term. It should then settle sustainably at around the 2% medium-term target. Easing labour cost pressures and the continuing impact of the Governing Council's past monetary policy tightening on consumer prices should help this process. While market-based indicators of inflation compensation have largely reversed the declines observed in autumn 2024, most measures of longer-term inflation expectations continue to stand at around 2%.

Risk assessment

The risks to economic growth remain tilted to the downside. 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 further weigh on 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 by 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 risen since the Governing Council's meeting on 12 December 2024, partly mirroring higher rates in global financial markets. While financing conditions remain tight, 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 declined to 4.5% in November, while the cost of issuing market-based debt remained at 3.6%. The average rate on new mortgages edged down to 3.5%.

Growth in bank lending to firms rose to 1.5% in December, up from 1.0% in November, amid a strong monthly flow. Growth in debt securities issued by firms moderated to 3.2% in annual terms. Mortgage lending continued to rise gradually but remained muted overall, with an annual growth rate of 1.1%.

Credit standards for business loans tightened again in the fourth quarter of 2024, having broadly stabilised over the previous four quarters, as reported in the January 2025 bank lending survey. The renewed tightening mainly reflected banks becoming more concerned about the risks faced by their customers and less willing to take on risks themselves. Demand for loans by firms increased slightly in the fourth quarter but remained weak overall. Credit standards for mortgages were broadly unchanged, after three quarters of easing, while the demand for mortgages again increased strongly, mainly because of more attractive interest rates.

Monetary policy decisions

The interest rates on the deposit facility, the main refinancing operations and the marginal lending facility were decreased to 2.75%, 2.90% and 3.15% respectively, with effect from 5 February 2025.

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

On 18 December 2024 banks repaid the remaining amounts borrowed under the targeted longer-term refinancing operations, thus concluding this part of the balance sheet normalisation process.

Conclusion

At its meeting on 30 January 2025, 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 – is 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.

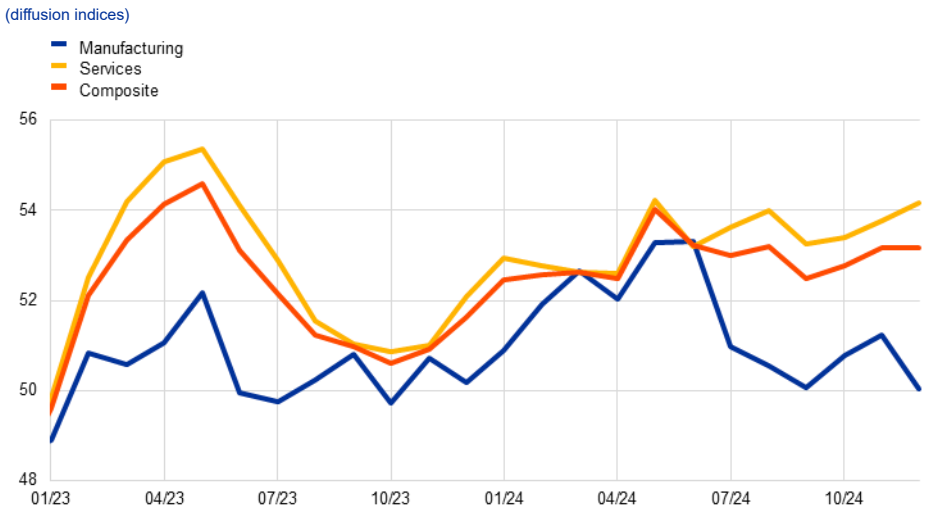
In any case, the Governing Council stands ready to adjust all of its instruments within its mandate to ensure that inflation stabilises sustainably at its medium-term target and to preserve the smooth functioning of monetary policy transmission.

1 External environment

Over the review period from 12 December 2024 to 29 January 2025, global economic activity remained robust, albeit uneven across sectors and regions. Global trade growth moderated at the end of 2024, although the strong performance of US imports, possibly in the face of rising uncertainty about prospective trade policies, remained a major driver of global trade dynamics. Global headline inflation increased, largely due to higher energy prices, but core inflation continued to decline gradually.

Growth in global activity has remained robust, albeit uneven across sectors and regions, and this trend is expected to have continued at the start of 2025. In December 2024 the global composite output Purchasing Managers' Index (PMI) (excluding the euro area) held steady at 53.2, unchanged from November (Chart 1). Solid growth in the services sector was offset by the continued weakness in manufacturing (the manufacturing output PMI stood at the neutral threshold of 50). This primarily reflects a downturn in the manufacturing cycle of advanced economies, where the output PMI dropped to 47.2. In emerging market economies, it remained above the neutral threshold despite a slight contraction compared with earlier months. Available industrial production data confirm these regional differences, with three-month-on-three-month changes indicating a marginal contraction in advanced economies and a moderate expansion in emerging market economies, leading to global manufacturing output growth of 1.1% in November. Overall, ECB nowcasting models point to steady quarter-on-quarter growth of around 1.0% in the fourth quarter of 2024 and 1.1% in the first quarter of 2025.

Chart 1
Global output PMI (excluding the euro area)



Sources: S&P Global Market Intelligence and ECB staff calculations.
Note: The latest observations are for December 2024.

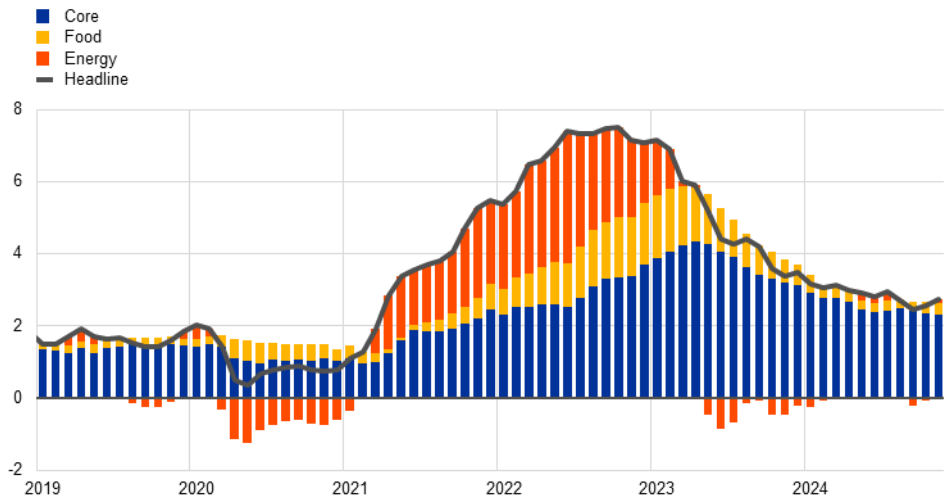
Global trade growth moderated at the end of 2024, although strong US import growth continued to provide some tailwinds. Overall, ECB nowcasting models point to average global trade growth of 0.7% in the fourth quarter of 2024 and the

first quarter of 2025. This represents a moderation from the high average growth rates of 1.5% recorded in the second and third quarters of 2024, when fears over port strikes and concerns about supply chain disruptions ahead of the Christmas season, particularly in the United States, led to a surge in imports. While those fears subsequently receded to some extent, US imports remained strong at the end of the year, possibly amid uncertainty about trade policies under the new US Administration. Incoming port data for Los Angeles and Long Beach point to a considerable increase in the number of cargo vessels inbound from China in the second half of 2024 compared with the same period in the previous year. Taken together, the granular data suggest that US imports remained a major driver of global trade growth in the fourth quarter of 2024. Looking ahead, while efforts to anticipate potential trade restrictions may continue to support trade at the start of the first quarter of 2025, headwinds – including new tariffs and an unwinding of the observed frontloading of imports – may later materialise. Manufacturing new export orders declined in December 2024, pointing to ongoing weakness in the manufacturing cycle and tentative signs of a slowdown in global trade growth.

Headline inflation across the member countries of the Organisation for Economic Co-operation and Development (OECD) has increased, but core inflation continues to decline. In November 2024 the annual rate of consumer price index (CPI) inflation across OECD members (excluding Türkiye) rose to 2.7%, up from 2.6% in the previous month (Chart 2). This uptick in headline inflation was largely due to higher energy prices, with the contribution of food prices remaining broadly stable. However, core inflation, which excludes energy and food prices, eased slightly to 3.1%, continuing to return slowly to historical averages. Looking ahead, growing imports and shipping demand have started to affect shipping rates, which began to increase in the last quarter of 2024 but are still below their peak level reached in July that year. Overall, renewed upside risks to inflation remain contained in the near term.

Chart 2
OECD CPI inflation

(year-on-year percentage changes)



Sources: OECD and ECB staff calculations.
Notes: The OECD aggregate excludes Türkiye and is calculated using OECD CPI annual weights. The latest observations are for November 2024.

Over the review period from 12 December 2024 to 29 January 2025, Brent crude oil prices climbed by 4.7%, while European gas prices increased by 14.6%. The oil price increase was mainly fuelled by supply factors as a result of recent US sanctions targeting Russian oil flows and early signs of friction in relation to Iranian exports. The rise in European gas prices was attributable to a combination of supply and demand factors. On the supply side, the end of the transit agreement between Russia and Ukraine pushed up prices, even though it was largely expected. Supply pressures were also compounded by outages at a Norwegian liquefied natural gas plant. On the demand side, colder than usual temperatures in late December drove an increase in consumption. As a result, European gas storage at the end of 2024 had fallen below the year-end levels recorded in 2022 and 2023 and before the energy crisis. Metal prices remained stable throughout the review period, as precautionary metal-intensive imports from China offset longer-term uncertainty surrounding US tariff policies. Food prices increased by 5.9%, owing to higher prices for corn and cocoa.

Activity in the United States remains robust, although the inflation outlook has become more uncertain. Real GDP decelerated in the last quarter of 2024 but remained robust, at 0.6% quarter on quarter, down from 0.8% in the previous quarter.[1] Personal consumption expenditures (PCE) continued to drive domestic demand, which increased further for both goods and services, owing mainly to higher real disposable incomes. By contrast, private investment put a drag on activity, as non-residential investment fell quarter on quarter as a result of lower contributions from transportation and information equipment, although these were largely offset by an increase in residential investment. The US labour market continues to cool but

[1] The advance estimate of GDP for the fourth quarter of 2024 was published on 30 January 2025, one day after the cut-off date for data included in this issue of the Economic Bulletin.

remains resilient. US non-farm payroll employment rose by 256,000 jobs in December, on the back of a volatile last quarter of 2024 impacted by hurricanes and strikes. Overall, 2.2 million jobs were added in 2024, down from the expansion of 3 million recorded in 2023. The unemployment rate edged down to 4.1% in December from 4.2% in November, while the participation rate remained unchanged at 62.5%, with little fluctuation over the year. Wage growth fell slightly to 3.9% year on year, continuing to approach the range of 3% to 3.5% that the Federal Reserve System considers to be consistent with its inflation target. US headline PCE inflation for November climbed to 2.4% due to higher energy prices, while core PCE inflation remained at 2.8%, with core services declining to 2.5%. The December CPI points to a slight increase in headline PCE inflation and a further decrease in core PCE inflation in the near term. Overall, key sources of inflation are cooling in the United States, as wage growth is expected to remain on a downward path and rents have continued to decline overall. At the Federal Open Market Committee (FOMC) meeting on 29 January 2025, FOMC members were of the view that downside risks to the labour market had lessened amid increased uncertainty about the inflation outlook, particularly with regard to the impact of the proposed changes to trade and immigration policy.

Chinese activity rebounded at the end of 2024, but domestic demand remains weak. Quarterly GDP growth increased to 1.6% in the fourth quarter of 2024, up from 1.3% in the previous quarter. Monthly indicators for December highlighted that the recovery in GDP and industrial production was mainly driven by a government programme to trade in consumer goods in return for discounts on new products of the same type, and a surge in exports. In spite of the latest improvement, retail sales remain subdued as persistently negative consumer confidence continues to weigh on a broader spending recovery. Recent policy announcements signal increased fiscal and monetary support this year. Meanwhile, the property market is showing some localised signs of stabilisation, although the main indicators are still weak. Exports have continued to grow, mainly to the United States, although Chinese exporters are increasingly concerned about rising trade uncertainty. In December consumer price inflation in China decelerated further to 0.1%, down from 0.2% in November, while producer price inflation remained in negative territory. On average, producer prices contracted by 2.2% in 2024, resulting in significant downward momentum in Chinese export prices.

Activity in the United Kingdom remains weak amid persistent inflation. The UK economy remained sluggish in the fourth quarter of 2024. After an unexpected decline in October, UK real GDP growth increased marginally in November, bringing it to zero in the three months to November. This follows already flat growth in the third quarter. Headline CPI inflation eased slightly to 2.5% in December, down from 2.6% in November, partly reflecting lower services inflation. Inflation is expected to remain above target throughout 2025, boosted by increased public spending and higher taxes on employment, as well as the continued unwinding of energy-related base effects. In line with the forecast rise in inflation, firms' expectations for price growth over the coming year went up in November and December. This trend aligns with an uptick in households' inflation expectations, which could be contributing to

persistent domestic inflationary pressures. At its December meeting, the Bank of England kept its policy rate at 4.75%.

2 Economic activity

Euro area output stagnated in the fourth quarter of 2024. Although the expenditure breakdown is not yet available, short-term indicators point to positive contributions from private and public consumption, which were largely offset by falling investment, alongside a broadly neutral net trade contribution. On the sectoral side, it is likely that the industrial sector continued to contract at the end of 2024 while services showed moderate growth. Survey data signal a continued moderate services-led expansion in the first quarter of 2025. At the same time, these indicators suggest ongoing weakness in the industrial sector amid subdued demand for goods, the impact of the past monetary policy tightening and significant trade policy uncertainty. This weakness is currently reflected in contracting labour demand in the sector. Euro area activity is expected to strengthen over the medium term. Growth should be supported by a pick-up in consumption, owing to still resilient labour markets and declining inflation. Strengthening foreign demand and the fading dampening effects of past monetary policy tightening should also underpin growth going forward. However, the economic outlook is surrounded by high uncertainty.

Euro area output stagnated in the fourth quarter of 2024, according to Eurostat's preliminary flash estimate (Chart 3). Real GDP displayed no growth, quarter on quarter, in the fourth quarter, following positive growth in the previous three quarters of the year.[2] In 2024 as a whole, GDP is estimated to have risen by 0.7%.[3] Although the expenditure breakdown is not yet available, short-term indicators and available country data point to positive contributions from private and public consumption, which were offset by falling investment, while the contribution from net exports was broadly neutral. At the same time, the industrial sector likely remained weak, while the services sector was more resilient. Growth dynamics in the fourth quarter continued to be uneven among the largest euro area economies: GDP increased by 0.8%, quarter on quarter, in Spain, while declining by 0.2% in Germany and by 0.1% in France, and remaining flat in Italy. At the same time, output contracted by 1.3% in Ireland. The fourth quarter outcome for the euro area generates a carry-over effect of 0.3% for annual growth in 2025.[4]

2 The cut-off date for the data included in this issue of the Economic Bulletin was 29 January 2025, except for GDP data, which had a cut-off date of 30 January.

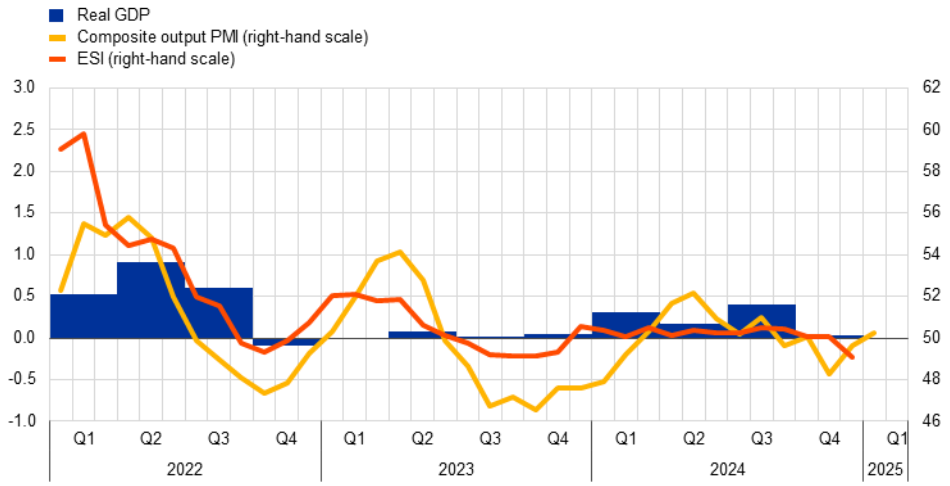
3 The annual growth rate is based on seasonally and calendar adjusted figures. Unadjusted data are not available for all the Member States included in GDP flash estimates.

4 This implies that GDP would grow by 0.3% in 2025 if all quarterly growth rates this year were zero (i.e. if quarterly GDP remains at the same level as in the fourth quarter of 2024).

Chart 3

Euro area real GDP, composite output PMI and ESI

(left-hand scale: quarter-on-quarter percentage changes; right-hand scale: diffusion index)

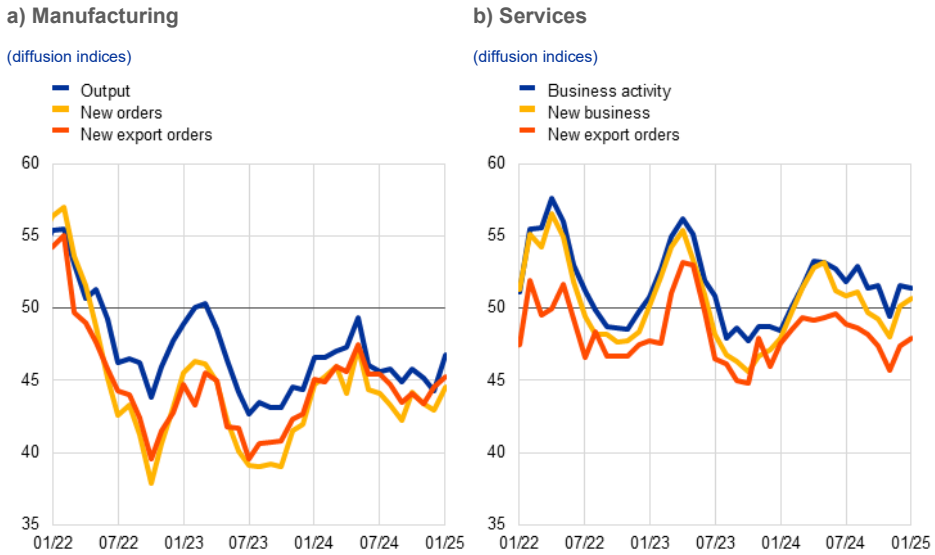


Sources: Eurostat, European Commission and S&P Global.
Notes: The two lines indicate monthly developments; the bars show quarterly data. The European Commission's Economic Sentiment Indicator (ESI) has been standardised and rescaled to have the same mean and standard deviation as the composite output Purchasing Managers' Index (PMI). The latest observations are for the fourth quarter of 2024 for real GDP, January 2025 for the composite output PMI and December 2024 for the ESI.

Survey data signal a continued moderate services-led expansion in the first quarter of 2025. Although economic data with a bearing on the first quarter are scarce, the latest Purchasing Managers' Index (PMI) offers some preliminary indications of developments at the start of the year. The composite output PMI stood at 50.2 in January, up from an average 49.3 in the fourth quarter of 2024. Across sectors, the PMI indicator for manufacturing output remained in contractionary territory in January, although it improved vis-à-vis the fourth quarter of 2024 (Chart 4, panel a). The new orders index, which should be more forward looking, has shown a similar pattern. Overall, these indicators suggest continued weakness in the industrial sector going forward amid subdued demand for goods and the impact of past monetary policy tightening. PMI data for the services sector, which has so far led the recovery in activity, continue to point to positive growth in both activity and new business (Chart 4, panel b). Movements in the PMI suggest that the recent sectoral differences are likely to persist in the short term. The main findings from the ECB's recent contacts with non-financial companies point to subdued business momentum in the near term, with flat or declining manufacturing output alongside more resilient growth in services activity (see Box 5). Widespread economic policy uncertainty is also expected to weigh on the growth outlook for early 2025. Although this short-term narrative is echoed by the most recent ECB Survey of Professional Forecasters (conducted in January), respondents still see a gradual recovery in economic activity in the coming quarters.

Chart 4

PMIs across sectors of the economy



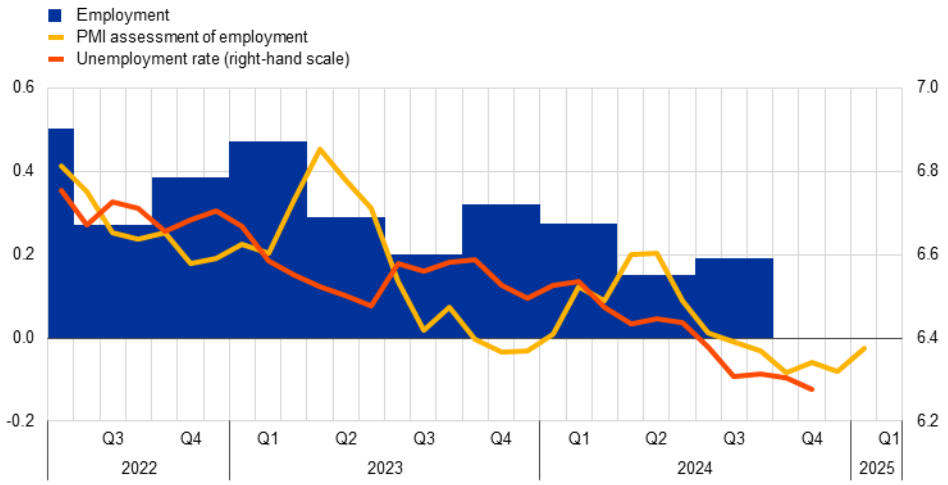
Source: S&P Global Market Intelligence.
Note: The latest observations are for January 2025.

The unemployment rate remains low despite signs of a gradual slowdown in the labour market. The unemployment rate stood at a record low of 6.3% in November, unchanged from October (Chart 5). A shift in the composition of the labour force towards older and more highly educated workers has been one of the factors behind this decline over the past two years (see Box 3). Nevertheless, the labour market continues to show signs of gradual cooling. Growth in the labour force, which has been a key driver of employment growth in the post-pandemic period, likely stabilised in the fourth quarter of 2024 at a lower rate than in recent quarters, but it is still elevated compared with average rates up to 2019. At the same time, labour demand is softening. The number of unfilled vacancies on the online job listings website Indeed remained significantly lower than in early 2024, while the number of new job postings declined throughout December.

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)



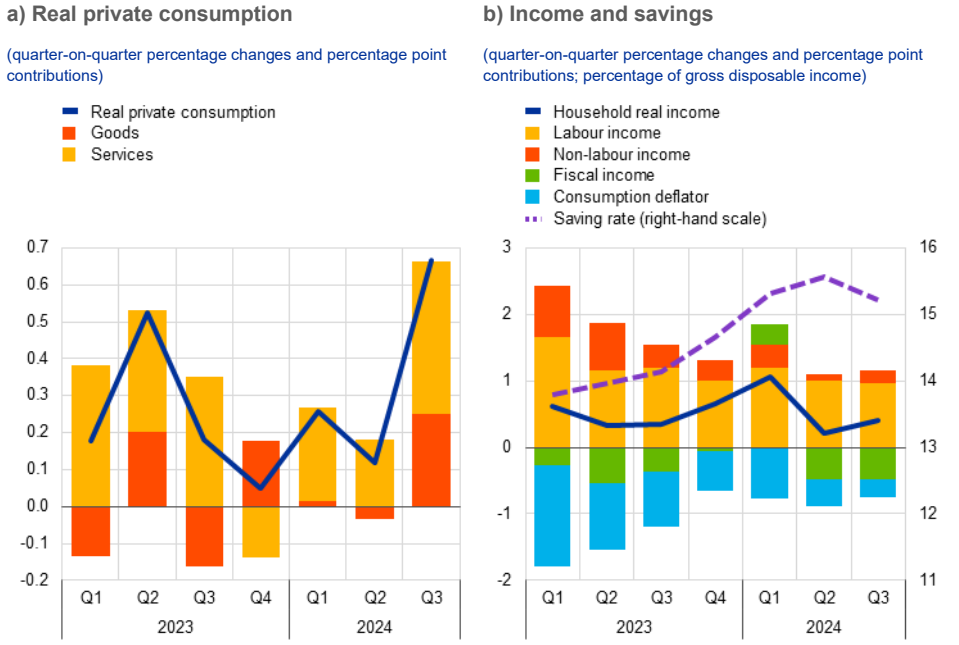
Sources: Eurostat, S&P Global Market Intelligence and ECB calculations.
Notes: The two lines indicate monthly developments, while the bars show quarterly data. The PMI is expressed in terms of the deviation from 50, then divided by ten. The latest observations are for the third quarter of 2024 for employment, January 2025 for the PMI assessment of employment and November 2024 for the unemployment rate.

Short-term indicators suggest that the labour market will continue to cool in the first quarter of 2025. The monthly composite PMI employment indicator increased from 49.2 in December to 49.8 in January, remaining around the neutral threshold of 50 points (Chart 5). The composite outturn masked different developments across sectors. Perceptions of employment growth became more negative in the manufacturing sector, while they rebounded into expansionary territory in the services sector. The PMI for employment in the services sector, however, remains well below its 2024 average. This evidence of a muted outlook for employment provided by the PMIs is consistent with the findings from the ECB's recent contacts with non-financial companies (see Box 5). Overall, weaker employment dynamics should support a gradual recovery in labour productivity going forward.

Real private consumption increased by 0.7% in the third quarter of 2024, reflecting robust income growth and a decline in the elevated household saving rate. Following an average increase of 0.1% in the previous four quarters, household spending was boosted by strong demand for services in the third quarter of 2024, partly related to temporary factors (e.g. the Paris 2024 Olympic and Paralympic Games) (Chart 6, panel a). The moderation in food and energy inflation contributed to a rebound in the consumption of goods as well. The household saving rate declined but remained elevated at 15.2% in the third quarter – reflecting the positive effect on savings of the ongoing rise in real income, the still tight financing conditions, subdued confidence and high uncertainty (Chart 6, panel b). Household income growth continued to be driven by strong labour compensation.

Chart 6

Household income, consumption and savings

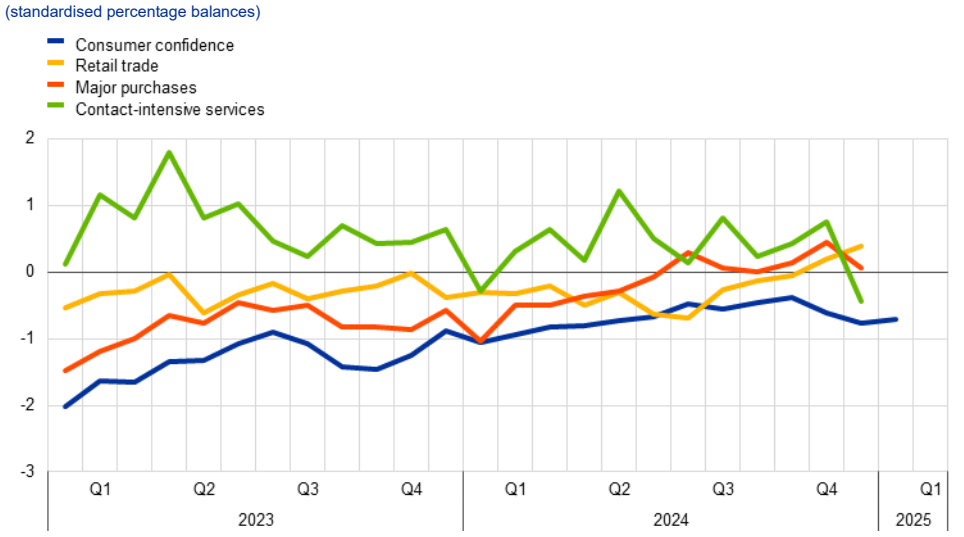


Sources: Eurostat, European Commission and ECB calculations.
Notes: In panel a), real private consumption refers to the national concept and the components refer to the domestic concept of consumption. The latest observations are for the third quarter of 2024. In panel b), labour income is calculated as compensation of employees, while non-labour income includes income from self-employment, net interest income, dividends and rents; fiscal income is measured as a residual. The latest observations are for the third quarter of 2024.

Household spending growth likely moderated at the turn of the year, also reflecting the unwinding of the temporary factors seen in the third quarter. The volume of retail sales displayed weak dynamics early in the fourth quarter of 2024, suggesting a likely moderation in private consumption growth at the end of the year. Surveys also point to ongoing, albeit more moderate, household spending growth at the turn of the year. The European Commission's consumer confidence indicator edged up in January 2025 (Chart 7) but remained subdued owing to weak expectations about the general economy and households' financial situations over the next 12 months amid still elevated uncertainty. Business expectations for contact-intensive services dropped below their historical average in December 2024, suggesting a moderation in services demand in the first quarter of 2025. By contrast, retail trade expectations for the next three months improved further in December and the ECB's latest Consumer Expectations Survey points to planned spending on holidays for the next 12 months still being robust. While consumer expectations for major purchases in the next 12 months moderated in December, they remained in line with their pre-pandemic average. Overall, the improvements in households' purchasing power and real income perceptions should be the main drivers of the continuing private consumption growth (see Box 2).

Chart 7

Consumer confidence and expectations

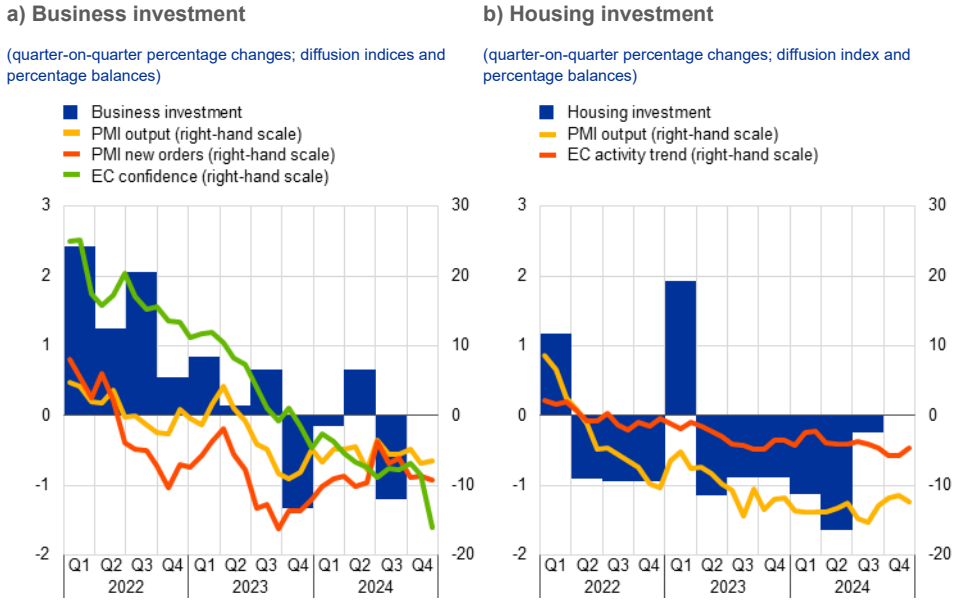


Sources: Eurostat, European Commission and ECB calculations.
Notes: Business expectations for demand in contact-intensive services and retail trade expectations refer to the next three months, while consumer expectations for major purchases refer to the next 12 months. The first series is standardised for the period January 2005-19, owing to data availability, whereas the other three series on the chart are standardised for the period 1999-2019. "Contact-intensive services" include accommodation, travel and food services. The latest observations are for January 2025 for consumer confidence and for December 2024 for the remaining items.

Business investment remained muted around the turn of the year. Business investment (proxied by non-construction investment excluding Irish intangibles) contracted by 1.2%, quarter on quarter, in the third quarter of 2024, amid high volatility. At the same time, investment in machinery declined for the third quarter in a row and transport investment fell back, following a modest rebound in the first half of the year. Intangible investment continued to expand at a moderate pace. In the capital goods sector, output and new orders fell further in the fourth quarter, while industrial confidence among capital goods producers declined sharply to a low not seen since 2020 (Chart 8, panel a). Wider survey data – released mainly at the end of 2024 – do not suggest an imminent pick-up in business investment at the start of 2025, although more forward-looking surveys anticipate improvements ahead. Earnings calls for the fourth quarter of 2024 suggest an ongoing deterioration in both investment sentiment and profit sentiment since the start of 2024. PMI production expectations for the coming 12 months and capacity utilisation indicators for the wider economy released by the European Commission's Directorate General for Economic and Financial Affairs (ECFIN) remained well below typical levels consistent with investment growth in December. The ECB's recent contacts with non-financial companies also reported downbeat expectations at the start of the year, with a strong focus on rationalisation and reducing the carbon footprint where investment remains strong (see Box 5). The Sentix investor confidence indicator fell to a 27-month low in January amid reports of rising bankruptcies and significant geopolitical, trade and policy uncertainty, although the six-month ahead indicator is less pessimistic and points to an improving outlook. Similarly, the latest ECFIN investment survey anticipates modest growth in annual business investment in 2025.

Chart 8

Real private investment dynamics and survey data



Sources: Eurostat, European Commission (EC), S&P Global Market Intelligence and ECB calculations.
Notes: The lines indicate monthly developments, while the bars refer to quarterly data. The PMIs are expressed in terms of the deviation from 50. In panel a), business investment refers to non-construction investment excluding Irish intangibles. Monthly data reflect the capital goods sector. The latest observations are for the third quarter of 2024 for business investment and December 2024 for the PMIs and the European Commission's confidence indicator. In panel b), the line for the European Commission's activity trend indicator refers to the building and specialised construction sector's assessment of the trend in activity over the preceding three months. The latest observations are for the third quarter of 2024 for housing investment and December 2024 for the PMI and the European Commission's indicator.

Housing investment fell once again in the third quarter of 2024, albeit at a slower pace compared with previous quarters. Housing investment declined by 0.2%, quarter on quarter, in the third quarter, thus significantly moderating the downward trend which started in the second quarter of 2022 (Chart 8, panel b). In the fourth quarter, building construction output in October and November stood, on average, above its level in the third quarter. However, residential building permits remained at a historical low, suggesting that there were limited pressures from projects in the pipeline. Moreover, survey-based activity measures, such as the PMI for residential construction output and the European Commission's indicator for building and specialised construction activity in the last three months, remained subdued up to December. Overall, this suggests that housing investment is likely to have broadly stagnated in the fourth quarter. Looking ahead, recent ECB surveys point to some favourable developments in the outlook for housing investment in the coming quarters. In the Consumer Expectations Survey, household expectations for the housing market, as reflected by the attractiveness of housing as a good investment, have broadly reached their average levels. The January bank lending survey indicates that demand for housing loans is expected to continue to improve in the first quarter of 2025 (see Section 5, "Financing conditions and credit developments").

Euro area exports contracted in November 2024 amid persistent competitiveness challenges. Export orders for both manufacturing and services continued to fall in December. The weakness in export growth reflects the

continuation of a broader trend of declining euro area market shares amid persistent competitiveness issues for euro area manufacturers (including the medium-high tech and high tech sectors) and increasing competition from China (see Box 5). Meanwhile, imports rose by 1.1% in November in three-month-on-three-month terms, in line with the continued modest growth in consumption in the fourth quarter.

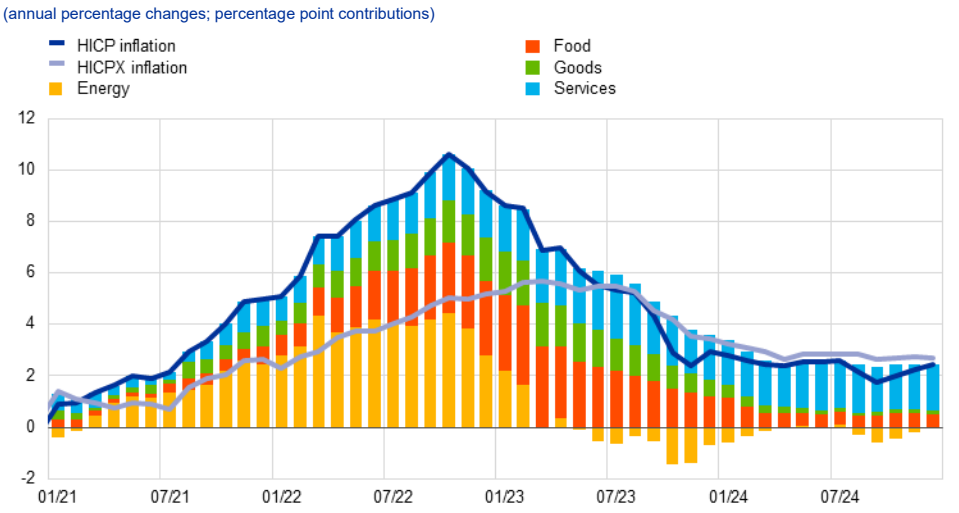
Overall, euro area activity is expected to strengthen over the medium term. Growth should be supported by a pick-up in consumption, owing to still resilient labour markets and declining inflation. Strengthening foreign demand and the fading dampening effects of past monetary policy tightening are factors that should also underpin growth going forward. However, the economic outlook is surrounded by high uncertainty, with geopolitics and trade tensions representing downside risks.

3 Prices and costs

Euro area headline inflation rose to 2.4% in December 2024, up from 2.2% in November.[5] *This rise was expected and mainly due to base effects in energy price developments. Inflation is expected to fluctuate around its current level in the near term. Overall, indicators of underlying inflation are developing in line with a sustained return to the ECB's 2% medium-term target for headline inflation. The indicator of domestic inflation remains high, reflecting strong wage growth and the fact that prices in certain sectors are still adjusting to the past inflation surge with a substantial delay. However, wage growth is moderating as expected, and profits are partially buffering their impact on inflation. Measures of longer-term inflation expectations were broadly unchanged at around 2%, while measures of shorter-term inflation expectations increased.*

Euro area headline inflation, as measured in terms of the Harmonised Index of Consumer Prices (HICP), increased to 2.4% in December from 2.2% in November (Chart 9). The increase was mainly driven by higher energy inflation and a small rise in services inflation. The inflation outcome for the fourth quarter of 2024 was slightly below the December 2024 Eurosystem staff macroeconomic projections for the euro area. This is despite oil and gas commodity prices being higher than foreseen in the December 2024 projections.

Chart 9
Headline inflation and its main components



Sources: Eurostat and ECB calculations.
Notes: "Goods" refers to non-energy industrial goods. The latest observations are for December 2024.

Energy inflation increased from -2.0% in November to 0.1% in December 2024. This increase was due to higher annual growth rates for electricity and transport fuel prices, while the growth rate for gas prices declined slightly. The higher rate of

[5] The cut-off date for the data included in this issue of the Economic Bulletin was 29 January 2025. According to the flash estimate from Eurostat, HICP inflation increased to 2.5% in January 2025.

change for energy inflation also reflects an upward base effect from the significant decrease in energy prices in December 2023.

Food inflation decreased slightly to 2.6% in December 2024, down from 2.7% the month before. Unprocessed food inflation declined to 1.6% in December from 2.3% in November. This was mainly due to lower prices for fruit and vegetables. However, this decline was partly offset by an increase in processed food inflation (2.9% in December, up from 2.8% in November), driven by a strong surge in tobacco prices. The inflation rate for processed food excluding tobacco remained below 2%.

HICP inflation excluding energy and food (HICPX) remained unchanged in December, standing at 2.7% for the fourth consecutive month. Non-energy industrial goods (NEIG) inflation continued to hover around its long-term average, edging down to 0.5% in December from 0.6% in November. This decrease was offset by slightly higher services inflation (4.0% in December after 3.9% in November). In contrast to NEIG inflation, services inflation remained well above its long-term average of 1.9%, reflecting the impact of still elevated wage pressures on some of its items and the effects of lagged repricing on others. The slight drop in NEIG inflation in December was driven by a decline in the rates of semi-durable and durable goods inflation, while the inflation rate for non-durable goods remained unchanged. The rise in services inflation was mainly driven by higher annual rates for recreation and transport services.

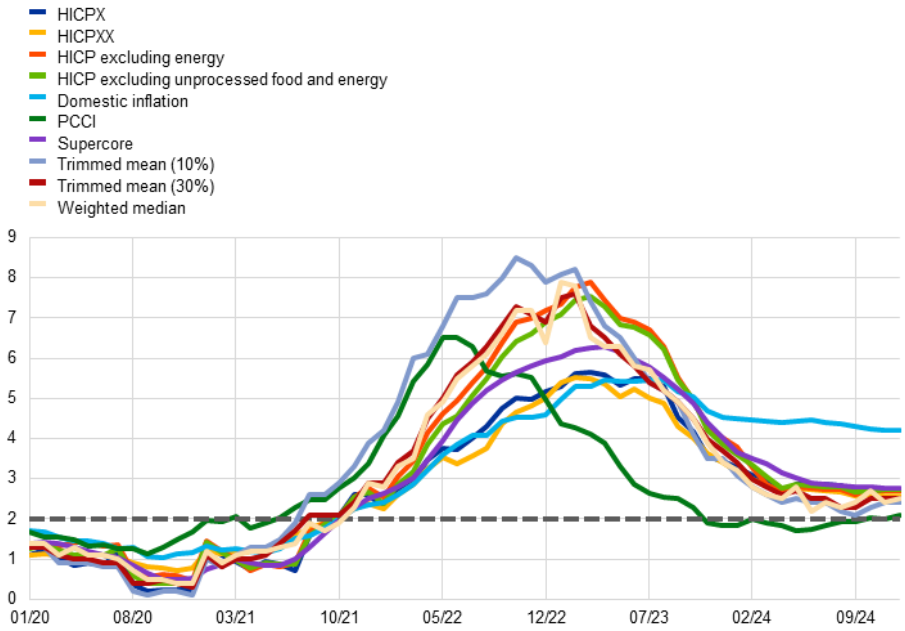
Most underlying inflation indicators have been developing in line with a sustained return of headline inflation to the 2% medium-term target (Chart 10). Their values remained broadly stable in December 2024, ranging from 2.0% to 2.8%.[6] Most exclusion-based measures were unchanged in December, including the 10% and 30% trimmed means, HICPX inflation excluding travel-related items, clothing and footwear (HICPXX) and HICP inflation excluding unprocessed food and energy. At the same time, the weighted median marginally increased to 2.5% in December from 2.4% in November. The indicator of domestic inflation, which mostly covers services items, was unchanged at 4.2% in December. Regarding model-based measures, the Supercore indicator (which comprises HICP items sensitive to the business cycle) was also unchanged, standing at 2.8%, while the Persistent and Common Component of Inflation (PCCI) increased slightly to 2.1% in December, up from 2.0% in November.

6 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, 24 October 2024.

Chart 10

Indicators of underlying inflation

(annual percentage changes)



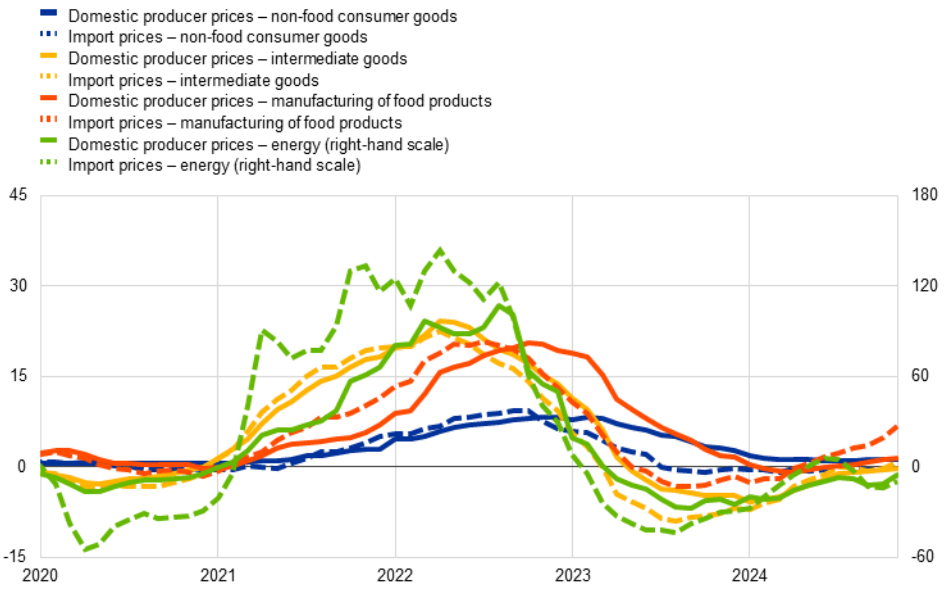
Sources: Eurostat and ECB calculations.
Notes: The grey dashed line represents the ECB's inflation target of 2% over the medium term. The latest observations are for December 2024.

Most indicators of pipeline pressures for goods inflation remained subdued in November (Chart 11). At the early stages of the pricing chain, producer price inflation for domestic sales of intermediate goods was still negative, but less so than in the previous month (-0.3% in November 2024 after -0.5% in October). In the later stages of the pricing chain, the annual growth rates of producer prices for non-food consumer goods decreased slightly to 1.1% in November from 1.3% in October. The annual growth rate of producer prices for manufactured food increased further to 1.5% from 1.3% over the same period, confirming previous indications that the gradual easing of pipeline pressures has been fading out in this segment. The annual growth rate of import prices for non-food consumer goods moved upwards but remained moderate overall. Meanwhile, import price inflation for manufactured food increased further to 6.8% in November from 4.9% in October, possibly reflecting the surge in international food commodity prices since early 2024. The stronger import price dynamics also reflected the fact that the year-on-year rate of the nominal effective exchange rate of the euro had declined in November 2024. However, in October 2024 the rate was broadly unchanged compared with October 2023.

Chart 11

Indicators of pipeline pressures

(annual percentage changes)



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

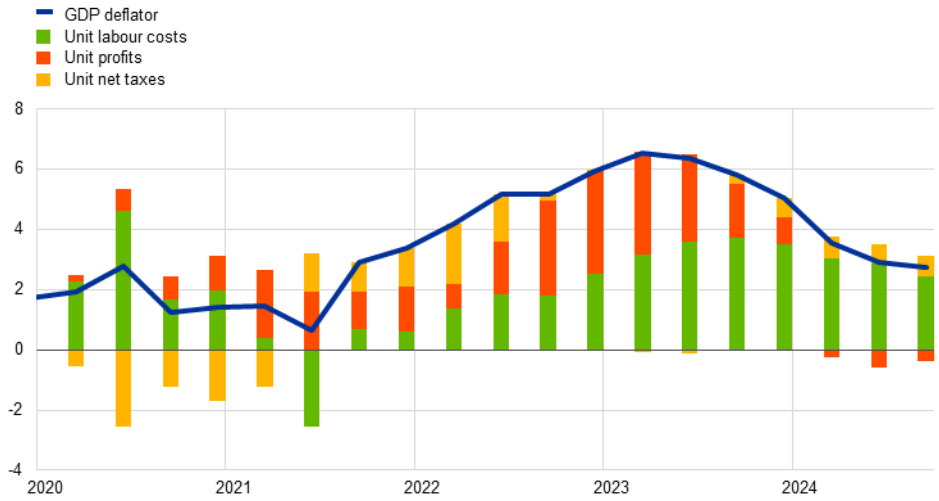
Domestic cost pressures, as measured by growth in the GDP deflator, fell further to 2.7% in the third quarter of 2024, down from 2.9% in the previous quarter (Chart 12). This represents a significant decrease from the peak of 6.4% in the first quarter of 2023, although the rate has remained above its long-term average of 1.6% before the COVID-19 pandemic. The easing of GDP deflator dynamics mainly reflected a further moderation in unit labour costs growth (4.4% in the third quarter of 2024, down from 5.2% in the second quarter). This, in turn, was driven by lower wage growth, when measured in terms of both compensation per employee and compensation per hour. This moderation in actual wage growth concealed higher negotiated wage growth, which temporarily rose to 5.4% in the third quarter of 2024 (up from 3.5% in the second quarter). While the contribution of unit profits to the GDP deflator was less negative in the third quarter, their role in buffering labour costs is still elevated. Looking forward, the ECB's wage tracker, which includes data on wage agreements negotiated up to the end of December 2024, points to an easing of wage growth pressures. This observation is also confirmed by the latest survey indicators on wage growth, such as the ECB's Corporate Telephone Survey, which expects wage growth to decrease from 4.3% in 2024 to 3.6% in 2025.[7] The easing of wage growth pressures would be in line with reduced inflation compensation pressures and the cooling of labour demand.

[7] For more information on the results of the January 2025 Corporate Telephone Survey, see the box entitled "Main findings from the ECB's recent contacts with non-financial companies", *Economic Bulletin*, Issue 1, ECB, 2025.

Chart 12

Breakdown of the GDP deflator

(annual percentage changes; percentage point contributions)



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

Survey-based indicators of longer-term inflation expectations and market-based measures of longer-term inflation compensation remained stable, with most standing at around 2% (Chart 13). In both the ECB Survey of Monetary Analysts (SMA) for January 2025 and the ECB Survey of Professional Forecasters (SPF) for the first quarter of 2025, median and average longer-term inflation expectations were unchanged at 2%. Longer-term market-based measures of inflation compensation (based on HICP excluding tobacco) increased slightly over the review period, with the five-year forward inflation-linked swap rate five years ahead standing at around 2.1%. However, after adjusting for model-based estimates of inflation risk premia, market participants expect longer-term inflation to be around 2%.

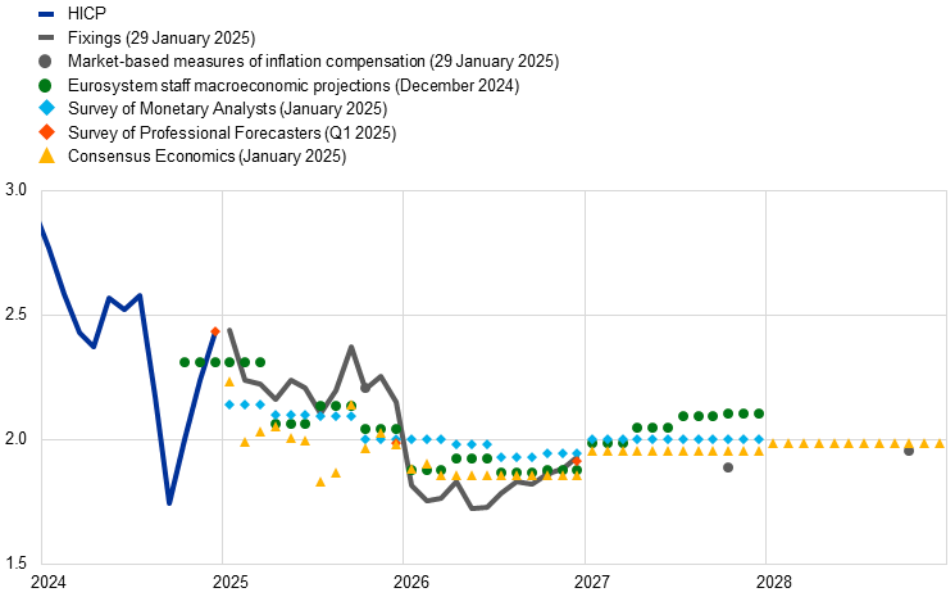
Market-based measures of near-term euro area inflation compensation, as measured by inflation fixings, have largely reversed the declines observed in autumn 2024 (Chart 13). These measures – reflecting market participants' expectations for HICP inflation excluding tobacco – suggest that investors expect inflation to remain just above 2.0% for the rest of 2025 before settling near 2.0% around the turn of the year and into early 2026. In the medium term, the one-year forward inflation-linked swap rate starting one year ahead remained broadly unchanged at around 1.8% over the review period. On the consumer side, the December 2024 ECB Consumer Expectations Survey (CES) reported that the median rate of perceived inflation over the previous 12 months increased slightly from 3.4% in November to 3.5% in December. Median expectations for headline inflation over the next year also increased, to 2.8% in December from 2.6% in November. Meanwhile, median expectations for headline inflation three years ahead remained unchanged at 2.4%. The increase in consumer inflation expectations since September 2024 is linked to stronger perceptions of past inflation on average and higher inflation uncertainty for some respondents.

Chart 13

Headline inflation, inflation projections and expectations

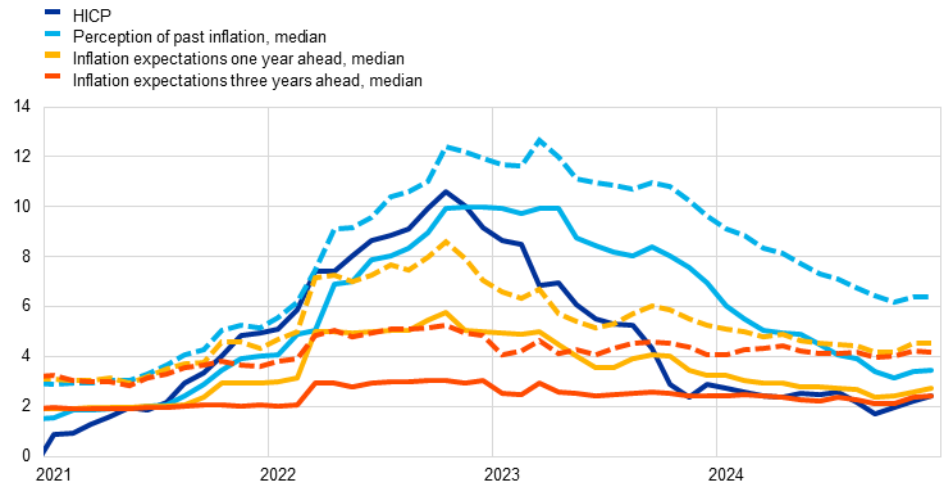
a) Headline inflation, market-based measures of inflation compensation, inflation projections and survey-based indicators of inflation expectations

(annual percentage changes)



b) Headline inflation and ECB Consumer Expectations Survey

(annual percentage changes)



Sources: Eurostat, LSEG, Consensus Economics, ECB (SMA, SPF, CES), Eurosystem staff macroeconomic projections for the euro area, December 2024 and ECB calculations.
Notes: In panel a), the market-based measures of inflation compensation series are based on the one-year spot inflation rate, the one-year forward rate one year ahead, the one-year forward rate two years ahead and the one-year forward rate three years ahead. The observations for market-based measures of inflation compensation are for 29 January 2025. Inflation fixings are swap contracts linked to specific monthly releases in euro area year-on-year HICP inflation excluding tobacco. The SPF for the first quarter of 2025 was conducted between 7 and 9 January 2025. The cut-off date for the Consensus Economics long-term forecasts was 13 January 2025. The cut-off date for data included in the Eurosystem staff macroeconomic projections was 20 November 2024. In panel b), for the CES, the dashed lines represent the mean and the solid lines represent the median. The latest observations are for December 2024.

4 Financial market developments

Over the review period from 12 December 2024 to 29 January 2025 the risk-free euro short-term rate (€STR) forward curve experienced an overall upward shift with some intermittent fluctuations. At the start of the period, the forward curve shifted downward. However, this trend reversed around the turn of the year and into early January, driven by rising energy prices and new data releases for the US economy, which prompted upward revisions in inflation expectations and contributed to the rebound in the forward curve. As a result, at the end of the review period, markets were pricing in 90 basis points of cumulative interest rate cuts in the euro area by the end of 2025. Long-term sovereign bond yields also rose, by slightly more than risk-free rates. In equity markets, euro area stock prices increased as improved risk sentiment offset the impact of rising risk-free rates, while US stocks declined overall, primarily as a result of a decrease in equity prices in the IT sector. Meanwhile, in euro area corporate bond markets, spreads narrowed for both investment-grade and high-yield issuers. In the foreign exchange market, the euro depreciated moderately against the US dollar and remained broadly stable in trade-weighted terms.

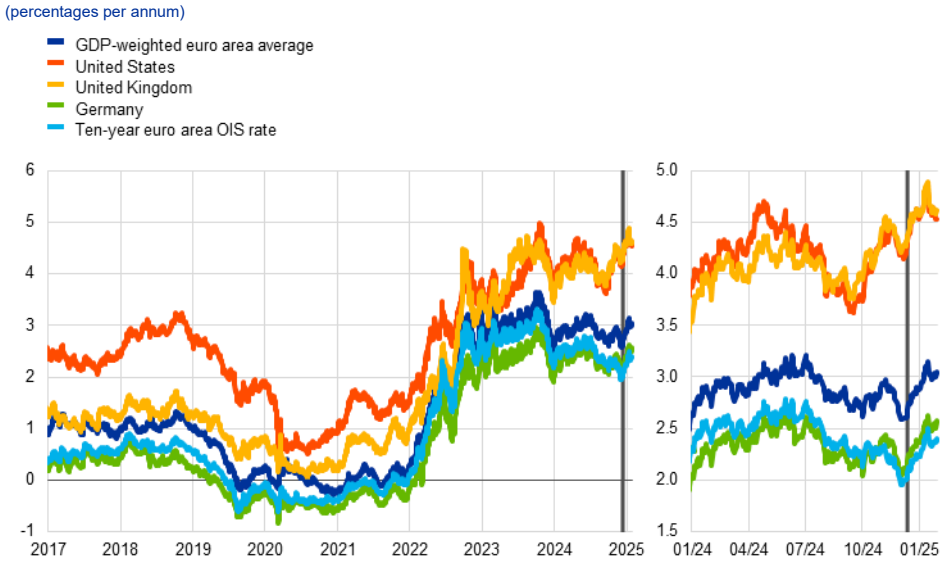
Euro area near-term risk-free rates increased in the review period following the December Governing Council meeting. The benchmark €STR averaged 3.0% over the review period, following the Governing Council's widely anticipated decision to lower the key ECB interest rates by 25 basis points at its December meeting. Excess liquidity was broadly stable, increasing by approximately €22 billion to €2,923 billion. This mainly reflected the fact that the repayments in December 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 its asset purchase programmes, were offset by a decrease in liquidity-absorbing net autonomous factors. After an initial decline, short-term rate expectations priced into the forward curve started to rise at around the turn of the year and into early January, as market participants revised their inflation outlook following an increase in energy prices. Euro area financial markets also reacted to the better than expected macroeconomic data releases for the US economy and to expectations of a slower future pace of interest rate cuts by the US Federal Open Market Committee (FOMC). In the euro area, the overnight index swap (OIS) forward curve, which is based on the €STR, increased by 7 basis points for one-year maturities and 24 basis points for two-year maturities, reflecting expectations of a slower pace of monetary policy easing in the euro area. By the end of the review period, markets were pricing in cumulative interest rate cuts of 90 basis points by the end of 2025, 33 basis points less than at the start of the period. Longer-term euro area risk-free rates also rose during the review period. The ten-year nominal OIS rate reached 2.4%, an overall increase of 32 basis points.

Long-term euro area sovereign bond yield spreads relative to risk-free rates increased slightly (Chart 14). The ten-year GDP-weighted euro area sovereign bond yield closed the review period at 3.0%, an increase of 35 basis points from its initial level. This resulted in a 4 basis point widening of the spread relative to the OIS rate. Sovereign bond spreads widened across jurisdictions, with a relatively narrow

dispersion across most countries. Internationally, the ten-year US Treasury yield rose by 20 basis points to 4.5%, while the ten-year UK sovereign bond yield climbed by 25 basis points, reaching 4.6%.

Chart 14

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 December 2024. The latest observations are for 29 January 2025.

Euro area equity prices ended the review period at somewhat higher levels. Despite the increase in interest rates, broad stock market indices climbed by 4.6% following an initial decline, supported by improved risk sentiment amid very few notable surprises in macroeconomic data. Corresponding stock market indices in the Unites States declined marginally, by 0.2%, reflecting the shift in market participants' monetary policy outlook. In the euro area, equity prices of non-financial corporations rose by 3.6%, while those of banks and other financial corporations gained 10.9% and 8.1% respectively. In the United States, equity prices of banks and other financial corporations increased by 6.6% and 3.1%, while those of non-financial corporations declined by 0.5%. The decrease in non-financial corporation equity prices was primarily driven by a decline in the IT sector.

Corporate bond spreads narrowed in both the investment-grade and high-yield segments. The positive market sentiment was also reflected in corporate bond spreads, which, amid some volatility, narrowed in both the investment-grade segment and the high-yield segment by 5 basis points overall. The narrowing in the investment-grade segment was driven by a decrease of 7 basis points in spreads on bonds issued by financial corporations, while spreads on non-financial corporation bonds declined by 4 basis points.

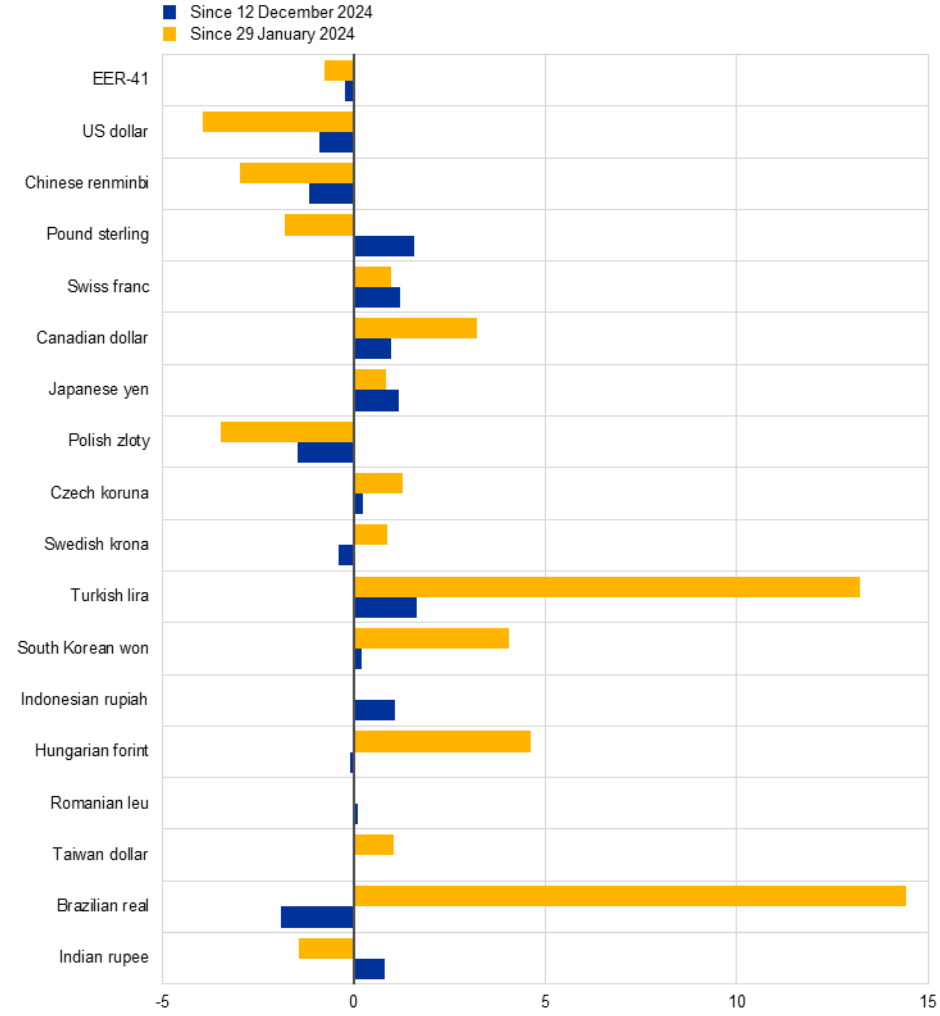
In foreign exchange markets, the euro depreciated moderately against the US dollar and remained broadly stable in trade-weighted terms (Chart 15). The nominal effective exchange rate of the euro – as measured against the currencies of 41 of the euro area's most important trading partners – was broadly stable (declining

by 0.2%) during the review period, given offsetting developments in the exchange rates against key currencies. The depreciation of the euro against the US dollar (by 0.9%) was largely driven by factors specific to the United States, such as the market reaction to the December FOMC meeting, robust US macroeconomic data releases and the anticipation of the economic policies of the incoming US Administration. The euro weakened by 1.2% against the Chinese renminbi, while the latter also weakened against the US dollar, albeit to a lesser extent. Conversely, the euro appreciated by 1.6% against the pound sterling amid growing expectations of future rate cuts by the Bank of England, weaker incoming economic data in the United Kingdom and uncertainty over the government budget outlook. Following a sustained appreciation for most of 2024, the Swiss franc depreciated by 1.2% against the euro after a larger than expected interest rate cut by the Swiss National Bank in December. The euro also appreciated by 1.2% against the Japanese yen. Over the review period the euro was little changed against most other major advanced and emerging market currencies.

Chart 15

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 29 January 2025.

5 Financing conditions and credit developments

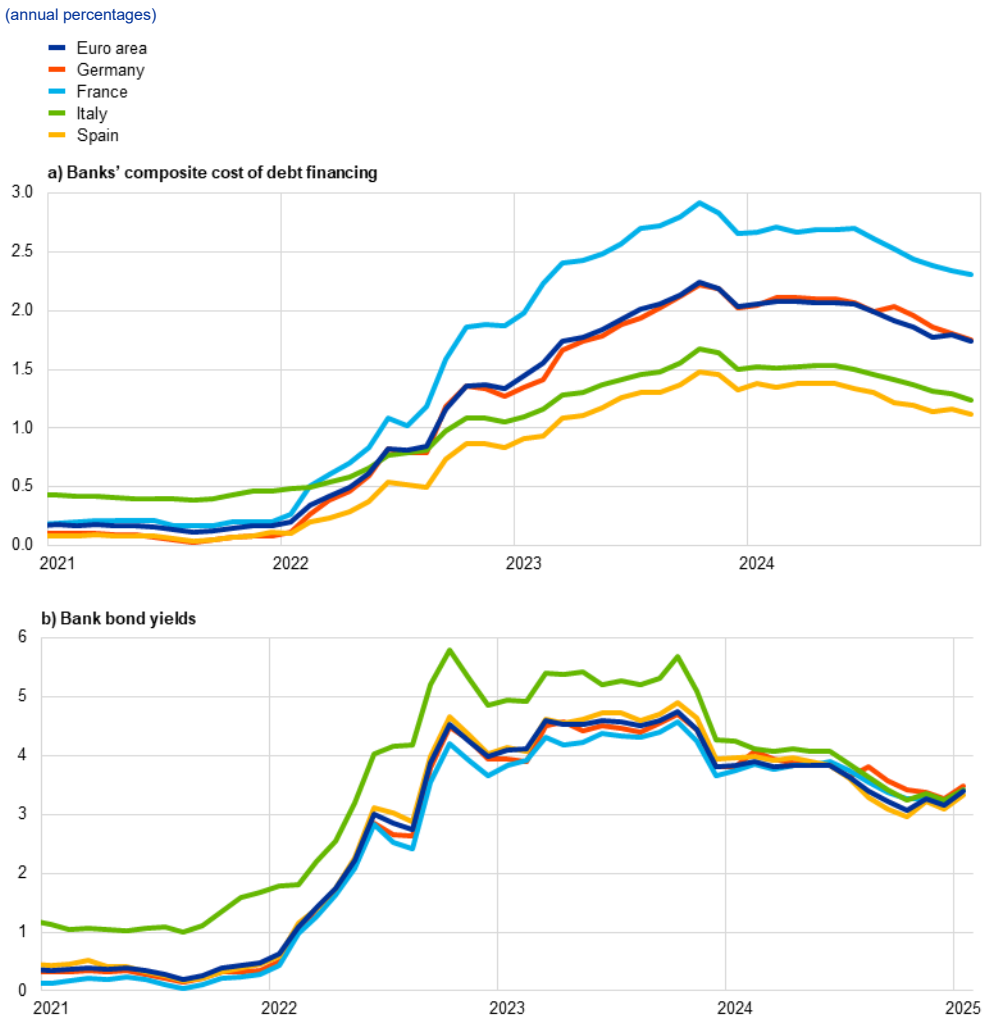
While financing conditions remain tight, ECB policy rate cuts are gradually making it less expensive for firms and households to borrow. In November 2024 bank funding costs and bank lending rates continued their gradual decline from peak levels. The average interest rates on new loans to firms and on new mortgages fell in November to 4.5% and 3.5% respectively. Growth in loans to firms and households increased in December but remained weak, reflecting still subdued demand and tight credit standards. Over the period from 12 December 2024 to 29 January 2025, the cost to firms of market-based debt financing increased while the cost of equity financing fell, reflecting the higher long-term risk-free interest rate and the lower equity risk premium. According to the January 2025 euro area bank lending survey, credit standards for loans to firms tightened in the fourth quarter of 2024, driven by higher perceived risks and lower risk tolerance. Credit standards remained unchanged for housing loans, after three quarters of easing. Housing loan demand rebounded strongly, while loan demand by firms remained weak. In the latest Survey on Access to Finance of Enterprises (SAFE) for the fourth quarter of 2024, firms reported a fall in bank interest rates and a further slight tightening of other loan conditions. Firms also indicated that there had been no change in the need for bank loans and a small reduction in bank loan availability. The annual growth rate of broad money (M3) declined slightly to 3.5% in December.

Euro area bank funding costs continued to gradually retreat 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 edged down in November 2024, standing at 1.9% (Chart 16, panel a). While the lower bank funding costs resulted primarily from a fall in bank bond yields (Chart 16, panel b), data available until 29 January show that a repricing of risk-free rates has put upward pressure on bank bond yields recently. Average deposit rates fell further, with the composite deposit rate standing at 1.2% in November, driven by diminishing interest rates on time deposits for firms and households. In contrast, rates on overnight deposits and deposits redeemable at notice remained broadly unchanged.

Bank balance sheets have been robust overall, despite a weak economic environment. In the third quarter of 2024, bank capitalisation remained broadly stable with capital ratios well above 15% and voluntary capital buffers exceeding Common Equity Tier 1 (CET1) requirements. Bank profitability remained at a high level in the third quarter of 2024, although downward pressure on earnings on floating rate assets will become a headwind for interest income as credit losses start to rise. Non-performing loans stayed broadly unchanged, being close to the historical lows seen in the first quarter of 2023. However, the proportion of underperforming (i.e. Stage 2) loans increased somewhat in 2024, especially as regards small firms and commercial real estate, pointing to worsening asset quality and higher provisioning costs for banks looking ahead.

Chart 16

Composite bank funding costs in selected euro area countries

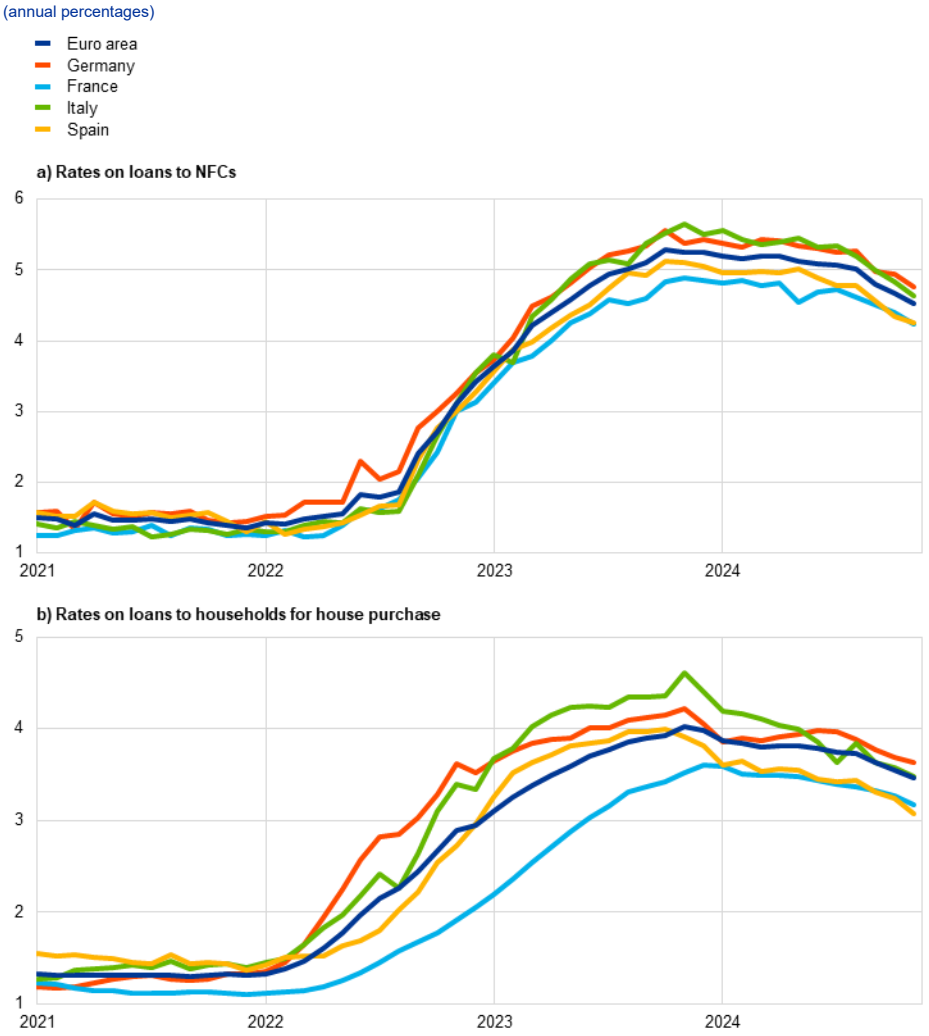


Sources: ECB, S&P Dow Jones Indices LLC and/or its affiliates, and ECB calculations.
Notes: Composite bank funding costs are a weighted average of the composite cost of deposits and unsecured market-based debt financing. The composite cost of deposits is calculated as an average of new business rates 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 December 2024 for the composite cost of debt financing for banks (panel a) and for 29 January 2025 for bank bond yields (panel b).

Bank lending rates for firms and for households declined further. Lending rates for firms and households have fallen since the summer of 2024, reflecting lower policy rates (Chart 17). In November 2024, lending rates for new loans to non-financial corporations (NFCs) fell by 15 basis points to stand at 4.52%, around 80 basis points below their October 2023 peak (Chart 17, panel a), this fall being widespread across the largest euro area countries. The spread between interest rates on small and large loans to firms widened in November to 0.48%. Lending rates on new loans to households for house purchase edged down by 8 basis points to stand at 3.47% in November, around 60 basis points below their November 2023 peak (Chart 16, panel b), with variation across countries. The decline was broad-based across fixation periods and more pronounced for variable rate mortgages, which nonetheless remained more expensive than those granted at fixed rates.

Chart 17

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 November 2024.

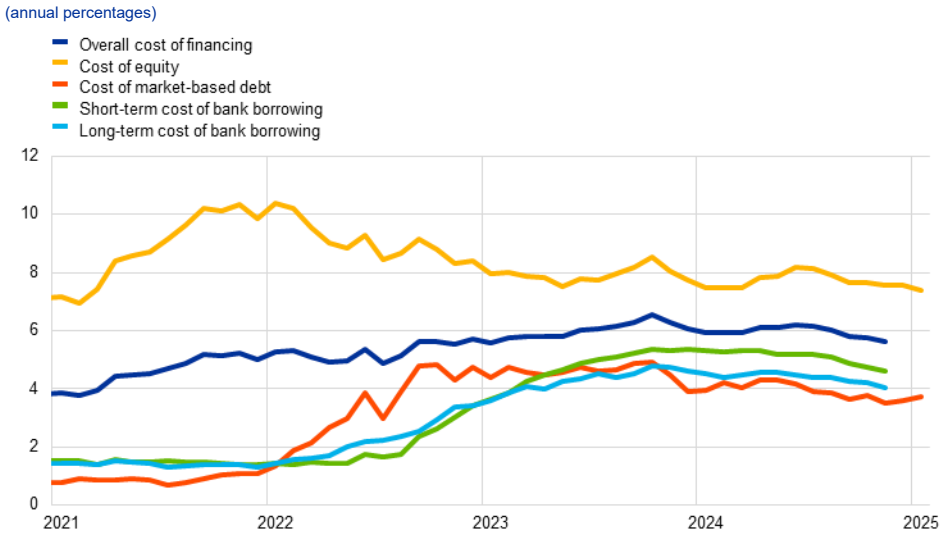
Over the period from 12 December 2024 to 29 January 2025, the cost to firms of market-based debt financing rose, while the cost of equity financing fell. Based on the monthly data, available until November 2024, the overall cost of financing for NFCs – i.e. the composite cost of bank borrowing, market-based debt and equity – declined in November compared with the previous month and stood at 5.6%, sliding further below the multi-year high reached in October 2023 (Chart 18).[8] The fall in November 2024 was accounted for by lower costs for both market-based debt and bank borrowing, while the cost of equity financing remained virtually unchanged. Daily data covering the period from 12 December 2024 to 29 January 2025 show that the cost of market-based debt financing increased, driven by an upward shift in the overnight index swap (OIS) curve. At the same time, the cost of

[8] 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 November 2024.

equity financing declined following a lower equity risk premium that offset the higher long-term risk-free rate – as approximated by the ten-year OIS rate.

Chart 18

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



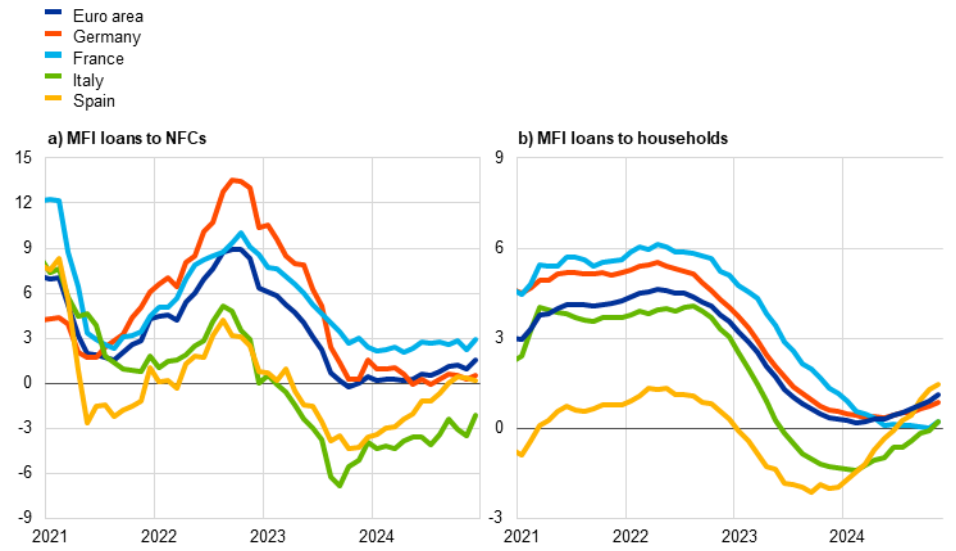
Sources: ECB, Eurostat, Dealogic, Merrill Lynch, Bloomberg, LSEG and ECB calculations.
Notes: The overall cost of financing for non-financial corporations (NFCs) is based on monthly data and is calculated as a weighted average of the long and short-term cost of bank borrowing (monthly average data), market-based debt and equity (end-of-month data), based on their respective outstanding amounts. The latest observations are for 29 January 2025 for the cost of market-based debt and the cost of equity (daily data), and for November 2024 for the overall cost of financing and the cost of borrowing from banks (monthly data).

Growth in loans to firms and households increased in December but remained weak, reflecting still subdued demand and tight credit standards. The annual growth rate of bank lending to firms rose to 1.5% in December 2024, up from 1.0% in November 2024, amid a strong monthly flow, but remaining well below its historical average of 4.8% (Chart 19, panel a). In contrast, the annual growth rate of corporate debt securities decreased to 3.2% in December from 3.6% in November. The annual growth rate of loans to households strengthened further to 1.1% in December, up from 0.9% in November, although remaining well below its historical average of 4.1% (Chart 19, panel b). This gradual recovery continued to be driven by housing loans. Consumer credit grew by 3.6% in December, while other lending to households, including loans to sole proprietors, is still contracting, albeit at a decelerating pace. The ECB's Consumer Expectations Survey in November 2024 showed that the percentage of households who perceived credit access to have been tighter still outweighs that perceiving credit access to have been easier.

Chart 19

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 December 2024.

In the January 2025 euro area bank lending survey, banks reported a renewed tightening of credit standards for loans to firms in the fourth quarter of 2024 and broadly unchanged credit standards for housing loans, after three quarters of easing (Chart 20). Credit standards for loans to firms saw their most pronounced (net) tightening since the third quarter of 2023 and this was accompanied by an increase in the share of rejected loan applications. The net tightening was driven by higher perceived risks related to the economic outlook and by lower risk tolerance on the part of banks. Banks reported broadly unchanged credit standards for loans to households for house purchase and a small reduction in the share of rejected applications. The stability of credit standards for housing loans is in contrast to the strong net easing that banks had expected in the previous quarter. In terms of drivers, while competition among banks exerted downward pressure on housing loan credit standards, banks' risk tolerance and risk perceptions had a tightening effect. For consumer credit and other lending to households, banks reported a (net) increase in the share of rejected applications and a further (net) tightening of credit standards, primarily driven by risk perceptions and banks' risk tolerance. For the first quarter of 2025, euro area banks expect a further tightening of credit standards for loans to firms, for consumer credit and for housing loans.

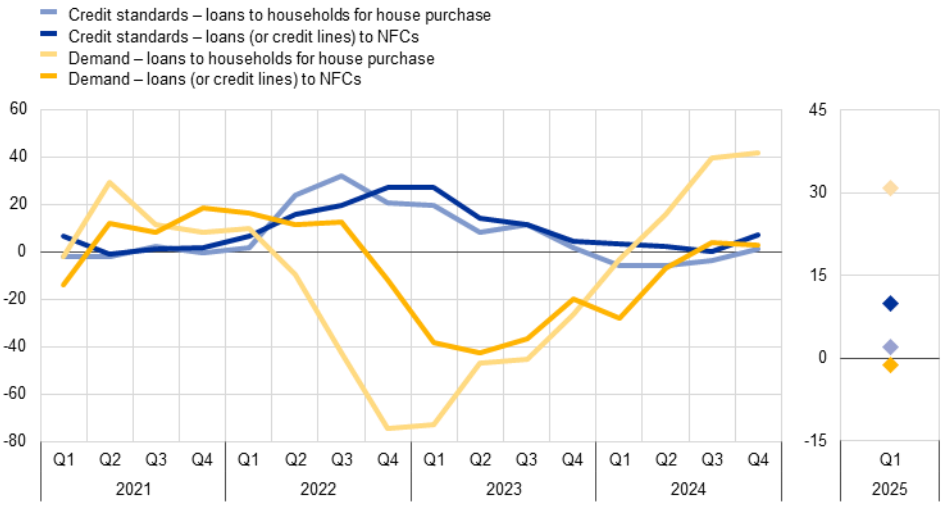
In the fourth quarter of 2024, banks reported a slight increase in loan demand by firms, although that demand remained weak overall, while housing loan demand continued to rebound strongly. The rise in loan demand by firms was driven by lower interest rates, while fixed investment exerted a muted impact. For housing loans, the strong increase in demand primarily reflected falling interest rates and, to a lesser extent, improving housing market prospects. While demand for consumer credit was also supported by declining interest rates, it was dampened by weak consumer confidence, as well as low spending on durables and the use of

alternative finance from other banks and non-banks. For the first quarter of 2025, banks expect broadly unchanged demand for loans to firms and a further increase in demand for loans to households.

Chart 20

Changes in credit standards and net demand for loans to NFCs and loans to households for house purchase

(net percentages of banks reporting a tightening of credit standards or an increase in loan demand)



Source: Euro area bank lending survey.
Notes: NFCs stands for non-financial corporations. For survey questions on credit standards, "net percentages" are defined as the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably". For survey questions on demand for loans, "net percentages" are defined as the difference between the sum of the percentages of banks responding "increased considerably" and "increased somewhat" and the sum of the percentages of banks responding "decreased somewhat" and "decreased considerably". The diamonds denote expectations reported by banks in the current round. The latest observations are for the fourth quarter of 2024.

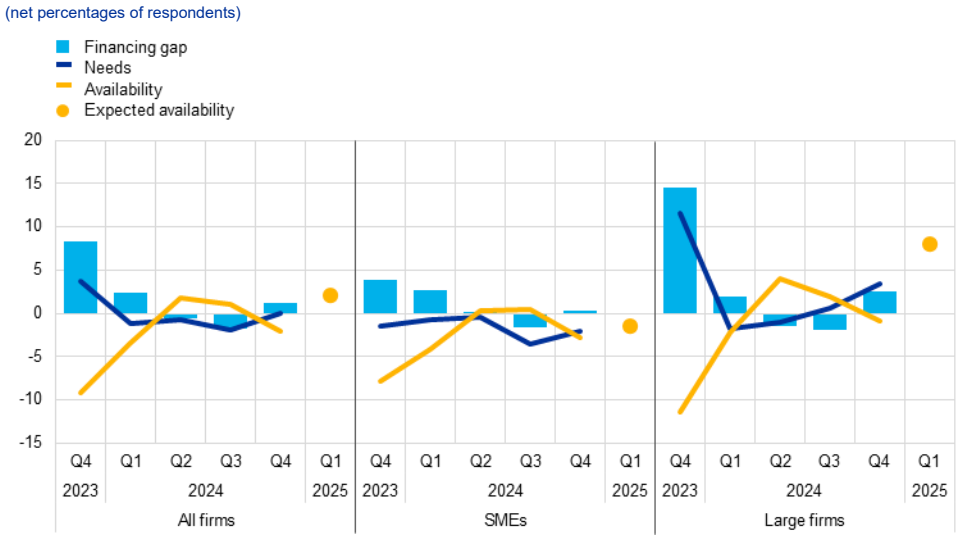
The ad hoc survey questions suggested that access to funding slightly deteriorated and perceived risks to credit quality had a tightening impact on credit standards for firms and consumers. Banks reported that their access to funding worsened somewhat for retail funding, money markets and debt securities in the last quarter of 2024. Supervisory and regulatory measures contributed to an increase in banks' required capital, as well as in their liquid and risk-weighted assets, which in turn contributed to a tightening of credit standards, especially for loans to firms. Perceived credit quality in bank loan portfolios also had a significant tightening effect on credit standards for both loans to firms and consumer credit in the second half of 2024, whereas the impact was neutral for housing loans. Over this same period, credit standards for firms continued to tighten across all the main economic sectors, especially in commercial real estate, wholesale and retail trade, construction and energy-intensive manufacturing. Loan demand decreased in net terms in commercial real estate, construction and energy-intensive manufacturing, and remained broadly unchanged in the other sectors. Banks reported that the decline in excess liquidity held with the Eurosystem had had a neutral impact on bank lending conditions in the second half of 2024, and a similar outcome is expected in the first half of 2025.

In the latest Survey on Access to Finance of Enterprises (SAFE), firms reported a decrease in bank interest rates, while noting a further slight

tightening of other loan conditions. In the fourth quarter of 2024, a net 4% of firms confirmed a decline in bank interest rates, compared with a net 4% reporting increases in the previous quarter. At the same time, a net 22% of firms (down from 30% in the third quarter of 2024) pointed to a rise in other financing costs, such as charges, fees and commissions. Firms also reported stricter collateral requirements than in the third quarter of 2024.

Chart 21

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. Expected availability has been shifted forward by one period to allow for a direct comparison with realisations. Values are multiplied by 100 to obtain weighted net balances in percentages. The figures refer to Pilot 2 and Rounds 30 to 33 of the SAFE (October-December 2023 to October-December 2024).

Firms saw unchanged bank loan needs, together with a small decline in bank loan availability, with few expecting significant improvements in that availability over the next three months (Chart 21). The small decrease in the availability of bank loans in the fourth quarter of 2024 coincided with the recent tightening of bank credit policies, especially as regards credit standards, as highlighted in the euro area bank lending survey for the same period. The financing gap for bank loans – an index capturing the difference between changes in needs and in availability – widened for a net 1% of firms, compared with a net 2% of firms experiencing a narrowing of that gap in the previous quarter. Looking ahead, firms expect to see small improvements in bank loan availability over the next three months, this expectation chiefly being held by large firms, while SMEs anticipate a slight decline in availability.

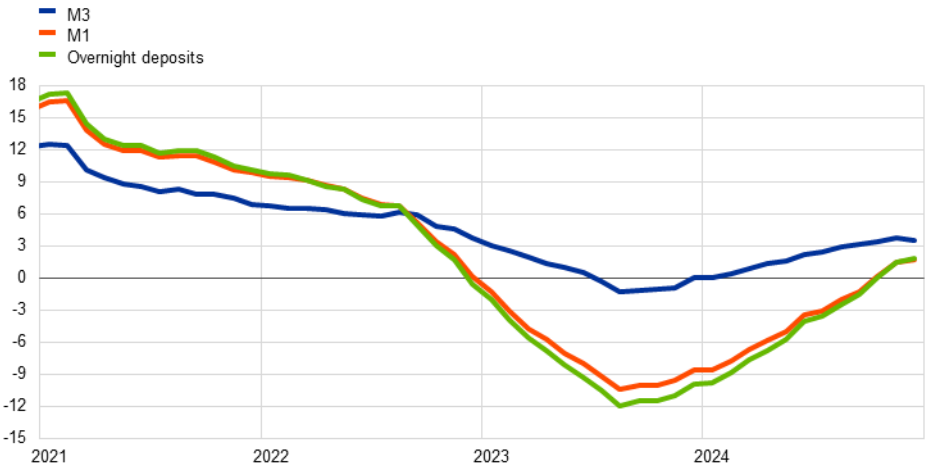
The annual growth rate of broad money (M3) in the euro area declined slightly to 3.5% in December, amid some monthly volatility. Annual M3 growth stood at 3.5% in December 2024, down from 3.8% in November but broadly unchanged from

October (Chart 22). Annual growth of narrow money (M1) – which comprises the most liquid assets of M3 – increased further to 1.8% in December, compared with 1.5% in November. The annual growth rate of overnight deposits – a component of M1 – rose to 1.8% in December, up from 1.5% in November. The contribution of net foreign flows, which have been the main source of money creation since late 2023, is showing tentative signs of weakening, while the contribution of lending to firms and households is gaining weight. In contrast, 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 operations (TLTROs) funding by the end of 2024 continued to contribute negatively to M3 growth.

Chart 22

M3, M1 and overnight deposits

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



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

Boxes

1 The outlook for services inflation in the United States and the United Kingdom

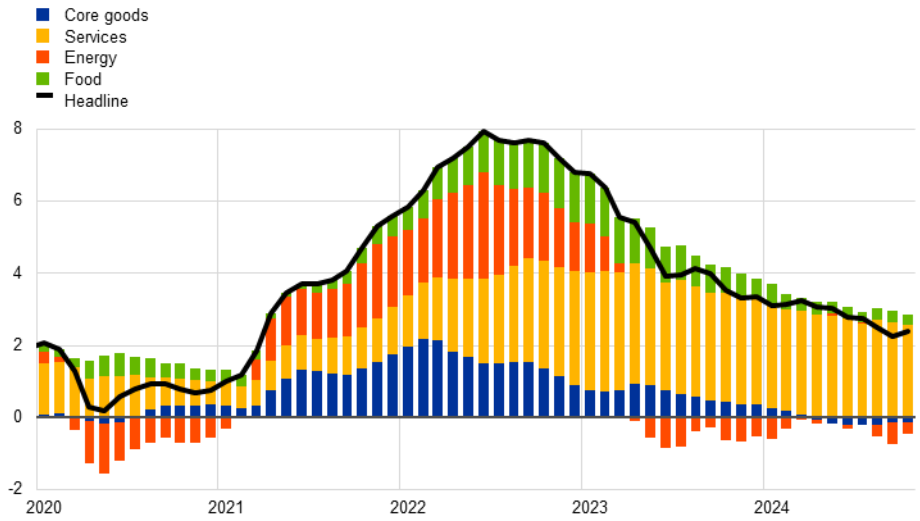
Prepared by Filippo Arigoni, Baptiste Meunier, Isabella Moder and Adrian Schmith

While headline inflation has decelerated significantly across advanced economies in the past two years, services inflation has remained high. Since peaking in mid-2022, headline inflation in advanced economies (excluding the euro area) has declined significantly, supported mainly by falling or negative contributions from energy and core goods prices (Chart A). At the same time, services inflation has remained high, representing by far the largest component of headline inflation.[1] This box analyses the main drivers of services inflation in the United States and the United Kingdom, disentangling services inflation excluding rents from rent inflation, as they follow different dynamics. Specifically, the box highlights the role of labour market tightness and catch-up dynamics in non-rent services inflation.[2]

Chart A

Headline inflation in selected advanced economies

(annual percentage changes, percentage point contributions)



Sources: OECD, Haver and ECB staff calculations.
Notes: Constructed as the weighted average of eight advanced economies excluding the euro area (United States, United Kingdom, Canada, Japan, Norway, Denmark, Sweden, Switzerland). The latest observations are for October 2024.

1 One factor behind the strong contribution of services inflation, compared with core goods, energy or food, is the larger weight of services in the consumer price index (CPI): 53.9% based on OECD weights, compared with 25.6% for core goods, 12.7% for food and 7.8% for energy. This may also reflect a slower pass-through of energy price shocks to services inflation than to energy and core goods inflation (see, for example, Kilian, L., "The Economic Effects of Energy Price Shocks", *Journal of Economic Literature*, Vol. 46, Issue 4, December 2008, pp. 871-909).

2 For an analysis of the role of catch-up dynamics in wage inflation in the euro area, see the box entitled "Recent developments in wages and the role of wage drift", *Economic Bulletin*, Issue 6, ECB, 2024.

In the case of non-rent services inflation, empirical analysis suggests that wage growth has been a key driver. The results of an econometric analysis indicate that wage inflation has generally been the main driver of core services inflation excluding rent (Chart B).[3] Input prices also played an important role in the strong rise in services inflation in 2022 and 2023, when producer prices inflation was pushed up by supply bottlenecks and large energy shocks, reaching levels twice as high as before the outbreak of the COVID-19 pandemic.[4] However, as input price pressures have receded on the back of a strong deceleration in producer price inflation, nominal wage pressures have become the main driver of services price inflation. The sources of inflationary pressures have thus shifted away from global and towards domestic factors, reflecting second-round effects as nominal wages start to catch up with inflation.[5] This is consistent with persistently high nominal wage inflation in the United States and the United Kingdom, which stood at 3.9% and 5.3%, respectively, in the second quarter of 2024, and the persistence of services inflation, despite downward pressure stemming from other factors.

3 The model, based on the Bank of England's Monetary Policy Report – August 2024, is an auto-regressive distributed lags (ARDL) model, with non-rent services inflation as an endogenous variable, and nominal wage growth, labour productivity and producer prices inflation as exogenous variables, and is estimated on quarterly data from 1988 to 2024. In line with the literature highlighting that price changes are influenced by the differential between nominal wages and labour productivity (when nominal wage growth exceeds labour productivity growth, the cost of labour per unit of output increases, pushing prices up; see, for example, Barlevy, G. and Hu, L., "Unit Labor Costs and Inflation in the Non-Housing Service Sector", *Chicago Fed Letter*, No 477, Federal Reserve Bank of Chicago, March 2023), the contribution of the wage-productivity differential is computed by summing the contributions from nominal wage growth (which has a positive coefficient in the model, as higher wages are passed through, to some extent, to consumer prices) and labour productivity (which has a negative coefficient in the model, as higher productivity lowers unit prices).

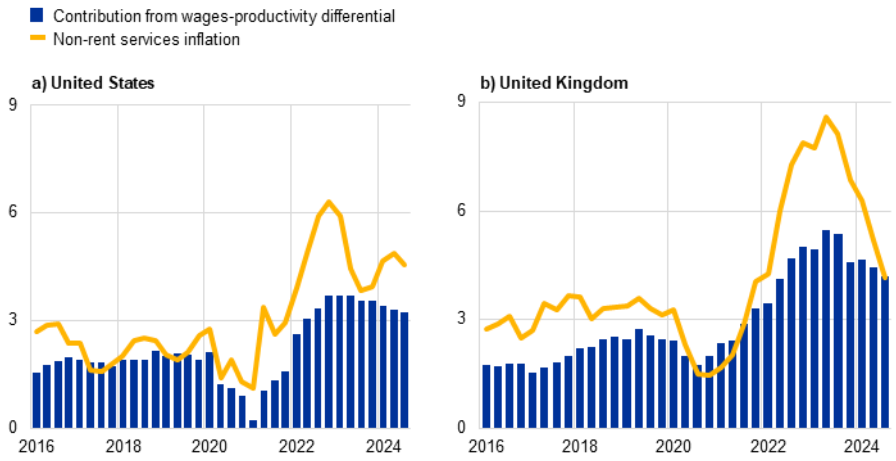
4 Producer prices relate to farm products and manufactured goods for the United States and to manufactured goods for the United Kingdom.

5 While not captured directly in the model, firms' markups might also have played a role in the inflation surge, as evidenced for the United States in Gerinovics, R. and Metelli, L., "The evolution of firm markups in the US and implications for headline and core inflation", *VoxEU*, Centre for Economic Policy Research, December 2023, and for the United Kingdom in Bunn, P., Anayi, L.S., Bloom, N., Mizen, P., Thwaites, G. and Yotzov, I., "Firming up Price Inflation", *NBER Working Paper*, No 30505, National Bureau of Economic Research, September 2022.

Chart B

Wage contribution to non-rent core services inflation

(annual percentage changes, percentage point contributions)



Sources: National sources, OECD and ECB staff calculations.
Notes: The decomposition is based on the Bank of England's Monetary Policy Report – August 2024. The model employed is an ARDL model using non-rent services inflation, wage growth, labour productivity and producer price inflation, estimated on quarterly data from 1988 to 2024. The wages-productivity differential is computed as the sum of the respective contributions of nominal wage growth and labour productivity. The latest observations are for the third quarter of 2024.

Labour market tightness and catch-up dynamics have been the main contributors to the post-pandemic acceleration of wage growth and its recent moderation. An examination of the factors underlying nominal wage inflation suggests that a large part of wage growth developments in the United States and the United Kingdom can be attributed to labour market tightness and lagged inflation, reflecting second-round effects as nominal wages catch up with previous inflation (Chart C).[6] In the United States, both labour market tightness and high inflation rates have contributed to the acceleration in wages since 2021. After the peak in mid-2022, wage growth started to decline again, equally supported by a softening of labour market tightness and lower inflation. By contrast, in the United Kingdom the timing of the contributions of these two factors to wage growth was different. Labour market tightness played a strong role in the initial wage acceleration after mid-2021, mainly owing to UK-specific conditions, such as a decline in the labour force driven by increased long-term sickness and Brexit-related labour shortages.[7] Lagged inflation, probably linked to second-round effects, started to play a more prominent role in the second half of 2022. Since late 2022 and early 2023, labour market tightness has started to ease, while lagged inflation has remained the main driver of wage growth above pre-pandemic levels.[8]

6 See Yellen, J.L., "Inflation, Uncertainty, and Monetary Policy", speech at the 59th Annual Meeting of the National Association for Business Economics, Board of Governors of the Federal Reserve System, 26 September 2017.

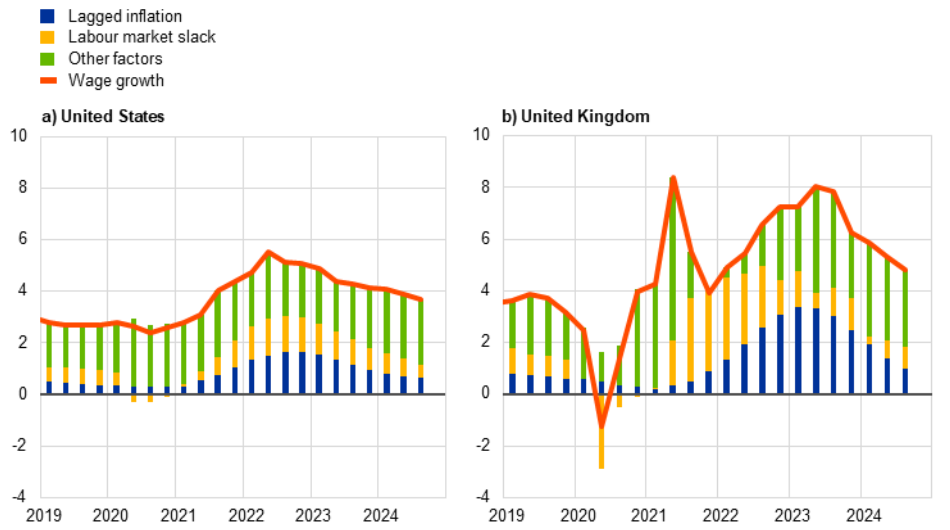
7 See Li, G. and Mulas-Granados, C., "The Recent Decline in United Kingdom Labor Force Participation: Causes and Potential Remedies", *IMF Selected Issues Papers*, No 2023/051, International Monetary Fund, July 2023.

8 For the United Kingdom, the varying contribution from labour market slack to wage inflation since 2023 reflects volatility in the official unemployment rate, largely due to a strong decline in participation in the labour force survey. Meanwhile, vacancies have come down smoothly in the same period, consistent with easing pressures. Negative wage growth during the pandemic can be explained by the furlough scheme which was in place from March 2020 to September 2021 and led to lower earnings for some workers who were on furlough.

Chart C

Decomposition of nominal wage growth

(annual percentage changes, percentage point contributions)



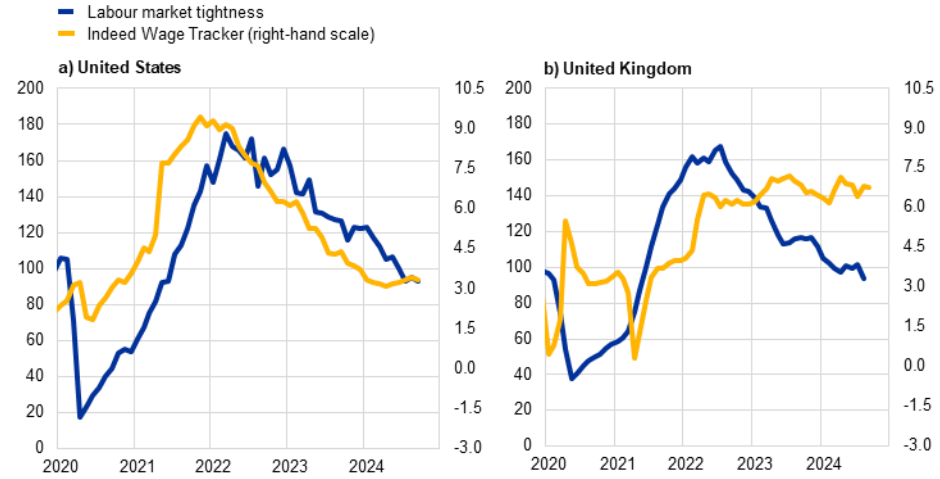
Sources: US Bureau of Labor Statistics, US Bureau of Economic Analysis, UK Office for National Statistics, OECD and ECB staff calculations.
Notes: The decomposition is based on Yellen, J.L., "Inflation, Uncertainty, and Monetary Policy", op. cit. The model uses private sector wage growth, labour productivity, lagged inflation and labour market slack, and is estimated using data from 2007 to 2023. The latest observations are for the third quarter of 2024.

Forward-looking indicators point to a moderation of wage growth. The Indeed Wage Tracker is generally considered a leading indicator for wage growth as it is based on pay offers included in new job ads online. The latest data from the tracker point to a decline in wage growth for the United States and a stabilisation at relatively high levels for the United Kingdom (Chart D). In the third quarter of 2024, the Indeed Wage Tracker for the United States was in the range of 3 to 3.5% for the third consecutive quarter, showing signs of stabilising at its pre-pandemic level. In the United Kingdom, the tracker has stabilised at an annual growth rate of 6 to 7% for the last three quarters. Hence, while the actual nominal wage growth series in the United Kingdom is showing clear signs of gradual disinflation (Chart C), and forward-looking business surveys point to a moderation, there remains some uncertainty around the extent of the moderation, as suggested by the unchanged value of the Indeed Wage Tracker. The latest readings of the ratio of vacancies to unemployment, an indicator of labour market tightness, also exhibited substantial signs of easing and a return to pre-pandemic averages for both countries. This is consistent with a likely, albeit delayed, cooling of UK wage inflation going forward.

Chart D

Forward-looking indicators of labour market tightness and wages

(left-hand scale: index: 2019 = 100; right-hand scale: annual percentage changes)



Sources: US Bureau of Labor Statistics, US Bureau of Economic Analysis, UK Office for National Statistics, Indeed Hiring Lab and ECB staff calculations.
Notes: Labour market tightness is measured as the ratio of vacancies to unemployed persons. The latest observations are for September 2024.

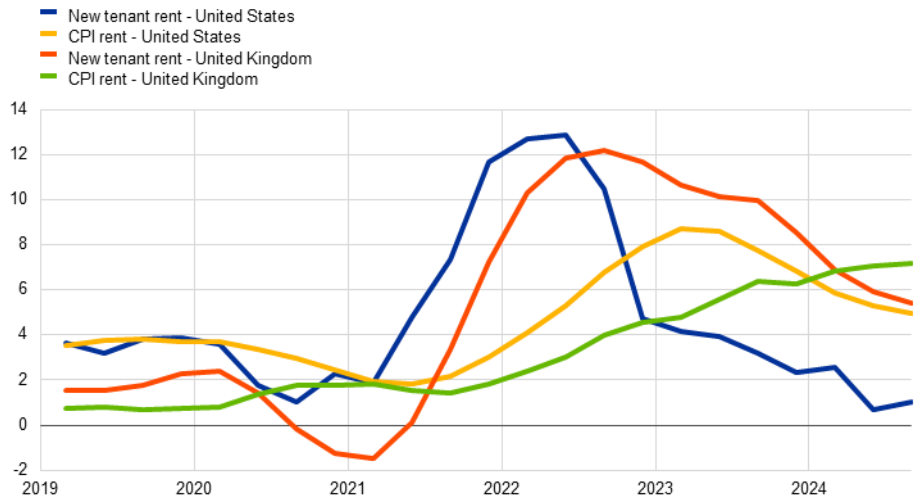
In addition, rent inflation accounts for a non-negligible part of services inflation in the United States and the United Kingdom. Rent inflation (excluding owner-occupied housing) accounts for 12% and 16%, respectively, of US and UK services inflation.[9] Rent inflation tends to exhibit strong persistence, since only new contracts and agreements renegotiated for contractual reasons affect the stock of rental agreements. Hence, large inflationary shocks – such as seen in recent years – pass through to overall rent inflation only with a lag. From 2021, rent inflation lifted off in the United Kingdom and even more so in the United States, where it appears to have peaked in mid-2023 (Chart E). Data from independent rental brokers on new rental agreements, which show a high correlation with one-year-ahead CPI rent inflation, suggest that, in the near term, rental inflation should decrease further in the United States and start easing in the United Kingdom.

9 In the euro area, rents account for 13% of services inflation.

Chart E

Early indicators of rent inflation

(annual percentage changes)



Sources: Haver, Zoopla Rental Index (United Kingdom) and US Bureau of Labor Statistics.
Notes: Quarterly observations computed as three-month averages of monthly data. The latest observations are for the third quarter of 2024. Owing to data availability, the observation for the third quarter of 2024 for "New tenant rent – United Kingdom" corresponds to July 2024.

A moderation in wage growth and rent inflation should bring down services inflation, although the pace of disinflation remains uncertain. Forward-looking indicators are pointing to a deceleration in wage growth and rent inflation amid still restrictive monetary policy in both jurisdictions. Should wage growth and rent inflation decelerate in the near term in line with these forward-looking indicators, UK and US services inflation can be expected to decrease. However, the pace of disinflation remains uncertain, and more persistent than expected services inflation could be fuelled by enduringly high wage growth, particularly if the labour market remains tight or if workers continue to make high wage demands in response to the erosion of real wages by past inflation. Moreover, structural shifts in wage and price-setting behaviour might have contributed to the recent inflationary persistence and might continue to do so in the period ahead.[10]

[10] See the box entitled "Alternative cases for the persistence of domestic inflationary pressures" in Monetary Policy Report – November 2024, Bank of England, November 2024.

2 Are real incomes increasing or not? Household perceptions and their role for consumption

Prepared by Adam Baumann, Luca Caprari, Georgi Kocharkov and Omiros Kouvavas

Over the past few years private consumption has risen at a slower pace than real disposable income.[1] Chart A illustrates the diverging paths of real income and private consumption during the last three years. According to the national accounts, real household income increased by 3.8% between the second quarter of 2022 and the second quarter of 2024. However, real private consumption did not follow the same trend, growing by only 1.2% over the same period. It is well documented that past personal experiences affect the economic decisions of households.[2] Thus, one possible explanation for the slower consumption growth is that the recent inflation surge has scarred people's beliefs, causing households to perceive their real income to be lower than it actually is.[3] As households adjust their actual consumption on the basis of these beliefs, such perceptions can have an effect on consumer spending. In this box, we use data from the ECB's Consumer Expectations Survey (CES) to assess this factor for the euro area.

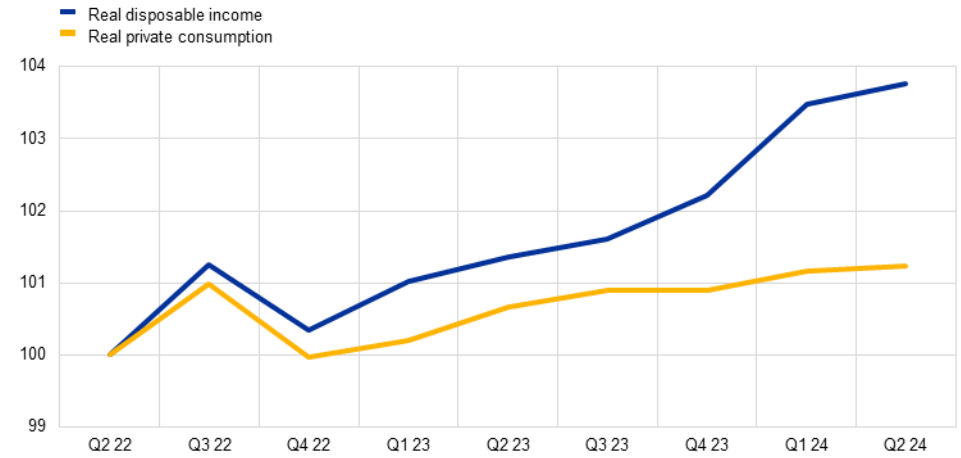
1 For a more detailed exploration of how experiences can "scar" consumers, see Malmendier, U. and Shen, L.S., "Scarred Consumption", *American Economic Journal*: Macroeconomics, Vol. 16, No 1, 2024, pp. 322-355. For previous work on understanding developments in, and perceptions of, household disposable income, see the box entitled "A primer on measuring household income", *Economic Bulletin,* Issue 8, ECB, 2023. Other possible explanations for the slower consumption growth may relate to rebuilding buffers after a large shock, uncertainty about geopolitical events, or time lags in spending adjustments that are not related to the scarring of beliefs.

2 For a summary of recent advances in behavioural economics regarding the role of long-lasting effects of past experience in economic decisions, see Malmendier, U. and Wachter, J. A., "Memory of Past Experiences and Economic Decisions", *The Oxford Handbook of Human Memory*, 2024.

3 See, for example, Colarieti, R., Mei, P. and Stantcheva, S., "The How and Why of Household Reactions to Income Shocks", *NBER Working Paper*, No 32191, 2024.

Chart A

Real household disposable income and consumption



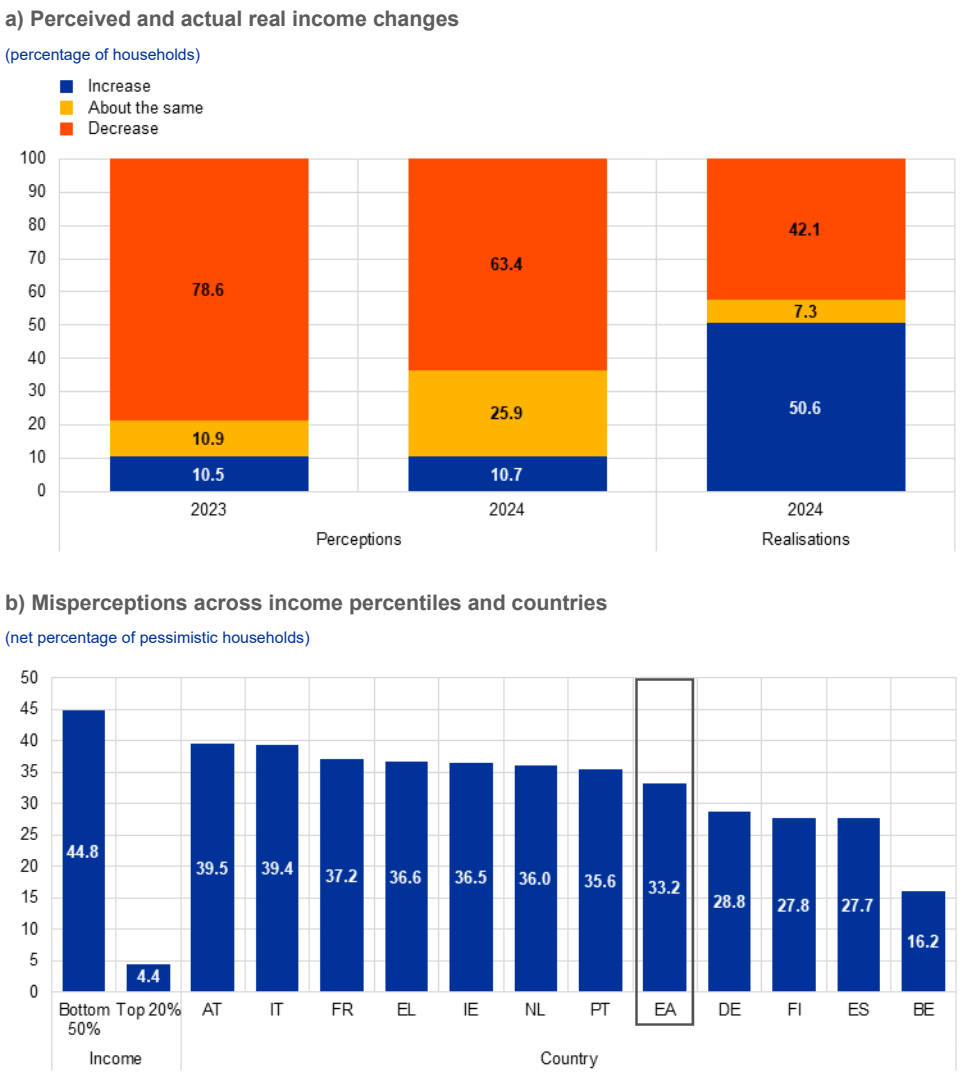
Sources: Eurostat and ECB calculations.
Note: The latest observations are for the second quarter of 2024.

The inflation surge seen in the past few years has had a negative impact on how consumers perceive their real income. In response to a qualitive question in the September 2024 CES, only 37% of respondents (21% in response to the same question in September 2023) reported that their real household income had increased or stayed the same (Chart B, panel a). This stands in stark contrast to the growth in real income of the same households based on their self-reported nominal labour income in 2023 and 2024 and official country-specific inflation rates.[4] These implied real income realisations show that over 50% of all households experienced positive real income growth during the same period. Thus, households have a much more pessimistic perception of their real income than their actual real income would imply – although this perception has improved since 2023. This suggests that the recent inflation surge has had a negative impact on households' perceptions.

4 Households report their labour income (including self-employment income) every quarter, which allows annual changes in household-level real income to be computed using official inflation rates. Using respondent-specific inflation perceptions instead of actual inflation rates does not change the results and current inflation perceptions do not explain the pessimism in the responses to the qualitive question. Hence, the pessimism reflects a perception of a negative real income shock that is persistent over time.

Chart B

Real income perceptions and realisations



Source: ECB Consumer Expectations Survey (CES).
Notes: Weighted data. Panel a) shows households' real income perceptions in 2023 and 2024. Survey respondents were asked the question: "Thinking about the percentage change of the total net income of your household in comparison to the percentage change of prices in general during the past 12 months, which of the following statements applies best?". The answer options were: "The total net income of my household…1) increased more than prices in general, 2) increased less than prices in general, 3) decreased, 4) changed about as much as prices in general". Income realisations are based on actual self-reported nominal labour income levels in 2023 and 2024 and country-specific inflation based on the Harmonised Index of Consumer Prices (HICP). In panel b), "net percentage of pessimism" refers to the difference in the percentage of households that perceived a decrease in real income while their implied real income increased and the percentage of households that perceived an increase in real income while their implied real income decreased. Income percentiles are calculated using self-reported nominal labour income levels in 2023, by country. For both panels, the latest observations for income realisations are for October 2024.

Pessimism about real income is more widespread among lower-income households. The net percentage of pessimists – or the difference between the share of people who underestimate changes in their real income minus the share of people who overestimate such changes – is much higher at the bottom of the income distribution than it is at the top (Chart B, panel b). This is likely a reflection of differences in the composition of their income (financial versus labour), their consumption basket or level of financial literacy. The prevalence of pessimistic perceptions is relatively evenly distributed across all countries in our sample, except for Belgium. The less pessimistic real income perceptions among Belgian

households seem to be related to the widespread (and well understood) indexation of wages and other incomes to inflation in that country, which has accelerated the realignment of nominal incomes to higher prices.[5]

Pessimistic perceptions about real income have a negative impact on actual consumption. Based on observations of households with increasing real income between 2023 and 2024, the sample can be classified as (i) households with increasing real incomes that correctly perceive their real incomes have increased; and (ii) households with increasing real incomes that perceive that their real incomes have decreased. The impact of pessimism is estimated by comparing the changes in consumption of these two groups. For households that believe their incomes have decreased although they have not, this pessimism might negatively affect their realised consumption compared with households that correctly believe their real incomes have increased. Chart C shows the difference in total changes in consumption for these two groups between 2023 and 2024. Pessimistic households show significantly more negative changes in consumption than those that correctly perceive increases in their incomes. This difference is visible in all consumption categories, but it is greater in services than in necessities and durable goods.

Chart C

Impact of pessimism on consumption

(monthly consumption changes, 2023-24, in euro)

Source: ECB Consumer Expectations Survey (CES).
Notes: Weighted data. Perception errors are defined as increases in real income in households that have been perceived as decreases. Estimates are based on a differences-in-differences specification between 2023 and 2024 for the two groups (real income increase perceived as an increase and real income increase perceived as a decrease). The estimated differences are depicted in the form of bars with the yellow error whiskers representing the 90% confidence interval. The latest observations for income realisations are for October 2024.

As the scarring effects of the recent inflation surge dissipate, consumption is expected to catch up with real income growth. The recent inflation surge has strongly affected households' real income perceptions, with a negative impact on actual consumption. As pessimism following large economic shocks typically

[5] See, for example, Jonckheere, J. and Zimmer, H., "Wage-price dynamics and monetary policy", *NBB Economic Review*, No 4, 2024.

disappears, albeit gradually, consumption should gain momentum as perceptions about real incomes improve.[6]

[6] The new behavioural economics literature, as summarised by Malmendier, U. in "Experience Effects: The Longlasting Effects of Crises and Other Past Experiences on Expectations and Economic Decisions", lecture at the 2022 Pension Research Council Virtual Symposium, Wharton School of the University of Pennsylvania, 31 March 2022, emphasises the gradual nature of adjustments to past economic shocks.

3 The role of demographics in recent developments in the unemployment rate

Prepared by Clémence Berson, António Dias da Silva and Marco Weissler

Demographic changes in the euro area labour market affect the unemployment rate. The euro area unemployment rate has decreased by 0.9 percentage points since the fourth quarter of 2021, falling to 6.3% in October 2024, its lowest level since the creation of the euro.[1] This decline occurred despite the significant increase in the size of the labour force, which grew by 3.5% between the fourth quarter of 2021 and the third quarter of 2024. This increase was largely attributable to non-EU labour[2], older workers[3] and workers with a tertiary education. These groups grew by 24.7%, 9.9% and 7.9% respectively (Chart A) and increased not only in terms of their respective sizes but also as regards their participation rates. The degree to which demographic shifts in the labour force can affect unemployment rates varies depending on the different characteristics of the groups concerned, including the differing unemployment risks of their professions and their job tenures. For instance, workers with longer job tenures often have greater protection against layoffs under employment legislation. Furthermore, experienced workers and workers with higher educational attainment levels frequently find new jobs more quickly after becoming unemployed. Demographic characteristics, such as age, educational attainment and nationality can therefore affect the likelihood of being employed or unemployed. Against this backdrop, this box explores the role of labour supply factors in driving the unemployment rate and, more specifically, the potential contributions of demographic developments.[4]

1 See the article entitled "Explaining the resilience of the euro area labour market between 2022 and 2024", *Economic Bulletin*, Issue 8, ECB, 2024.

2 Throughout this box, "non-EU labour" is used to refer to workers who are not citizens of an EU country, "intra-EU labour" to workers who are citizens of an EU country but not of the country where they are working, and "foreign workers" to workers who are not citizens of the country in which they form part of the labour force. "National workers" refers to citizens of a euro area country working in that country.

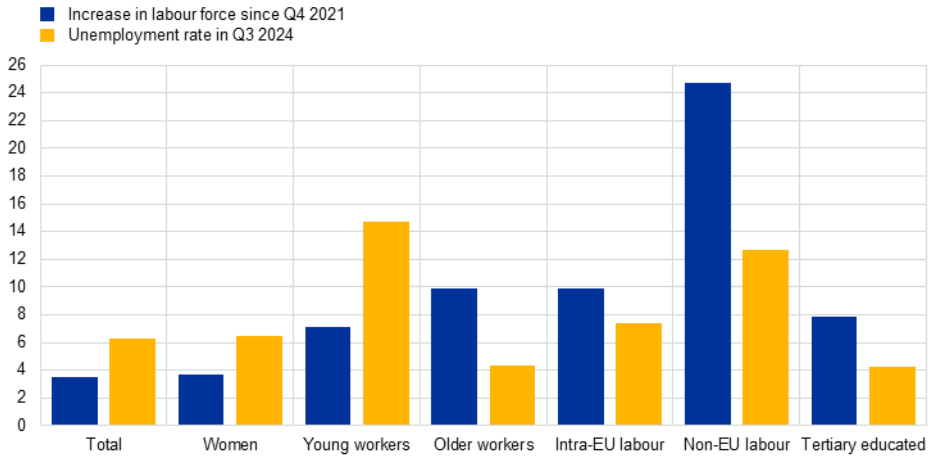
3 For the purposes of this study, young workers are those in the 15-24 age group, prime-age workers are those in the 25-54 age group and older workers are those in the 55-74 age group.

4 The current dynamics of the unemployment rate have also benefited from labour hoarding in the euro area, which has helped to contain layoffs. For an analysis and estimates of labour hoarding, see the box entitled "Higher profit margins have helped firms hoard labour", *Economic Bulletin*, Issue 4, ECB, 2024.

Chart A

Labour force participation and the unemployment rate by demographic group

(labour force: percentage changes; unemployment rate: percentages of the labour force)



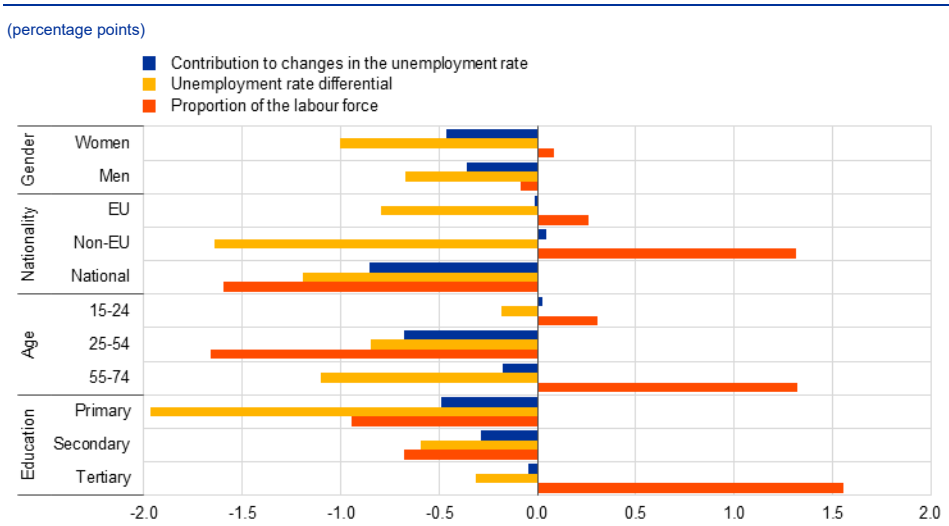
Source: Eurostat.
Notes: The latest observations are for the third quarter of 2024. The unemployment rates and labour force figures have both been seasonally adjusted. The chart only shows those demographic groups with above-average labour force growth.

The number of unemployed has declined strongly in recent quarters. While the unemployment rate has been falling slowly since early 2023, the number of unemployed has diminished significantly, by some 1.0 million workers (8.7%), since the fourth quarter of 2021, equating to around 0.6% of the labour force over this period. Unemployment rates have, however, continued to vary significantly across demographic groups (Chart A). In the third quarter of 2024, the seasonally adjusted unemployment rates for older workers and for foreign workers (intra-EU and non-EU labour) stood at 4.4% and 12.7% respectively. Shifts in the demographic composition of the labour force may therefore also play a role in changes in the unemployment rate.

The fall in the unemployment rate has varied across demographic groups (Chart B, yellow bars). The unemployment rate decreased by 1.0 percentage points for women, but by just over 0.7 percentage points for men. A breakdown of the working population by nationality – national workers, intra-EU labour and non-EU labour – shows that the unemployment rate has fallen by 1.6 percentage points for non-EU labour since the fourth quarter of 2021, significantly more than the 1.2 percentage point decline seen for national workers over that period. The unemployment rate for intra-EU labour has only decreased by 0.8 percentage points over this period, reflecting their already lower unemployment rate. Across age groups, the sharpest decline in the unemployment rate has been for older workers. Major differences in the fall in the unemployment rate have also been observed across educational attainment groups, with the rate for workers with a non-tertiary education declining much more steeply than for workers with a tertiary education (- 1.1 and -0.3 percentage points respectively). Overall, this suggests that there is considerable variation in unemployment rate trends across demographic groups. The largest contributors to the fall in the unemployment rate are national workers and prime-aged workers (Chart B, blue bars), both of whom account for a large part of the labour force.

Chart B

Unemployment rate decomposition from the fourth quarter of 2021 to the third quarter of 2024



Sources: Eurostat and ECB staff calculations.
Notes: "Unemployment rate differential" is the change in the unemployment rates for each sub-group. "Proportion of the labour force" is the change in the contribution of each sub-group to the total labour force (adding up to zero across subgroups). "Contribution to changes in the unemployment rate" is the combined effect of the unemployment rate differential and the shift in the proportion of the corresponding demographic group in the labour force. The unemployment rates and labour force figures have both been seasonally adjusted. The latest observations are for the third quarter of 2024.

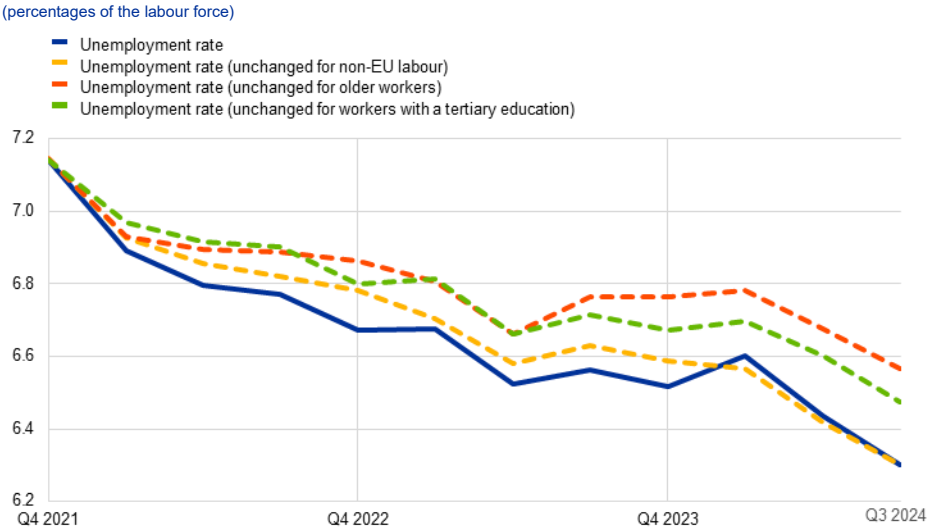
The decline in the unemployment rate has been supported by demographic shifts in the labour force. The rise in the proportion of older workers, non-EU labour and workers with a tertiary education in the labour force has intensified their contribution to the recent decline in the unemployment rate (Chart B, red bars). Over the last three years, the changes in the sizes of these groups have been substantial and accompanied by falling unemployment rates. These falls are attributable, first, to the constantly improving educational level of the workforce, reflecting better access to education in the euro area for the current cohorts relative to those of the past. The proportion of the workforce with a tertiary education has risen by 1.6 percentage points since the fourth quarter of 2021 (Chart B). Second, the proportion of older workers has increased strongly since 2021 (up by 1.3 percentage points), while the proportion of prime-age workers is continuing to decline (having fallen by 1.7 percentage points over the same period). Both groups contributed to the recent decline in the unemployment rate. Third, the proportion of foreign workers in the working population has also increased significantly over the past two years, particularly that of non-EU labour (rising by 1.3 percentage points since the fourth quarter of 2021). However, given that their unemployment rate is higher than that for the rest of the workforce, foreign workers did not contribute to the recent decline in the unemployment rate. Over the same period, the proportion of national workers decreased (falling by 1.6 percentage points since the fourth quarter of 2021) owing to the demographic decline in the working age of EU home-country populations.

Most of the increase in the size of the labour force for foreign workers is reflected in higher employment, with the unemployment rate for such workers falling in line with that for national workers. Since the end of 2021, the participation of foreign workers in the labour market has risen significantly,

increasing by 9.9% for intra-EU labour and by 24.7% for non-EU labour. While the unemployment rates for foreign workers (7.4% for intra-EU labour and 12.6% for non-EU labour) are significantly higher than the unemployment rate for national workers (5.8%), the growing participation of foreign workers in the labour market in recent years has had no significant impact on the unemployment rate in the euro area, given that much of this increased participation has translated into higher employment. The unemployment rate for non-EU labour has, in fact, fallen more than the rate for national workers. However, a counterfactual unemployment rate, assuming, for non-EU labour, an unchanged unemployment rate and labour force participation at the level observed in the fourth quarter of 2021, would not have changed the overall unemployment rate in the third quarter of 2024 and the rate would even have been 0.1 percentage points higher than in 2022-23 (Chart C).

Chart C

Unemployment rate and contribution of non-EU labour, workers with a tertiary education and older workers



Source: Eurostat.
Notes: The unemployment rates and labour force figures for non-EU labour, workers with a tertiary education and older workers remain at their levels for the fourth quarter of 2021 in the counterfactual scenarios. The latest observations are for the third quarter of 2024. The unemployment rates and labour force figures have both been seasonally adjusted.

Shifts in educational attainment slightly decreased the unemployment rate.

The increasing proportion of the workforce with a tertiary education contributed significantly to the gradual decline in the unemployment rate. If the proportions for educational attainment had remained at the levels seen in the fourth quarter of 2021, the unemployment rate in the third quarter of 2024 would have been 0.2 percentage points higher. While the unemployment rate for workers with a tertiary education did not fall more strongly than the overall rate, it was structurally lower. This can generally be explained by the more flexible skills of these workers, resulting in a reduction in their risks of unemployment and making it easier for them to find new employment after a job loss.[5] This is not the case in all countries, however. In Germany and the Netherlands, for instance, workers with a vocational secondary

[5] See, for example, Education at a Glance 2024: OECD Indicators, Organisation for Economic Co-operation and Development, Paris, 10 September 2024.

education have similar or even lower unemployment rates than workers with a tertiary education.

At the same time, the increasing proportion of older workers in the labour force has contributed significantly to the recent decrease in the unemployment rate. The population of the euro area is ageing and older workers are remaining in the labour market for longer. For instance, owing to their higher labour market attachment relative to previous cohorts and thanks to a continuing high demand for expertise and skills and a secular shift in tasks (e.g. towards less physically demanding tasks), more workers are continuing to work up to their statutory retirement age. Moreover, several countries have reformed their pension systems, leading to an increase in the effective retirement age.[6] Consequently, older workers are becoming a larger group within the labour force and their labour market participation increased by 9.1% between the fourth quarter of 2021 and the third quarter of 2024.[7] In addition, the unemployment rate for older workers is low, standing at 4.4% in the third quarter of 2024 (1.0 percentage points lower than in the last quarter of 2021), compared with 5.8% for prime-age workers (falling by 0.9 percentage points over the same period). If the unemployment rate and labour force participation of older workers had remained constant at the levels seen at the end of 2021, the aggregate euro area unemployment rate would have been 0.3 percentage points higher in the third quarter of 2024.

6 There is also a positive association between educational attainment and continued employment. See, for example, Venti, S. and Wise, D.A., "The Long Reach of Education: Early Retirement", *Journal of the Economics of Ageing*, Vol. 6, 2015, pp. 1-13.

7 See Berson, C. and Botelho, V., "Record labour participation: workforce gets older, better educated and more female", *The ECB Blog*, ECB, 8 November 2023; and the box entitled "Ageing cost projections – new evidence from the 2024 Ageing Report", *Economic Bulletin*, Issue 5, ECB, 2024.

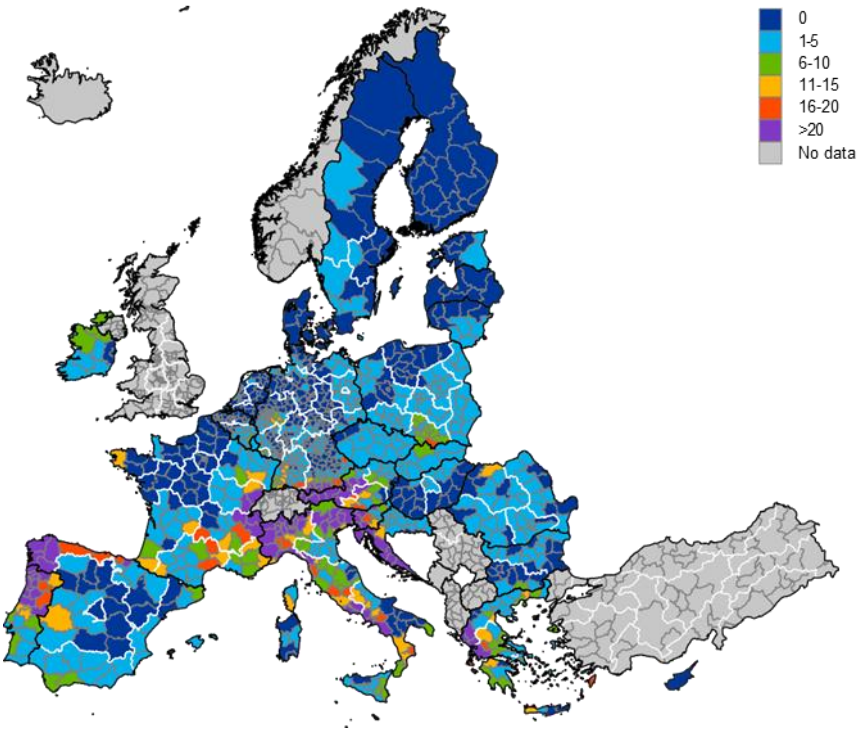
4 The economic impact of floods

Prepared by Guzmán González-Torres Fernández and Miles Parker

Extreme weather events like the devastating flash floods that hit Spain last October have substantial human, social and economic impacts. Climate change is making these types of event more commonplace and the trend is predicted to go on rising. Moreover, it is not only increasing frequency that is of concern but also greater potency, as evidenced in south-eastern Spain, which until now has not seen as frequent flooding as other regions in Europe (Figure A). In October 2024, some weather stations near Valencia recorded a year's worth of rain in just eight hours.[1] By one early estimate, the event was made twice as likely, and 12% more powerful, than it would have been in the absence of human-made climate change.[2]

Figure A
Distribution of floods across European regions (1995-2022)

(absolute number)



Sources: ECMWF (ERA5 dataset) and ECB staff calculations.
Note: The final sample includes 1,160 NUTS 3 regions in 27 EU Member States in the period from 1995 to 2022.

On top of the devastating effects for society and the sudden disruption of economic activity, the full impact of extreme weather events over the medium and long run can be significant, particularly in the context of a changing

1 "Devastating rainfall hits Spain in yet another flood-related disaster", World Meteorological Organization, 31 October 2024.

2 "Extreme downpours increasing in southeastern Spain as fossil fuel emissions heat the climate", World Weather Attribution, 4 November 2024.

climate. First, while the short-run costs are generally confined to the immediate damage and disruption caused by the events themselves, changes to investment, labour supply and productivity could potentially prolong the economic effects. Second, extreme weather events are often relatively local, prompting migration dynamics that can slow down a possible economic recovery. And third, the effects of extreme weather events depend on initial climate conditions. As climate change alters baseline temperatures and precipitation patterns, the economic consequences of such events over the business cycle may worsen in the future.

Floods can affect both supply and demand in the economy, making the overall impact on inflation uncertain.[3] Disruptions to supply and infrastructure can increase costs for firms and encourage them to raise their prices. At the same time, job losses and lower household incomes, coupled with greater uncertainty, can depress demand. There are few studies of the impact of floods on inflation, but what is available points to an immediate, but short-lived increase in food prices and a more prolonged decrease in core inflation, as short-term supply disruptions give way to weaker demand.[4] The overall impact on prices likely depends on how quickly and fully supply and infrastructure are rebuilt.

Turning to the effects on real economic activity in more detail, the impact of floods can vary greatly across sectors and regions.[5] Whereas flooding is typically followed by an extended yet temporary period of booming construction in high-income regions, we observe no such surge in construction in middle-income regions (Chart A).[6] At the same time, we find evidence of a permanent negative shift in the level of industrial gross value added in middle-income regions and a positive shift in high-income regions. In terms of sectors other than construction, some studies find that moderate flooding can boost agricultural production in the year following a flood, perhaps as a result of greater rainfall boosting agricultural productivity in future harvests.[7] But this effect seems to dissipate with severe flooding, possibly due to soil erosion offsetting the beneficial impact of rain.

3 Ciccarelli, M. and Marotta, F., "Demand or Supply? An empirical exploration of the effects of climate change on the macroeconomy", *Energy Economics*, Vol. 129, January 2024.

4 Parker, M., "The Impact of Disasters on Inflation", *Economics of Disasters and Climate Change*, Vol. 2, Issue 1, 2018, pp. 21-48.

5 For the full set of results, see Usman, S., González-Torres Fernández, G. and Parker, M., "Going NUTS: the regional impact of extreme climate events over the medium term", *Working Paper Series*, No 3002, ECB, December 2024.

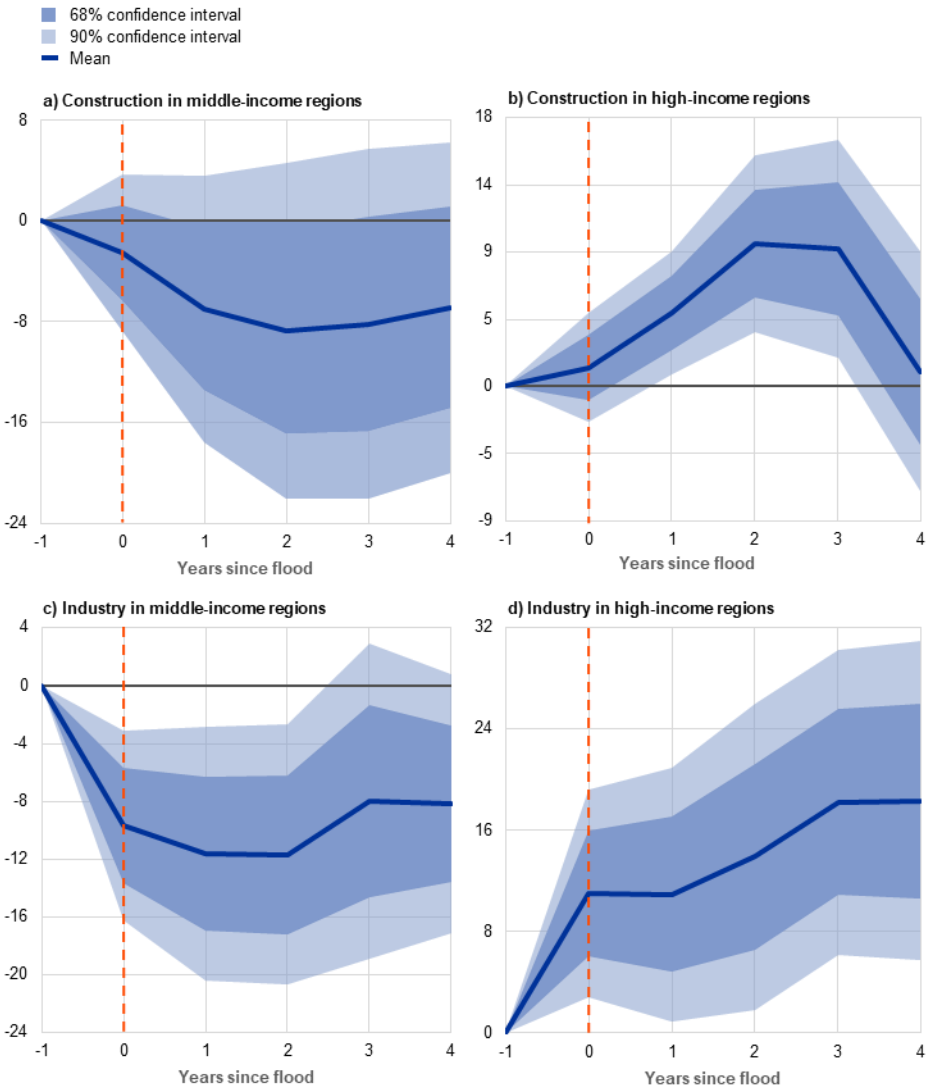
6 Regions are divided into terciles of 2022 regional GDP per capita at 2015 prices across the entire sample of NUTS 3 regions, covering all 27 EU Member States. Accordingly, high-income regions are defined here as regions that belong to the top tercile (i.e. 33%) of the regional income distribution.

7 Fomby, T., Ikeda, Y. and Loayza, N., "The growth aftermath of natural disasters", *Journal of Applied Econometrics*, Vol. 28, Issue 3, 2013, pp. 412-434.

Chart A

Medium-run effects of floods on sectoral gross value added by initial income level

(percentage change)



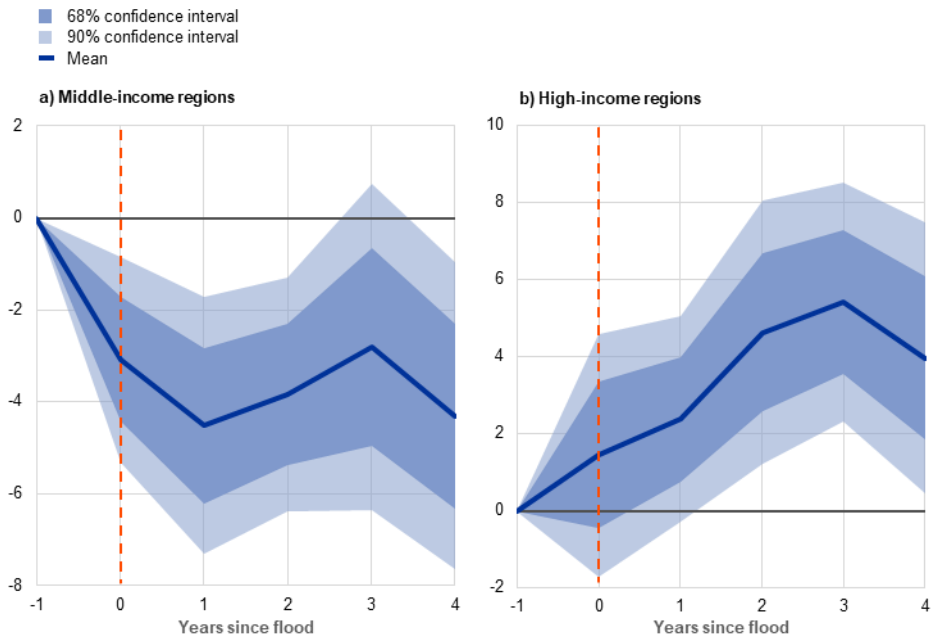
Sources: ECMWF (ERA5 dataset), European Commission (ARDECO database) and ECB staff calculations.
Notes: Regions are divided into terciles of 2022 GDP per capita at 2015 prices. A flooding event is a binary variable that takes the value 1 if the standardised precipitation index for at least one month shows extremely wet conditions. The shock is labelled as occurring in period 0. The x-axis shows the years since the event, starting at -1 to show the absence of pre-existing trends. The responses are estimated using a difference-in-difference local projection model; for more details, see Usman, S. et al. (op. cit.).

These sectoral trends hint at the importance of promptly addressing infrastructure damage to avoid permanent output losses (Chart B). In high-income regions, the event is followed by more investment and higher GDP, consistent with the reconstruction boom implied by the sectoral developments. There is evidence of higher total factor productivity in these regions too, showing that it may be possible to "build back better". However, this higher investment does not occur in middle-income regions.

Chart B

Medium-run effects of floods on regional output by initial income level

(percentage change)



Sources: ECMWF (ERA5 dataset), European Commission (ARDECO database) and ECB staff calculations.
Notes: Regions are divided into terciles of 2022 GDP per capita at 2015 prices. A flooding event is a binary variable that takes the value 1 if the standardised precipitation index for at least one month shows extremely wet conditions. The shock is labelled as occurring in period 0. The x-axis shows the years since the event, starting at -1 to show the absence of pre-existing trends. The responses are estimated using a difference-in-difference local projection model; for more details, see Usman, S. et al. (op. cit.).

Insurance coverage and economic development are key for local and regional European economies to take advantage of risk-sharing mechanisms which can help alleviate local economic damage. Economic and institutional characteristics that strongly correlate with income, such as financial constraints, quality of governance and public infrastructure, may affect long-run economic outcomes.[8,9] Higher rates of insurance coverage can hasten reconstruction and reduce the long-run impact of flooding. That said, only a quarter of climate-related damages are currently covered by insurance in Europe, with the share of coverage below 5% in some economies.[10] The ECB, together with the European Insurance and Occupational Pension Authority (EIOPA), has recently outlined a potential EU-level solution to bolster catastrophe insurance provision, building on existing national and EU structures.[11]

The economic impact of flooding also spreads beyond the immediately affected areas through supply-chain linkages. A study of the 2021 floods in Belgium highlights significant disruption to those firms directly affected by the

8 Augusztin, A., Iker, Á., Monisso, A. and Szörfi, B., "The growth effect of EU funds – the role of institutional quality", *Working Paper Series*, No 3014, ECB, January 2025.

9 Filip, D. and Setzer, R., "Government quality and regional economic performance and resilience in the EU", *Working Paper Series*, ECB, forthcoming.

10 Christophersen, C. et al., "What to do about Europe's climate insurance gap?", *The ECB Blog*, 24 April 2023.

11 "Towards a European system for natural catastrophe risk management", ECB and EIOPA, December 2024.

event.[12] These companies saw their sales fall by an average of 15%, and there was an increased likelihood of failure. At the same time, firms in unaffected regions also suffered reduced sales when their suppliers were affected. These supply-chain-induced disruptions lasted for a year following the floods, as firms found it difficult to quickly reorient supply chains away from long-run suppliers.

While it is essential to eliminate carbon emissions to contain the frequency and potency of floods in the future, it is possible to lower their incidence and likelihood at shorter horizons. Evidence shows that adaptation by increasing the stock of capital devoted to flood defences significantly reduces the incidence of flooding two to four years later.[13] It is, however, less certain that these defences reduce damage once a severe flood occurs. Reiterating the above results, institutional and economic differences across regions are likely to play a crucial role in determining adaptation. Investment in flood defence capital is more likely to be carried out in high-income regions with high-quality institutions. Improvements in legal frameworks and financial innovation are thus needed at both national and European levels to alleviate the current substantial adaptation financing gap.[14]

12 Bijnens, G., Montoya, M. and Vanormelingen, S., "A bridge over troubled water: flooding shocks and supply chains", *Working Papers*, No 466, Nationale Bank van België/Banque Nationale de Belgique, October 2024.

13 Mari, R. and Ficarra, M., "Weathering the storm: the economic impact of floods and the role of adaptation", *Bank Underground*, Bank of England, 29 November 2024.

14 Mongelli, F., Ceglar, A. and Scheid, B., "Why do we need to strengthen climate adaptations? Scenarios and financial lines of defense", *Working Paper Series*, No 3005, ECB, 2024.

5 Main findings from the ECB's recent contacts with non-financial companies

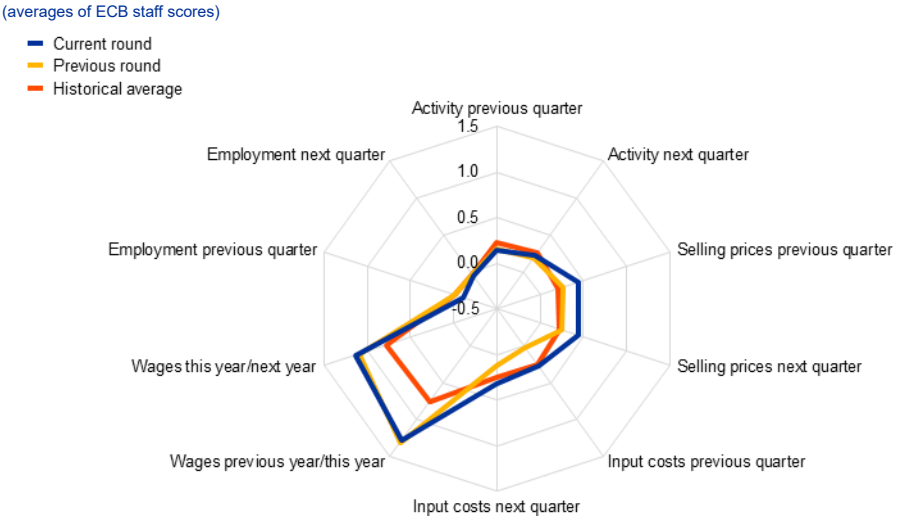
Prepared by Franziska Maruhn, Richard Morris and Michal Slavik

This box summarises the findings of recent contacts between ECB staff and representatives of 82 leading non-financial companies operating in the euro area. The exchanges took place between 6 and 14 January 2025.[1]

Contacts pointed to subdued business momentum at the turn of the year, with flat or declining manufacturing output but more resilient growth in services activity (Chart A and Chart B). Weakness in manufacturing was increasingly viewed as structural, reflecting high energy and labour costs, an inhibitive regulatory environment and increased import competition. Growth in services activity was driven both by consumer spending and by demand for business services focused on efficiency and the transformation of business models.

Chart A

Summary of views on activity, employment, prices and costs



Source: ECB.
Notes: The scores reflect the average of scores given by ECB staff in their assessment of what contacts said about quarter-on-quarter developments in activity (sales, production and orders), input costs (material, energy, transport, etc.) and selling prices, and about year-on-year wage developments. Scores range from -2 (significant decrease) to +2 (significant increase). A score of 0 would mean no change. For the current round, previous quarter and next quarter refer to the fourth quarter of 2024 and the first quarter of 2025 respectively, while for the previous round these refer to the third and fourth quarters of 2024. Discussions with contacts in January and in March/April regarding wage developments normally focus on the outlook for the current year compared with the previous year, while discussions in June/July and September/October focus on the outlook for the next year compared with the current year. The historical average is an average of scores compiled using summaries of past contacts extending back to 2008.

Growth in consumer spending still saw services being prioritised over goods, with a continued focus on prices. In the food retail sector, shoppers were still "trading down". This benefited discounters, while supermarkets reacted by expanding their private label range at the expense of premium brands. In the non-food retail sector, contacts reported increasing competition from Chinese online

[1] For further information on the nature and purpose of these contacts, see the article entitled "The ECB's dialogue with non-financial companies", *Economic Bulletin*, Issue 1, ECB, 2021.

retailers. In this context, clothing retailers reported significant disruption in mid-price segments, in contrast with good demand growth for higher luxury brands. The consumer market for household appliances was showing some signs of recovery. Contacts in travel and tourism pointed to ongoing strong growth. This included an extended 2024 summer season, a positive winter season so far and very strong growth in early bookings for the 2025 summer season, albeit partly reflecting an increasing tendency to book early. Demand for leisure travel was still growing robustly in spite of strongly rising prices, but with consumers reportedly saving on extras such as restaurant dining. Contacts in the telecom services industry also reported steady growth in consumer demand.

Chart B

Views on developments in and the outlook for activity

(averages of ECB staff scores)

Source: ECB.
Notes: The scores reflect the average of scores given by ECB staff in their assessment of what contacts said about quarter-on-quarter developments in activity (sales, production and orders). Scores range from -2 (significant decrease) to +2 (significant increase). A score of 0 would mean no change. The dot refers to expectations for the next quarter.

Subdued manufacturing activity continued to weigh on investment, but a focus on efficiency stimulated demand for some business services. Most contacts in the manufacturing sector said that activity had disappointed relative to expectations in 2024, which had been for a mild recovery. Instead, demand had remained fairly flat at low levels and the downturn was increasingly viewed as structural. Many cited the surge in energy and labour costs in recent years, which had not been borne to the same extent by competitors in other parts of the world. They also cited a more onerous regulatory regime, coupled now with uncertainty regarding future tariffs. This, together with still relatively high interest rates, created a bad climate for investment in new machinery and equipment, with many firms seeking to reduce capacity in the euro area. There was, however, growth in demand for goods and services that would help firms cut costs, reduce carbon emissions and transform their business or make it more resilient. Consequently, capital goods firms that delivered more efficient or green technologies saw good or recovering demand. Moreover, business service providers reported rapidly growing demand for AI and cyber security, which also stimulated demand for related consultancy services.

By contrast with manufacturing, there were slightly more positive reports from the construction and real estate sector. Construction activity was still held back by

a lack of housebuilding, reflecting high costs and long approval processes, as well as a lack of public spending and decision making, especially in Germany and France. However, non-residential construction (particularly data centres, green and telecoms infrastructures) continued to grow, the real estate market showed signs of recovery and residential construction was expected to recover over the course of 2025.

Overall, however, contacts did not expect any substantial change in business momentum in the short term. Economic and political uncertainty was very high following the collapse of governments in Germany and France and the lack of clarity as to the policies that would be pursued by the incoming government in the United States. Therefore, confidence was unlikely to improve significantly in the short term. But many remained hopeful for a stronger recovery later in 2025, when there should be greater clarity regarding economic policies in the euro area and globally.

The employment outlook remained weak, given many firms' focus on raising efficiency and productivity. Many manufacturing firms were laying off staff, while others had adopted a cautious approach to hiring. Employment placement agencies reported another quarter of declining business in most countries and sectors as well as a low rate of conversion of temporary contracts into permanent ones. Several said that staff turnover was low, as employees were more reluctant to change jobs and potential destination companies did not offer the necessary salary inducements. Despite "structural tightness" in labour markets in some areas, there were fewer reports of labour shortages than there had been for a long time, making recruitment easier in sectors that were growing.

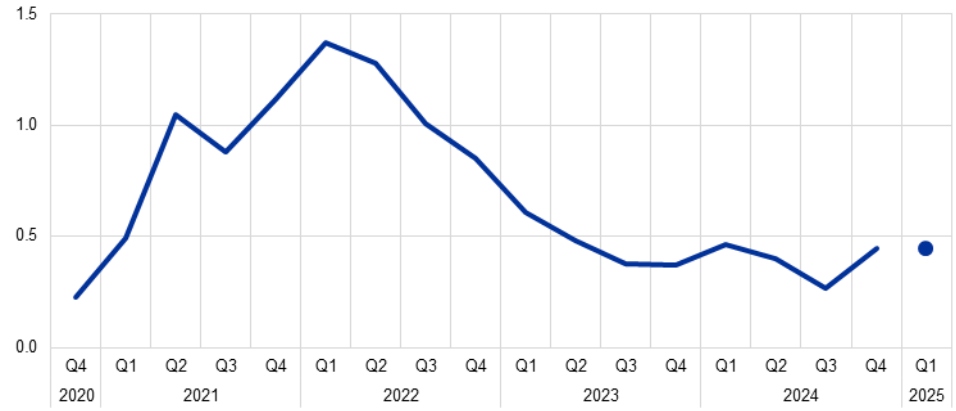
Contacts reported moderate price growth, with a slight pick-up, on average, particularly in the services sector (Chart A and Chart C). Manufacturing prices were reportedly quite stable overall. Prices were said to be increasing modestly in the capital goods sector (as companies sought to pass on rising costs), stable in the consumer goods sector and declining for intermediate goods (reflecting both weak demand and declining prices for many raw materials). In the construction sector, the prices of most building materials were declining, although increasing carbon emission prices and a shift towards less carbon-intensive – but more expensive – cement was putting upward pressure on average cement prices. Services prices were growing more robustly. This largely reflected the higher labour content of many business and consumer services, as well as the continued willingness of customers to accept higher prices, including, most notably, those for tourism-related services. Retailers mostly reported stable or moderate price increases in a context of rising costs but also a competitive environment with price-sensitive customers. Contacts also reported a pick-up in energy and transport services prices. The former mainly reflected higher prices for gas given lower storage levels. The latter partly reflected increased regulatory costs, and partly rising shipping rates due to continued limited supply and strong demand in recent months.[2]

[2] Shipping supply remained constrained by the rerouting of much shipping away from the Red Sea; meanwhile, some shipping activity was brought forward ahead of an earlier-than-usual Chinese New Year, fears of docker strikes on the US east coast and potential tariffs on imports to the United States.

Chart C

Views on developments in and the outlook for prices

(averages of ECB staff scores)



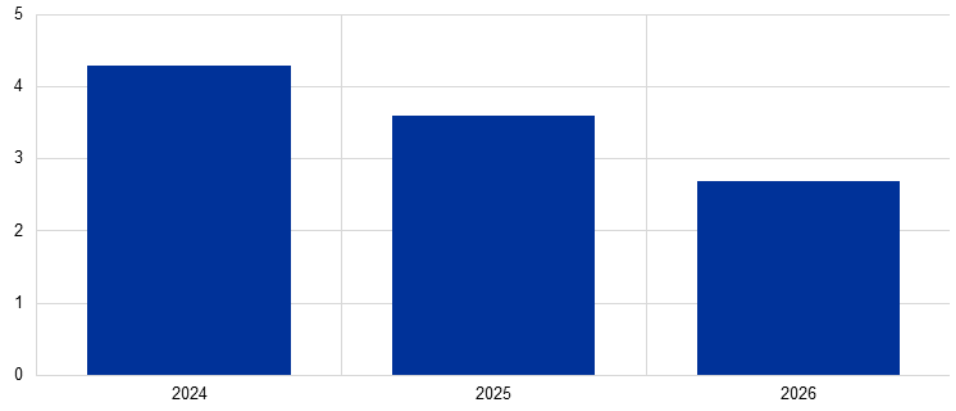
Source: ECB.
Notes: The scores reflect the average of scores given by ECB staff in their assessment of what contacts said about quarter-on-quarter developments in selling prices. Scores range from -2 (significant decrease) to +2 (significant increase). A score of 0 would mean no change. The dot refers to expectations for the next quarter.

Contacts continued to expect a gradual moderation of wage growth (Chart D). On the basis of a simple average of the quantitative indications provided, they assessed wage growth as slowing, from 4.3% in 2024 to 3.6% in 2025, basically unchanged from the previous survey round. Furthermore, those contacts (albeit a limited number) who gave quantitative indications for 2026 anticipated a further slowdown in wage growth (to 2.7%) on average.

Chart D

Quantitative assessment of wage growth

(percentages)



Source: ECB.
Notes: Averages of contacts' perceptions of wage growth in their sector in 2024 and their expectations for 2025 and 2026. The averages for 2024, 2025 and 2026 are based on indications provided by 73, 75, and 21 respondents respectively.

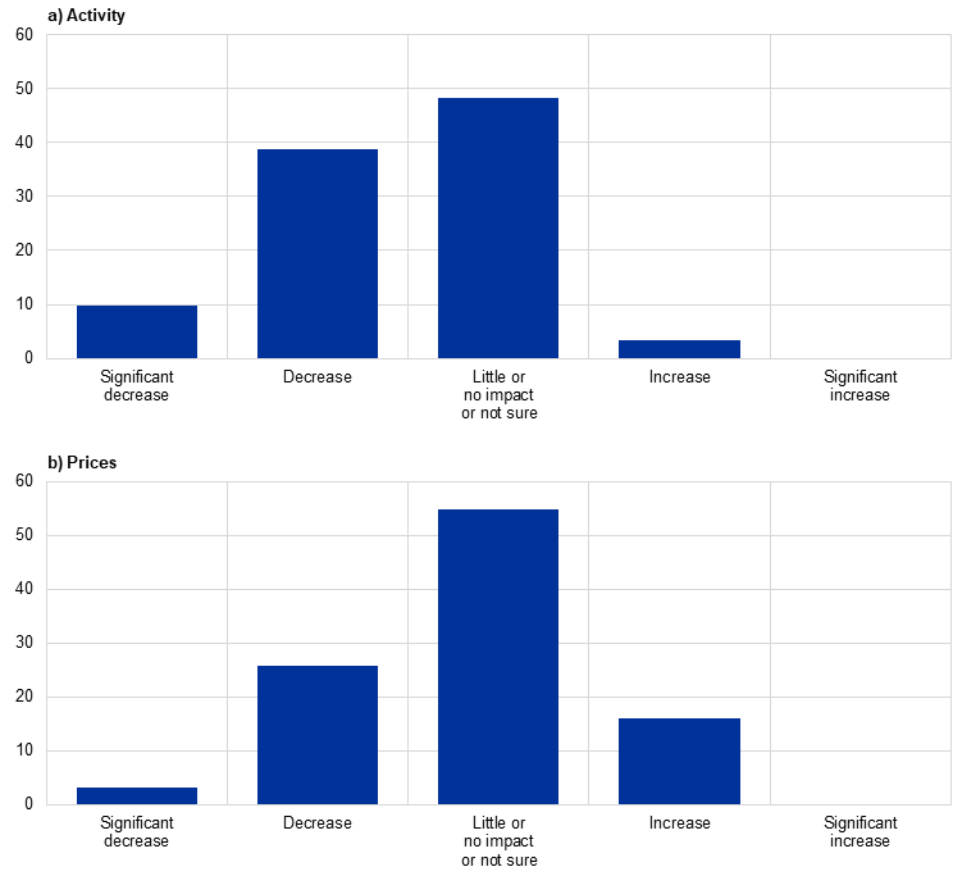
This round we asked contacts what they expected the impact to be for activity and prices in their sector in the euro area if the incoming US administration were to hike tariffs to the full extent suggested. Around half of manufacturing firms said that their activity in the euro area would be negatively affected (Chart E, panel a). Many said, however, that the impact would be mitigated by production

models that were already largely “local for local”. Some said it was only the more sophisticated products that they exported from the euro area to the United States. For such products, there was often little or no US competition and the cost of tariffs would be passed through to prices in the United States. The overriding concern of many, as far as their activity in the euro area was concerned, was the potential for trade diversion, especially if the United States were to hike tariffs disproportionately on goods from China. In the absence of protective EU measures, this led more contacts to expect a negative effect on prices in their sector in the euro area than a positive one (Chart E, panel b). In the event of protective measures and retaliation leading to a more generalised tariff war, it was much more likely that costs and prices would rise.

Chart E

Expected impact of a rise in US tariffs on manufacturing firms in the euro area

(percentage of respondents from manufacturing firms)



Source: ECB.

6 Changes to the Eurosystem collateral framework to foster greater harmonisation

Prepared by Ioana Alexopoulou, Calogero Brancatelli, Diana Gomes, Daniel Gybas and Stephan Sauer

The collateral framework for Eurosystem credit operations is a key element of the ECB's monetary policy implementation framework. Credit operations have always played a central role in meeting banks' liquidity needs and steering the monetary policy stance, and the ECB has a statutory requirement to lend to banks and other counterparties only against adequate collateral.[1]

Since the global financial crisis, the Eurosystem has operated a general collateral framework, which is permanent, and a temporary collateral framework, which comprises crisis-related collateral easing measures.[2] The general framework applies fully harmonised eligibility criteria across the Eurosystem. The temporary framework consists of assets that do not satisfy the eligibility criteria of the general framework and have been introduced to address the increased collateral needs of counterparties at times of heightened financial stress. Some of these assets (e.g. additional credit claims (ACCs) and marketable debt instruments benefiting from a waiver of the minimum credit quality requirement) have been accepted as collateral under the temporary framework in a not fully harmonised manner at the discretion of national central banks (NCBs) and subject to the approval of the ECB's Governing Council. Both collateral frameworks have evolved over time as part of the Eurosystem's response to economic and financial market developments.

Some of the most significant changes to the collateral frameworks have been linked to supporting broad-based participation in longer-term refinancing operations (LTROs) and targeted longer-term refinancing operations (TLTROs). The ECB has accepted ACCs under the temporary framework since December 2011 as part of several measures aimed at supporting bank lending and money market activity, not least in the ECB's first three-year LTROs (Chart A).[3] ACCs were initially accepted by around one third of euro area NCBs, but almost all euro area NCBs started accepting ACCs following the announcement in April 2020 of pandemic collateral easing measures to support the significant recourse to TLTRO III.[4] Eligibility expansions have generally been accompanied by the design of

1 See Article 18.1 of the Statute of the European System of Central Banks and of the European Central Bank.

2 The general framework is regulated by Guideline (EU) 2015/510 of the European Central Bank of 19 December 2014 on the implementation of the Eurosystem monetary policy framework (General Documentation Guideline) (ECB/2014/60) (recast) (OJ L 91, 2.4.2015, p. 3). The temporary framework is regulated by Guideline of the European Central Bank of 9 July 2014 on additional temporary measures relating to Eurosystem refinancing operations and eligibility of collateral and amending Guideline ECB/2007/9 (ECB/2014/31) (2014/528/EU) (OJ L 240, 13.8.2014, p. 28).

3 For a description of NCBs' ACC frameworks at the time, see Tamura, K. and Tabakis, E., "The use of credit claims as collateral for Eurosystem credit operations", *Occasional Paper Series*, No 148, ECB, June 2013.

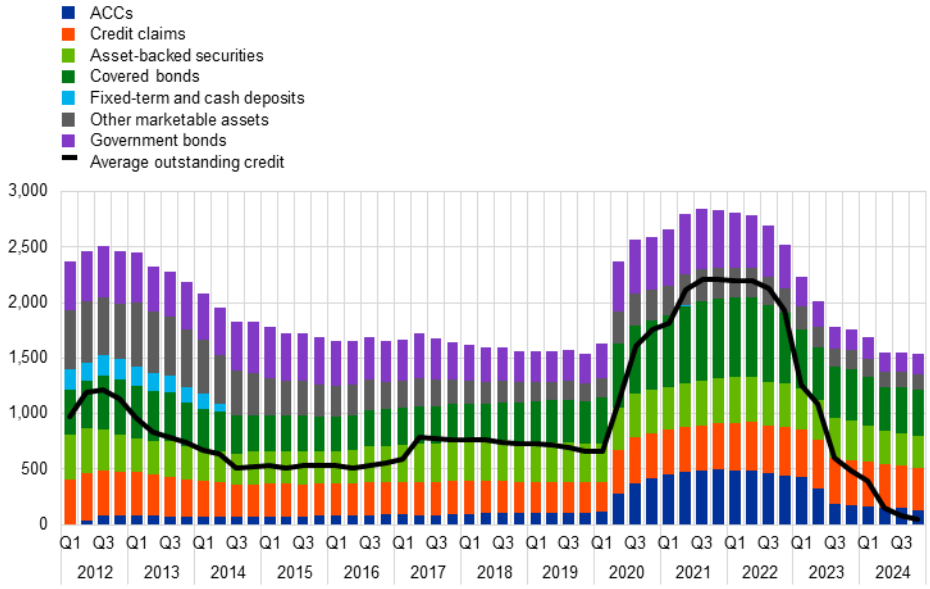
4 ACCs were accepted in Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Malta, Austria, Portugal, Slovenia, Slovakia and Finland.

appropriate risk control measures.[5] In March 2022 the ECB started to gradually phase out the pandemic collateral easing measures.[6]

Chart A

Contribution of ACCs to mobilised collateral

(EUR billions, after valuation and haircuts)



Source: ECB.
Notes: Use of collateral: averages of end-of-month data over each period shown. Average outstanding credit: total value covering all Eurosystem credit operations based on daily data. The latest observations are for the fourth quarter of 2024.

On 29 November 2024 the Governing Council took a further step in the gradual phasing out of the temporary framework, aiming for a more harmonised, flexible and risk-efficient Eurosystem collateral framework.[7] In line with the outcome of the recent review of the operational framework and to maintain a broad collateral framework, the Governing Council decided on a set of measures allowing the return to a harmonised list of collateral available to all counterparties irrespective of their location in the euro area.[8] These decisions conform with the principles underlying the operational framework for implementing monetary policy and will thus ensure that the collateral framework remains appropriate as the Eurosystem balance sheet normalises.[9]

To ensure a broad and flexible collateral framework, some "temporary" asset types will be incorporated into the general collateral framework. The following two asset types were already accepted throughout the Eurosystem under the

5 For example, the Eurosystem applies higher valuation haircuts for lower credit quality assets.

6 See "ECB announces timeline to gradually phase out temporary pandemic collateral easing measures", *press release*, ECB, 24 March 2022; and "Decisions taken by the Governing Council of the ECB (in addition to decisions setting interest rates) – December 2023", ECB, 15 December 2023.

7 See "ECB announces changes to the Eurosystem collateral framework to foster greater harmonisation", *press release*, ECB, 29 November 2024.

8 See "Changes to the operational framework for implementing monetary policy", *press release*, ECB, 13 March 2024.

9 The principles that guide the implementation of monetary policy are effectiveness, robustness, flexibility, efficiency, open market economy and secondary objectives.

temporary framework and will be integrated into the general framework: (i) asset-backed securities with a second-best rating of credit quality step 3 on the Eurosystem's harmonised rating scale (a rating of BBB-) that fulfil the eligibility criteria currently stipulated in the temporary collateral framework;[10] and (ii) certain marketable assets denominated in US dollars, pounds sterling or Japanese yen.[11] In addition, a diversification of the Eurosystem's accepted credit assessment sources will take place with the acceptance of NCBs' statistical in-house credit assessment systems (S-ICASs) for credit claims in the general framework. These systems assess the creditworthiness of non-financial corporations using a quantitative approach and adhere to a harmonised framework.[12] Most S-ICASs were initially introduced in response to the COVID-19 pandemic to contribute to a diversified collateral universe by focusing in particular on small and medium-sized non-financial entities as ACC debtors. The Governing Council also decided to launch further preparatory work on the future integration of pools of non-financial corporate credit claims into the general framework. This work will include developing an adequate risk control framework and specifying all necessary technical requirements.

To reduce complexity and heterogeneity in the Eurosystem collateral framework, and following the maturing of all TLTROs, other asset types that were accepted temporarily are to be phased out. These are: (i) loans to private individuals and pools of credit claims backed by real estate assets; (ii) individual credit claims with a credit quality below credit quality step 3, which is equivalent to a below investment grade rating; and (iii) foreign currency-denominated loans in US dollars, pounds sterling or Japanese yen. Furthermore, technical requirements related to these asset types, such as jurisdiction-specific credit quality assessment approaches, will be discontinued.

A further step towards the simplification of the Eurosystem collateral framework has been taken with the discontinuation of the eligibility of two specific asset types under the general framework. This concerns retail mortgage-backed debt instruments (RMBDs) and non-marketable debt instruments backed by eligible credit claims (DECCs). Their discontinuation is due to limited historical use and low demand compared to alternative ways of mobilising the underlying assets and allows a further simplification of the Eurosystem collateral framework.

With these changes, the Eurosystem collateral framework will continue to contribute to an effective, robust, flexible and efficient implementation of the ECB's monetary policy. The changes will be implemented with the next regular update of the legal framework, but not earlier than the fourth quarter of 2025. In view of the upcoming preparatory work for the integration of pools of credit claims into the general framework, the eligibility of currently accepted pools of non-financial

10 For more information about the Eurosystem's harmonised rating scale, see Eurosystem credit assessment framework (ECAF) on the ECB's website.

11 Eligible foreign currency-denominated marketable assets must be issued by issuers in the euro area, held/settled within the European Economic Area (EEA) and fulfil all other regular eligibility requirements.

12 On 19 December 2024 the Governing Council approved the harmonised framework for S-ICASs, which was a condition for the acceptance of S-ICASs under the general framework. See "Decisions taken by the Governing Council of the ECB (in addition to decisions setting interest rates) – January 2025", ECB, 31 January 2025.

corporate credit claims under the temporary framework will be maintained until at least the end of 2026. The same applies for credit claims benefiting from a pandemic-related partial public sector guarantee, which will largely have matured by then and will eventually be phased out. In any case, the Governing Council will maintain a broad collateral framework to facilitate the use of Eurosystem credit operations by counterparties.

7 From press conferences to speeches: the impact of the ECB's monetary policy communication

Prepared by Yıldız Akkaya, Lea Bitter, Adriana Grasso and Brian Amorim Cabaco

Monetary policy communication is important for managing expectations and enhancing the effectiveness of monetary policy in the pursuit of price stability. The primary means of conveying monetary policy decisions is through statements and announcements made following the Governing Council's monetary policy meetings, which are typically held every six weeks. However, further communication between these meetings – in the form of speeches, interviews and an account of the last meeting – also plays a significant role in shaping policy expectations.

Shifts in expectations as a result of communication can be assessed by measuring the high-frequency changes in asset prices that occur around monetary policy events. Tracking the impact of communication between monetary policy meetings helps arrive at a better understanding of changes in monetary policy expectations by building a more comprehensive overview of the ECB's policy direction and its intentions.[1]

Looking at the ECB's monetary policy communication across a variety of outlets offers deeper insights into their effectiveness in shaping expectations. To analyse the market impact of the ECB's communication, the sample of monetary policy events (monetary policy press releases and press conferences) in Altavilla et al. (2019), is broadened by including communication between Governing Council meetings, such as relevant speeches related to the conduct of monetary policy given by the President of the ECB.[2] Another source of information comes from Bloomberg news headlines referring to the ECB and monetary policy, and marked most relevant by Bloomberg users. The release of the accounts of monetary policy meetings, which document the Governing Council's discussions during these meetings, and the Economic Bulletin, which explains the rationale behind monetary policy decisions in light of the prevailing economic and financial conditions, are also included. The sample begins in 1999 and covers events up to October 2023. The number of communication events fluctuates over time, influenced by changes in institutional conventions, such as the number of monetary policy meetings of the Governing Council per year. Notably, the number of documented communication events increased during key periods such as the global financial crisis (2008-09), the

1 For the United States, Bauer, M.D. and Swanson, E.T., "An alternative explanation for the 'Fed information effect'", *American Economic Review*, Vol. 113, No 3, March 2023, show that market participants extract substantial information on the monetary policy stance from speeches. Moreover, Swanson, E.T., "The importance of Fed Chair speeches as a monetary policy tool", *AEA Papers and Proceedings,* Vol. 113, May 2023, shows that public speeches given by the Federal Reserve Chairman are associated with changes in Treasury yields comparable in magnitude to the ones observed for Federal Open Market Committee meetings.

2 Relevant speeches are those reported by business newswires.

European sovereign debt crisis (2010-12), the COVID-19 pandemic (2020-21) and the subsequent inflation surges (2021-22).[3]

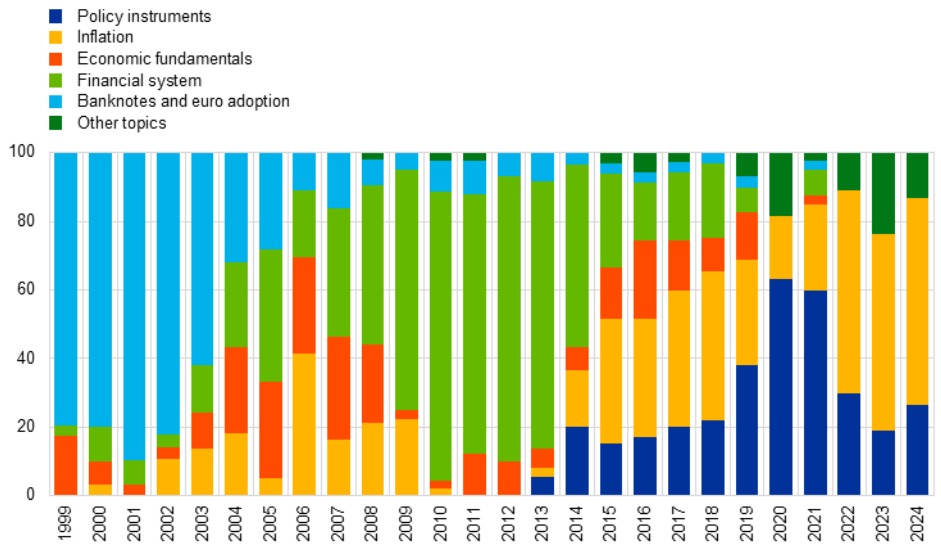
The evolution of the ECB's communication reveals a shifting relative importance of topics in response to changing economic and financial conditions and policy environments. A probabilistic topic model filters six distinct topics across different types of ECB communication. Each topic is characterised on the basis of a list of salient words that have a high probability of being associated with that particular topic, thus ensuring a clear distinction among the different topics identified by the model. This approach enables changes in topics to be tracked over time. Chart A shows significant shifts in the prevalence of topics referred to in the ECB's communication. Early communication focused on the creation of the euro, its introduction and the ECB's institutional framework, with the topic of "Banknotes and euro adoption" declining after the 2000s. Prior to the global financial crisis, recurring topics included price developments ("Inflation"), "Economic fundamentals" and financial markets ("Financial system"). During the late 2000s and early 2010s, the focus shifted to financial market stress, banking supervision, the financial crisis and the following sovereign debt crisis (all within the topic of "Financial system"). The "Policy instruments" topic increased in prevalence from the mid-2010s to 2021, as policy interest rates were close to the lower bound and unconventional measures had been adopted. The post-pandemic inflation surges that started in 2021 then led to a resurgence in communication with a focus on inflation. Finally, since 2020, new topics with less direct relevance to monetary policy decisions, such as climate change, the energy transition, digitalisation and gender parity (all classified in the dataset under "Other topics"), have gained in prevalence.

[3] Istrefi, K., Odendahl, F. and Sestieri, G., "ECB communication and its impact on financial markets", *Working Paper Series,* No 859, *Banque de France,* January 2022, also examine the influence of ECB communication on financial market responses, confirming the relevance in tracking communication in the period between meetings.

Chart A

Evolution of topics discussed in ECB communication

(percentage share of topic prevalence)



Source: ECB calculations.
Notes: The communication outlets considered in this chart include the press conferences following the Governing Council's monetary policy meetings, related press releases, the accounts of the Governing Council's monetary policy meetings and speeches given by the ECB's President. The Monthly Bulletin and the Economic Bulletin are excluded, as the Monthly Bulletin is only available in PDF format, which makes it unsuitable for topical data filtering. The latest observation is for June 2024.

The impact of different ECB communication events varies significantly, with communication immediately after monetary policy meetings and communication between meetings contributing differently to market movements. Meetings of the Governing Council are associated with the largest movements in risk-free and sovereign yields, while communication between these meetings has a substantially smaller average impact (Table). Given the large number of speeches delivered by the ECB's President, the mean absolute change per speech is smaller than that of the more infrequent statements and announcements following Governing Council meetings. However, the cumulative effect of frequent communication between monetary policy meetings reaches a level comparable to the market impact of the Governing Council's meetings over the sample period. Speeches given by the ECB's President, in particular, lead to significant cumulative yield movements that are similar in scale to those arising from monetary policy press releases and press conferences combined. In contrast, the accounts of monetary policy meetings and Bloomberg headlines have a much smaller cumulative impact on yields.

Table

Cumulated absolute high-frequency changes in risk-free and sovereign yields by event type

(basis points)

Event type	1-month OIS	2-year OIS	10-year OIS	10-year bond Germany	10-year bond Italy
Monetary policy press release	80.6 (0.4)	282.3 (1.4)	296.4 (1.4)	304.6 (1.5)	387.4 (1.9)
Governing Council press conference	66.5 (0.3)	242.2 (1.2)	311.5 (1.5)	344.9 (1.7)	430.8 (2.1)
Monetary policy account	11.8 (0.2)	42.1 (0.6)	63.6 (0.9)	65.2 (0.9)	83.5 (1.2)
Monthly/Economic Bulletin	57.4 (0.3)	169.3 (0.8)	201.2 (1.0)	209.5 (1.0)	277.1 (1.4)
Speeches by ECB's President	155.0 (0.2)	473.5 (0.7)	538.9 (0.8)	556.2 (0.8)	716.3 (1.0)
Bloomberg headline	26.8 (0.1)	105.1 (0.6)	105.5 (0.5)	97.9 (0.5)	111.8 (0.6)

Source: ECB calculations.
Notes: The table shows the cumulated absolute high-frequency changes (with mean absolute changes in brackets) for a range of risk-free and sovereign yields across event types, computed using data from January 2004 to October 2023. The high frequency window around the different event types is as follows: -10 minutes to +20 minutes around publication of the monetary policy press release; -10 minutes to +75 minutes around the start of the Governing Council's press conference; -10 minutes to +50 minutes around the publication of the account of the Governing Council's monetary policy meeting; -10 minutes to +80 minutes around the publication of the Monthly/Economic Bulletin; -10 minutes to +60 minutes around the publication of speeches other than testimonies to the European Parliament; and -10 minutes to +10 minutes around the publication of Bloomberg headlines. "OIS" stands for overnight index swap.

Consistent with the literature, the distribution of yield impacts triggered by monetary policy press releases and press conferences exhibits "fat tails".[4]

Yield responses to monetary policy announcements are generally small, but significant announcements lead to substantial asset price reactions, resulting in a fat-tailed distribution. This can be seen from panel a) in Chart B, where the width at each point of the "violin" plot reflects the density of the data. Most values are concentrated around zero and the thin tails indicate occasional, larger responses. The "fat tails" are an even more pronounced feature in the distributions of the impact of communication between meetings, owing to the more muted market reaction in general and fewer significant events, despite some important events occurring between meetings that have a very high market impact in the tails of the distribution.[5]

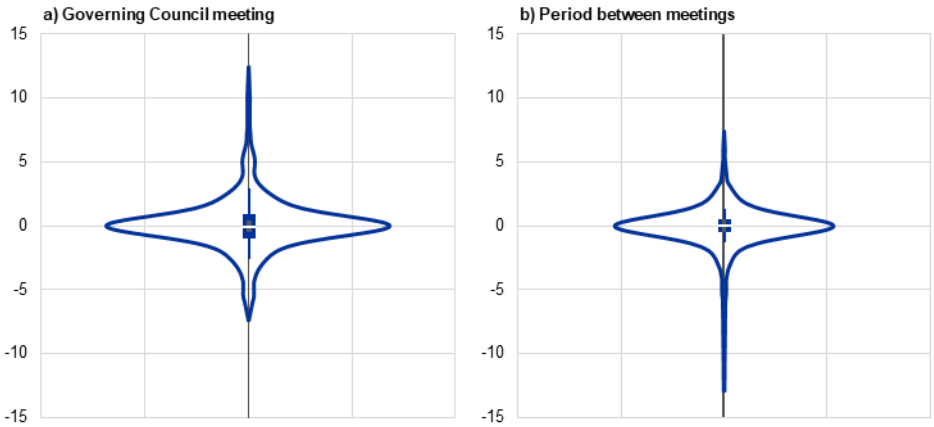
4 For the United States see, for example, Jarociński, M., "Estimating the Fed's unconventional policy shocks", *Journal of Monetary Economics*, Vol. 144, May 2024, and, for the euro area, Akkaya Y., Bitter, L., Brand, C. and Fonseca, L., "A statistical approach to identifying ECB monetary policy", *Working Paper Series,* No 2994, ECB, October 2024.

5 In a landmark speech at the Global Investment Conference in London in July 2012, Mario Draghi famously committed to do "whatever it takes" to preserve the euro as the euro area sovereign debt crisis took hold, leading to a sharp decline in sovereign bond yields.

Chart B

Distribution of high-frequency movements across event types for two-year OIS rates

(x-axis: density; y-axis: basis points)



Source: ECB calculations.
Notes: The underlying sample covers the period from January 2004 to October 2023. The violin plots display the kernel density estimates of high-frequency movements across event types for the two-year overnight index swap (OIS) rate, mirrored across the representation of the median, 25th percentile and 75th percentile, displayed in a box plot.

Communication both accompanying Governing Council meetings and in the period between meetings is essential for effectively conveying and shaping the ECB's monetary policy. Communication plays a crucial role in shaping monetary policy outcomes. While press conferences following Governing Council meetings serve as the primary channel for announcing policy decisions, communication between Governing Council meetings is also important for tracking the evolution of policy discussions. Although the impact of communication between meetings tends to be smaller than that of press conferences, its frequency amounts to a significant cumulative effect over time. Communication between meetings not only explains policy decisions and ensures accountability and transparency but also shapes policy expectations.

8 Natural rate estimates for the euro area: insights, uncertainties and shortcomings

Prepared by Claus Brand, Noëmie Lisack and Falk Mazelis

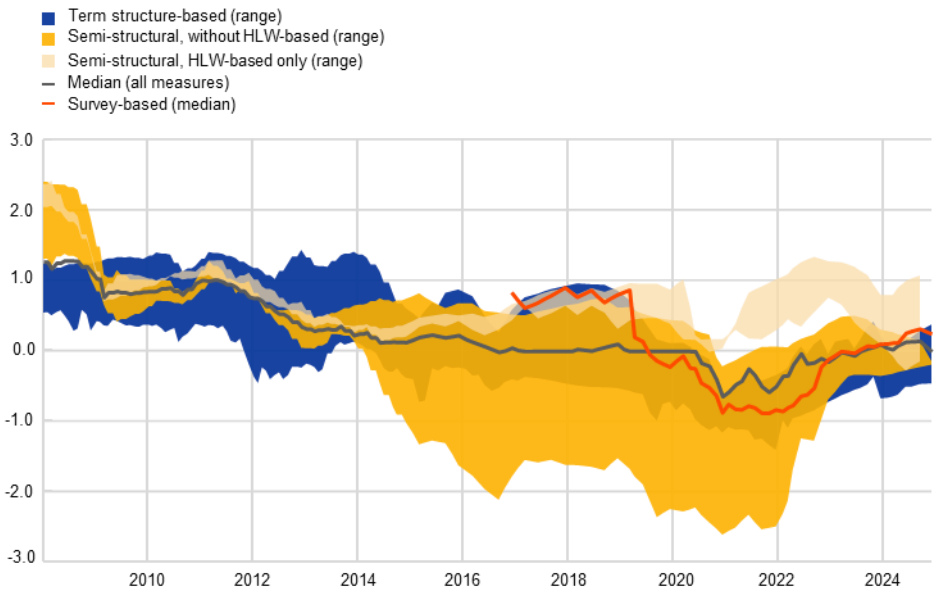
Estimates of the natural rate of interest, or r*, show trends that are of fundamental significance for monetary policy, but are subject to important caveats. r* is defined as the real rate of interest that is neither expansionary nor contractionary. Measures of r* are typically constructed as an equilibrium value towards which interest rates tend to gravitate in the medium to long term, as aggregate saving and investment imbalances abate and the inflationary or disinflationary pressures that may have developed as a consequence of those imbalances dissipate. These measures are also informative regarding the risk of short-term interest rates becoming constrained by their effective lower bound. However, available measures of r* are fraught with measurement and model specification challenges and are highly uncertain, reflecting, to different degrees, model, parameter, filter and real-time data uncertainty. While estimates of r* provide complementary information for monetary policy decisions and aid communication on the stance of monetary policy, these cannot be seen as a mechanical gauge of appropriate monetary policy at any point in time. In conducting monetary policy, there is no alternative to taking decisions on the basis of a comprehensive analysis of the data and their macroeconomic implications. In the euro area, in particular, the focus of such an assessment is threefold: the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation and the strength of monetary policy transmission.

Ranges of point estimates from different r* models indicate a very high degree of model uncertainty. Model uncertainty is the variability in estimates of r* that arises from using different models. Since r* is unobservable, economists rely on a range of models to estimate it. These models may incorporate different definitions of the benchmark rate, for example the instrument used by the central bank to conduct monetary policy. Different models may also rely on alternative determinants, such as measures of economic slack or the time horizons over which inflation eventually stabilises. Models can be clustered by type of measure – such as slow-moving equilibrium measures and cyclical inflation-stabilising measures. Slow-moving r* measures are anchored to long-run economic trends but may not capture short-term fluctuations. Cyclical r* measures reflect short-term dynamics and exhibit inflation-stabilising properties but can be sensitive to temporary shocks and are less stable. Balancing these trade-offs is challenging.

Chart A

Real natural rates of interest in the euro area

(percentages per annum)



Sources: ECB calculations, Eurosystem estimates, Federal Reserve Bank of New York and Consensus Economics.
Notes: Estimates displayed for survey-based, term structure-based and semi-structural measures are based on the same measures referred to in the box entitled "Estimates of the natural interest rate for the euro area: an update", *Economic Bulletin*, Issue 1, ECB, 2024. The DSGE-based estimate is not included here. HLW-based measures, which do not ensure a stationary real rate gap, are displayed separately from other semi-structural measures. The latest observations are for the third quarter of 2024 for Holston, Laubach and Williams (2023), Grosse-Steffen, Lhuissier, Marx and Penalver (mimeo), and Carvalho (2023); and for the fourth quarter of 2024 for all other estimates.

Chart A shows a wide range of point estimates for the real natural rate.

Following a modest post-pandemic increase, the updated range of point estimates of the real natural rate of interest for the euro area has remained broadly unchanged since the end of 2023 and is consistent with the estimates documented in Issue 1, 2024 of the Economic Bulletin.[1] We distinguish between four categories of measures. The median from survey-based measures is indicated by the red line. Measures shown by the dark blue area are derived from models of the term structure of interest rates. Those derived from semi-structural models are shown by the dark yellow area. Finally, three estimates derived from the Holston-Laubach-Williams (HLW) model are shown separately, by the light yellow area. The latter measures are

[1] The range reported in Chart A is also broadly consistent with the set of estimates published recently by the Bank for International Settlements. See Benigno, G., Hofmann, B., Nuño, G., Sandri, D, "Quo vadis, r*? The natural rate of interest after the pandemic", *BIS Quarterly Review*, March 2024, pp. 17-30.

not available for the fourth quarter of 2024.[2] Taking only the measures shown in the dark blue and dark yellow areas that were possible to update to the very end of 2024, the most recent estimates of real r* span a range between -½% and +½% (see the dark blue and dark yellow intervals corresponding to the fourth quarter of 2024 in Chart A).[3] The way to translate those measures into their nominal counterparts is measure-specific. Some of the models produce both real and nominal versions of r*, while others estimate only one version. In the latter case, the missing value must be derived by adding or subtracting the ECB's 2% medium-term inflation target or the model-consistent medium-term inflation expectations from the model estimate. When the three estimates derived from versions of the HLW model are factored in, the range of real r* is -½% to 1% and the corresponding nominal range is 1¾% to 3%.[4] Referring only to those measures included in the dark blue and dark yellow areas for which an update to the end of 2024 is available, the estimates of the nominal r* from the most recent interval range between 1¾% and 2¼%. Given the estimation uncertainties highlighted in this box, such ranges should be viewed as merely indicative.

Natural rate estimates are further surrounded by uncertainties in model parameters. Point estimates typically display an outcome that is conditional on a single estimate of the model parameters – commonly the "most likely" value. However, the econometric methods used to estimate the model parameters generate a whole set of plausible alternative estimates. Bayesian estimation techniques, for example, concentrate on the probability distributions of parameters rather than on their fixed-point estimates. Embracing this approach allows the use of a distribution of values for each model's r* estimate, which reflects the statistical uncertainty affecting the estimation of that model's parameters. Taking one semi-structural model whose point estimate is included in the range shown in Chart A (the model by Brand and Mazelis, 2019), it can be seen that the parameter uncertainty surrounding each of the point estimates for r* can be quite large (Chart B, dark blue range).

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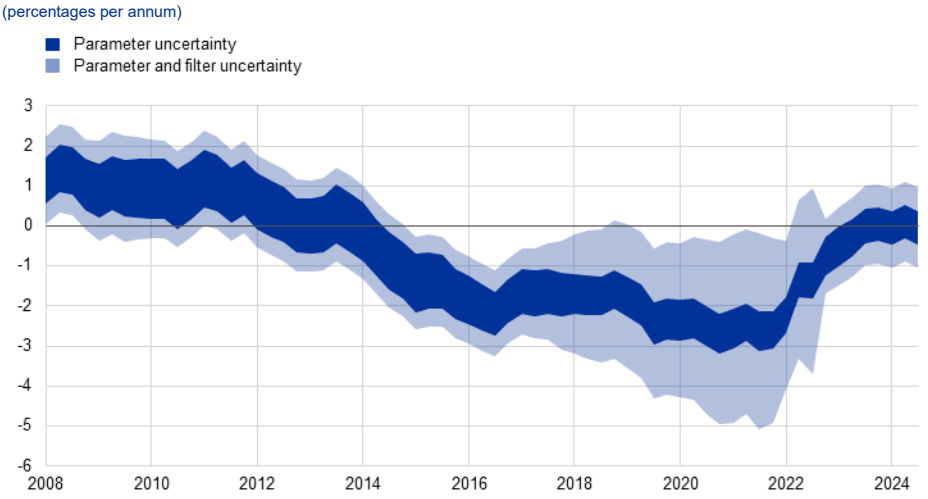
2 The HLW estimates are also shown separately, by the light yellow area, because of their methodological differences with respect to other semi-structural measures, shown by the dark yellow area. In particular, the family of HLW models (see Holston et al., 2017) posits a backward-looking relationship between the real interest rate gap, economic slack and inflation. Because of the inclusion of an accelerationist Phillips curve, the resulting r* estimate stabilises inflation around a random drift, i.e. an inflation level not necessarily close to the central bank's inflation target. HLW-based approaches do not typically include an interest rate equation and thus have no mechanism to support a stationary real rate gap. Resulting estimates of persistently negative real rate gaps in the euro area are, however, challenging to reconcile with the inflation shortfalls observed over the period between the global financial crisis and the pandemic. Moreover, the marked flatness of the estimated Phillips and investment-savings curves amplifies filtering uncertainty, thus generating an "imprecision of the estimate" where, as acknowledged by Holston et al. (2017), "the average standard error for r* is very large, ... and hence r* is barely identified". On the theoretical foundations and econometrics of HLW, see Laubach, T. and Williams, J.C., "Measuring the Natural Rate of Interest", *The Review of Economics and Statistics*, Vol. 85, No 4, November 2003, pp. 1063-1070, and Holston, K., Laubach, T. and Williams, J.C., "Measuring the natural rate of interest: International trends and determinants", *Journal of International Economics*, Elsevier, Vol. 108, Supplement 1, May 2017, pages S59-S75.

3 Values reported in this box for both real and nominal r* are rounded to the nearest 25 basis point increment.

4 As a cross-reference, the HLW estimate for the euro area in the third quarter of 2024 published by the Federal Reserve Bank of New York was at 1.84% in nominal terms. For other HLW-type specifications tracked by the Eurosystem, see the approach explained by Carvalho, A., "The euro area natural interest rate – Estimation and importance for monetary policy", *Banco de Portugal Economic Studies*, Vol. IX, No. 3, July 2023.

Chart B

Parameter and filter uncertainty around the real natural rate estimates in the model by Brand and Mazelis



Source: ECB calculations.
Notes: Estimates are based on Brand, C. and Mazelis, F., "Taylor-rule consistent estimates of the natural rate of interest", *Working Paper Series*, No 2257, ECB, Frankfurt am Main, March 2019 (extended to include stochastic volatility in the output gap, a long-term interest rate, asset purchase effects and the effective lower bound). We employ the RISE toolbox for parameter estimation and regime-switching Kalman filtering, which enables the extraction of covariance matrices of unobserved states (see Maih, J. "Efficient perturbation methods for solving regime-switching DSGE models," *Working Paper,* 01/2015, Norges Bank, 16 January 2015). Parameter and filter uncertainties are displayed as 95% uncertainty bands, calculated following the methods for statistical inference with the Kalman filter described in Chapter 13.7 of Hamilton, J.D., "Time Series Analysis", Princeton University Press, 1994. Since computing the maximum likelihood estimate directly is impractical in our setting, we use the mode of the posterior distribution as an approximation. The filter uncertainty is based on the regime-specific covariance matrix of unobserved states from the predominant regime in the model, which features low volatility in the output gap and a policy rate that follows the Taylor rule. Considering regime-specific covariances or joint covariance matrices across different regimes would further enlarge the uncertainty ranges.

An additional source of uncertainty comes from the fact that r* is an unobservable variable that must be inferred from observable data – a challenge known as filtering. Since r* cannot be observed directly, we must deduce it from the economic data that we can measure. Accordingly, additional filter uncertainty is associated with obtaining an informative signal from the data. Like parameter uncertainty, the filter uncertainty range is time-varying. Cumulatively, parameter and filter uncertainty together can span up to several percentage points (Chart B, light blue range) even for a single model.[5]

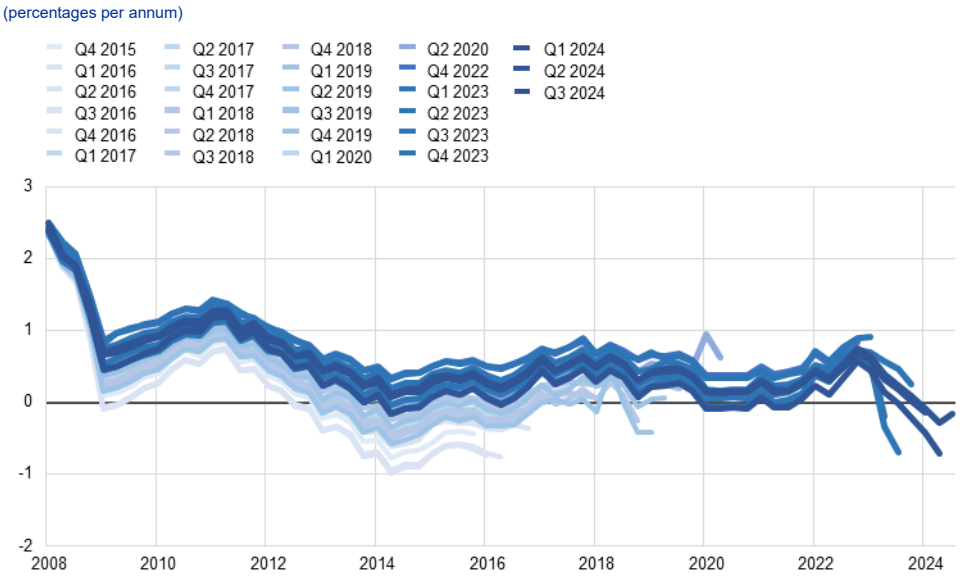
Different data samples and revisions in backdata amplify the impact of filter uncertainty, leading to large ex post variations in in-sample point estimates of r* and adding yet another layer of uncertainty. Model-specific estimates of r* can

[5] The wide dispersion is due in part to the relatively flat aggregate demand and Phillips curves embedded in semi-structural models used for estimating r* and is not specific to the Brand and Mazelis model. In comparison, the HLW estimates from the third quarter of 2024 mentioned earlier display an additional observability challenge, leading to a cumulative parameter and filter uncertainty range that is greater by an order of magnitude. Given uncertainty bands as large as +/- 10 percentage points, it is not clear whether the HLW estimate is ever different from 0% or any other interest rate level observed throughout the sample period. Fiorentini et al. (2018) demonstrate that flat aggregate demand and Phillips curves significantly increase filter uncertainty. See Fiorentini, G., Galesi, A., Pérez-Quirós, G. and Sentana, E., "The rise and fall of the natural interest rate", *Working Papers*, No 1822, Banco de España, 2018.

vary significantly when observations are added or backdata are revised.[6] Chart C illustrates the considerable extent of this sensitivity using the widely referenced approach of Holston, Laubach and Williams (2023). Over time, as updates become available, revisions in previously obtained estimates can be as large as 1 percentage point. Most recently, end-of-sample point estimates have varied by similar magnitudes from one quarter to the next.

Chart C

Vintages of point estimates of the real natural rate of interest for the euro area from the model by Holston, Laubach and Williams



Source: Federal Reserve Bank of New York.
Note: See Holston, K., Laubach, T. and Williams, J.C., "Measuring the Natural Rate of Interest after COVID-19", *Federal Reserve Bank of New York Staff Reports*, No 1063, June 2023. The latest estimate, published for the third quarter of 2024, is also displayed at the lower end of the light yellow range in Chart A.

Despite the uncertainties involved, tracking broad movements in the natural rate over time provides qualitative insights into underlying economic trends. Notwithstanding the uncertainties associated with estimating r*, its trends contain information about developments in saving-investment imbalances that may create inflationary or disinflationary pressures, as well as about the extent to which the short-term interest rate might become constrained by the lower bound. The persistently low estimates of r* over the period 2015-22 displayed in Chart A, for example, reflect the persistent weakness in aggregate demand at the time and the low inflationary pressures that it generated. While in the post-pandemic environment estimates suggest some increase in r*, current estimates continue to be measurably below those prevailing before the global financial crisis, pointing to still lingering lower-bound risks in the event of sufficiently large disinflationary shocks.

6 All unobserved variable estimates suffer from the issue of data revisions and differences in data vintages. As highlighted by Orphanides and van Norden (2002), real-time estimates of the output gap are particularly unreliable as a result of substantial data revisions. See Orphanides, A. and van Norden, S., "The Unreliability of Output-Gap Estimates in Real Time", *The Review of Economics and Statistics*, Vol. 84, No 4, November 2002, pp. 569-583.

The inherent uncertainties as well as conceptual shortcomings limit the usefulness of available natural rate estimates for conducting monetary policy in real time. Because of the multiple types of uncertainty and the focus on the short-term interest rate instrument – as opposed to broader measures of financing conditions, which can have a stronger impact on spending – the usefulness of r* as an indicator to support the calibration of the monetary policy stance is greatly limited, making it difficult to use as a rate-setting norm at policy meetings. Many models used do not construe r* as stabilising inflation in line with target but as merely indicating levels towards which interest rates gravitate over the longer term. As a function of historical shocks, such "equilibrium" interest rate measures are also largely backward-looking. By the time that equilibrium level is expected to be reached, the economy may well have already been exposed to further shocks, possibly causing the equilibrium rate of interest to drift and requiring monetary policy to offset these shocks. Furthermore, the connection between an r* defined in terms of the short-term interest rate instrument of monetary policy and the broader economy may itself change, as monetary policy transmission depends on a broader set of financing conditions – including the cost and availability of bank credit, and prices in a range of asset markets. The link between the short-term interest rate instrument and broader indicators for monetary policy is state-contingent and typically not stable. Accounting for these conceptual shortcomings and uncertainties is crucial for interpreting r* estimates.

Articles

1 European competitiveness: the role of institutions and the case for structural reforms

Prepared by Marinela-Daniela Filip, Daphne Momferatou and Susana Parraga Rodriguez

1 Introduction

Competitiveness has returned to the top of the European agenda. Sustainable, long-term economic growth supports price stability and gives monetary policymakers more room for manoeuvre.[1] Long-standing challenges related to low productivity growth, burdensome regulations and demographic headwinds have been exacerbated by geopolitical tensions, trade fragmentation and the prospect of persistently high energy prices. Recent reports by Mario Draghi and Enrico Letta have highlighted these challenges and the need for urgent and concrete action that will enable Europe to catch up and maintain a competitive edge over its global competitors.[2,3] The priority of the incoming European Commission is to speed up the rate of reform and investment, placing a particular focus on innovation, decarbonisation and strategic autonomy.[4]

Competitiveness is a complex and multi-faceted concept that can be defined in various ways. Although there are multiple factors that interact with and influence competitiveness, the only sustainable long-term strategy to maintain a high level of competitiveness is robust productivity growth. This also boils down to ensuring that citizens enjoy a high standard of living. In light of current geopolitical tensions, competitiveness also needs to go hand-in-hand with resilience, i.e. the ability to withstand and adapt to shocks. By reducing those foreign strategic dependencies that create uncertainty and dampen investment, Europe can strengthen both its competitiveness and its economic security.

This article focuses on the role institutions can play in boosting productivity growth through investment, innovation, and the green and digital transitions, thereby improving the competitiveness of the European economy. It follows on

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1 Filip, M. D., Momferatou, D. and Parraga-Rodriguez, S., "Why a more competitive economy matters for monetary policy", *The ECB Blog*, ECB, 11 February 2025.

2 See Draghi, M., "The future of European competitiveness – A competitiveness strategy for Europe", European Commission, September 2024; and Letta, E., "Much more than a market", April 2024.

3 Due to data restrictions and numerous sources referring to different subsets of EU countries, together with the fact that competitiveness discussions are not restricted to the euro area, for the purpose of this article we use the concept of "Europe" to refer interchangeably to the euro area, the European Union (EU) and any narrower EU group of countries.

4 Several proposals made in the Draghi report have been incorporated into Ursula Von der Leyen's political guidelines for the next European Commission 2024-29 presented to the European Parliament in July 2024, the mission letters sent to the Commissioners-designate in September 2024, and the recently published Competitiveness Compass for the EU.

from previous Economic Bulletin articles that have focused on the external dimension and the potential implications energy shocks and corporate investment might have for European competitiveness.[5] Sustainable, long-term growth and economic competitiveness and resilience are underpinned by favourable institutional frameworks and complementary, high-quality physical infrastructures. Achieving sustainable economic growth and maintaining a competitive edge while advancing the green transition depends on key factors such as productivity growth, firm dynamism (generally the rate at which firms enter, grow and exit the market), investment, innovation and digital technology diffusion. The macroeconomic and geopolitical environment, including demographics and trade relations, also influences institutions and infrastructures and frames the broader policy options and priorities.

The remainder of this article expands on the role key institutions play in ensuring competitiveness in the current macroeconomic and geopolitical environment. The next section briefly discusses measures of Europe's productivity gap compared with other leading economies and links it to shortcomings in firm dynamism, investment, innovation and the diffusion of digital technology. Section 3 takes a detailed look at the role institutions play in supporting the broader framework in which European firms operate, grow and innovate, and highlights areas in need of reform. Box 1 provides a targeted examination of the complementary physical infrastructures and networks. Section 4 concludes by joining the call for urgent and concrete structural reform and policies to enhance Europe's competitiveness and resilience.

2 Productivity growth, firm dynamism, investment and innovation

Several studies show that low productivity growth in Europe is at the heart of the challenges it is facing in terms of competitiveness and that this is largely related to developments in the information and communication technology (ICT) sector. In the last few decades, productivity gains have gradually been slowing in many advanced economies.[6] Weaker productivity growth in Europe compared with the United States (US) stems mainly from the lower productivity and lower economic weighting of ICT-intensive industries. Chart 1, panel a, illustrates that after catching up with the United States until 1995, the euro area productivity gap started to widen. These productivity differences reflect both lower capital deepening and total factor productivity (TFP) contributions to growth in GDP per hour worked.[7] Insight into whether this can be explained by the ICT revolution having less of an effect in Europe than in the United States can be obtained by studying the differences at sectoral level. Gordon and Sayed analysed the developments in the

5 See the article entitled "Past and future challenges for the external competitiveness of the euro area", *Economic Bulletin*, Issue 6, ECB, 2024; and the article entitled "Energy shocks, corporate investment and potential implications for future EU competitiveness", *Economic Bulletin*, Issue 8, ECB, 2024.

6 Deutsche Bundesbank, "The slowdown in euro area productivity growth", *Monthly Report*, January 2021.

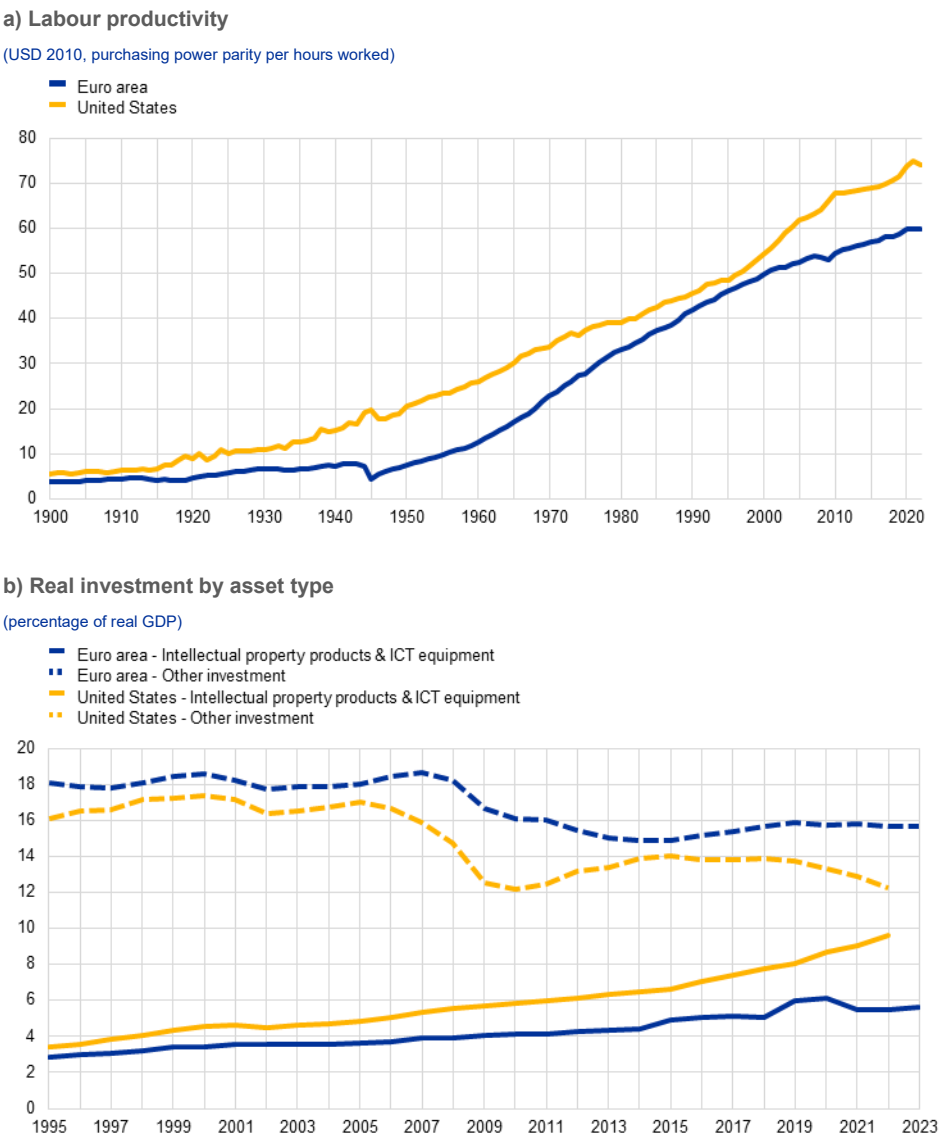
7 ECB, "Key factors behind productivity trends in EU countries", *Occasional paper series,* No 268, ECB Strategy Review, December 2021.

United States and a set of EU countries using industry-level data.[8] For the period 1995-2005, they found that, in contrast to the United States, Europe experienced a slowdown in productivity growth due to several factors, including a scarcity of ICT investment, a failure to capture the efficiency benefits of ICT and performance shortfalls in specific industries including ICT production, finance and insurance, retail and wholesale, and agriculture.

8 Gordon, R. and Sayed, H., "Transatlantic technologies: The role of ICT in the evolution of U.S. and European productivity growth", *International Productivity Monitor*, Centre for the Study of Living Standards, Vol. 38, pp. 50-80, Spring 2020.

Chart 1

Labour productivity and real investment by asset type



Sources: Panel a): Bergeaud, A., Cette, G. and Lecat, R., "Productivity Trends in Advanced Countries between 1890 and 2012", *The Review of Income and Wealth*, September 2016, long-term productivity database and ECB calculations; panel b): OECD and ECB calculations.
Notes: Panel a): the euro area represents the aggregation of Germany, Spain, France, Italy, Netherlands and Finland. As explained in the paper, in 2012 these six countries together represented 84% of euro area GDP; panel b): real (2015 prices) gross fixed capital formation by asset type available until 2023 for 20 euro area countries and until 2022 for the United States. Other investment includes dwellings, other buildings and structures, machinery and equipment, and weapons systems (excluding ICT equipment).

Firm dynamism is weaker in Europe than in the United States. While firm dynamism has suffered a secular decline in both Europe and the United States, the latter has seen the formation of relatively more new firms and a lower number of bankruptcy declarations in recent years.[9] In Europe, the average age of firms at the frontier, i.e. the most technologically advanced and productive firms within a particular industry, has increased substantially in recent decades. In the early 2000s frontier firms in manufacturing were on average 14 years old compared with over 20

9 De Soyres, F., Garcia-Cabo Herrero, J., Goernemann, N., Jeon, S., Lofstrom, G. and Moore, D., "Why is the U.S. GDP recovering faster than other advanced economies?", *FEDS Notes*, May 2024.

years old today.[10] Labour productivity growth tends to decline as firms age, which may point towards a lack of competition and a low churn rate at the productivity frontier in Europe. Indeed, there appears to be a connection between the lack of competition from new, innovative firms and the survival of mature firms at the frontier.[11]

Reducing financial constraints would support the development of innovative, young and small firms. Compared with their United States counterparts, Europe's young, high-growth firms have a smaller economic footprint, with too few of them growing quickly and eventually making it to the top.[12] These firms often face more severe financial constraints than their established counterparts due to investor risk aversion, a lack of relationships of trust and a reliance on intangible assets, which are more difficult to collateralise.[13] Business dynamism has also been found to be lower in regions where the population is older (see also Section 3 below).[14] Overall, the result is a European corporate ecosystem of relatively small and ageing firms that are unable to compete globally.[15] Part of the solution lies in further integrating and developing capital markets in Europe, including risk capital markets such as venture capital, to complement the banking sector and enhance risk-taking capacity.[16]

Increasing investment, particularly in intangibles such as research and development (R&D) and in the diffusion of digital technology, could improve Europe's productivity. As shown in Chart 1, panel b, the euro area allocates a smaller proportion of its GDP to ICT equipment and intellectual property products than the United States, with the gap widening in recent years.[17] In addition, Europe focuses on marginal improvements in already mature technologies rather than in breakthrough innovation, meaning it is stuck in the "middle-technology trap".[18] In terms of digital uptake, recent firm level analysis for the euro area shows that the adoption of digital technologies could lead to an increase in firms' productivity in the medium term. But the effect of digital adoption is heterogenous across firms and sectors, and not all digital technologies deliver significant productivity gains. One way to increase the productivity benefits of digitalisation could be more efficient and

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10 See footnote 6.

11 For more details, see the article entitled "Firm productivity dynamism in the euro area", *Economic Bulletin*, Issue 1, ECB, 2022.

12 For more details, see the article entitled "Europe's Declining Productivity Growth: Diagnoses and Remedies", *Regional Economic Outlook*, International Monetary Fund, October 2024.

13 Farre-Mensa, J. and Ljungqyist, A., "Do Measures of Financial Constraints Measure Financial Constraints?", *The Review of Financial Studies*, Volume 29, Issue 2, February 2016, pp. 271-308.

14 Daniele, F., Honiden, T. and Lembcke, A., "Ageing and productivity growth in OECD regions: Combatting the economic impact of ageing through productivity growth?", *Regional Development Working Papers,* OECD, August 2019.

15 ECB, "Bridging the gap: reviving the euro area's productivity growth through innovation, investment and integration", keynote speech by Luis de Guindos, Vice-President of the ECB, at the Latvijas Banka and SUERF Economic Conference 2024, Riga, 2 October 2024.

16 Arampatzi et al., "Capital markets union: a deep dive", *Occasional Paper Series,* ECB, forthcoming.

17 For similar findings for the EU, see Gros, D. et al., "What investment gap? Quality instead of quantity", *Institute for European Policymaking*, Bocconi University, 2024.

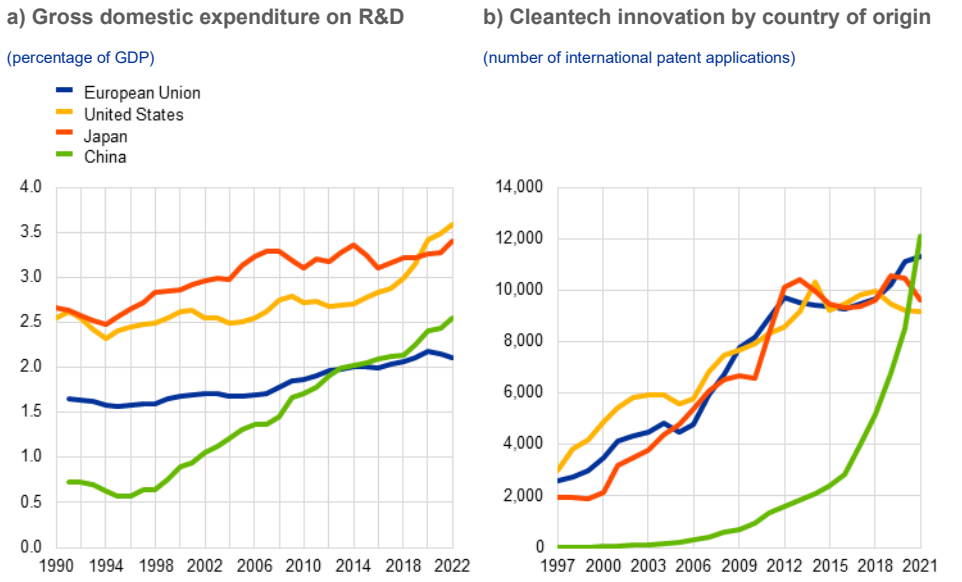
18 Fuest, C., Gros, D. Mengel, P-L., Presidente, G. and Tirole, J., "EU Innovation policy. How to escape the middle technology trap", A report by the European Policy Analysis Group, 2024.

effective institutions and governance structures, and complementary skills.[19] At the same time, enhancing European firms' scaling up could advance their digitalisation.[20]

Although the EU is lagging behind in R&D expenditure, its green innovation activity is still comparable to that of other major regions. In the EU, the expenditure on R&D as a percentage of GDP has been hovering around 2% in the last decade. This is much lower than in the United States and Japan, for example, and most recently was also below that of China (Chart 2, panel a), with most of the gap stemming from the private sector.[21] On the positive side, green innovation activity in the EU (in terms of international patent families) remains comparable for now with that of other countries, such as Japan and the United States. China, however, has been catching up at a fast pace and surpassed other major regions in 2021 (Chart 2, panel b).[22] If Europe wants to maintain its strong role in cleantech innovation, it will have to focus on patenting and scaling up, and to tackle regulatory fragmentation to ensure it reaps the full benefits of the Single Market.

Chart 2

Expenditure on R&D and cleantech innovations



Sources: Panel a): OECD; panel b): European Patent Office.
Notes: Panel b), innovation is measured by international patent families, capturing sets of patent applications filed in more than one country to protect an invention.

19 Anghel et al., "Digitalisation and productivity", *Occasional Paper Series,* No 339, ECB, 2024.

20 See 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.

21 At 1.2% of GDP, business expenditure on R&D in the EU represents about half that of the United States (2.3% of GDP). For more details, see Fuest, C., D. Gros, P.-L. Mengel, Presidente, G. and Tirole, J., op. cit.

22 See Nerlich. C. et al., "Investing in Europe's green future", *Occasional Paper Series*, No 367, ECB, 2025.

3 Institutions

Institutions play a pivotal role in fostering a dynamic business environment, investment, innovation, and therefore productivity and competitiveness. Defined broadly, institutions encompass the formal and informal rules, norms and organisations that provide the structure for social, political and economic interactions. Research by the 2024 Nobel Laureates Acemoglu, Johnson and Robinson emphasises the importance of inclusive institutions that provide broad access to economic opportunities and protect individuals against abuses of power.[23] In addition to ensuring the rule of law and reducing corruption, institutions that support human capital development, such as educational systems, are crucial for enhancing competitiveness. Well-functioning institutions in these areas also ensure a skilled workforce, which is indispensable for productivity growth and innovation.[24]

Legal and regulatory frameworks

Legal and regulatory frameworks significantly influence the business environment and firms' investment decisions. Although most regulations are designed with the aim of protecting people's health and the environment, they may have unintended economic and social consequences. Complex planning and approval procedures can be serious obstacles to investment, especially for small firms and in the context of the digital and green transitions. Regulations limiting the entry of firms into product and services markets, or constraining the use of certain technologies or data, can hinder the adoption of new technologies by increasing costs for new high-technology firms, therefore reducing competition and constraining technology spillovers.

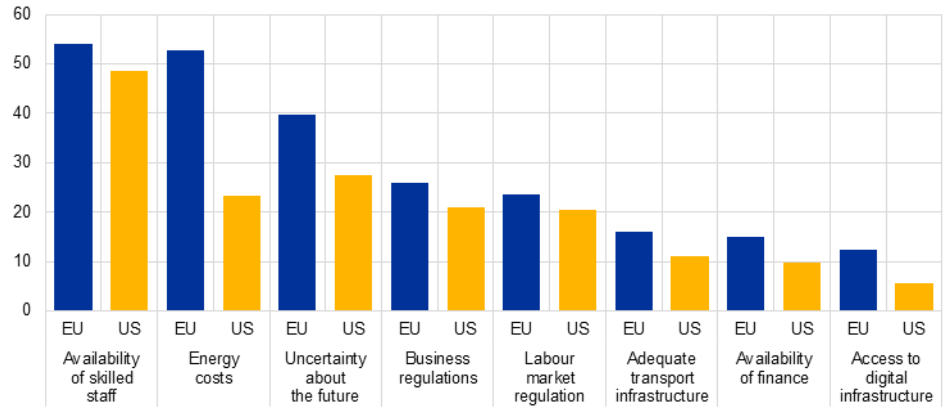
23 Acemoglu, D., Johnson, S. and Robinson, J. A., "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review*, Vol. 91, No 5, pp.1369-1401, December 2001.

24 Glaeser, E. L., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A., "Do institutions cause growth?", *Journal of Economic Growth*, Vol. 9, No 3, pp. 271-303, September 2004.

Chart 3

Long-term barriers to investment - 2023

(percentage of firms identifying different categories as a major barrier)



Source: EIB Investment Survey.

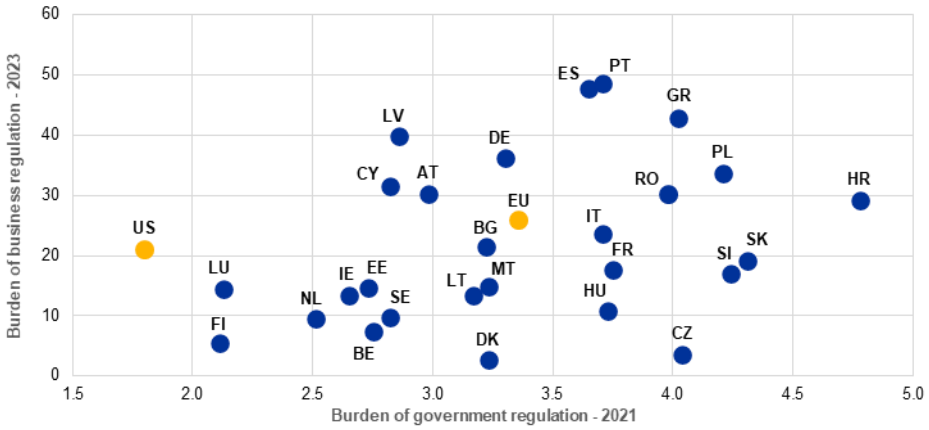
The complexity and variability of regulations across EU Member States create barriers to entry and increase compliance costs for businesses, making Europe less attractive compared with more streamlined regulatory environments like the United States. The European Investment Bank (EIB) Investment Survey has identified long-term barriers to firms' investment decisions (Chart 3). More firms in Europe report major long-term barriers to investment than in the United States. While the availability of skilled staff is identified as the biggest barrier in both the EU and the United States, about twice as many firms in Europe report challenges such as higher energy costs, difficulties in accessing funding, and deficits in transport and digital infrastructure (see also Box 1). In a similar vein, more firms in the EU say that business and labour regulations are a major barrier to investment. While the difference does not seem to be very large, the EU average masks extensive heterogeneity across EU countries (see Chart 4, panel a). A similarly heterogeneous picture emerges regarding corporate restructuring processes, which need to be simplified, shortened and more harmonised. In 2019 the average time to resolve insolvency in the EU was double (around two years) that in the United States (Chart 4, panel b).

Chart 4

Burden of regulations and time to resolve insolvency

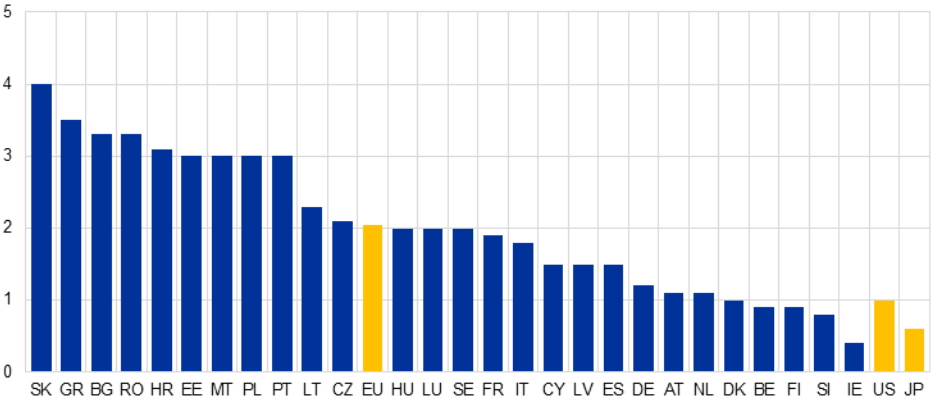
a) Burden of regulations

(x-axis: score; y-axis: percentage of firms)



b) Time to resolve insolvency

(number of years - 2019)



Sources: Panel a): World Economic Forum (x-axis) and EIB Group Survey on Investment and Investment Finance, (y-axis); panel b): World Bank.
Notes: Panel a): Higher values indicate higher regulation. The x-axis is based on replies to the question "In your country, how easy is it for companies to comply with government regulation and administrative requirements (e.g. permits, reporting, legislation)? (1 = extremely easy; 7 = overly complex)" in 2021. The y-axis is based on replies to the question "Thinking about your investment activities in [name of country], to what extent are business regulations a major obstacle?" from 2023; panel b): Time to resolve insolvency is the number of years from the filing for insolvency in court until the resolution of distressed assets. For the EU, the unweighted average is used.

The regulatory landscape in the United States is generally considered more business-friendly and focused on minimising bureaucratic hurdles to encourage innovation and investment. For example, the United States has a more flexible approach to environmental regulations and a less stringent data protection framework compared with the EU's General Data Protection Regulation. This can make it easier for companies to operate and invest in new technologies and green initiatives. According to the World Bank's Doing Business 2020 report, the average time to start a business in Europe varies considerably across countries and in many it is significantly longer than in the United States, highlighting the less

efficient and fragmented regulatory processes in the EU.[25] The International Monetary Fund estimates that overall trade costs within Europe are equivalent to a sizeable ad valorem tariff of 44% for the average manufacturing sector compared with 15% between US states, and as high as 110% for services.[26] A large part of these high costs in Europe is related to regulatory entry barriers, which remain particularly high, especially for services.

The recent reports by Enrico Letta and Mario Draghi also point to regulatory burden and fragmentation, which limit the ability of EU companies to scale up and compete internationally. Completing the Single Market and streamlining and harmonising business regulations where appropriate will be key to changing this. Examples include proposals to create a new business code as a 28th regime for European innovative companies (with a harmonised and limited set of regulations that would allow innovative firms to expand quickly across the entire EU), and steps towards harmonising national insolvency frameworks.[27] More expedient and harmonised procedures for cleantech applications could be another area to explore. A first step in this direction is the unitary patent system launched in 2023, which makes it possible to acquire patent protection in 17 EU Member States by submitting a single request to the European Patent Office.

To address long-term barriers to investment related to access to financing, deeper capital markets and financial integration are essential. This could help create a unified and thus deep and liquid capital market, enabling firms to access a diverse range of funding sources, including venture capital. Increased access to risk capital could enable companies to boost investment in intangibles and R&D, including breakthrough innovations, while supporting financing for the green and digital transitions. A detailed discussion into these issues is beyond the scope of this article but is extensively covered in other ECB publications.[28]

Governance and administrative capacity

High-quality public institutions, as reflected in the efficient functioning of public administration, law enforcement and transparency, are prerequisites for the successful design and implementation of sound economic policies. One way to identify areas where improvements are needed most is to look at the World Bank's Worldwide Governance Indicators (WGI) data set. It summarises how companies, citizens and experts view the quality of governance. About half of EU countries have seen a deterioration in their composite ranking in the WGI over the

25 According to the World Bank's 2020 Doing Business report, it takes four days to open a business in the United States, which is similar to Greece and France, compared with eight days in Germany, 11 in Italy and 12.5 days in Spain. Although the Doing Business report has now been replaced with the B-Ready report, the first edition (2024) did not include a large number of EU countries or the United States. Its coverage is expected to increase gradually over the next two years.

26 IMF, *Regional Economic Outlook for Europe*, October 2024.

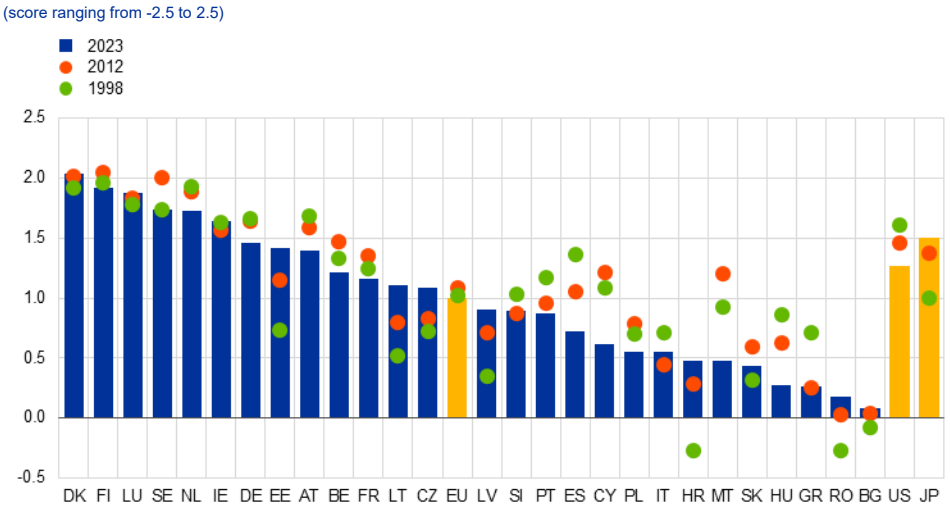
27 See Draghi, M., op.cit. and Letta, E., op. cit.

28 See Arampatzi et al., op. cit.; and Nerlich. C. et al., op. cit.

last decade, and on average the current quality of EU institutions is below that of institutions in the United States and Japan (Chart 5).

Chart 5

Worldwide Governance Indicators



Source: World Bank.
Notes: Scores reflect the average of the four measurable governance indicators: rule of law, regulatory quality, government effectiveness and control of corruption. Higher values indicate better governance. A score of 2.5 would reflect that a country is the global best performer in all four subcategories. For the EU the unweighted average is represented.

Administrative capacity is also part of governance and a particularly critical factor in facilitating investment during the green and digital transitions. The European Commission has recognised the importance of robust administrative frameworks in driving these transitions. The European Green Deal and the 2030 Digital Compass highlight the need for strong administrative systems to ensure that funds are allocated efficiently and that projects meet stringent environmental and technological standards.[29] The recent experience with the Recovery and Resilience Facility (RRF) also highlighted the obstacles to the timely and effective absorption and use of funds related to administrative capacity bottlenecks, which was in part related to the RRF's complex reporting and control system.[30] Well-developed administrative capacity can streamline the application, permit and screening processes, thus reducing the delays and uncertainties that often hinder investment.

Education and upskilling/reskilling to offset negative demographics

Educational systems play a key role in strengthening human capital and innovation. To enable technological change and innovation and to take advantage of the associated opportunities they offer, high-quality education systems alongside effective upskilling and reskilling programs are crucial. The latest results from the

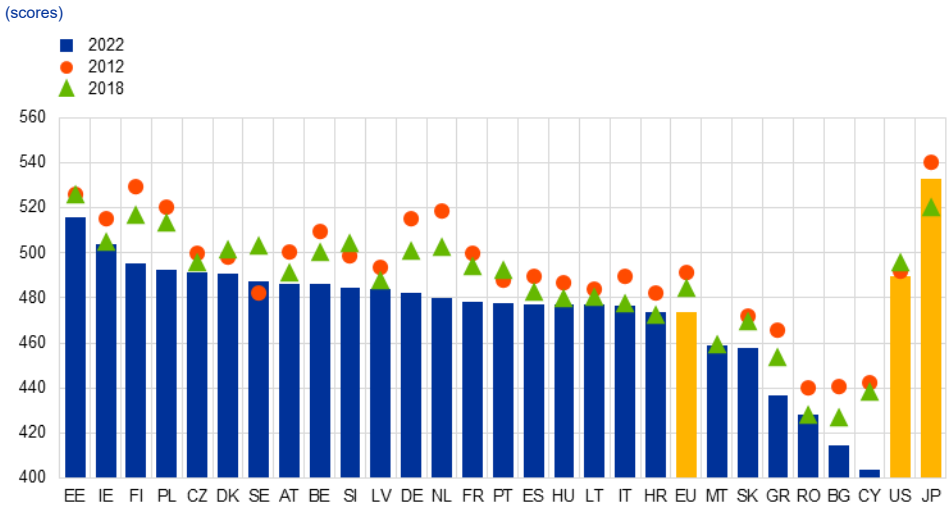
29 European Commission, "Enhancing the European Administrative Space (ComPAct)", *2023*.

30 See Bankowski, K. et al., "Four years into the NextGenerationEU programme: an updated preliminary evaluation of its economic impact", *Occasional paper series*, Economic Bulletin, No 362, ECB, 2024; European Commission, "Mid-term evaluation of the Recovery and Resilience Facility (RRF)", *2024*; European Court of Auditors, "Special report - Absorption of funds from the Recovery and Resilience Facility", 2024.

Programme for International Student Assessment (PISA) underscore the need for Europe to continue improving its educational outcomes (Chart 6). According to the 2022 PISA results, several European countries, such as Estonia, Ireland and Finland, performed well on average in science, mathematics and reading. Compared with 2018, scores in most EU countries deteriorated significantly. This can only be partially attributed to the COVID-19 pandemic, as scores were already falling pre-pandemic.[31] Significant disparities in educational performance remain in the EU, which continues to lag behind the United States and Japan.

Chart 6

OECD Programme for International Student Assessment (PISA) results



Source: OECD.
Notes: PISA measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges. The EU is the unweighted average for all EU Member States except Luxembourg. Data for Malta in 2012 is missing and the reading score for Spain in 2018 is not available.

In addition to education systems, reskilling and upskilling are essential to adapt to the rapidly changing demands of the labour market driven by the digital and green transitions. The European Skills Agenda for sustainable competitiveness, social fairness and resilience emphasises the importance of lifelong learning and continuous skills development.[32] The Agenda aims to equip the workforce, including managers, with the skills needed to thrive in emerging industries and to support the EU's goals in the digital and green transitions.[33] Europe needs to intensify its focus on education and skills development to catch up with the United States in technological innovation and diffusion. As mentioned at the beginning of Section 3, having skilled employees is also a major long-term barrier to business investment in Europe. The European Centre for the Development of Vocational Training (Cedefop) highlights the importance of skills intelligence and workforce planning. More integrated and forward-looking strategies in Europe to address skills shortages and mismatches are needed to achieve a more technologically advanced,

31 OECD, "PISA 2022 Results (Volume I): The state of learning and equity in education", December 2023.

32 European Commission, "European Skills Agenda for sustainable competitiveness, social fairness and resilience", *press release*, July 2020.

33 Bloom et al., "Americans Do IT Better: US Multinationals and the Productivity Miracle", *American Economic Review,* No 102(1), pp.167-201, 2012.

greener and fairer future.[34] The importance of skills to address challenges on the competitiveness front is also highlighted in the Letta report, including the simplification of degrees and improved certification recognition across Europe.

Negative demographic developments represent a challenge for Europe's labour supply both in terms of quantity and skills. However, the relationship with productivity growth is less certain. In the years to come, older cohorts will make up an increasing part of the labour force. Their retirement will result in a reduced labour supply and shortages of certain skills, while there is no conclusive evidence of productivity gains from the younger cohorts being more formally educated.[35] Acemoglu and Restrepo[36] show that higher capital investments, such as greater adoption of robots and other automation technologies, could mitigate and even reverse the negative relationship between age and productivity. At the same time, older workers may be ill-equipped for a work environment which is rapidly adopting new technologies.

Migrants are an important part of the European labour force and can help boost the labour supply and productivity, particularly against the backdrop of ageing populations.[37] Research shows that migration can have positive effects on productivity and long-term economic growth.[38] In recent years, amid high labour market tightness in Europe, migration has helped alleviate labour shortages and moderate wage growth, particularly in the hospitality, support services and construction sectors where entry barriers based on qualifications or language are lower.[39] Nonetheless, addressing the high degree of overqualification and skills mismatches experienced by migrants compared with permanent residents and nationals, could further help address labour and skills shortages and raise labour productivity gains.[40] The lower educational attainment levels of second-generation students in some countries also highlight problems related to the success of immigration or integration policies.

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34 Cedefop, "Skills in transition - The way to 2035", Luxembourg, 2023.

35 Some studies find that the rising share of older workers has an adverse impact on average productivity in Europe, while others find little evidence of such negative relationship in the United States. See Aiyar, S., Ebeke, C. and Shao, X., "The Impact of Workforce Aging on European Productivity", *IMF Working Paper*, No 16/238, 2016; and Feyrer, J., "Demographics and Productivity", *Review of Economics and Statistics,* Vol. 89(1), pp.100-109, February 2007.

36 Acemoglu, D. and Restrepo, P., "Demographics and automation", *NBER Working Paper,* No 24421, March 2018.

37 See, for example, Aiyar, S. et al., "The Refugee Surge in Europe: Economic Challenges", *IMF Staff Discussion Note,* No 16/02, International Monetary Fund, 19 January 2016; and Mitaritonna, C., Orefice, G. and Peri, G., "Immigrants and Firms' Outcomes: Evidence from France", *NBER Working Paper*, No 22852 , November 2016.

38 See Engler, P., MacDonald, M., Piazza, R. and Sher, G., "The macroeconomic effects of large immigration waves", *Working Paper Series*, No 23/259, International Monetary Fund, December 2023; and Caselli, F., Lin, H., Toscani, F. and Yao, J., "Migration into the EU: Stocktaking of Recent Developments and Macroeconomic Implications", *IMF Working Papers,* No 24/211, September 2024.

39 D'Amuri, F. and Peri, G., "Immigration, jobs, and employment protection: evidence from Europe before and during the great recession", *Journal of the European Economic Association*, Vol. 12, Issue 2, pp. 432-464, April 2014.

40 European Migration Network, "Labour Market Integration of Beneficiaries of Temporary Protection from Ukraine", *European Migration Network-OECD Joint Inform*, Brussels, May 2024.

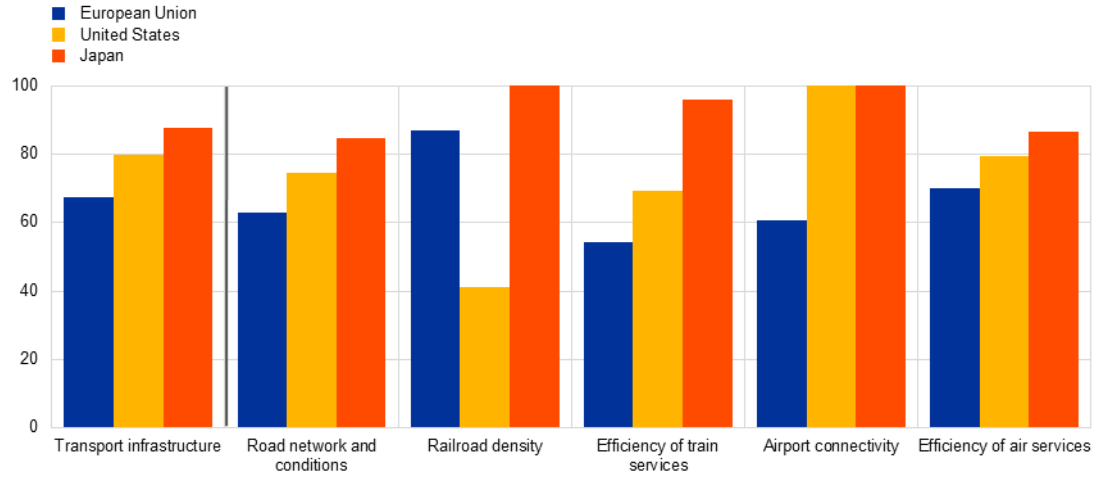
Box 1
Physical and digital infrastructures in Europe

Physical and digital infrastructures complement the intangible institutions around which society is organised. High-quality infrastructures support a well-connected economy by facilitating the efficient movement of goods, services and people.[41] Sufficient and well-maintained physical and digital infrastructures and networks make economies of scale possible and lower production costs. Transport, telecommunications and energy grids are particularly relevant drivers of economic growth and thus competitiveness.[42] Nevertheless, European countries require a significant amount of investment to upgrade their physical and digital infrastructures.

Given Europe's geography, land transport infrastructures, such as roads and railways, are essential for seamless regional integration and trade. Chart A illustrates that, on average, the quality of transport infrastructure in Europe is lower compared with the United States and Japan. Modernising and enhancing Europe's train network could reduce bottlenecks, improve cohesion within the Single Market and support sustainable logistics to support the green transition.[43] There is still untapped potential for many direct train connections across major European cities that are instead often covered by flight connections, which have a much larger carbon footprint.[44]

Chart A
Transport infrastructure indices - 2019

(index from 0 to 100)



Sources: World Economic Forum Global Competitiveness Index 4.0 and ECB calculations.
Notes: The index for transport infrastructure averages the scores of the road, railway, air and sea transport components. The quality and efficiency of infrastructures are assessed on the basis of self-reported qualitative questions ranging from 1 (extremely poor) to 7 (extremely good). Railway density is measured as km of train tracks per 1,000 km2. The airport connectivity indicator measures the degree of integration of a country within the global air transport network.

With technology advancing rapidly, digital infrastructures and telecommunications are of particular importance today. However, Europe is still a long way from achieving its connectivity targets,

41 See, for example, Gorgulu, N., Foster, V., Straub, S. and Vagliasindi, M., "The Impact of Infrastructure on Development Outcomes: A Qualitative Review of Four Decades of Literature", *Open Knowledge Repository*, World Bank Group, March 2023.

42 See Calderón, C., Moral-Benito, E. and Servén, L., "Is infrastructure capital productive? A dynamic heterogeneous approach", *Journal of Applied Econometrics*, January 2014.

43 Letta, E., op.cit.

44 See Greenpeace, "Connection failed", July 2024.

particularly regarding high-speed internet and 5G coverage.[45] Fragmented national telecoms markets in Europe hinder progress on digital connectivity. This fragmentation contrasts with more unified markets in the United States and China, which benefit from fewer and larger operators. As a result, Europe suffers higher communication costs and the slower innovation and diffusion of advanced digital technologies, including artificial intelligence, which are crucial for the digital transition.[46]

Finally, Europe's fragmented energy grid, with few connections and large disparities in investment and regulation across countries, implies a toll on the green transition to renewables. This fragmentation exacerbates regional disparities in energy costs, reducing competitiveness for industries reliant on affordable energy.[47] A resilient energy grid is also crucial for achieving energy security, especially amid heightened geopolitical tensions. A cohesive European energy market with a resilient grid would lower costs for consumers and bring more stability to energy prices, which in turn facilitates monetary policy.

4 Conclusion

Europe faces critical challenges in boosting productivity, investment and innovation, and therefore its competitiveness and resilience. Long-standing challenges related to low productivity growth, burdensome regulations and demographic headwinds have been compounded by geopolitical tensions, trade fragmentation and the prospects of persistently higher energy prices. Addressing these challenges requires comprehensive structural reforms targeting higher regulatory efficiency, enhanced governance and administrative capacity, improved quality of education and skills' matching, and modernised infrastructure. The population is shrinking, and our societies are ageing, so sustaining the workforce will rely on higher participation rates, especially among women and older people, alongside well-designed immigration policies to address labour shortages and support long-term growth.

Mario Draghi's proposals for enhancing European competitiveness and Enrico Letta's proposals for empowering the Single Market highlight the need for coordinated action at the national level supported by more EU where it adds the most value.[48] National policies must prioritise increasing productivity growth through measures that support business dynamism, the adoption of technology, the financing of private investment and breakthrough innovations, and that address labour shortages and skill mismatches. At the EU level, the re-focusing of policy required could be facilitated by coordination based on agreed EU priorities. In addition, EU-level action is needed to provide essential public goods, including

45 At present, fibre optic networks reach just over half (56%) of EU households. 5G networks are more widespread at the EU level and cover 81% of households. Nevertheless, the EU still lags behind the United States, where around 96% of the population is covered by 5G. For more details, see European Commission, "2023 Report on the state of the Digital Decade", September 2023.

46 Draghi, M., op. cit.

47 For more details, see the article entitled "Energy shocks, corporate investment and potential implications for future EU competitiveness", *Economic Bulletin*, Issue 8, ECB, 2024.

48 Draghi, M., and Letta, E., op. cit.

affordable and greener energy, breakthrough research and digital infrastructure for a wider diffusion of advanced technologies, especially artificial intelligence. “More Europe where it matters” also requires deepening the Single Market and strengthening cross-border, market-based risk sharing.

This article joins the call for urgent and concrete structural reforms in Europe. The interplay between institutions, infrastructures and competitiveness underscores the need for transformative policy action. Addressing structural barriers, including inadequate physical and digital infrastructures and skill mismatches, while increasing access to finance, would enhance the potential for growth. Structural reforms would then also facilitate the smooth transmission of monetary policy to the whole euro area economy and thereby help preserve price stability in the euro area.[49] At the same time, such reforms and policies need to be shaped with a view to supporting the green and digital transitions and ensuring economic and social resilience to geopolitical tensions and possible future shocks. Crucially, improving the social acceptability of reforms and ensuring balanced regulation are key to their success.[50] Overall, policies need to be carefully designed, striking a balance between regulation and flexibility. This should ensure the protection of public interest without compromising on innovation and investment and therefore contribute towards sustainable improvements in European productivity and overall living standards.

49 Masuch, K., Modery, W., Setzer, R. and Zorell, N., “The euro area needs better structural policies to support income, employment and fairness”, *The ECB Blog*, ECB, 11 October 2023.

50 International Monetary Fund, “Policy Pivot, Rising Threats. Chapter 3: Understanding the social acceptability of structural reforms”, *World Economic Outlook*, October 2024.

2 Wage developments during and after the high inflation period

Prepared by Colm Bates, Katalin Bodnár, Peter Healy and Marc Roca I Llevadot

1 Introduction

Wages are key to the assessment of inflation and thus for monetary policy. Inflation both shapes and is shaped by wage developments. Wages represent an input cost to firms. In turn, productivity-adjusted wages affect firms' price-setting decisions and thus inflationary pressures, while workers base wage claims on current and past inflation and on inflation expectations. Moreover, wages represent a significant part of income for households and therefore affect consumption and saving decisions.

The past decade has seen significant changes in the conditions for wage growth, in terms of both price pressures and labour market conditions. The period from 2013 to 2017 was characterised by high albeit declining labour market slack, low inflation and subdued productivity growth which, together with some structural factors, kept a lid on wage growth. While inflation began to gradually pick up from 2018 and labour market tightness was increasing, wage growth remained low.[1] During the pandemic, headline inflation was muted, as were underlying wage dynamics, while both the unemployment rate and wages were affected by government measures to cushion the economic impact of the pandemic shock.[2] Following the post-pandemic reopening of the economy and Russia's unjustified invasion of Ukraine, inflation in the euro area increased to historically high levels which, combined with a tight labour market, resulted in historically high euro area wage growth. Headline inflation began declining considerably in 2023, while there have also been signs of weakening labour demand and wage growth has gradually been easing from a high level.[3]

Such changes in the macroeconomic environment create challenges for assessing the relative importance of the drivers of wages. While lessons can be learned from the low inflation period, the changing economic landscape and data distortions during the pandemic require a reassessment of the standard tools and an extension of data sources used to analyse wage growth. Against this background, this article examines the drivers of wage growth in the extraordinary post-pandemic period (2022-24) through an augmented wage Phillips curve and through the

1 See Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.), "Understanding low wage growth in the euro area and European countries", *Occasional Paper Series*, No 232, ECB, September 2019.

2 See the article entitled "Wage developments and their determinants since the start of the pandemic", *Economic Bulletin*, Issue 8, ECB, 2022.

3 See the article entitled "Explaining the resilience of the euro area labour market between 2022 and 2024", *Economic Bulletin*, Issue 8, ECB, 2024.

analysis of new, granular data on wage agreements. It also illustrates the link between wage growth and inflation by applying the Bernanke-Blanchard model to the euro area.[4]

2 Wage developments during the rise and decline of euro area inflation

The events influencing labour market developments after the pandemic had a heterogenous impact on wage indicators (Chart 1). A key indicator in the assessment of wage growth in the euro area is the annual growth rate of compensation per employee (CPE). This reflects the labour costs payable by employers – including wages, salaries and employers' social contributions – expressed as an average per employee. The ECB monitors various other wage indicators for a more complete assessment of wage pressures, including compensation per hour (CPH) and negotiated wage growth. While CPE growth declined considerably during 2020, indicators of wage growth per hour worked, such as CPH, rose. These developments were driven by statistical factors linked to the pandemic and the use of job retention schemes, which distorted the information content of most wage indicators during this period in various ways. Accordingly, these indicators continued to be volatile in 2021 owing to base effects. By contrast, the ECB's indicator of negotiated wages, which captures the outcome of collective bargaining processes, was not affected by statistical distortions.[5] It remained relatively stable at a low level during 2020 and 2021.

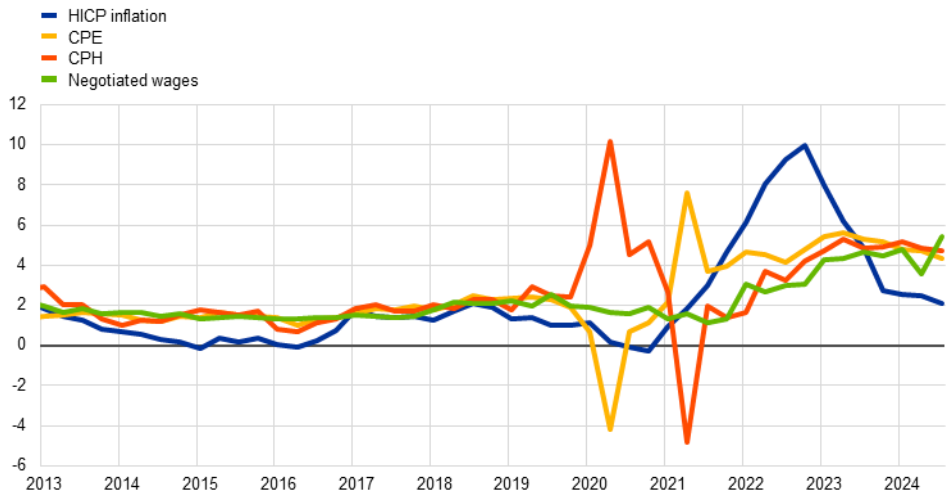
4 See Arce, Ó., Ciccarelli, M., Kornprobst, A. and Montes-Galdón, C., "What caused the euro area post-pandemic inflation?", *Occasional Paper Series*, No 343, ECB, February 2024.

5 See the box entitled "Assessing wage dynamics during the COVID-19 pandemic: can data on negotiated wages help?", *Economic Bulletin*, Issue 8, ECB, 2020

Chart 1

Euro area labour cost indicators and HICP inflation

(annual percentage changes)



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

Following the surge in inflation, wage growth increased to levels not seen since before the advent of the monetary union, but different indicators accelerated at different speeds. CPE growth was the first of the wage indicators to follow the rise in euro area inflation, and in 2022 it was already above 4%. At that time CPH growth was about 1 percentage point lower. The difference reflected the recovery of average hours worked after the pandemic, which contributed to CPE growth on top of the more slowly rising hourly compensation. As the growth in average hours worked slowed down, the two measures began to grow at similar rates of above 5% in 2023. In contrast, negotiated wage growth strengthened more gradually, from just above 1% in 2021 to close to 3% in 2022 and above 4% in 2023. This more gradual adjustment reflected the fact that wage negotiations took some time to restart after the pandemic and were lengthy. Much of the difference between CPE and negotiated wages is captured by the wage drift, which made a much stronger than normal contribution to actual wage growth in the early stages of the high inflation period.[6] This high wage drift reflected not only the recovery in average hours worked but also ad hoc inflation compensation at firm level, partly incentivised by preferential tax treatments. As formal wage negotiations began to directly reflect inflation compensation, the wage drift component started to decline again, which was also reflected in a greater similarity between CPE and negotiated wage growth.

Recently, wage growth has been moderating from a high level, but again with different indicators moving at different speeds. As in the acceleration phase,

6 By definition, wage drift captures all elements of actually paid wages and salaries per employee that are not covered by collectively negotiated wages, such as individual bonus payments and overtime. Growth in compensation per employee can be decomposed into contributions from wages and salaries, and employers' social security contributions. Growth in wages and salaries per employee, in turn, consists of growth in negotiated wages and wage drift, the latter being calculated as the difference between the growth in wages and salaries per employee and the growth in negotiated wages. For a more detailed explanation of the role of wage drift in shaping wage developments, see the box entitled "Recent developments in wages and the role of wage drift", *Economic Bulletin*, Issue 6, ECB, 2024.

negotiated wage growth also seems to be the most persistent and the last to adjust during the period of wage disinflation. While CPE and CPH growth both peaked in the second quarter of 2023, two quarters after the peak in HICP inflation, negotiated wage growth has remained high and volatile, reflecting the fact that wage contracts are of different lengths and workers that were locked into multi-year contracts suffered delays in their wages responding to the surge in inflation. The volatility of the negotiated wage series largely reflects the greater importance of one-off payments in recent years, but base effects due to these payments will have a downward impact in 2025. Information from the ECB wage tracker (see Section 4) and the ECB's Corporate Telephone Survey also suggests a gradual easing of negotiated wage growth ahead.[7]

3 What can the Phillips curve tell us about post-pandemic wage developments?

Shocks in recent years have triggered changes in the drivers of wages. The cyclical position of labour markets, inflation developments and productivity growth are key drivers of wage growth, which economists frequently assess through the lens of a wage Phillips curve. Chart 2 shows how these drivers have developed. To correct for the considerable volatility related to job retention schemes in 2020, we interpolate the wage level and the productivity level – the variables most affected by job retention schemes – over the first and second quarters of 2020. This makes it easier to look through data distortions and understand how recent developments in most of the wage drivers have deviated from historical regularities beyond the distortions induced by the pandemic. Price inflation, captured in Chart 2 through HICP inflation, increased very quickly to historically high levels in 2022 but has returned to close to the ECB's 2% target more recently. At the same time, the unemployment rate (inverted in the chart) has declined to its lowest level since the introduction of the euro. Finally, labour productivity growth has been below its long-term average for a prolonged period. The ECB's augmented wage Phillips curve (Nickel, C. et al., op. cit.) captures the impact of these factors – (either past or expected) inflation, labour market state, and productivity – on actual wage growth while also accounting for lags. We will use this tool as a theoretical guide and an empirical device to assess wage developments using a variety of specifications.[8]

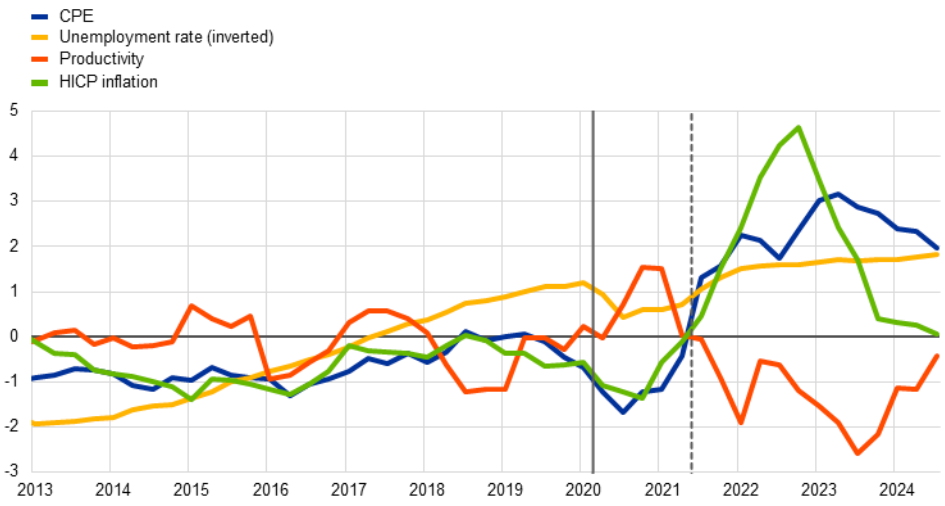
7 See Bates, C., Botelho, V., Holton, S., Roca I Llevadot, M. and Stanislao, M., "The ECB wage tracker: your guide to euro area wage developments", *The ECB Blog*, ECB, 18 December 2024, and the box entitled "Main findings from the ECB's recent contacts with non-financial companies", *Economic Bulletin*, Issue 7, ECB, 2024.

8 The estimated form of the wage Phillips curve follows the practice established before the pandemic, with some adjustments (see Nickel, C. et al., op. cit.). The quarter-on-quarter growth of wages is regressed on their own lag, inflation expectations (backward or forward-looking), a measure of cyclicality lagged by one quarter and productivity growth. We apply a "thick modelling" approach where a large set of proxies for the labour market stance and inflation expectations are used and the results are evaluated jointly.

Chart 2

Euro area CPE growth and key macroeconomic drivers

(annual percentage changes; percentages of the labour force)



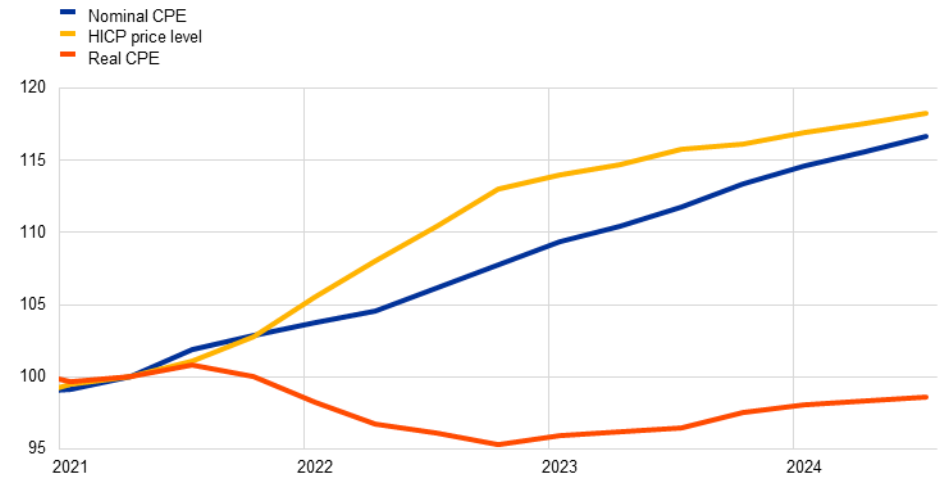
Sources: Eurostat and ECB.
Notes: Growth rates for CPE and productivity are calculated from series which have been interpolated over the first and second quarters of 2020,, the unemployment rate is inverted and all variables are standardised with their mean and standard deviation. The latest observations are for the third quarter of 2024. The vertical lines indicate the start of the pandemic (solid line) and the start of the inflation surge (dashed line).

Catching up with past inflation has been an important driver of recent wage growth. The quick, sizeable and unexpected surge in consumer prices resulted in a decline in real wages across euro area countries and sectors. On average, real wages declined by about 5% between the start of the inflation surge in mid-2021 and the peak of headline inflation (Chart 3). Workers will seek to recoup their real wage losses, meaning that wage demands will reflect the difference between actual real wage levels and real wage expectations, conditional upon labour market conditions.[9] Thus real wage catch-up has been an important driver of recent wage growth. Real wage levels are not included directly in the basic wage Phillips curve, but these can be incorporated indirectly by including past inflation and lagged wage growth in alternative specifications. The assessment of this factor will be enriched by looking at granular wage negotiation data in the next section.

9 See Blanchard, O., "Why I worry about inflation, interest rates, and unemployment", *Realtime Economics blog*, Peterson Institute for International Economics, 14 March 2022.

Chart 3

Nominal and real CPE and the price level in the euro area



Sources: Eurostat and ECB staff calculations.
Notes: Real CPE is calculated as nominal CPE divided by the HICP price level. When using the private consumption deflator instead of HICP, the real wage level is similar. The latest observations are for the third quarter of 2024.

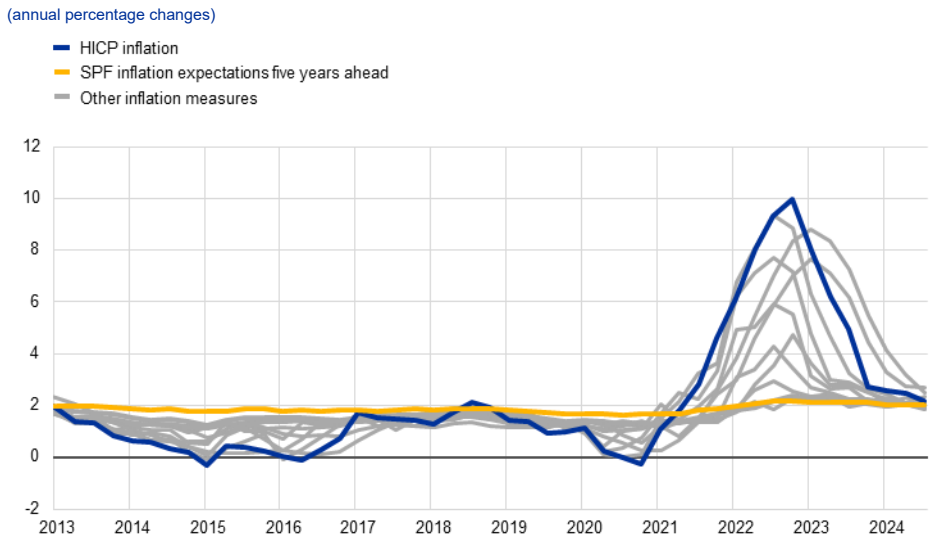
It is a priori unclear to what degree wage dynamics reflect past inflation as opposed to forward-looking inflation expectations. This may differ strongly among workers and may also depend on the actual level of inflation. To address this uncertainty, in the augmented wage Phillips curve we capture the impact of inflation on wages by including a measure of either backward or forward-looking inflation, selected from a wide range of possible indicators.[10] All these indicators increased relative to their past values. However, they have deviated strongly since the beginning of the high inflation period (much more so than previously), with backward-looking indicators rising earlier and to a higher level than forward-looking indicators, and longer-term expectations remaining relatively stable (Chart 4).[11]

[10] The indicators of backward-looking inflation include lagged HICP inflation, lagged core inflation and four-quarter moving averages of past HICP inflation. Forward-looking inflation indicators include the Consensus Economics inflation expectations between one and six quarters ahead, and the Survey of Professional Forecasters (SPF) inflation expectations one, two and five years ahead.

[11] We consider professional forecasters' expectations, although it can be argued that household or firm expectations might be more appropriate. The ECB's Consumer Expectations Survey (CES) and the survey on the access to finance of enterprises (SAFE) could provide useful information but do not cover a sufficient time span to be included. However, we find that for the period that CES information is available, consumer expectations are broadly aligned with, albeit higher than, those of professional forecasters, peaking in October 2022 and tracing a similar path to those in the SPF.

Chart 4

Measures of past inflation and inflation expectations over different horizons



Sources: Eurostat, ECB and Consensus Economics.
Notes: Other inflation measures (grey lines) include HICP inflation excluding energy and food, the four-quarter moving average of HICP inflation, Consensus Economics inflation expectations between one and six quarters ahead, and SPF inflation expectations one and two years ahead. The latest observations are for the third quarter of 2024.

Wage Phillips curve estimations confirm that the reaction of wages to past inflation has been the major driver of recent wage inflation. Although the prevalence of wage indexation is relatively low in the euro area, before the pandemic inflation compensation in wage formation was influenced primarily by backward-looking inflation.[12] Such wage formation may increase the persistence of nominal variables and could amplify second-round effects. Inflation may play a greater role in wage formation in a period of high inflation because firms and workers are more attentive to it than when inflation is low. During the high inflation period and the subsequent disinflation, past inflation and shorter-term inflation expectations explain a larger part of wage developments. Models that include past inflation and short-term inflation expectations can explain a large part of the upward phase of wage growth, while in the wage disinflation phase past inflation appears to have made a somewhat larger contribution. In contrast, models that include long-term inflation expectations point overall to a lower estimated impact of inflation on wage formation (Chart 5). Recently, as HICP inflation has eased, the contribution of inflation to wage growth has also been easing in most specifications with backward-looking or short-term inflation measures, but it nevertheless remains high. Overall, this finding confirms that there is a strong backward-looking element in wage formation in the euro area, which in the recent period is also related to the strong surprise element of the

[12] See, for example, Koester, G. and Grapow, H., "The prevalence of private sector wage indexation in the euro area and its potential role for the impact of inflation on wages", *Economic Bulletin*, Issue 7, ECB, 2021, and Nickel, C. et al., op. cit.

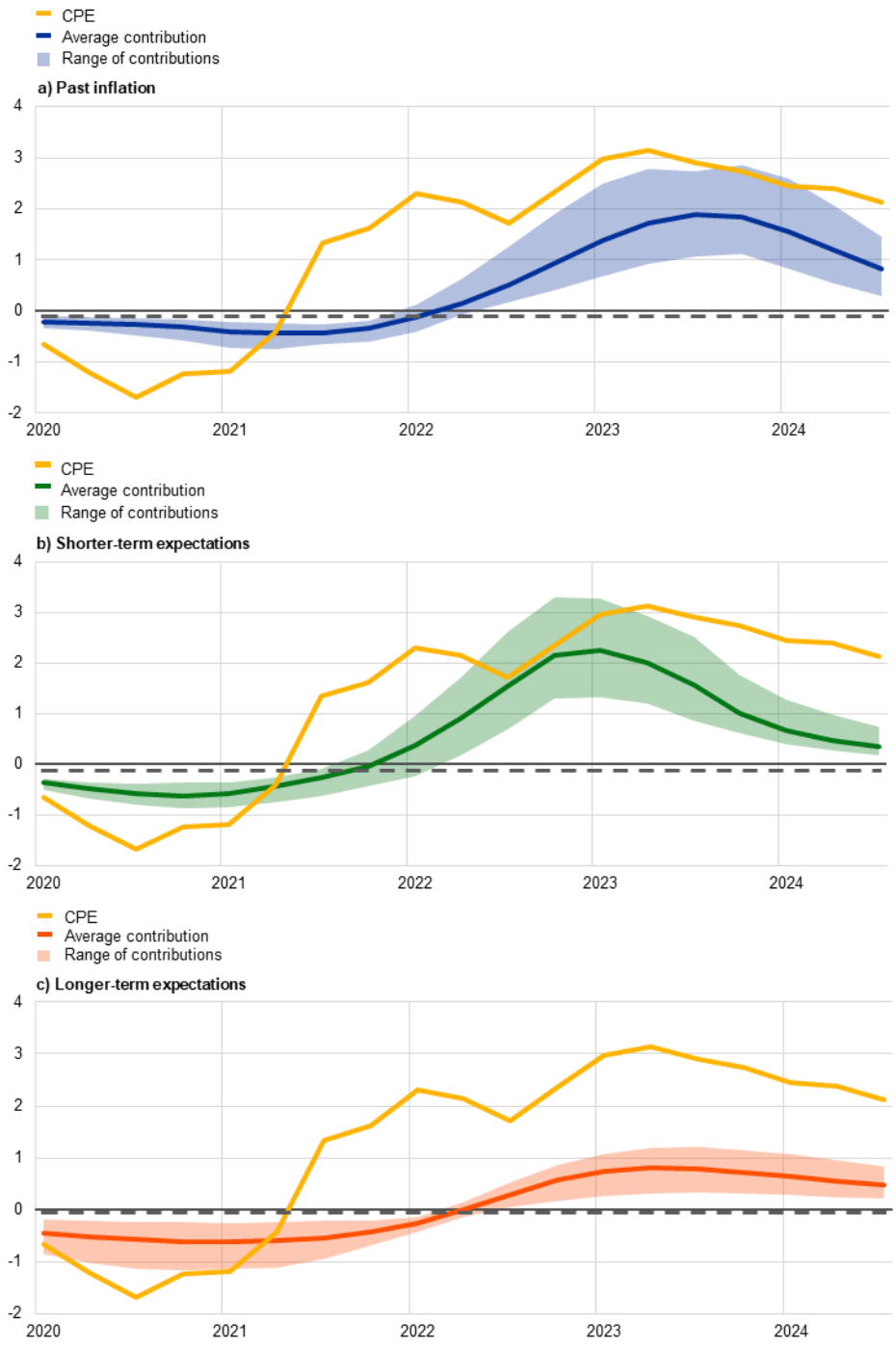
inflationary shock. This is in line with the application of the Bernanke-Blanchard model to the euro area.[13]

[13] See Arce, Ó. et al., op. cit,, who also find that inflation has had a strong impact on wages in the last three years (see also Box 2 in this article); and Galstyan, V., "Understanding the Joint Dynamics of Inflation and Wage Growth in the Euro Area", *Research Technical Papers*, No 11, Vol. 2023, Central Bank of Ireland, December 2023, who finds that the real wage gap has been an important driver of recent euro area wage growth. Similarly, see DeLuca, M. and Van Zandweghe, W., "Postpandemic Nominal Wage Growth: Inflation Pass-Through or Labor Market Imbalance?", *Economic Commentary*, No 2023-13, Federal Reserve Bank of Cleveland, August 2023, pp. 1-6, who find that US wage growth has been driven mainly by inflation pass-through.

Chart 5

Euro area CPE growth and the contribution of inflation in different wage Phillips curve specifications

(annual percentage changes and percentage point contributions)



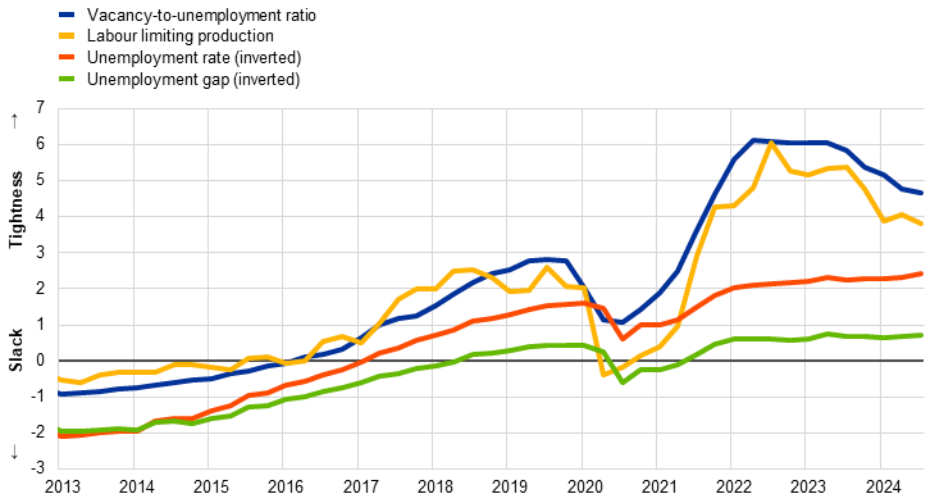
Sources: Eurostat, Consensus Economics, ECB and ECB staff calculations.
Notes: The growth rate for CPE is calculated from a series which has been interpolated over the first and second quarters of 2020, and demeaned. The charts show the average and the range of the estimated contribution from different inflation variables to CPE growth from various specifications of the thick modelling framework. Past inflation indicators are lagged HICP inflation, lagged core inflation and the four-quarter moving average of past HICP inflation. Shorter-term inflation expectations are Consensus Economics inflation expectations between one and four quarters ahead and SPF inflation expectations one year ahead. Longer-term inflation expectations are Consensus Economics inflation expectations between five and six quarters ahead and SPF inflation expectations two and five years ahead. The dashed horizontal lines show the average pre-pandemic contributions (calculated over the period 1999-2019). The latest observations are for the third quarter of 2024.

Various indicators on the state of the labour market have been pointing to tightness, although to different degrees. The period since 2022 has been characterised by the lowest unemployment rate since the introduction of the euro in 1999. The headline unemployment rate has also been lower than estimates of its non-inflationary rate (for example, the European Commission's non-accelerating wage rate of unemployment – NAWRU), confirming the signals for labour market tightness.[14] Other measures of the labour market state that are used as alternative indicators in the augmented wage Phillips curve specifications (e.g. the vacancy-to-unemployment ratio and the European Commission's measure of labour as a factor limiting production) have been pointing to an even stronger increase in labour market tightness than the unemployment rate. One possible reason for this is that these two indicators include labour demand more directly, while the unemployment rate reflects the balance between labour demand and labour supply, where adjustments in the labour force may satisfy labour demand. Recently, indicators of labour demand have been easing from a high level, while the unemployment rate has been more stable (Chart 6).

Chart 6

Measures of the cyclical position of the labour markets

(percentages; net balance; percentages of the labour force)



Sources: Eurostat, European Commission, ECB, Haver and ECB staff calculations.
Notes: The unemployment rate and unemployment gap are inverted. The unemployment gap is calculated as the difference between the unemployment rate and the European Commission's NAWRU estimate, which was interpolated from annual to quarterly frequency. Labour limiting production is calculated as a weighted average of sectoral survey information on factors limiting production in the European Commission's business and consumer surveys. All indicators are standardised to their pre-pandemic (i.e. 1999-2019) mean and standard deviation. The latest observations are for the third quarter of 2024.

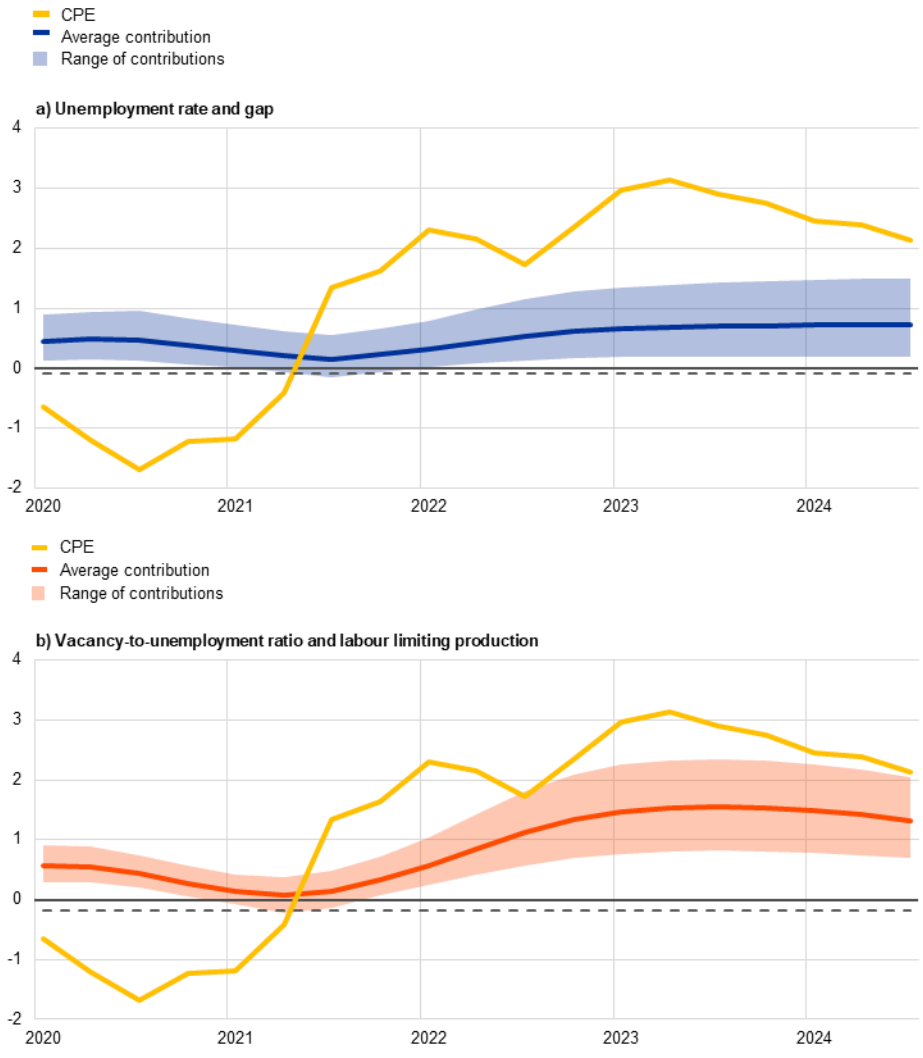
Labour market tightness has contributed to recent wage growth. The unemployment rate points to greater upward pressure on wage growth than the historical average. However, since 2022 wage growth has been more closely aligned with the dynamics of the vacancy-to-unemployment ratio and the European

[14] In the augmented wage Phillips curves, we use the unemployment rate, unemployment gap (calculated as a difference between the actual unemployment rate and the NAIRU estimate in the Eurosystem / ECB Staff projections), vacancy-to-unemployment ratio and the European Commission's measure of labour as a factor limiting production. For information on the European Commission's NAWRU estimate, see Havik, K. et al., "The Production Function Methodology for Calculating Potential Growth Rates & Output Gaps", *European Economy – Economic Papers*, No 535, European Commission, November 2014.

Commission's indicator on labour limiting production. Wage Phillips curve specifications that include these indicators point to a stronger impact of labour market tightness, suggesting they are more informative about wage growth in the recent period (Chart 7). At the same time, the dynamics of recent wage growth more closely follows that of the contribution from (past) inflation, while labour market tightness has likely acted as a supporting factor for real wage catch-up.

Chart 7

Contribution of labour market tightness to CPE growth across wage Phillips curve specifications



Sources: Eurostat, European Commission and ECB staff calculations.
Notes: The growth rate for CPE is calculated from a series which has been interpolated over the first and second quarters of 2020, and demeanedThe charts show the average and the range of the estimated contribution from different labour market variables to CPE growth from various specifications of the thick modelling framework. Labour limiting production is calculated as a weighted average of sectoral survey information on factors limiting production in the European Commission's business and consumer surveys. The dashed horizontal lines show the average pre-pandemic contributions (calculated over the period 1999-2019). The latest observations are for the third quarter of 2024.

A wage decomposition based on a range of augmented wage Phillips curve specifications attributes the recent high wage inflation primarily to high price inflation but, as the role of price inflation is declining, the relative impact of the

labour market is increasing. In the decomposition, we consider an average of various specifications with different labour market and inflation variables. Comparing the main wage drivers, inflation seems to have been the main driver of wage growth in recent years (Chart 8). The more recent easing of CPE growth is also driven by a lower contribution from inflation. In contrast, the contribution of labour market developments is smaller but is not estimated to have declined.[15] Labour productivity has been weak recently, and this may have dampened overall wage growth. The estimated correlation between productivity and wage growth is very low at the business cycle frequency, and the estimated contribution of productivity to actual CPE growth is very small and primarily negative.[16] Finally, there has been a positive residual, reflecting the presence of some factors which are not captured by the augmented wage Phillips curve models. These factors could be the interplay of labour market tightness and high inflation, but the unexplained part may also reflect the fact that the wage Phillips curve is limited in its ability to capture real wage catch-up.[17] A wage decomposition based on a subset of these augmented wage Phillips curve specifications where the inflation component is only backward-looking increases the relevance of the inflation component and reduces the residual in the post-pandemic era. Such a finding underscores the role the recent high inflation has played in shaping wage growth.

15 Professional forecasters also attribute the high wage inflation to high past and expected inflation and expect wage growth to ease, primarily on the back of the recent disinflation. See *The ECB Survey of Professional Forecasters – Third quarter of 2024*, ECB, July 2024.

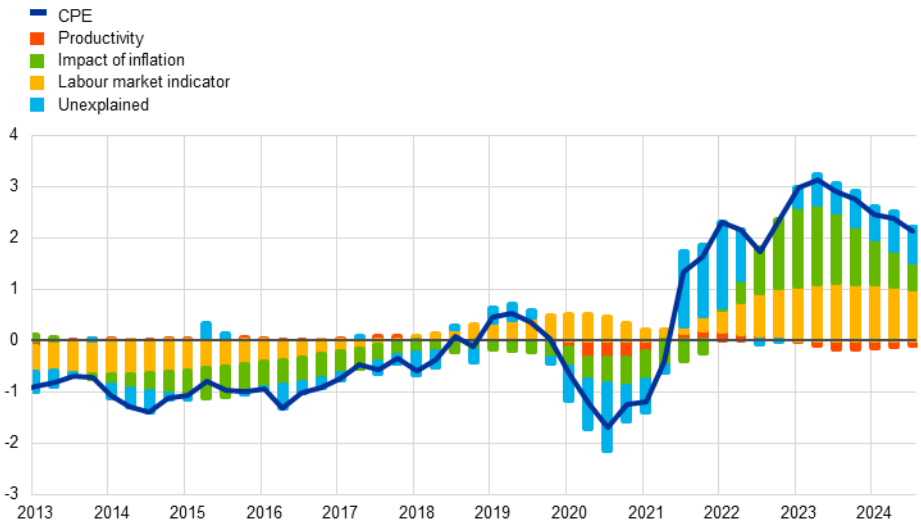
16 Euro area data suggest that since the early 1990s real wage growth has been lower than labour productivity growth, and evidence of a direct relationship between the two has been weak. See Pagliari, M.-S., López-Garcia, P., Bobeica, E. and Lis, E., "Assessing the link between productivity and wage growth", in Nickel, C. et al., op. cit.. One possible explanation for the decoupling may be related to issues in the measurement of labour productivity. See also "Key factors behind productivity trends in EU countries", *Occasional Paper Series*, No 268, ECB, September 2021.

17 It is also likely that post-pandemic wage developments have been influenced by fiscal measures, although their relevance is probably smaller in the euro area than in the United States. See Jordà, Ò. and Nechio, F., "Inflation and wage growth since the pandemic", *European Economic Review, Vol. 156, July 2023*.

Chart 8

Wage Phillips curve decomposition of CPE growth

(annual percentage changes and percentage point contributions)



Sources: Eurostat, European Commission, ECB and ECB staff calculations.
Notes: The chart shows an average over various specifications for demeaned CPE growth. CPE and productivity are interpolated over the first and second quarters of 2020 in level. The latest observations are for the third quarter of 2024.

Box 1

Time variation in the slope of the wage Phillips curve

Prepared by Colm Bates, Katalin Bodnár and Peter Healy

For monetary policy, it is important to understand changes in the trade-off between the real and nominal sides of the economy and the link between inflation and wage growth embedded in the wage Phillips curve. As we move further away from the recent large shocks, it is becoming possible to assess whether these specific shocks caused a temporary break or a more permanent change in the slope of the euro area wage Phillips curve. In general, the literature is inconclusive about the time variation of the slope of the wage Phillips curve, which may in part reflect the variety of methodologies and indicators used. Nevertheless, there is some evidence of a flattening, in particular after the global financial crisis.[18] There is, however, little evidence of a change in the wage Phillips curve after the pandemic.[19] This box focuses on potential changes in the euro area since the pandemic.

With the unemployment rate at record low levels and wage inflation reacting to the inflationary surprise, the pure correlation between the two would suggest a steep Phillips curve in the past few years. However, the shift is largely due to the impact of past inflationary shocks on wage growth.

18 Malikane, C., "A Traditional Nominal Wage Phillips Curve: Theory and Evidence", *Economic Record*, Vol. 99, No 324, March 2023, pp. 108-121, finds that the shift towards inflation-targeting has been accompanied by an increased anchoring of inflation expectations and has led to a flattening of the wage Phillips curve across several advanced economies. Bulligan, G. and Viviano, E., "Has the wage Phillips curve changed in the euro area?", *IZA Journal of Labor Policy*, Vol. 6, No 9, August 2017, find a flattening of the wage Phillips curve mainly in Germany after the global financial crisis.

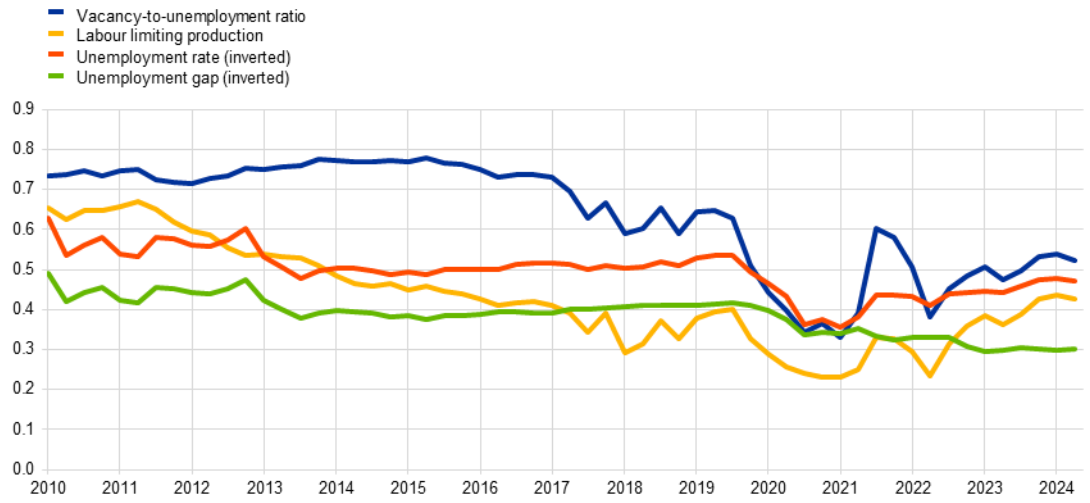
19 A few papers, focusing on the United States, found no evidence for a change in the relationship. Heise, S., Pearce, J. and Weber, J.P., "A New Indicator of Labor Market Tightness for Predicting Wage Inflation", *Liberty Street Economics*, Federal Reserve Bank of New York, 9 October 2024, develop a new indicator of labour market tightness for the United States but find no signs of a change in the relationship with wage growth in the recent period.

Indeed, estimates of the wage Phillips curve based on a rolling sample do not point to a steepening of the slope of the curve (Chart A). There is some increase in the estimated parameter of the vacancy-to-unemployment ratio and the labour limiting production indicator, following earlier stronger volatility for both, but these changes are not statistically significant for most specifications. The estimated parameters for the unemployment rate and unemployment gap are fairly stable, as they have been historically. There is also no significant change in the estimated inflation parameter, although this might reflect that it is difficult to account for large shocks (like the recent inflationary shock) in this linear framework. Rolling window estimates point to some volatility in the inflation parameter, mainly for long-term inflation expectations.

Chart A

Parameter estimates of cyclical measures of labour market tightness in the euro area wage Phillips curve

(estimated **parameters**)



Sources: Eurostat, European Commission and ECB staff calculations.
Notes: The unemployment gap is defined as the difference between the actual unemployment rate and the non-accelerating inflation rate of unemployment (NAIRU). Estimates are based on rolling window estimates over 15 years, starting from 1995, and show averages of parameter estimates across different specifications. In the estimations, CPE (the left-hand side variable of the wage Phillips curve) is interpolated over the first and second quarters of 2020 in level.

4 What can the ECB wage tracker tell us about the role of inflation compensation in wage negotiations?

The ECB wage tracker provides a timely assessment of negotiated wages. Wage indicators are released with a considerable time lag, and recently, as shown in the previous section, assessing these data has been challenging. In the high inflation period there was a particularly strong need for more timely indicators and approaches. One significant development has been the introduction of the ECB wage tracker, which uses granular data on existing collective bargaining agreements.[20] The ECB wage tracker provides both backward-looking information on negotiated wage growth pressures and very timely forward-looking signals on

[20] See Bates, C., Botelho, V., Holton, S., Roca I Llevadot, M. and Stanislao, M., op. cit., and Górnicka, L. and Koester, G. (eds.), "A forward-looking tracker of negotiated wages in the euro area", *Occasional Paper Series*, No 338, ECB, February 2024.

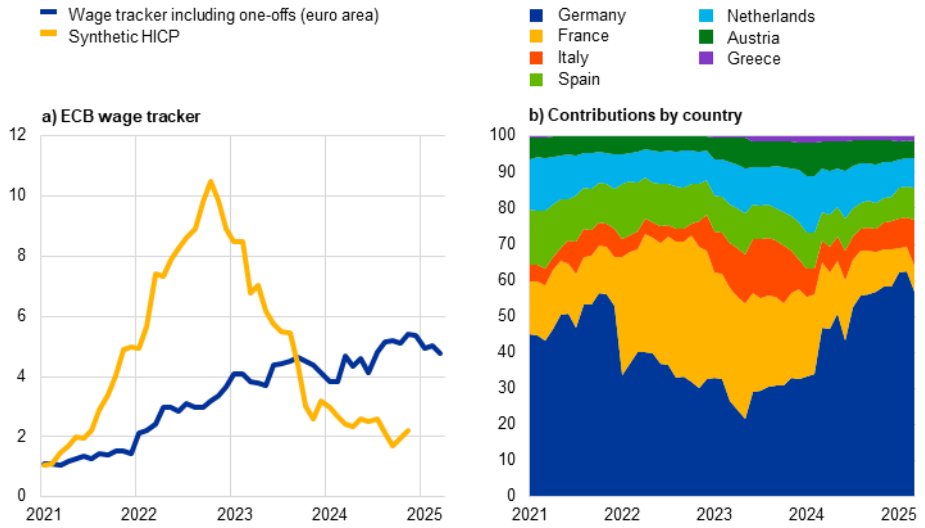
expected future negotiated wage growth during the coming months.[21] This indicator is one of several new data sources, including survey-based wage indicators, developed at the ECB since the onset of the pandemic.[22]

Granular data on wage negotiations can help explain the role of inflation compensation as a driver of such negotiations. The ECB wage tracker made it easier to anticipate the gradual increase in euro area negotiated wages starting in 2022 and to understand the considerable country heterogeneity (Chart 9). In this article, we use this tool to understand the features of wage negotiations using granular data at the agreement level. In particular, we assess the role of real wage catch-up demands in the gradual increase in negotiated wage growth and in the composition of negotiated wages. We differentiate between structural increases – i.e. changes that affect base wages – and one-off payments, and we assess the role of institutional factors in the pace of real wage catch-up.[23]

Chart 9

ECB wage tracker and contributions by country

(annual percentage changes and percentage point contributions)



Sources: ECB staff calculations based on microdata on wage agreements provided by the Deutsche Bundesbank, the Bank of Greece, the Banco de España, the Banque de France, the Banca d'Italia, the Oesterreichische Nationalbank and the Dutch employers' association (AWVN).
Notes: For methodological details, see Górnicka, L. and Koester, G. (eds.), op. cit.. The euro area aggregates for the ECB wage tracker and the synthetic HICP are based on Germany, Greece, Spain, France, Italy, Austria and the Netherlands. Aggregation across countries is based on compensation of employees' weights from national accounts data. The latest observations are for March 2025 for the ECB wage tracker and November 2024 for HICP.

One important factor behind the heterogenous speed of adjustment of negotiated wages to inflation is the length of previous collective bargaining

21 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.

22 See Baumann, U., Ferrando, A., Georgarakos, D., Gorodnichenko, Y. and Reinelt, T., "SAFE to update inflation expectations? New survey evidence on euro area firms", *Working Paper Series*, No 2949, ECB, June 2024; and Bankowska, K., Baptista, P., Bates, C., Dossche, M., Kouvavas, O. and Tsiortas, A., "Tracking individual wages with the Consumer Expectations Survey", poster session, 5th Joint ECB, Bank of Canada and Federal Reserve Bank of New York Conference on expectations surveys, central banks and the economy, October 2024.

23 The ECB wage tracker contains detailed information on one-off payments for Germany, Italy and the Netherlands.

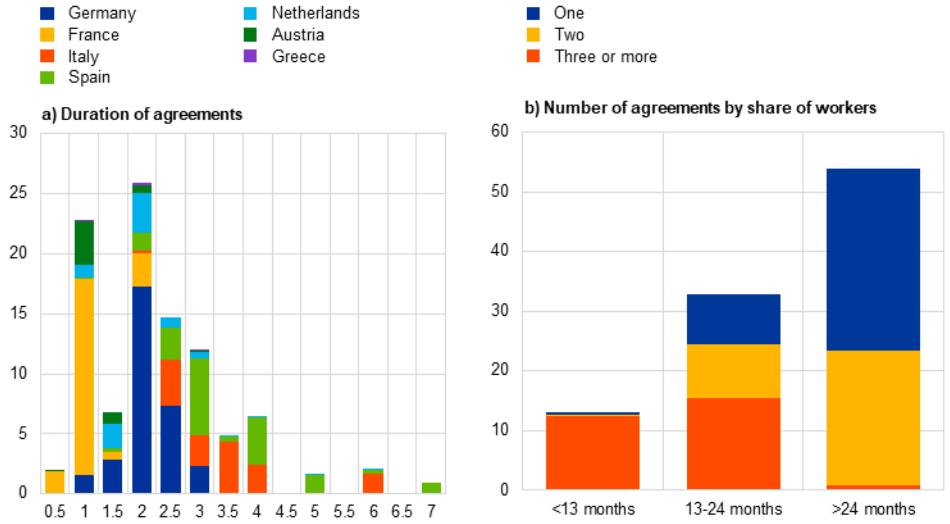
agreements. Institutional factors, such as the frequency of collective bargaining negotiations and the length of agreements, can influence the dynamics of underlying wage pressures. Understanding how quickly social partners can react to economic shocks and renegotiate collective bargaining agreements is therefore key to assessing the pass-through of inflation to wages. Long contract durations limit the scope for employers to adjust to macroeconomic shocks but, at the same time, provide a safeguard for employees regarding their future compensation, as it is less dependent on the business cycle. However, in a high inflation period, long contract durations can lead to substantial real wage losses, especially when the strong inflationary shocks were not accounted for in the previous wage negotiation. Long contract duration can also increase the volatility of negotiated wage series when inflation is unexpectedly high, since in this case there is a large accumulated real wage gap to be closed or narrowed in future wage negotiations. For example, retail and wholesale sector workers in Germany recently negotiated a new wage agreement for the first time in three years. To compensate for the cumulated real wage loss, they agreed large one-off payments as well as significant structural wage increases (i.e. growth in regular payments, excluding one-offs) in the third quarter of 2024, resulting in record negotiated wage growth (as shown in Chart 1).

ECB wage tracker data suggest that recorded contract durations differ greatly within the euro area. In France and Austria, collective bargaining agreements last on average around 12 months. By contrast, in Germany, Italy, Spain and the Netherlands, agreements are usually valid for two years or more. In Italy and Spain, the distribution of workers by contract duration exhibits several peaks, some at significant intervals such as five or six years, which is uncommon in other countries (Chart 10, panel a). Aggregating the ECB wage tracker data at the euro area level reveals that 13% of workers are covered by contracts lasting one year or less and which have been renegotiated at least three times since 2021. As the contract duration lengthens, the renegotiation frequency naturally decreases. One-third of workers have contracts lasting one to two years, and there have been a large number of agreements in this segment since 2021, reflecting the sometimes staggered and slow nature of collective bargaining. Contracts with a duration longer than two years, which cover 54% of workers, have been renegotiated only once or twice since 2021 (Chart 10, panel b).

Chart 10

Duration and number of collective bargaining agreements, by share of workers since 2021

(panel a: x-axis – contract duration in years; y-axis – density; panel b: percentages of workers)



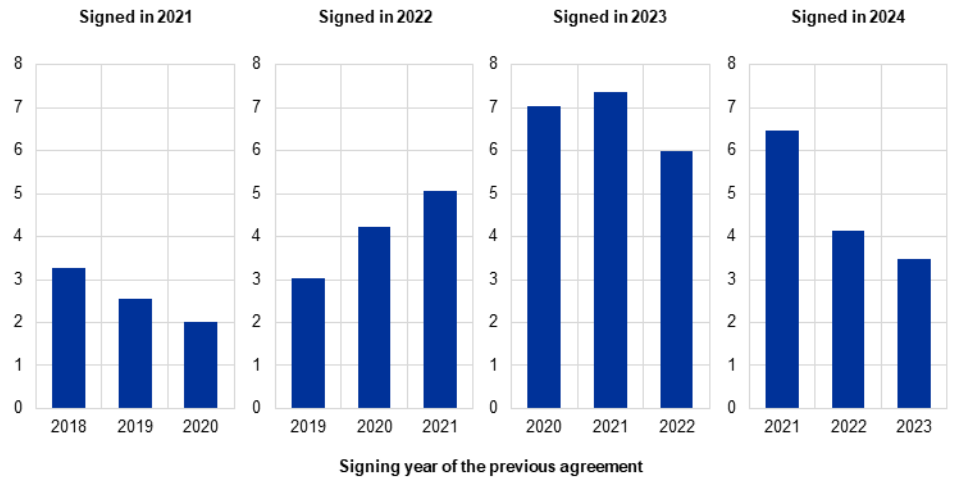
Sources: ECB staff calculations based on microdata on wage agreements provided by the Deutsche Bundesbank, the Bank of Greece, the Banco de España, the Banque de France, the Banca d'Italia, the Oesterreichische Nationalbank and the Dutch employers' association (AWVN).
Notes: Densities are weighted by number of workers. For sectors that have agreed many contracts since 2021, calculations are based on the average contract duration and average number of workers.

Shorter contracts enable wage growth to respond more quickly to inflation. Structural wage growth among contracts renegotiated every year increased from 2.0% in 2021 to 5.1% in 2022 and 6.0% in 2023, before easing to 3.5% in 2024. While these contracts still reflect staggered wage dynamics, they suggest that negotiated wage pressures will continue to ease as long as inflation does not suddenly increase again. Contracts with longer durations display a more gradual structural wage adjustment, with lower recorded wage growth in 2022 and higher wage growth in 2023 and 2024. Thus, contracts with longer durations displayed a weaker immediate response to the inflation surge in 2022 and stickier and higher wage growth in the subsequent years. Still, wage pressures for longer duration contracts are also easing, as already seen in 2024 in the wage growth dynamics of contracts with an average duration of two years (Chart 11).

Chart 11

Structural wage growth, by year in which current and previous contracts were signed

(annual percentage changes)



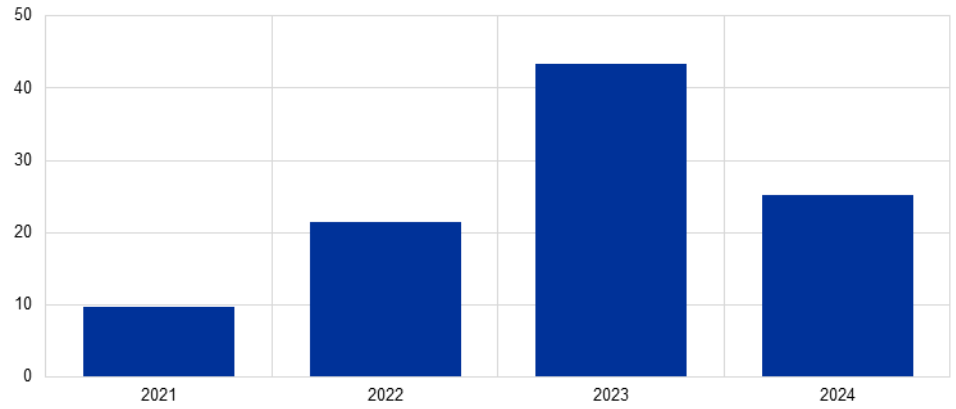
Sources: ECB staff calculations based on microdata on wage agreements provided by the Deutsche Bundesbank, the Bank of Greece, the Banco de España, the Banque de France, the Banca d'Italia, the Oesterreichische Nationalbank and the Dutch employers' association (AWVN).
Notes: Each panel represents agreements signed in a specific year. The x-axis indicates when the previous contract was signed. Structural wage growth only considers a period of 12 months after the agreement became effective.

As most of the workers covered by the ECB wage tracker have renegotiated their wages since the start of the inflation surge, real wage catch-up is easing as a factor, as confirmed by the forward-looking tracker. A significant share of collective bargaining agreements expired in 2024, affecting more than 30% of the workers covered by the ECB wage tracker database. Moreover, a further 15% will see their agreements expire in the first half of 2025. Of these, a substantial majority were agreed in either 2023 or 2024, suggesting that most workers have already received wage increases or one-off payments compensating for inflation. Very few of the contracts that are expected to be renegotiated by the second quarter of 2025 have not already been renewed at least once since 2023. Accordingly, the vast majority of contract renegotiations are anticipated to result in lower wage growth than was agreed in 2023 and 2024, driven partly by the more flexible, or less staggered, wage adjustment of contracts with lower durations (Chart 12). This, together with the lower wage drift, will bring overall wage pressures down.

Chart 12

Share of workers under expiring agreements, by signing year

(percentages of workers)



Sources: ECB staff calculations based on microdata on wage agreements provided by the Deutsche Bundesbank, the Bank of Greece, the Banco de España, the Banque de France, the Banca d'Italia, the Oesterreichische Nationalbank and the Dutch employers' association (AWVN).
Note: Share of workers whose contract will expire (or has expired) between the first quarter of 2024 and the second quarter of 2025, by contract signing year.

Box 2

Wages and the pass-through of shocks to inflation

Prepared by Antoine Kornprobst and Carlos Montes-Galdón

This box illustrates the drivers of wages and inflation, as well as their interconnection in the recent episode of high inflation, through the lens of the semi-structural model of Bernanke and Blanchard.[24] The model is used to identify the sources of wage growth and inflation, taking the dynamic relationships between prices, wages and expectations fully into account. These include the effects of the exogenous shocks that have hit the euro area economy since the first quarter of 2020 as well as the effects of the initial conditions in the first quarter of 2020, capturing the dynamic effects of pre-pandemic macroeconomic conditions. Importantly, the model can illustrate how inflation and wage growth interact, and it unveils the crucial role of wages in the propagation of shocks to price inflation in the euro area.

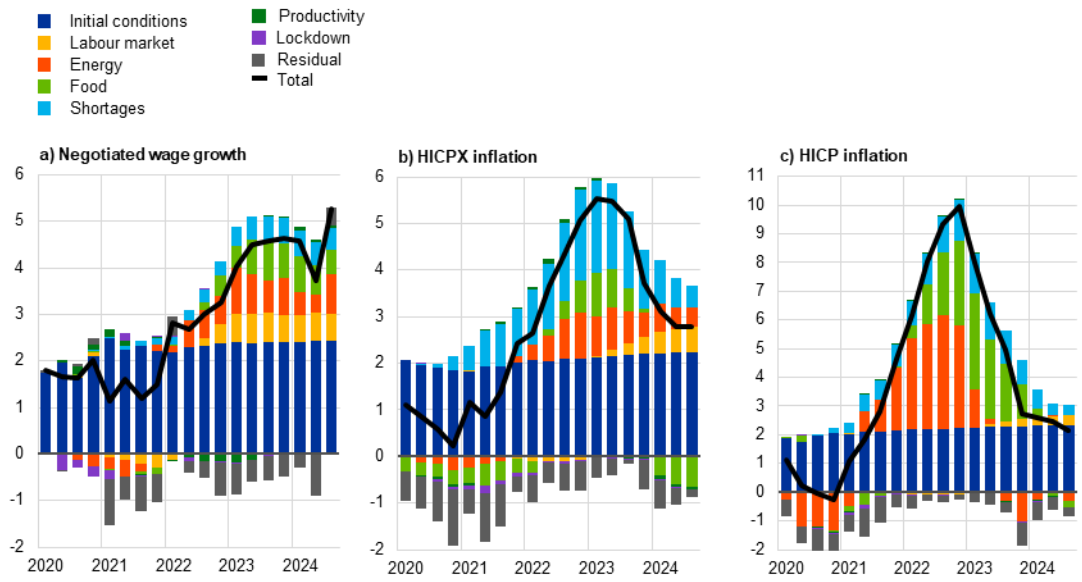
In the model, negotiated wages are determined not only by long-run productivity growth and the degree of slack or tightness in the labour market – as measured by the ratio of job vacancies to unemployment – but also by price shocks, as wage agreements reflect compensation for both unexpected and expected inflation in order to catch up with and prevent further real wage losses after inflation surges. In turn, wages enter the cost structure of firms via the price equation in the model and are gradually passed through to consumers. In the wake of the inflation surge, negotiated wage growth increased significantly: post-pandemic shocks accounted for around 3 percentage points of negotiated wage growth, in particular owing to higher energy and food prices, global supply chain pressures and, to some extent, the tightening of the labour market (Chart A).

[24] See Bernanke, B.S. and Blanchard, O.J., "An Analysis of Pandemic-Era Inflation in 11 Economies", *NBER Working Papers*, No 32532, National Bureau of Economic Research, May 2024; and Arce, Ó. et al., op. cit.

Chart A

Sources of euro area annual wage growth and price inflation

(annual percentage changes and percentage point contributions)



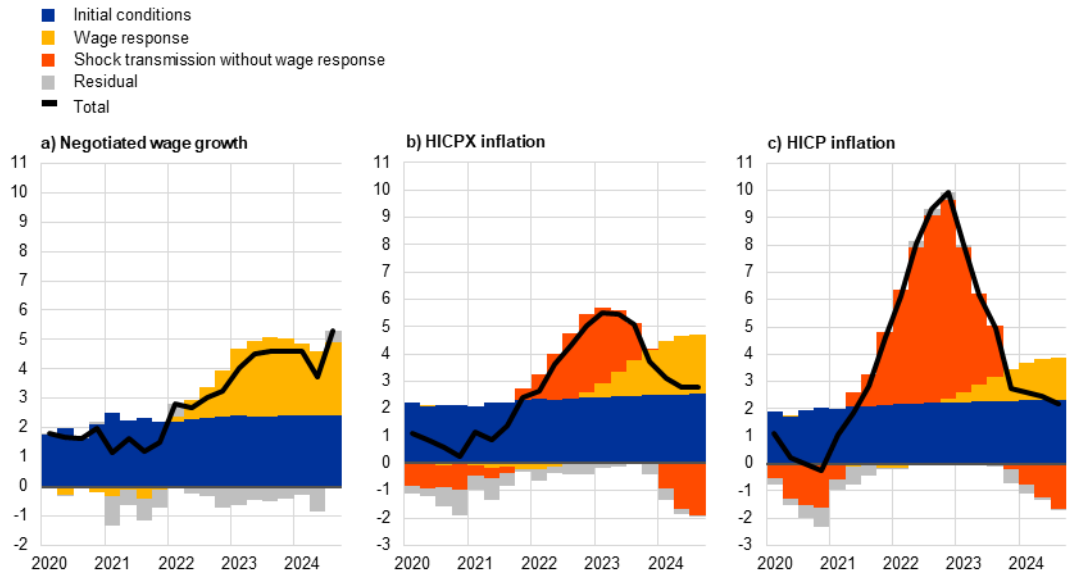
Sources: ECB staff calculations based on Arce, Ó. et al., op. cit.
Note: The chart shows decompositions of the sources of annual negotiated wage growth, HICP excluding energy and food (HICPX) inflation and HICP inflation based on the solution of the full model and the implied impulse response functions.

Dynamic decompositions of euro area wage growth and (underlying) price inflation reveal that the response of wages to post-pandemic shocks has increasingly been feeding into prices since the first quarter of 2022 (Chart B). Our results underscore that there is a delay in the response of wage growth to inflation, and subsequently in the response of inflation to wage growth. This reflects the fact that wages take time to catch up with increases in prices owing to labour market rigidities, but also that firms have sticky prices and do not pass on changes in labour costs to consumers immediately. These results signal some remaining upside pressure to inflation from wage dynamics: past price shocks, while fading, were still being passed on to wages until the third quarter of 2024.

Chart B

Direct and indirect impacts of price shocks on inflation and second-round effects via wages

(annual percentage changes and percentage point contributions)



Source: ECB staff calculations based on Arce, Ó. et al., op. cit.
Notes: The chart shows a decomposition of the sources of annual negotiated wage growth, HICPX inflation and HICP inflation between the first quarter of 2020 and the second quarter of 2024 based on the solution of the full model and the implied impulse response functions. The contributions stemming from the "wage response" are obtained by taking the difference between the dynamic simulation and a counterfactual dynamic simulation in which wages have not responded to shocks since the first quarter of 2020.

The wage channel has been playing an increasingly important role in explaining inflation dynamics since inflationary price shocks began to subside. Monitoring wage growth is therefore crucial to assess the risks to medium-term price stability. In the absence of significant price shocks in the future, the normalisation of wage growth will support the return of inflation to the ECB's 2% target.

5 Conclusions

As the unusual shocks of recent years are slowly dissipating, wage growth is gradually easing. Wage growth is an important factor influencing the inflation outlook, and understanding its drivers is crucial. The augmented wage Phillips curve approach points to real wage catch-up as the main driver of recent high wage growth, which was supported by tight labour markets. In contrast, productivity growth has played a negligible role. The estimated inflationary impact reflects developments in past inflation and captures – although imperfectly – the real wage catch-up process. This factor is slowly dissipating, as is also confirmed by granular data in the ECB wage tracker, allowing wage growth to edge down, which is further supported by the easing of labour demand. At the same time, the wage channel is playing a key role in explaining inflation dynamics, so it remains important to monitor wage developments.

3 Green investment needs in the EU and their funding

Prepared by Malin Andersson, Petra Köhler-Ulbrich and Carolin Nerlich[1]

1 Introduction

The green transition towards a climate-neutral economy is a key challenge for the EU and requires substantial investment to 2030 and beyond. Climate-related disasters are increasing in frequency and severity in Europe and elsewhere, pointing to substantial investment needs to speedily decarbonise the economy and adapt the EU to a changing climate. Estimates of the additional amount that should be invested in capital expenditure and low carbon-emitting durable consumption goods each year until the end of this decade range from 2.7% to 3.7% of 2023 EU GDP. A delay in the decarbonisation, in particular at the global level, would push up transition and adaptation costs even further. At the same time, an investment-led transition towards a low-carbon economy will entail a wide-ranging structural shift, which is expected to affect growth and prices as well as the financial sector. For all these reasons, the ECB is carefully monitoring developments, as outlined in this article.[2]

Substantial amounts of funds will be required for the green transition. To achieve the above aims, the contribution of the private sector to funding green investment will be key, also given current public finance constraints. While bank financing is expected to make a vital contribution to the green transition, capital markets in Europe will need to expand and integrate more fully to better support green innovation and start-ups. The public sector can play an important role in fostering private investment in the green transition by reducing the financing costs of borrowers and de-risking green investment activities, albeit within the bounds of the available fiscal space.

A combination of structural reforms and good business conditions is crucial to underpin the green transition. Obstacles to the green transition include the limited availability of skilled staff in the field of clean and sustainable technologies, the challenges of setting up green businesses and uncertainty about future climate strategies. Public policies should aim to remove structural rigidities, improve regulatory and administrative efficiency and foster green innovation. Structural reforms can incentivise firms, households and investors to step up green investment activities.

Against this background, this article assesses the green investment needs in the EU and the ways that these can be financed. In Section 2, a range of

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1 Prepared in liaison with Laurent Abraham, Krzysztof Bańkowski, Tina Emambakhsh, Annalisa Ferrando, Charlotte Grynberg, Johannes Groß, Lucia Hoendervangers, Vasileios Kostakis, Daphne Momferatou, Carlo Pasqua, Matthias Rau-Goehring, Erzsebet-Judit Rariga, Desislava Rusinova, Ralph Setzer, Martina Spaggiari, Fabio Tamburrini, Josep Maria Vendrell Simon and Francesca Vinci.

2 The topic of “green investment and its financing” was identified as one of the main focus areas in the ECB’s climate and nature plan 2024-2025 published in January 2024.

estimates of green investment needs prepared by several institutions is assessed. Section 3 contains a discussion on the role of the private sector, especially banks, in financing the green transition, as well as the role of the public sector in supporting green investment. Section 4 reviews the main obstacles to the green transition and policy options to address them. Section 5 concludes.[3]

2 Estimates of green investment needs

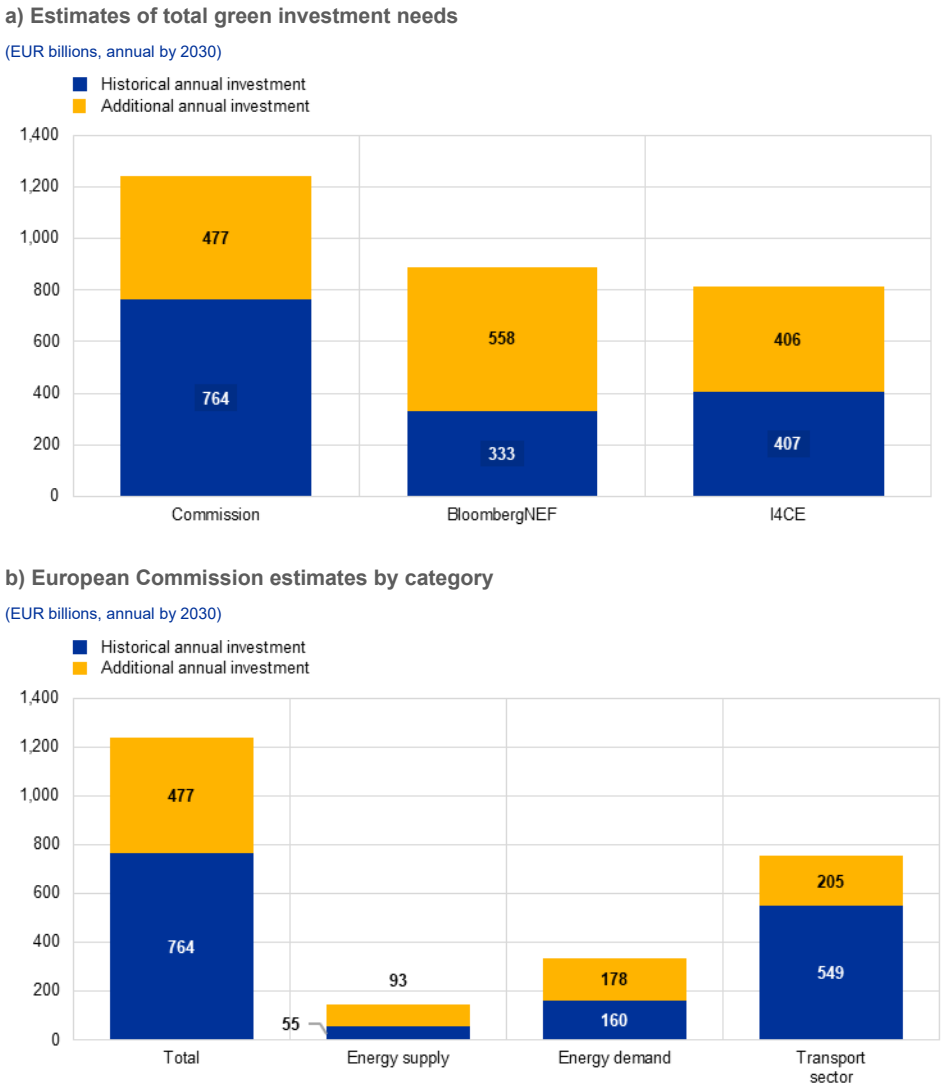
Substantial investment is needed in the EU in the coming decades to enable the green transition, reduce greenhouse gas (GHG) emissions by 55% from 1990 levels by 2030 and reach net-zero emissions by 2050. Analysis by the European Commission shows that, in the period from 2011 to 2020, an average of €764 billion was invested in the EU each year to reduce GHG emissions (Chart 1, panel a). This is about 5.1% of the EU's GDP in 2023. To reach the 2030 target, the Commission estimates that an additional €477 billion of green investment will be needed each year, equivalent to 3.2% of 2023 GDP.[4] In sum, total green investment of around €1.2 trillion each year, equivalent to 8.3% of 2023 GDP, is needed. The definition of green investment used here is broader than that used under gross fixed capital formation in national accounts, as it includes low carbon-emitting durable consumption goods such as electric vehicles. It is important to stress that a substantial part of this investment, as further discussed below, is not additional but rather substitution for investment goods and purchases of durable goods which are not considered "green". For example, purchases of electric cars will substitute acquisitions of fuel combustion engine cars. The same applies to the installation of new domestic heating systems.

3 Further details can be found in Nerlich, C., Köhler-Ulbrich, P. and Andersson, M., et al., " Investing in Europe's green future – Green investment needs, outlook and obstacles for funding the gap", *Occasional Paper Series*, No 367, ECB, January 2024.

4 See "Investment needs assessment and funding availabilities to strengthen EU's Net-Zero technology manufacturing capacity", *Commission Staff Working Document*, European Commission, 2023. The investments required to also cater for RePowerEU, the Net-Zero Industry Act and the environmental targets would amount to around €620 billion per year; see "2023 Strategic Foresight Report", European Commission, 2023.

Chart 1

Estimates of total annual green investment needs in the EU



Sources: European Commission, BloombergNEF, Institute for Climate Economics and ECB calculations.
Notes: The additional investment estimates reflect the annual needs until 2030 in addition to past investment to achieve the Green Deal targets for 2030. Total green investment needs are the sum of the historical and additional investment in the EU. Panel a) shows the various institutions' estimates of annual green investment needs until 2030. Historical investment refers to annual averages: European Commission (2011-20), BloombergNEF (2023) and I4CE (2022). The BNEF estimate is adjusted for fossil fuel investments. Regarding BloombergNEF, the historical investment figure pertains to the EU27, whereas the estimate for additional investment needs includes the EU27 together with Norway and Switzerland, as no EU average is available. Panel b) shows European Commission estimates of green investment needs. Historical investments refer to the period 2011-20.

Estimates of green investment needs differ across institutions, both for total investment and the additional amounts needed. Compared with those of the European Commission, the figures for total green investment needs presented by other institutions are considerably smaller, mostly due to lower historical estimates (Chart 1, panel a). Focusing on the estimates of additional green investment needs − the amounts needed each year on top of continued investment of past amounts – these range between €558 billion according to BloombergNEF (BNEF) and around €400 billion according to the Institute for Climate Economics (I4CE) until 2030. This implies that additional amounts of green investment between 2.7% and 3.7% of 2023 EU GDP will be needed each year until the end of this decade. As assessments of

green investment needs involve a high degree of uncertainty, most studies rely on a variety of scenarios.[5]

The variations can be attributed mainly to differences in the coverage and definition of the sectors as well as the underlying methodologies. The estimates vary depending on whether the full costs of green investments are considered or only the additional costs compared with legacy technologies. For example, the estimates for the transport sector by the European Commission and I4CE include the full production cost of electric vehicles. Moreover, estimates depend on the coverage and definition of the sectors included. BNEF, for instance, includes investments in hydrogen, nuclear, carbon capture and shipping. Furthermore, the estimated investment needed to increase the energy efficiency of buildings varies widely across institutions, and some institutions do not capture the building sector in their estimates.

Zooming in on the sectoral estimates, investment needs vary significantly across sectors. According to the European Commission, in absolute terms most investment is needed in the transport sector, with a total of €754 billion per year required for its transition towards carbon neutrality (Chart 1, panel b). By far the largest share, amounting to around 80%, relates to investment in road transport, which includes passenger transport and the charging infrastructure for electric vehicles but also goods transport. In relative terms, by contrast, the largest increase in green investment will be needed in clean energy supply. Compared with historical averages, investment in this sector will need to increase by a factor of around 1.7 annually until 2030 to decarbonise energy supply.

The estimates for additional green investment needs can be seen as a lower bound in view of investment shortfalls and the only selective coverage of sectors. Despite recent progress, Europe's green investment activities have so far fallen short of what would have been needed annually until 2030 to achieve the decarbonisation target. Slippages were particularly noticeable during the pandemic. To compensate for the considerable shortfall compared with the target levels, more investment will be required in the remaining years to 2030.[6] If this is not achieved, a delay in the green transition would imply additional costs for adaptation.[7] Possible reasons for the shortfalls are poor access to, or high costs of, finance and a policy framework that fails to support, or even hinders, the green transition, as discussed below. Another reason why the estimates of annual investment may be understating the actual needs relates to the sectoral coverage. As mentioned above, some

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5 The estimates shown in Chart 1 reflect the most ambitious scenario to reach the 2030 climate targets. For BNEF, this relates to the *Net Zero Scenario*, which assumes that the EU will double down on emissions-reducing technologies with a view to reaching net zero by 2050. See "New Energy Outlook 2024", BloombergNEF, May 2024. The estimates by the International Energy Agency (not shown in Chart 1), assume considerably lower additional investment needs, as they only include the additional costs compared with legacy technologies.

6 That said, breakthroughs in green innovation and a favourable impact of green investment on potential growth will reduce the additional investment required for the green transition.

7 *Adaptation* means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause, or taking advantage of opportunities that may arise; see "What is the difference between adaptation and mitigation?", European Environment Agency, 2024. According to the World Bank (see "Climate Adaptation Costing in a Changing World", World Bank Group, 2024), climate adaptation costs in the EU are estimated in a range from €15 billion to €64 billion per year until 2030.

estimates do not include the full spectrum of sectors that will be impacted by the green transition. Taken together, this all means that the estimates outlined here should be considered a lower bound.

3 The funding landscape for green investment

The green transition requires substantial funding, in particular by the private sector but with support from the public sector. This section looks at both of these sources of finance.

The role of banks and financial markets

Banks are expected to play a crucial role in financing the green transition in the euro area. The green transition requires substantial amounts of funding, largely expected to be provided by the private sector. Given that loans from euro area banks account for nearly 60% of the stock of debt finance of euro area non-financial corporations and for more than 80% of the stock of debt of euro area households, banks make a key contribution to the financing of those activities that result in the release of carbon emissions.[8] Banks are therefore expected to play an important role in the financing of the green transition. The amount of carbon emitted by corporates in the euro area that can be linked to funding from euro area banks trended down overall from 2018 to 2021, but banks continued to be highly exposed to firms' carbon emissions (Chart 2).[9] This exposure varies widely across industries, but is particularly large in the manufacturing, energy and transport sectors, which underscores the challenges these sectors still have ahead of them in the green transition.

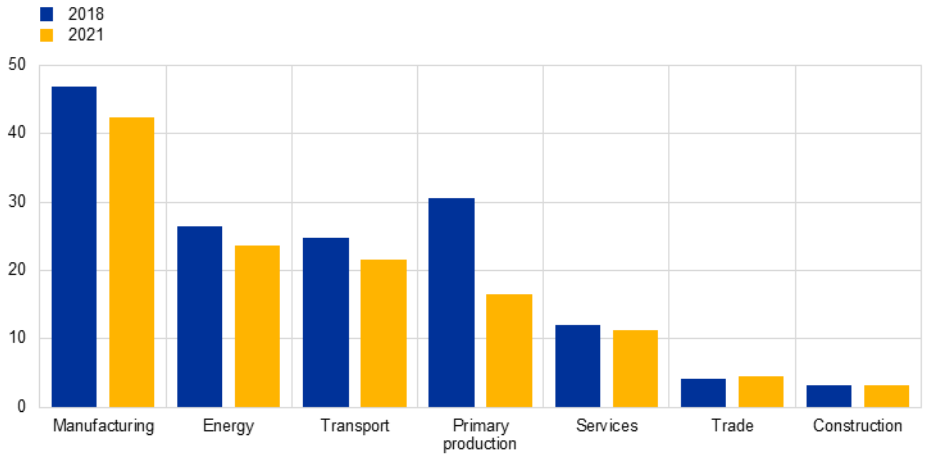
8 Debt of euro area non-financial corporations is defined as loans from euro area banks, loans from non-bank financial institutions and the rest of the world, and debt securities issued by non-financial corporations. Debt of euro area households is defined as total loans granted by euro area banks, non-bank financial institutions and others (general government, firms, households and the rest of the world).

9 See the analytical indicators on carbon emissions published on the ECB's website for a detailed explanation of these analytical indicators, including their limitations. See also Statistics Committee Expert Group on Climate Change and Statistics and Working Group on Securities Statistics, "Climate change-related statistical indicators", *Statistics Paper Series*, No 48, ECB, April 2024.

Chart 2

Industry sector breakdown of firms' carbon emissions that can be linked to funding from euro area banks

(million tonnes of scope 1 emissions, single-entity level)



Sources: ECB (AnaCredit, RIAD), ESCB calculations, European Commission and Eurostat.
Notes: The bars refer to the ECB's indicator on financed emissions, which shows firms' carbon emissions within the euro area that can be linked to funding from euro area banks. Sector classification follows NACE Rev. 2. The latest available data are for 2021.

Banks consider climate risks in their lending conditions, in terms of both transition and physical risks. In a specific climate-related question in the July 2024 euro area bank lending survey (BLS), banks reported that they grant a climate-related discount to firms with low carbon emissions and firms demonstrating considerable progress in their green transition (Chart 3, panel a). By contrast, high-emitting firms which may have so far postponed producing a credible green transition plan or have made little progress in that regard are charged a climate risk premium in their lending conditions. Banks may also reject a loan application if they have doubts regarding the sustainability of a firm's business model or perceive a higher risk of corporate default in the medium term.[10] This demonstrates that banks recognise firms' transition risk as a relevant credit risk leading to tighter credit conditions (Chart 3, panel b). In addition, the financing of investment in innovative green technologies typically entails higher credit risk, making their funding more costly. Banks also assess a firm's physical risk, often linked to its geographic location, as a relevant risk in their climate-related credit assessment, as this can affect the value of collateral and the firm's value more generally (blue bars in Chart 3, panel b). They expect the relevance of these climate-related risks to increase over time (yellow bars).

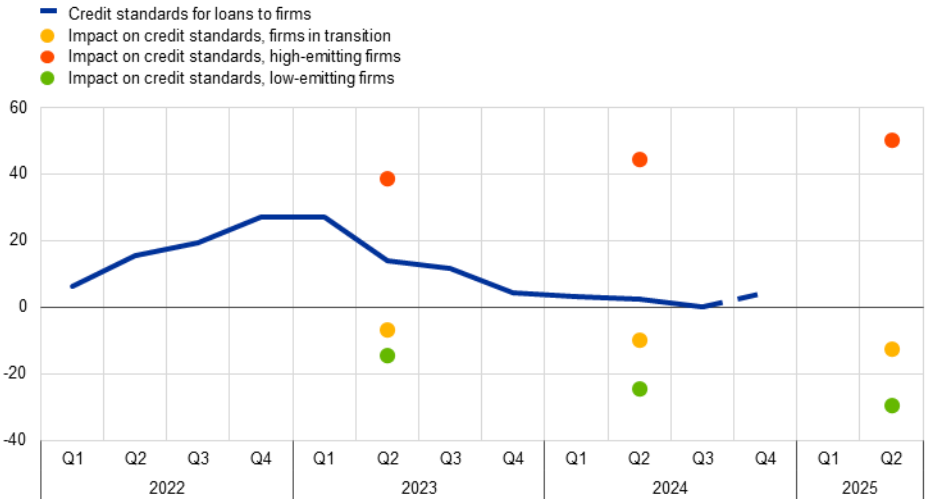
[10] See Altavilla, C., Boucinha, M., Pagano, M. and Polo, A., "Climate Risk, Bank Lending and Monetary Policy", *Discussion Paper*, DP18541, Centre for Economic Policy Research, October 2023.

Chart 3

Changes in banks' credit standards for firms and impact of climate change on bank lending conditions and loan demand

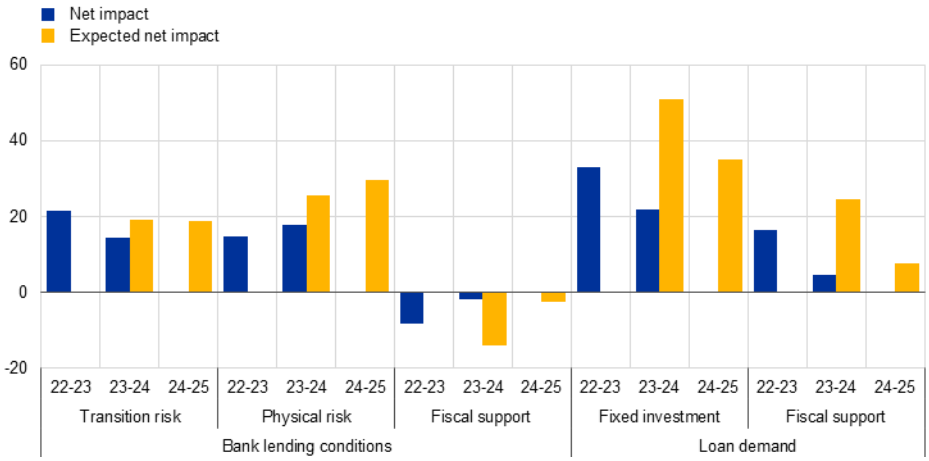
a) Changes in banks' credit standards for firms and impact of climate change

(net percentages of banks)



b) Selected climate-related factors with an impact on lending conditions and loan demand

(net percentages of banks)



Sources: ECB (BLS) and ECB calculations.
Notes: In panel a), net percentages are defined as the difference between the share of banks reporting a tightening of credit standards (blue line) or a tightening impact of climate change (dots) and the share of banks reporting an easing or easing impact. The solid line refers to actual values over the past three months, while the dashed part of the line refers to banks' expectations over the next three months. Dots refer to actual values over the past 12 months, except for the last dot which refers to banks' expectations over the next 12 months. Panel b) shows the main factors through which, according to the banks surveyed, climate change contributes to a net easing/net decrease (negative values) or net tightening/net increase (positive values) in bank lending conditions/loan demand for firms. Each period is from the third quarter of the first year to the second quarter of the following year. Blue bars show actual values over the past 12 months, while yellow bars refer to the expected net impact indicated by banks 12 months ago.

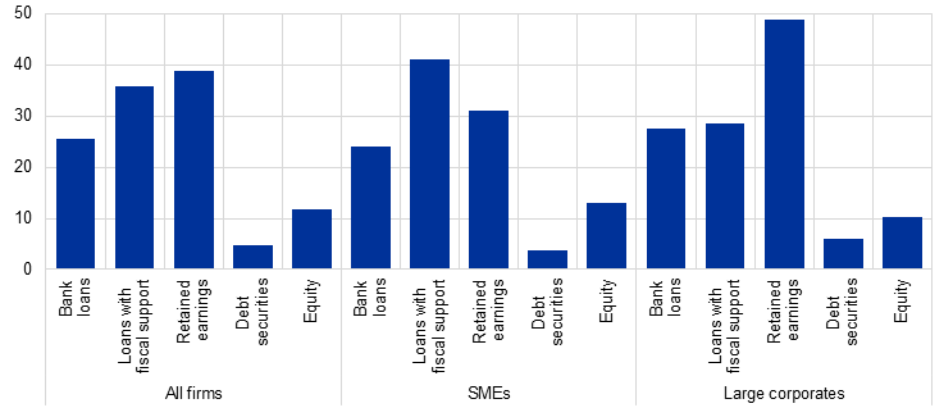
Climate-related fiscal support improves the likelihood of a loan being approved and mitigates the financing costs for firms, facilitating investment in the green transition. According to banks participating in the BLS, climate-related fiscal support, in the form of state guarantees or subsidies for example, can help to reduce banks' exposure to climate risks, thereby easing credit conditions and helping to boost loan demand (Chart 3, panel b). However, banks indicated in the July 2024 BLS that the actual beneficial impact of climate-related fiscal support on bank

lending conditions over the previous 12 months (blue bars) was substantially lower than they had expected a year earlier (yellow bars). The positive impact that fiscal support can have on firms' green investment decisions is also confirmed by the firms themselves, especially small and medium-sized enterprises (SMEs). Meanwhile, large firms point in particular to the important role played by retained earnings as a source of funding for planned green investment, while capital markets still play a smaller role (Chart 4).[11]

Chart 4

Firms' plans to finance green investment

(percentages of firms)



Sources: ECB and European Commission (SAFE) and ECB calculations.
Note: The bars show the share of firms that plan to use certain types of funding for investment into the green transition five years ahead.

Financial markets can help to speed up the green transition, also by providing funding for riskier projects and green innovation, although these market segments are still small. Market-based financing involving the issuance of sustainable debt securities still plays only a limited role in the euro area, accounting for around 7% of the stock of all debt securities issued, with green bonds constituting the largest market segment (Chart 5).[12] While the market share of sustainable debt securities has grown rapidly over recent years, growth has slowed somewhat of late, especially for sustainability-linked bonds. Other market-based sources of funding, like private equity, play only a minor role in the EU.[13]

11 Based on an ad hoc round of the Survey on the Access to Finance of Enterprises (SAFE) in the second quarter of 2023. See the box entitled "Climate change and euro area firms' green investment and financing – results from the SAFE", *Economic Bulletin*, Issue 6, ECB, 2023.

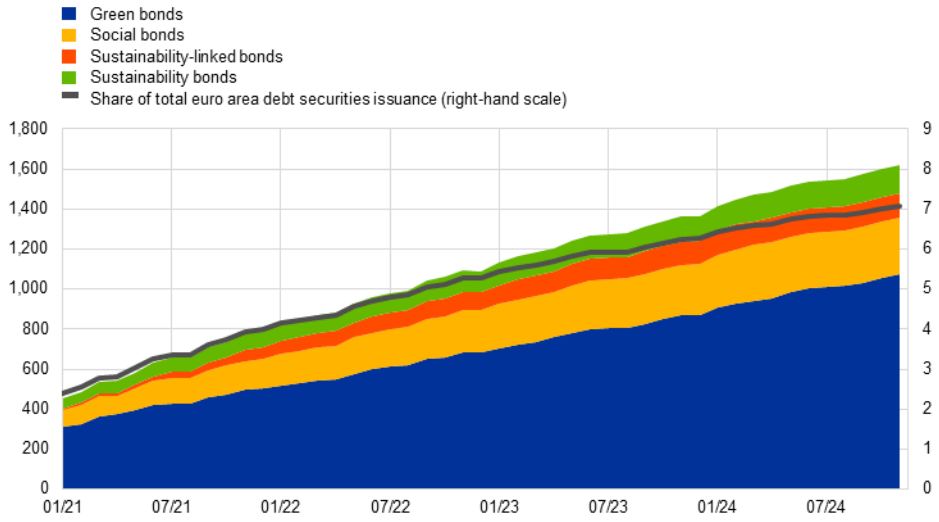
12 See the experimental indicators on sustainable finance published on the ECB's website.

13 For more details, see Nerlich, C. et al., op. cit.

Chart 5

Market-based financing sources by segment

(left-hand scale: EUR billions, outstanding amounts at face value; right-hand scale: percentage share of total euro area debt securities issuance)



Source: ECB (CSDB).
Notes: "Share of total issuance" refers to the amount of all sustainable securities as a share of all debt securities issued in the euro area. The latest observations are for November 2024.

The role of public funding

Private funding needs to be supported by public sector action. Support from the public sector can come either directly in the form of public investment or indirectly in the form of subsidies or state guarantees. It can incentivise private green investment by reducing borrowers' financing costs and de-risking green investment activities for firms and potential creditors alike. Helping the private sector to invest in the green transition can be particularly beneficial due to the high level of uncertainty surrounding the rate of return when financing innovation and new technologies. At the same, fiscal space for extensive public sector support is constrained by the requirement to preserve fiscal sustainability in Europe.

At the EU level, public funds are supporting the green transition, with the largest contribution coming from the Recovery and Resilience Facility (RRF). For the current EU budgetary period 2021-27, there is a requirement for at least 30% of the combined funds from the multiannual financial framework (MFF) and the Next Generation EU (NGEU) programme to contribute to climate objectives.[14] The RRF, which is the centrepiece of the NGEU programme, provides the largest share (€276 billion) of the total funds made available by the European Commission to support climate objectives (€658 billion; Chart 6, panel a).[15] Further public funds are

[14] The NGEU programme runs from 2021 to 2026.

[15] Under the MFF, the regional policy funds projects contributing to the climate objectives that support investment in better energy performance of buildings and sustainable urban mobility. They can be expected to crowd in private and public investment at regional level, in part in light of the co-financing requirements.

provided by the European Investment Bank (EIB), by auction revenues from the EU Emissions Trading System (EU ETS) and by national policy initiatives.

The single largest share of the climate-related RRF funds goes to firms, but so far the absorption rate of these funds has been low (Chart 6, panel b). The support measures offered to firms, amounting to 43% of the climate-related RRF funds, come mostly in the form of subsidies and tax credits which aim to promote green investments in areas such as energy infrastructure, company electric vehicles and greater building energy efficiency. So far, however, the absorption rate of these funds has generally been low.[16] By mid-2024 only 20% (around €55 billion) of the climate-related RRF funds had been disbursed, with the remainder still available to be spent until the end of 2026. The low absorption rate may be partly related to bottlenecks caused by insufficient administrative capacity and complex governance structures. The performance-based nature of the RRF means that financial support is not provided until pre-defined milestones and targets have been met. By contrast, as much as 40% (around €150 billion) of the climate-related funds committed under the current MFF had been disbursed by the end of 2023.

The available EU funds can largely cover the public green investment needs up to 2026, although a green public funding gap may open up when the RRF expires. No benchmark has been established yet to determine the optimal role of the public sector in mitigating climate change. That said, a broad estimate of the public share of the additional investment needs may be derived from the weighted public investment share of each sector.[17] This stylised exercise results in an overall public sector share of around 17% of the additional climate-related investment needs over the period from 2021 to 2030, which is equivalent to around €83 billion per year.[18] Compared with the available EU funds and under the assumption of full disbursement of the RRF funds by the end of 2026, the green public funding gap would be limited to an average of €20 billion per year (around 24% of the public funding needs) between 2025 and 2030. This result is sensitive to the underlying assumptions, however, especially the full use of the RRF envelope. The green public funding gap is likely to become substantially larger after the RRF expires at the end of 2026 (green bars in Chart 6, panel b). Yet, limited EU public funds after 2026 may reduce the ability of the public sector to crowd in private investment.[19]

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16 See also Bańkowski, K. et al., "Four years into NextGenerationEU: what impact on the euro area economy?", *Occasional Paper Series*, No 362, ECB, December and the article entitled "Four years into the Next Generation EU programme: an updated preliminary evaluation of its economic impact", *Economic Bulletin*, Issue 8, ECB, 2024.

17 The public investment shares for each sector are derived from estimates available in the literature and where available based on historical averages. The sectoral public sector shares range between 5% and 30%. For further information on the underlying calculations, see Nerlich, C. et al., op. cit.

18 This is based on the European Commission's estimate that €477 billion is needed annually for additional green investment until 2030. The public sector share would be somewhat higher when looking at a broader measures of green investment needs, which also includes environmental protection. See also Bouabdallah, O., Dorrucci, E., Hoendervangers, L. and Nerlich, C., "Mind the gap: Europe's strategic investment needs and how to support them", *The ECB Blog*, 27 June 2024.

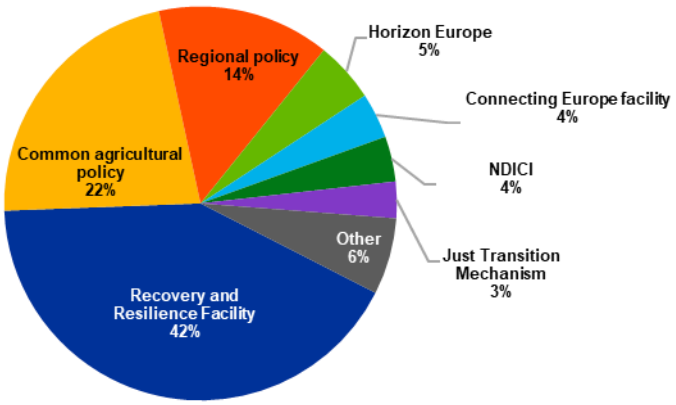
19 This holds even after accounting for the proceeds from the Social Climate Fund, the extension of the existing ETS and the introduction of the new ETS2 covering emissions from building heating and transport fuels.

Chart 6

EU public funds for the green transition and the green public funding gap

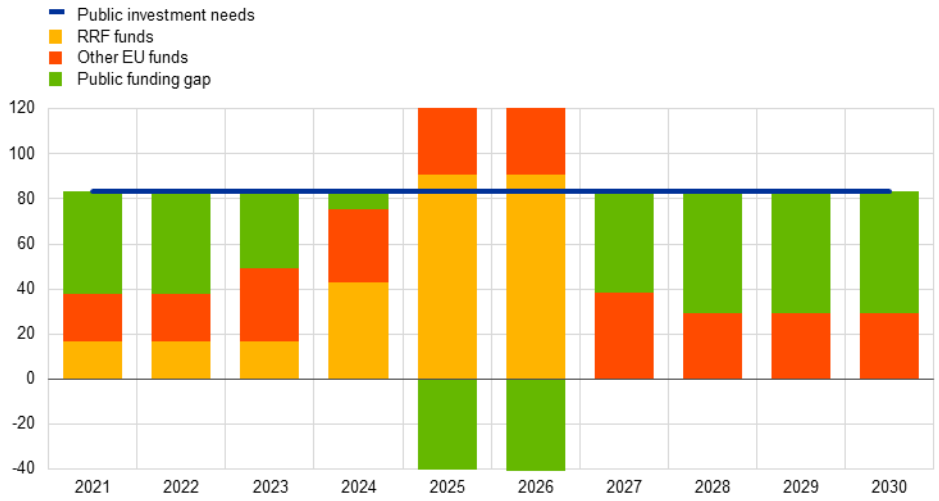
a) MFF and NGEU envelopes contributing to climate objectives, by programme

(shares of total envelope devoted to climate objectives)



b) Annual green public funding gap over time

(EUR billions, 2021-30)



Sources: Panel a): European Commission and ECB calculations. Panel b): European Commission, EIB and ECB calculations.
Notes: In panel a), the RRF is the centrepiece of Next Generation EU (NGEU). All instruments other than the RRF are part of the multiannual financial framework (MFF). NDICI stands for Neighbourhood, Development and International Cooperation Instrument – Global Europe. "Other" includes all facilities contributing less than €10 billion to climate mainstreaming, such as InvestEU. In panel b), the public funding of the additional investment needs of €477 billion per year is broken down into RRF funds, other EU funds and the public funding gap. The envelopes for the EU budget (MFF) and InvestEU are assumed to remain constant up to 2030. The RRF expires at the end of 2026, when the Social Climate Fund will become operational. EIB funds are included. National funding is not included. The horizontal blue line shows the average green public investment needs. The public funding gap (green) is considered negative in the years 2024-26, as RRF funds (assuming full absorption) and other EU funds are expected to exceed the public investment needs. The latest updates are for December 2024.

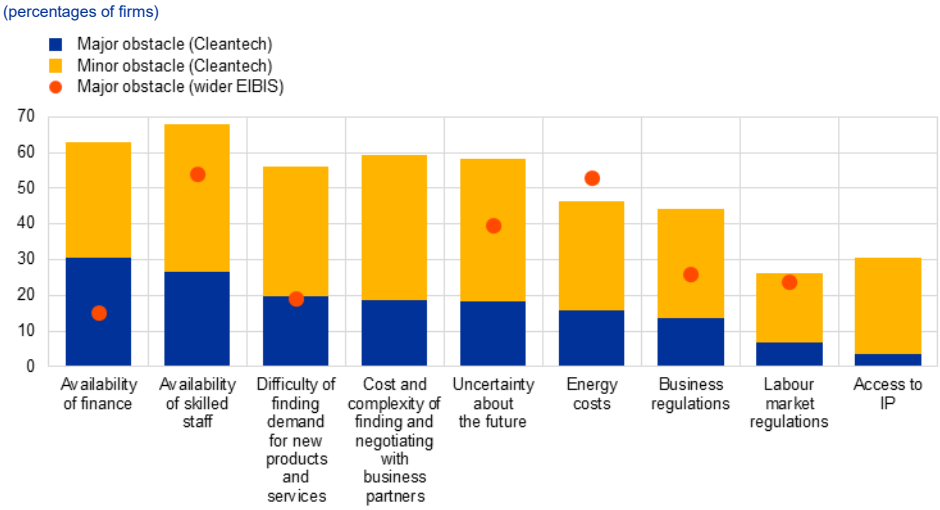
4 Policy options to support green investment

Structural reforms will also play an important role in supporting the transition to a climate-neutral economy. The green transition requires an institutional framework and structural reforms that facilitate the reallocation of resources from high-carbon to low-carbon activities, incentivise green innovation and new business models, and provide a favourable environment for the deployment and diffusion of low-carbon technologies.

However, a recent survey by the European Patent Office (EPO) and the EIB revealed major structural barriers to green investment, with for instance the availability of finance being more problematic here than for investing firms in general.[20] Around 30% of cleantech firms stated that issues with the availability of finance acted as a major obstacle to investment.[21] This is twice the share reported by the broader range of non-financial firms surveyed in the wider EIB Investment Survey (Chart 7).[22] Skill shortages and regulatory barriers including complex and diverse regulations across the EU are major challenges for firms. Other bottlenecks include difficulties in finding demand for new products and services, as well as the high cost and complexity of finding and negotiating with business partners. Policies to improve the quality of education, upskilling and reskilling of the labour force as well as to spur labour mobility to green sectors are key to support green investment.[23]

Chart 7

Obstacles to business activities related to clean and sustainable technologies in the EU



Sources: EPO/EIB (Cleantech Survey) and EIB (EIBIS).
Notes: The EIBIS does not include information on cost and complexity of finding and negotiating with business partners or on access to intellectual property (IP). For details of the Cleantech Survey, see EPO/EIB, op. cit.

The recently published report authored by Mario Draghi highlights the key role that simplifying and harmonising regulations at national and EU levels can

20 See EPO/EIB, "Financing and commercialisation of cleantech innovation", 2024.

21 The EPO/EIB Cleantech Survey is a joint initiative by the EPO and the EIB to analyse innovation trends in the field of clean technologies. The survey is conducted among European patent applicants and owners in the field of clean technologies and aims to provide insights on the latest developments, trends and challenges in this sector. The authors gratefully acknowledge access to the underlying data used in the discussion and charts in this section.

22 The annual EIB Group Survey on Investment and Investment Finance (EIBIS) is an EU-wide survey on the investment activities of both small businesses (with between five and 250 employees) and larger corporates (with more than 250 employees), their financing requirements and the difficulties they face. The survey collects data from approximately 13,300 EU, UK and US businesses.

23 Letta, E., "Much more than a market – Speed, security, solidarity", European Commission, 2024.

play in supporting innovation and the scaling-up of EU firms.[24] This could be achieved by creating a European Innovative Company (EIC) label, for instance, under which EU companies would be able to operate under a limited and harmonised set of legal obligations covering corporate law, insolvency procedures and some key aspects of labour and tax law.[25]

Carbon taxation, which is widely seen as the most efficient policy instrument to incentivise private investment in the green transition, is expected to increase.[26] In Europe, the EU Emissions Trading System (EU ETS) works indirectly as a carbon tax, with the carbon price being determined by auctions of emission permits. A new EU ETS2 will be introduced in 2027 to cover emissions from building heating and transport.[27] In addition, several EU Member States have explicit carbon taxes in place, though often with a limited tax base and rate. The effective carbon rate, which combines EU ETS prices, actual carbon taxes and fuel excise taxes, is still well below the effective carbon rate that would be needed to achieve the 2030 emission reduction target in the absence of other measures.[28]

Finally, it is vital to advance the capital markets union agenda, also for the green transition. More sophisticated venture capital markets would make it easier for innovative EU firms to access risk capital and to grow. In addition, well-designed savings products would help to channel European savings towards longer-term, higher-return investments.[29] In particular, patents are important to attract venture capital and serve as debt collateral.[30] Capital market imperfections such as asymmetric information may discourage investors from channelling funds towards green research and development. Patents can mitigate such financing constraints by sending important signals when the prospects of young companies are being

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24 See "The future of European competitiveness – Part A", European Commission, September 2024. The report states "[…] innovative companies that want to scale up in Europe are hindered at every stage by inconsistent and restrictive regulations. […] The net effect of this burden of regulation is that only larger companies – which are often non-EU based – have the financial capacity and incentive to bear the costs of complying. Young innovative tech companies may choose not to operate in the EU at all."

25 See "The future of European competitiveness – Part B", European Commission, September 2024, p. 254.

26 See also the discussions in the article entitled "Fiscal policies to mitigate climate change in the euro area", *Economic Bulletin*, Issue 6, ECB, 2022, and Aghion, P. et al., "Carbon Taxes, Path Dependency, and Directed Technical Change, Evidence from the Auto Industry", *Journal of Political Economy*, Vol. 124, Issue 1, 2016, p. 1-51. Känzig finds evidence that an increase in carbon prices stimulates green innovation as measured by low-carbon patenting; see Känzig, D.R., "The Unequal Economic Consequences of Carbon Pricing", *NBER Working Papers*, No 31221, NBER, 2023. ECB staff research points to the important complementary role of reforms and regulations, as well as direct subsidies to green research and development; see Benatti, N. et al., "The impact of environmental regulation on clean innovation", *Working Paper Series*, No 2946, ECB, 2024.

27 See the box on Assessing the impact of climate change transition policies on growth and inflation, Eurosystem staff macroeconomic projections for the euro area, December 2024.

28 An effective target rate of €120/tCO2, compared with the EU average of €72/tCO2 in 2021, would be required – among other climate policies, such as regulations – to achieve the EU's 2030 climate target; see "*Effective Carbon Rates 2023: Pricing Greenhouse Gas Emissions through Taxes and Emissions Trading*", *OECD Series on Carbon Pricing and Energy Taxation*, OECD Publishing, November 2023.

29 Further details can be found in Arampatzi, A.-S., Christie, R., Evrard, J., Parisi, L, Rouveyrol, C. and van Overbeek, F., "Capital Markets Union: a deep dive – Five proposed measures to foster a single market for capital", *Occasional Paper Series*, ECB, (forthcoming). See also Lagarde, C., "Follow the money: channelling savings into investment and innovation in Europe", speech at the 34th European Banking Conference: "Out of the Comfort Zone, Europe and the New World Order", 22 November 2024.

30 See the article entitled "European competitiveness: the role of institutions and the case for structural reforms" in this issue of the Economic Bulletin.

assessed.[31] To improve its role in cleantech innovation, it is essential for Europe to reap the full benefits of the Single Market and tackle regulatory fragmentation.

5 Conclusions

In this article we look at the green investment needs in the EU to 2030, how they are funded and policy options that would support the green transition. A key message is that the green investment needed in the EU in addition to what has already been spent is substantial, up to 3.7% of 2023 GDP annually. Moreover, banks – which play a key role in the financing of the euro area economy – have started to reflect climate risks in their lending. By contrast, green financing via financial markets − ranging from green bonds to venture capital − is growing but is still at a low level. The public sector can play an important role in crowding in private investment and mobilising more private funding for green investment. A significant green public funding gap is, however, expected to emerge as of 2027 following the expiry of the RRF. Furthermore, structural policies are essential to support green investment and innovation in green technologies, while a shortage of green skills and a high regulatory burden are seen as obstacles. Finally, it will be a challenge to fund the massive green investment needs, in part due to shortfalls that have already taken place and the expected green public funding gap after the RRF expires. Further progress towards more integrated European capital markets appears crucial to mobilise private funding sources beyond bank lending.

Looking beyond the 2030 green transition horizon, available estimates point to even higher investment needs to reach the goal of carbon neutrality.[32] While associated with even greater uncertainty than the estimates presented here, estimates of investment needs beyond this decade suggest a need to further accelerate green investment activities at both the national and the EU level. Moreover, adaptation investment may turn out to be sizeable, in particular if the effects of climate change become more pervasive.

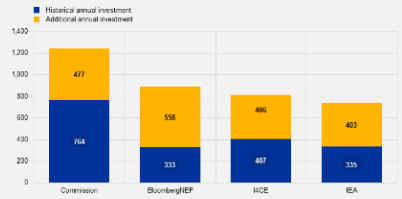
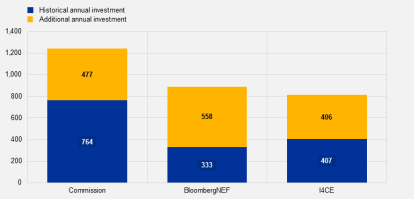
31 See Bellucci, A., Fatica, S., Georgakaki, A., Gucciardi, G., Letout, S. and Pasimeni, F., "Venture Capital Financing and Green Patenting", *Industry and Innovation*, Vol. 30, Issue 7, 2023, pp. 947-983.

32 See European Commission, "Securing our future – Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society", *Commission Staff Working Document*, SWD 63 final, February 2024.

Errata

As the additional investment needs according to the International Energy Agency were not correctly reported, their estimates were taken out of the analysis and Chart 1a. All the subsequent adjustments are related to this change.

Date of change: 18 November 2025.

Location	Original sentence	New sentence
Chart 1a		
Chart 1, Sources	European Commission, BloombergNEF, Institute for Climate Economics, International Energy Agency and ECB calculations.	European Commission, BloombergNEF, Institute for Climate Economics and ECB calculations.
Chart 1, Notes	Historical investment refers to annual averages: European Commission (2011-20), BloombergNEF (2023), I4CE (2022) and IEA (2021-23).	Historical investment refers to annual averages: European Commission (2011-20), BloombergNEF (2023) and I4CE (2022).
Chart 1, Notes	The IEA and BNEF estimates are adjusted for fossil fuel investments.	The BNEF estimate is adjusted for fossil fuel investments.
Section 2	Focusing on the estimates of additional green investment needs − the amounts needed each year on top of continued investment of past amounts – these range between €558 billion according to BloombergNEF (BNEF) and around €400 billion according to the International Energy Agency (IEA) and the Institute for Climate Economics (I4CE) until 2030.	Focusing on the estimates of additional green investment needs − the amounts needed each year on top of continued investment of past amounts – these range between €558 billion according to BloombergNEF (BNEF) and around €400 billion according to the Institute for Climate Economics (I4CE) until 2030.
Section 2, footnote 5	For the IEA, the ambitious scenario assumes that the EU emission reduction target of 55% by 2030 will be achieved.	[sentence deleted]
Section 2, footnote 5	See “New Energy Outlook 2024”, BloombergNEF, May 2024, and “World Energy Investment 2024”, IEA, June 2024.	See “New Energy Outlook 2024”, BloombergNEF, May 2024.
Section 2, footnote 5		The estimates by the International Energy Agency (not shown in Chart 1), assume considerably lower additional investment needs, as they only include the additional costs compared with legacy technologies.
Section 2	For example, the estimates for the transport sector by the European Commission and I4CE include the full production cost of electric vehicles, while the IEA only considers the battery costs.	For example, the estimates for the transport sector by the European Commission and I4CE include the full production cost of electric vehicles.
Section 2	BNEF and the IEA, for instance, include investments in hydrogen, nuclear and carbon capture, while only BNEF includes green investment in shipping.	BNEF, for instance, includes investments in hydrogen, nuclear, carbon capture and shipping.

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
2022	3.2	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	3.2	2.9	0.4	1.5	5.2	0.4	6.9	7.0	4.1	7.4	3.2	0.2	5.4
2024	.	.	.	.	.	.	.	.	2.9	2.5	2.7	0.2	2.4
2024 Q1	0.9	0.4	0.7	-0.6	1.6	0.3	5.7	6.4	3.2	3.5	2.6	0.0	2.6
Q2	0.6	0.7	0.4	0.5	0.5	0.2	5.7	6.1	3.2	2.1	2.7	0.3	2.5
Q3	0.7	0.8	0.0	0.3	0.9	0.4	4.8	5.2	2.6	2.0	2.8	0.5	2.2
Q4	.	.	.	.	.	.	.	.	2.7	2.5	2.9	0.2	2.2
2024 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.	-	-	-	-	-	-	4.5	4.9	2.7	2.6	2.9	0.2	2.2
Dec.	-	-	-	-	-	-	.	.	2.9	2.5	3.6	0.1	2.4

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
2022	-	-	-	-	-	-	-	-	-	3.1	4.6	1.8
2023	-	-	-	-	-	-	-	-	-	-0.7	-3.9	2.5
2024	52.9	53.7	52.5	51.3	52.1	50.1	50.7	53.1	49.0	.	.	.
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	1.3	1.9	0.8
Q4	53.0	54.8	50.9	50.1	51.8	49.3	49.9	53.3	48.4	.	.	.
2024 Aug.	53.2	54.6	53.8	52.9	51.2	51.0	50.0	53.8	48.4	1.4	2.2	0.7
Sep.	52.4	54.0	52.6	52.0	50.3	49.6	49.2	52.9	47.5	1.3	1.9	0.8
Oct.	52.8	54.1	51.8	49.6	51.9	50.0	50.1	53.1	48.3	1.5	1.2	1.8
Nov.	53.2	54.9	50.5	50.1	52.2	48.3	50.4	53.1	48.6	0.8	0.5	1.2
Dec.	53.2	55.4	50.4	50.5	51.4	49.6	49.2	53.8	48.2	.	.	.
2025 Jan.	.	.	.	.	.	50.2	.	.	.	.	.	.

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	13,446.4	7,228.7	2,941.9	3,017.5	1,558.0	869.2	584.1	258.3	-277.6	7,395.7	7,118.0
2023	14,594.5	14,077.8	7,736.2	3,093.0	3,195.1	1,641.9	925.8	621.1	53.4	-516.7	7,375.6	6,858.9
2023 Q4	3,706.6	3,570.4	1,960.5	791.6	814.7	411.9	230.6	170.6	3.6	-136.2	1,834.4	1,698.2
2024 Q1	3,738.6	3,564.8	1,981.3	796.8	799.0	413.7	226.6	157.1	-12.2	-173.8	1,852.0	1,678.1
Q2	3,764.0	3,578.7	1,989.5	810.4	782.1	410.7	227.9	141.9	-3.3	-185.3	1,894.4	1,709.1
Q3	3,799.6	3,639.2	2,008.8	819.3	801.9	412.0	224.9	163.3	9.1	-160.5	1,870.0	1,709.6
as percentage of GDP												
2023	100.0	96.5	53.0	21.2	21.9	11.3	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	1.1	-2.4	-0.9	0.4	-10.5	-	-	1.5	1.1
Q3	0.4	1.3	0.7	0.6	2.0	-0.2	-1.9	14.7	-	-	-1.5	0.2
annual percentage changes												
2021	6.3	5.1	4.7	4.4	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	8.4
2023	0.4	0.1	0.6	1.5	1.6	0.6	2.2	3.6	-	-	-0.7	-1.3
2023 Q4	0.1	-0.1	0.9	2.2	2.2	1.3	-0.8	9.3	-	-	-2.5	-3.0
2024 Q1	0.4	0.0	1.0	2.0	-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	0.9	1.0	2.5	-1.4	-1.6	-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	0.1	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	3.7	2.6	0.2	0.4	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	12,339.8	217.9	2,421.4	646.9	2,342.6	633.1	543.3	1,341.1	1,490.9	2,324.5	377.9	1,384.3
2023	13,203.6	225.2	2,584.8	721.5	2,440.3	678.4	605.2	1,477.4	1,602.1	2,460.1	408.7	1,390.9
2023 Q4	3,350.6	55.8	643.3	182.8	616.4	172.5	154.3	379.1	410.3	632.8	103.5	356.0
2024 Q1	3,369.9	55.8	631.8	184.6	623.5	176.2	157.7	384.9	412.6	637.8	105.1	368.7
Q2	3,389.7	56.0	627.5	184.7	628.5	177.1	159.4	386.9	418.4	645.3	105.9	374.3
Q3	3,417.4	56.6	632.0	185.1	632.2	179.6	160.6	386.9	422.9	654.5	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	-0.7	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	8.0	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	0.0	8.1	5.6	-1.8	2.8	6.2	2.9	16.3	0.3
2023	0.7	0.7	-1.5	1.3	0.0	4.4	-1.7	2.3	1.5	1.0	3.9	-2.2
2023 Q4	0.5	0.4	-2.4	1.8	-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	-2.0	-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	0.2	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	24.9	6.5
annual percentage changes													
2021	1.6	1.7	0.7	0.5	0.1	3.2	0.6	4.4	0.4	1.2	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	1.8	1.7	1.4	1.1
2023 Q4	1.3	1.4	0.8	-0.9	0.5	1.7	1.6	2.9	0.6	1.1	1.1	1.5	1.5
2024 Q1	1.1	1.1	0.9	-0.4	0.2	1.6	1.4	2.8	0.9	0.3	0.9	1.5	0.4
Q2	1.0	1.0	0.9	-0.5	0.4	1.2	0.7	2.0	0.7	-1.3	0.8	1.7	0.9
Q3	0.9	0.9	1.0	-0.7	0.2	0.7	0.9	1.6	0.8	-1.7	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	81.7	18.3	3.8	14.7	7.4	25.1	3.6	2.4	1.1	14.2	22.0	5.9
2023	100.0	81.9	18.1	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	6.2	8.6	4.3	6.4
2022	3.6	3.6	3.3	-1.3	1.1	4.2	7.4	6.4	-0.7	5.3	4.4	0.8	4.8
2023	1.3	1.6	0.2	-2.1	0.6	0.9	1.7	3.5	0.2	1.4	1.7	1.5	1.6
2023 Q4	1.4	1.6	0.4	-1.1	0.5	1.6	1.5	3.3	0.5	0.5	1.5	1.8	1.5
2024 Q1	0.7	0.8	0.4	-2.1	-0.4	1.3	0.9	2.4	0.1	-0.9	1.1	1.0	0.4
Q2	0.8	0.9	0.5	-1.0	0.3	0.9	0.4	2.1	0.4	-2.2	1.0	1.4	1.5
Q3	0.5	0.6	-0.1	-1.7	-0.3	0.5	0.5	1.5	0.6	-2.5	0.9	0.8	1.2
Hours worked per person employed													
annual percentage changes													
2021	4.5	4.1	6.6	1.2	4.9	5.8	6.6	3.0	2.2	5.0	5.5	2.0	5.4
2022	1.1	1.1	1.4	-0.6	-0.1	0.6	4.0	0.2	-0.8	1.9	0.6	-0.7	3.5
2023	-0.1	0.0	-0.6	-0.1	-0.3	-0.4	-0.2	-0.1	-0.4	-0.3	0.0	0.1	0.5
2023 Q4	0.1	0.2	-0.5	-0.3	0.0	-0.2	-0.1	0.4	-0.1	-0.6	0.3	0.3	0.0
2024 Q1	-0.4	-0.4	-0.5	-1.8	-0.6	-0.3	-0.4	-0.4	-0.8	-1.1	0.2	-0.4	-0.1
Q2	-0.2	-0.1	-0.4	-0.5	-0.1	-0.3	-0.3	0.1	-0.3	-0.9	0.2	-0.2	0.6
Q3	-0.5	-0.3	-1.1	-1.1	-0.5	-0.2	-0.5	0.0	-0.2	-0.8	-0.1	-0.8	0.2

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	165.076	3.4	12.822	7.8	3.2	10.344	6.9	2.478	16.9	6.547	7.4	6.275	8.2		2.5
2022	167.962	3.1	11.400	6.8	2.7	9.148	6.0	2.252	14.6	5.732	6.4	5.668	7.2		3.2
2023	170.275	2.9	11.186	6.6	2.4	8.890	5.8	2.296	14.5	5.648	6.2	5.538	6.9		3.0
2023 Q4	171.075	2.9	11.162	6.5	2.3	8.796	5.7	2.366	14.8	5.648	6.2	5.514	6.9		2.9
2024 Q1	171.578	2.9	11.161	6.5	2.3	8.829	5.7	2.332	14.6	5.668	6.2	5.493	6.8		2.9
Q2	171.843	2.8	11.064	6.4	2.1	8.719	5.6	2.344	14.7	5.642	6.2	5.422	6.7		2.6
Q3	172.059	2.8	11.001	6.4	1.9	8.623	5.5	2.379	14.9	5.713	6.2	5.288	6.6		2.5
2024 June	-	-	11.079	6.4	-	8.738	5.6	2.341	14.6	5.677	6.2	5.402	6.7		-
July	-	-	10.968	6.4	-	8.584	5.5	2.383	14.9	5.706	6.2	5.262	6.5		-
Aug.	-	-	10.850	6.3	-	8.466	5.4	2.384	14.9	5.636	6.2	5.214	6.5		-
Sep.	-	-	10.862	6.3	-	8.472	5.4	2.390	14.9	5.637	6.2	5.225	6.5		-
Oct.	-	-	10.858	6.3	-	8.437	5.4	2.421	15.0	5.623	6.1	5.235	6.5		-
Nov.	-	-	10.819	6.3	-	8.396	5.4	2.423	15.0	5.605	6.1	5.214	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												
2022	1.7	2.4	-1.4	3.6	5.8	-3.0	3.3	1.1	-2.7	3.4	4.5	10.0	-4.3
2023	-1.7	-1.2	-6.0	3.1	-1.0	-5.4	1.5	-1.9	-2.6	-1.0	-1.7	2.3	14.6
2024	.	.	.	.	.	.	.	.	.	.	.	.	-0.1
2024 Q1	-4.6	-4.8	-4.0	-5.3	-5.7	-1.7	-0.3	0.0	-0.5	0.3	-0.6	2.1	5.1
Q2	-3.9	-4.1	-5.5	-6.2	0.6	-0.2	-1.6	0.2	0.0	0.4	0.7	1.3	2.3
Q3	-1.6	-2.0	-3.8	-3.6	2.4	1.7	-1.9	1.9	0.4	2.8	2.5	1.1	-8.7
Q4	.	.	.	.	.	.	.	.	.	.	.	.	-1.5
2024 July	-2.2	-2.4	-4.4	-3.6	1.5	0.9	-2.1	0.2	-0.3	0.2	0.1	0.9	-8.4
Aug.	-0.4	-0.8	-2.7	-0.4	1.0	2.2	-2.2	2.5	1.4	2.5	5.0	1.2	-11.4
Sep.	-2.1	-2.5	-4.2	-5.8	4.6	2.1	-1.9	3.1	0.1	5.6	2.3	1.1	-6.2
Oct.	-1.1	-1.0	-3.3	-1.8	2.7	-0.5	0.0	2.1	0.8	3.0	1.1	1.7	-3.9
Nov.	-1.9	-2.0	-2.5	-2.8	-0.2	-1.3	1.4	1.2	0.6	1.5	0.9	.	0.4
Dec.	.	.	.	.	.	.	.	.	.	.	.	.	-0.9
	month-on-month percentage changes (s.a.)												
2024 July	-0.4	-0.5	-0.4	-1.2	1.5	0.1	-0.5	0.4	0.0	0.7	-0.1	0.8	-11.5
Aug.	1.2	1.1	0.1	2.9	-0.2	0.2	0.3	1.1	0.9	1.3	1.2	0.4	-0.1
Sep.	-1.6	-1.5	-1.5	-3.7	1.8	-1.0	-0.4	0.5	-0.6	1.2	-0.6	-0.1	4.0
Oct.	0.2	0.2	0.3	1.7	-2.2	-1.3	0.8	-0.3	0.2	-0.6	-0.4	0.3	-0.4
Nov.	0.2	0.4	0.5	0.5	0.2	1.1	1.2	0.1	0.1	-0.6	0.8	.	3.9
Dec.	.	.	.	.	.	.	.	.	.	.	.	.	-1.9

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	-11.0	-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	-	-	-	-
2024	95.8	-10.6	78.5	-14.1	-5.6	-6.7	6.4	90.2	45.9	46.2	51.5	50.1
2024 Q1	96.0	-9.0	79.4	-15.4	-5.2	-6.2	7.0	90.1	46.4	46.7	50.0	49.2
Q2	96.0	-10.1	79.0	-14.3	-6.3	-7.1	6.5	90.0	46.2	47.6	53.1	51.6
Q3	96.2	-10.5	78.3	-13.2	-6.0	-8.3	6.1	90.3	45.5	45.4	52.1	50.3
Q4	94.9	-12.8	77.3	-13.6	-5.0	-5.3	6.0	90.4	45.4	45.1	50.9	49.3
2024 Aug.	96.4	-10.0	.	-13.5	-6.3	-7.8	6.3	.	45.8	45.8	52.9	51.0
Sep.	96.2	-11.0	.	-13.0	-5.5	-8.2	6.9	.	45.0	44.9	51.4	49.6
Oct.	95.6	-12.8	77.3	-12.5	-4.9	-7.1	6.8	90.4	46.0	45.8	51.6	50.0
Nov.	95.6	-11.4	.	-13.8	-4.9	-4.3	5.3	.	45.2	45.1	49.5	48.3
Dec.	93.7	-14.1	.	-14.5	-5.2	-4.4	5.9	.	45.1	44.3	51.6	49.6
2025 Jan.	.	.	.	-14.2	.	.	.	.	46.1	46.8	51.4	50.2

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	17.3	94.0	2.4	3.4	17.9	7.6	7.5	36.7	7.5	77.4	5.6	10.3	3.4
2022	13.6	91.1	0.5	2.2	12.8	2.0	7.8	37.6	5.3	72.8	4.8	9.8	3.3
2023	14.1	85.0	1.2	1.9	3.0	3.6	0.9	35.6	5.2	68.6	1.7	1.9	0.8
2023 Q4	14.1	85.0	1.5	1.9	2.1	3.6	0.9	35.6	5.2	68.6	1.7	-0.6	0.8
2024 Q1	14.6	83.8	2.8	2.0	-3.4	3.4	1.0	34.7	4.5	68.0	1.8	-5.9	0.8
Q2	14.9	83.2	2.0	2.3	-1.7	3.5	1.7	34.0	3.8	67.9	2.0	-8.0	1.0
Q3	15.2	82.5	2.4	2.4	-0.3	5.3	2.0	33.4	3.4	67.4	2.0	4.1	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	1,408.6	1,337.0	71.6	694.8	619.5	351.8	318.1	313.9	306.9	48.2	92.6	62.4	41.1
2024 Q1	1,439.0	1,331.2	107.8	706.5	599.5	365.2	331.8	321.3	320.6	46.0	79.3	18.9	31.6
Q2	1,492.5	1,358.0	134.4	715.1	615.9	387.7	336.6	343.1	316.4	46.5	89.2	25.2	22.1
Q3	1,466.1	1,382.0	84.1	704.9	621.0	373.2	339.0	338.1	329.7	49.9	92.3	20.5	15.8
2024 June	498.4	444.6	53.8	237.2	202.5	131.1	114.1	114.1	96.6	16.1	31.5	10.3	5.9
July	491.3	460.2	31.2	235.5	204.2	125.0	112.9	113.9	112.0	16.9	31.2	6.8	5.8
Aug.	490.5	467.0	23.5	235.2	210.1	126.6	114.5	112.0	111.7	16.6	30.8	8.5	4.5
Sep.	484.3	454.8	29.4	234.1	206.7	121.5	111.7	112.2	106.1	16.4	30.3	5.2	5.5
Oct.	479.9	449.7	30.2	235.1	203.5	120.2	104.6	108.8	110.9	15.8	30.6	6.6	4.1
Nov.	486.6	459.7	27.0	244.5	209.3	120.5	108.6	106.1	112.3	15.6	29.5	5.8	4.5
12-month cumulated transactions													
2024 Nov.	5,836.6	5,424.4	412.2	2,841.4	2,455.2	1,485.8	1,326.9	1,319.2	1,289.4	190.3	352.8	113.9	102.1
12-month cumulated transactions as a percentage of GDP													
2024 Nov.	38.9	36.1	2.7	18.9	16.4	9.9	8.8	8.8	8.6	1.3	2.4	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	-4.7	-16.3	709.3	334.4	144.8	215.5	586.3	671.7	384.7	108.5	158.8	476.9	81.3
2024 Q1	-2.7	-11.9	713.3	337.0	143.3	219.3	589.2	655.0	371.9	105.9	159.0	467.5	75.7
Q2	1.6	-4.5	717.1	338.8	137.2	223.7	592.7	672.3	387.8	109.4	162.5	480.7	79.0
Q3	2.2	0.4	710.9	338.3	136.4	218.5	590.2	675.6	382.4	111.9	164.4	490.1	75.0
2024 June	-6.6	-8.8	236.3	111.3	45.3	73.5	195.5	220.4	126.2	36.2	53.6	158.7	23.8
July	9.2	3.7	237.0	113.0	45.2	73.5	195.5	224.1	128.5	37.6	54.1	161.8	26.6
Aug.	-2.7	-1.7	237.3	113.1	45.2	73.5	197.2	228.0	128.2	37.3	55.6	164.8	26.0
Sep.	0.1	-0.8	236.7	112.2	46.0	71.4	197.5	223.5	125.7	37.0	54.7	163.5	22.4
Oct.	2.3	2.7	233.1	110.4	44.1	73.2	194.9	226.1	127.2	35.8	56.3	163.7	24.2
Nov.	-1.6	-1.0	240.6	.	.	.	197.2	227.8	.	.	.	161.0	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2023 Q4	-3.7	-8.5	96.2	93.5	95.9	103.3	95.2	104.5	102.1	105.6	109.0	106.0	164.9
2024 Q1	-3.5	-6.8	96.7	94.3	93.6	104.2	95.4	103.1	100.6	102.3	108.2	103.2	164.3
Q2	-1.1	-4.5	95.4	93.4	88.9	105.0	94.1	104.0	102.3	105.5	108.7	104.8	168.9
Q3	-0.6	-0.9	94.2	92.5	87.2	103.0	93.3	104.4	102.0	108.0	109.6	106.7	164.4
2024 May	-3.8	-7.2	94.8	93.4	87.7	104.2	93.5	103.3	102.0	105.1	107.8	103.8	172.2
June	-8.9	-9.4	94.5	92.3	87.7	104.1	93.2	103.3	100.8	105.8	108.1	104.2	162.0
July	5.5	0.7	93.6	92.8	86.3	102.1	92.2	103.3	101.4	107.5	107.9	105.2	161.3
Aug.	-5.2	-3.5	95.3	92.8	86.9	106.1	94.7	105.4	102.5	109.0	111.2	107.7	168.3
Sep.	-2.3	0.0	93.7	91.9	88.4	100.8	92.9	104.6	102.2	107.5	109.8	107.1	163.7
Oct.	-0.4	3.9	92.3	90.2	85.0	101.4	91.9	105.4	103.0	102.2	112.4	107.3	169.6

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
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
2024	126.1	2.4	2.8	1.1	4.0	-	-	-	-	-	-	2.3	3.3
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	0.5	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	0.9	0.3	-1.4	1.0	1.9	4.0
Q4	126.9	2.2	2.7	0.8	3.9	0.5	0.8	1.7	0.1	-0.6	0.6	2.0	4.3
2024 July	126.5	2.6	2.9	1.4	4.0	0.3	0.3	0.3	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.	126.6	2.2	2.7	0.9	3.9	0.1	0.2	0.1	0.1	0.5	0.0	2.0	4.3
Dec.	127.1	2.4	2.7	1.2	4.0	0.2	0.1	-0.3	0.0	0.6	0.3	2.2	4.4

	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
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
2024	2.9	3.2	1.9	0.0	0.8	-2.2	3.3	2.9	4.2	-0.9	4.9	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
Q4	2.7	2.8	2.3	-0.2	0.6	-2.2	3.3	3.0	5.0	-2.2	4.6	4.0
2024 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.	2.7	2.8	2.3	-0.1	0.6	-2.0	3.4	3.1	5.0	-1.9	4.5	4.0
Dec.	2.6	2.9	1.6	0.4	0.5	0.1	3.3	3.0	5.1	-2.4	4.7	4.0

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 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	17.1	13.8	19.8	7.3	12.2	16.6	6.8	81.1	11.9	7.1	0.6
2023	130.1	-2.0	1.9	3.8	-0.2	5.1	8.3	8.4	5.7	-13.3	6.9	-1.2	-8.1
2023 Q4	128.2	-8.3	-1.1	0.0	-4.8	3.3	3.7	2.2	3.2	-22.9	4.5	-1.2	-9.0
2024 Q1	125.0	-7.9	-1.6	-1.2	-5.3	2.0	1.6	-0.2	1.5	-20.5	3.6	-0.3	-8.0
Q2	122.9	-4.4	-0.2	-0.5	-3.1	1.5	1.1	-0.4	1.1	-12.2	2.4	1.4	-6.4
Q3	124.4	-2.7	-0.6	0.4	-0.9	1.3	1.5	0.5	1.1	-8.9	1.9	2.6	.
2024 June	123.3	-3.4	0.1	-0.2	-2.3	1.5	1.2	0.1	1.1	-9.8	-	-	-
July	124.2	-2.2	0.3	0.3	-1.1	1.2	1.3	0.2	1.1	-7.2	-	-	-
Aug.	124.9	-2.3	-0.7	0.4	-0.9	1.3	1.5	0.4	1.0	-7.8	-	-	-
Sep.	124.2	-3.5	-1.5	0.6	-0.8	1.2	1.7	0.9	1.1	-11.6	-	-	-
Oct.	124.7	-3.3	-0.9	0.7	-0.5	1.2	2.0	1.3	1.3	-11.2	-	-	-
Nov.	126.7	-1.2	-0.2	0.9	-0.3	1.3	2.0	1.5	1.1	-5.3	-	-	-

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
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
2024	.	.	.	.	.	.	.	.	77.8	9.3	13.4	5.1	9.1	12.1	5.5
2024 Q1	116.0	3.6	2.6	3.3	3.3	2.1	-0.8	-2.9	76.5	-2.3	3.1	-7.5	-2.7	1.8	-7.8
Q2	116.6	2.9	2.7	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	2.3	2.1	2.6	1.8	1.2	0.1	.	10.0	11.6	8.2	10.9	12.4	9.1
Q4	.	.	.	.	.	.	.	.	.	17.2	22.5	11.8	17.5	21.4	12.8
2024 July	-	-	-	-	-	-	-	-	.	12.0	13.9	10.0	12.2	13.4	10.8
Aug.	-	-	-	-	-	-	-	-	.	10.4	11.5	9.2	11.5	12.7	10.1
Sep.	-	-	-	-	-	-	-	-	.	7.6	9.6	5.6	9.0	11.1	6.4
Oct.	-	-	-	-	-	-	-	-	.	13.5	14.7	12.2	13.0	13.1	12.9
Nov.	-	-	-	-	-	-	-	-	.	16.9	21.6	12.0	17.5	21.0	13.2
Dec.	-	-	-	-	-	-	-	-	.	21.2	31.0	11.2	22.2	30.4	12.3

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	-	-	-	-
2022	48.6	52.9	27.4	42.4	71.6	-	-	-	-
2023	9.5	28.5	19.2	13.9	74.5	-	-	-	-
2024	6.1	14.2	14.4	3.6	55.0	49.0	59.7	48.8	54.2
2024 Q1	4.6	16.5	17.4	5.0	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	12.4	2.0	50.1	52.0	57.9	50.1	53.0
Q4	7.2	13.3	14.1	4.0	48.6	49.1	58.0	48.2	53.3
2024 Aug.	6.3	12.8	12.5	1.7	50.6	53.4	57.8	51.1	53.7
Sep.	6.4	11.4	12.3	2.3	46.8	49.1	56.0	49.2	52.4
Oct.	6.7	11.9	14.1	2.0	46.5	48.2	56.5	48.2	52.8
Nov.	7.1	14.1	12.8	4.2	49.1	49.3	57.9	47.9	53.3
Dec.	7.6	13.8	15.4	5.6	50.1	50.0	59.6	48.6	53.9
2025 Jan.	.	.	.	.	.	51.6	60.7	50.0	53.6

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	101.2	1.2	1.2	0.9	1.0	1.4	1.4
2022	105.7	4.5	3.7	7.0	5.1	3.4	2.9
2023	110.7	4.7	4.6	4.9	5.0	4.0	4.4
2023 Q4	118.4	3.9	3.8	4.4	4.2	3.4	4.5
2024 Q1	108.5	5.4	5.5	5.0	5.1	6.0	4.8
Q2	120.0	5.2	4.9	5.8	5.0	5.6	3.5
Q3	112.1	4.6	4.4	5.2	4.6	4.6	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	99.6	-0.4	1.4	-2.9	4.7	-1.9	-0.2	-1.7	5.2	-1.0	1.1	-0.8
2022	103.0	3.4	4.4	4.4	8.0	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	3.4	6.6	5.0	2.4
2023 Q4	111.9	6.4	3.9	8.5	4.4	7.2	3.0	8.4	3.0	4.7	5.5	4.1
2024 Q1	113.2	5.5	3.5	7.0	7.0	4.9	2.7	6.0	2.1	4.2	5.6	5.0
Q2	114.2	5.2	5.8	7.1	7.1	4.8	2.8	6.5	0.1	3.5	5.2	4.7
Q3	114.9	4.4	5.6	4.7	7.3	4.5	2.0	5.6	-0.1	3.6	4.5	4.0
Compensation per employee												
2021	104.3	4.3	3.6	4.8	5.3	5.5	5.8	3.9	6.3	4.8	2.5	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	5.3
2023 Q4	117.1	5.2	5.2	5.4	4.5	5.3	4.8	5.7	4.2	5.4	5.0	5.1
2024 Q1	118.5	4.8	4.1	4.8	4.0	4.1	4.0	5.1	4.0	5.1	5.3	6.4
Q2	119.5	4.8	4.1	4.7	3.8	4.8	4.0	6.0	3.7	4.7	4.9	5.1
Q3	120.6	4.4	4.5	4.2	4.6	4.5	4.2	5.3	3.6	4.4	4.6	4.1
Labour productivity per person employed												
2021	104.7	4.7	2.1	8.0	0.5	7.6	6.0	5.6	1.0	5.8	1.4	4.2
2022	105.8	1.1	-0.3	-0.5	-3.5	4.7	-0.5	-1.9	-0.6	2.3	1.3	14.8
2023	104.7	-1.0	2.7	-2.3	-0.1	-1.9	0.7	-2.4	0.6	-0.2	-0.4	2.8
2023 Q4	104.5	-1.2	1.3	-2.9	0.1	-1.8	1.7	-2.5	1.2	0.7	-0.4	1.0
2024 Q1	104.6	-0.6	0.6	-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	1.2	-0.5	3.5	1.2	-0.2	0.3
Q3	104.8	0.0	-1.0	-0.5	-2.5	0.0	2.2	-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	0.1	0.7	-1.4
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	5.4	5.7	5.0	5.8	5.0	5.8	4.7	6.2	4.5	4.5
2023 Q4	110.8	4.9	5.2	5.4	4.0	5.3	4.2	5.6	4.1	4.9	4.7	4.6
2024 Q1	112.2	5.2	5.6	5.3	4.1	4.6	4.2	5.8	4.4	5.0	5.8	6.5
Q2	113.1	4.9	3.6	4.9	4.1	5.1	3.7	6.2	4.2	4.4	5.2	4.2
Q3	114.2	4.8	4.0	4.8	4.4	4.8	4.1	5.5	2.8	4.6	5.3	3.7
Hourly labour productivity												
2021	100.2	0.2	0.9	2.9	-5.0	0.9	2.9	3.4	-3.8	0.3	-0.6	-1.2
2022	100.1	0.0	0.4	-0.5	-4.0	0.7	-0.7	-1.1	-2.4	1.7	2.1	11.0
2023	99.2	-0.9	2.8	-2.1	0.3	-1.7	0.9	-1.9	0.9	-0.2	-0.4	2.3
2023 Q4	98.7	-1.2	1.5	-2.9	0.2	-1.7	1.3	-2.4	1.8	0.4	-0.8	0.9
2024 Q1	98.8	-0.2	2.4	-1.5	-2.5	-0.3	1.6	-0.1	3.0	0.7	0.1	1.3
Q2	98.9	-0.3	-1.1	-2.1	-2.7	0.3	1.1	-0.2	4.5	1.0	0.0	-0.3
Q3	99.2	0.5	0.1	0.0	-2.2	0.4	2.2	-0.1	4.5	0.8	0.8	-0.1

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
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	3.64	3.56	3.57	3.48	3.27	5.15	0.12
2024 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
Dec.	3.06	2.89	2.82	2.63	2.44	4.53	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
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	2.58	2.18	2.01	2.13	2.45	0.27	0.41	-0.06	1.86	1.89	2.50	2.91
2024 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
Dec.	2.58	2.18	2.01	2.13	2.45	0.27	0.41	-0.06	1.86	1.89	2.50	2.91

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
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	502.8	4,870.4	992.6	299.1	161.1	123.9	231.6	951.6	1,069.3	378.7	301.6	792.1	5,430.7	38,395.3
2024 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
Dec.	507.4	4,918.3	932.6	283.1	151.7	118.8	245.5	996.6	1,065.8	381.4	331.4	816.9	6,012.2	39,297.0

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				By initial period of rate fixation					
	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	APRC [3)]		Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years	APRC [3)]	Composite cost-of-borrowing indicator
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2023 Dec.	0.37	1.66	3.28	3.46	8.04	16.89	7.47	7.71	8.42	5.38	4.91	4.23	3.81	3.63	4.33	3.98
2024 Jan.	0.39	1.69	3.20	3.15	8.14	16.91	7.92	8.02	8.72	5.37	4.76	4.07	3.67	3.52	4.14	3.87
Feb.	0.38	1.70	3.18	3.07	8.19	16.86	7.61	7.93	8.62	5.30	4.81	4.01	3.64	3.49	4.12	3.84
Mar.	0.39	1.72	3.18	2.91	8.19	16.96	8.03	7.79	8.53	5.15	4.80	3.99	3.57	3.44	4.05	3.80
Apr.	0.39	1.73	3.13	2.89	8.14	17.00	8.03	7.85	8.57	5.19	4.84	3.98	3.59	3.42	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	3.96	3.62	3.42	4.04	3.81
June	0.38	1.74	3.03	2.84	8.18	17.01	7.41	7.71	8.45	5.15	4.80	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	4.75	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	4.69	3.87	3.62	3.37	3.99	3.73
Sep.	0.37	1.75	3.00	2.73	8.23	17.04	7.55	7.76	8.53	4.89	4.58	3.79	3.55	3.28	3.89	3.64
Oct.	0.36	1.74	2.73	2.63	8.05	16.89	7.24	7.71	8.46	4.65	4.37	3.69	3.47	3.22	3.79	3.55
Nov.	0.35	1.74	2.61	2.52	7.96	16.84	6.52	7.69	8.41	4.57	4.27	3.62	3.43	3.16	3.72	3.47

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 Dec.	0.84	3.71	4.08	5.38	5.56	5.75	5.67	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	4.19	5.20
Feb.	0.89	3.65	3.50	5.37	5.52	5.76	5.60	5.49	5.15	4.38	5.11	4.84	3.97	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	5.62	5.38	5.11	4.30	5.20	5.01	4.14	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	4.19	5.12
June	0.87	3.54	3.54	5.25	5.33	5.69	5.67	5.24	4.99	4.22	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	4.99	4.12	5.06
Aug.	0.89	3.42	3.12	5.18	5.14	5.40	5.47	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	5.02	4.64	4.04	4.73	4.47	3.85	4.79
Oct.	0.82	3.06	2.96	4.89	4.82	5.10	5.29	4.80	4.39	3.92	4.64	4.29	3.85	4.67
Nov.	0.81	2.89	2.65	4.80	4.80	4.99	5.29	4.62	4.25	3.85	4.42	4.19	3.70	4.52

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														
2022	1,385.3	481.7	141.5	51.2	95.1	667.0	621.7	480.2	179.9	115.8	48.3	50.6	133.9	97.1
2023	1,570.6	618.9	163.2	68.5	86.7	701.8	659.1	501.5	210.8	114.1	39.7	49.2	127.5	103.8
2024	1,567.2	572.5	185.6	64.9	69.6	739.5	673.6	468.3	180.0	114.7	44.2	39.2	134.5	108.2
2024 July	1,575.1	575.2	194.4	71.9	94.4	711.1	651.1	492.6	181.9	122.5	47.0	48.3	139.9	111.7
Aug.	1,585.3	573.4	194.4	68.9	94.3	723.2	659.5	447.6	189.9	104.3	42.9	30.5	123.0	101.3
Sep.	1,588.1	602.6	196.2	72.0	83.5	705.7	642.4	486.3	201.7	102.5	46.8	37.8	144.3	113.4
Oct.	1,565.1	577.2	185.2	66.8	84.9	717.9	656.0	473.9	158.4	128.9	44.7	39.7	146.9	126.5
Nov.	1,575.8	581.8	189.5	68.2	80.2	724.4	665.7	485.1	193.3	120.0	47.6	32.0	139.7	125.8
Dec.	1,567.2	572.5	185.6	64.9	69.6	739.5	673.6	420.4	159.3	115.4	45.5	27.5	118.2	90.7
Long-term														
2022	17,715.0	3,911.0	3,100.6	1,322.1	1,429.8	9,273.5	8,561.5	292.1	76.7	67.9	28.3	17.1	130.4	120.9
2023	19,343.4	4,453.6	3,238.8	1,317.6	1,544.2	10,106.8	9,366.9	320.5	93.7	67.0	25.5	21.3	138.4	129.9
2024	20,513.4	4,792.3	3,563.9	1,341.4	1,648.4	10,508.8	9,737.1	348.6	89.0	86.7	23.5	27.2	145.7	135.1
2024 July	20,039.9	4,673.8	3,412.3	1,316.3	1,595.9	10,357.9	9,594.1	314.7	82.7	90.5	18.7	20.3	121.2	116.9
Aug.	20,144.3	4,693.8	3,420.1	1,317.9	1,599.3	10,431.0	9,663.2	211.6	43.7	55.8	17.3	10.5	101.7	97.0
Sep.	20,442.9	4,751.3	3,460.1	1,326.5	1,627.7	10,603.7	9,824.9	377.4	86.8	97.8	31.6	39.7	153.1	143.2
Oct.	20,368.8	4,767.1	3,474.2	1,323.9	1,626.8	10,500.7	9,723.4	366.3	89.8	95.5	19.5	24.9	156.1	145.9
Nov.	20,708.3	4,814.6	3,538.5	1,337.8	1,658.2	10,696.9	9,916.2	321.5	69.8	96.5	33.2	28.2	126.9	120.2
Dec.	20,513.4	4,792.3	3,563.9	1,341.4	1,648.4	10,508.8	9,737.1	229.4	56.2	85.8	23.5	18.8	68.6	62.6

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											
2022	19,100.3	4,392.7	3,242.1	1,373.2	1,524.9	9,940.5	9,183.2	8,704.0	525.2	1,289.8	6,888.4
2023	20,914.0	5,072.6	3,402.0	1,386.1	1,630.9	10,808.5	10,026.0	9,675.7	619.7	1,418.8	7,636.7
2024	22,080.6	5,364.8	3,749.4	1,406.2	1,718.0	11,248.3	10,410.7	10,176.3	751.2	1,592.7	7,832.0
2024 July	21,615.0	5,249.0	3,606.7	1,388.3	1,690.3	11,068.9	10,245.2	10,114.1	724.0	1,539.3	7,850.4
Aug.	21,729.6	5,267.2	3,614.6	1,386.8	1,693.6	11,154.2	10,322.7	10,245.8	724.0	1,563.9	7,957.5
Sep.	22,031.0	5,354.0	3,656.4	1,398.5	1,711.3	11,309.4	10,467.2	10,409.9	746.7	1,570.1	8,092.7
Oct.	21,934.0	5,344.3	3,659.3	1,390.7	1,711.7	11,218.6	10,379.4	10,096.2	751.1	1,556.1	7,788.6
Nov.	22,284.1	5,396.4	3,728.0	1,406.0	1,738.4	11,421.3	10,581.9	10,176.0	723.0	1,589.3	7,863.4
Dec.	22,080.6	5,364.8	3,749.4	1,406.2	1,718.0	11,248.3	10,410.7	10,176.3	751.2	1,592.7	7,832.0
Growth rate [1]											
2024 May	5.5	9.0	3.7	-1.6	3.4	4.9	4.8	-1.2	-3.2	0.2	-1.3
June	4.9	7.5	3.7	-1.9	3.9	4.2	4.2	-0.6	-3.3	-1.1	-0.3
July	4.5	5.7	4.1	-2.1	3.2	4.2	4.2	-0.4	-3.5	-0.7	0.0
Aug.	4.7	5.4	4.6	-1.4	3.7	4.5	4.4	-0.3	-3.4	-0.7	0.0
Sep.	4.7	6.2	4.8	-0.8	3.7	4.2	4.0	-0.2	-2.1	-0.6	0.1
Oct.	4.8	5.7	4.3	-1.9	3.9	4.7	4.5	0.2	-2.2	-0.6	0.6
Nov.	4.6	4.7	5.6	-0.2	3.7	4.5	4.5	0.2	-1.9	-0.7	0.6
Dec.	4.4	3.9	6.4	-0.5	3.3	4.2	4.1	0.1	-2.5	-0.6	0.5

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
2022	95.3	90.8	93.6	84.5	64.4	82.8	116.1	90.9
2023	98.1	94.0	98.1	89.0	66.7	86.6	121.8	94.7
2024	98.4	94.4	98.2	.	.	.	124.1	95.0
2024 Q1	98.4	94.4	98.4	89.6	68.0	87.6	123.7	95.2
Q2	98.7	94.6	98.5	89.7	67.7	87.8	124.1	95.2
Q3	99.0	95.0	98.8	90.2	67.0	87.9	125.1	95.6
Q4	97.6	93.6	97.3	.	.	.	123.6	94.2
2024 July	99.0	95.1	98.9	-	-	-	124.8	95.6
Aug.	99.0	95.0	98.8	-	-	-	125.2	95.7
Sep.	98.8	94.8	98.7	-	-	-	125.2	95.6
Oct.	98.2	94.3	98.0	-	-	-	124.4	95.0
Nov.	97.5	93.6	97.3	-	-	-	123.5	94.1
Dec.	96.9	92.9	96.6	-	-	-	122.7	93.4
	Percentage change versus previous month							
2024 Dec.	-0.6	-0.7	-0.7	-	-	-	-0.6	-0.8
	Percentage change versus previous year							
2024 Dec.	-1.3	-1.1	-1.5	-	-	-	-0.4	-1.6

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
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
2024	7.787	.	25.120	7.459	395.304	163.852	4.306	0.847	4.9746	11.433	0.953	1.082
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
Q4	7.675	.	25.248	7.459	407.465	162.549	4.307	0.832	4.9754	11.494	0.936	1.068
2024 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
Dec.	7.630	.	25.136	7.459	411.986	161.083	4.270	0.828	4.9749	11.504	0.934	1.048
	Percentage change versus previous month											
2024 Dec.	-0.4	.	-0.7	0.0	0.7	-1.3	-1.4	-0.7	0.0	-0.7	-0.2	-1.4
	Percentage change versus previous year											
2024 Dec.	-2.0	.	2.7	0.0	7.9	2.5	-1.5	-3.9	0.1	2.7	-1.1	-3.9

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 Q4	32,386.9	32,041.0	345.9	12,121.5	9,944.6	12,465.4	14,520.1	-4.0	6,656.2	7,576.3	1,147.8	16,219.7
2024 Q1	33,684.6	33,138.9	545.7	12,390.0	10,014.1	13,124.9	15,268.1	-0.5	6,955.1	7,856.7	1,215.1	16,699.7
Q2	34,253.2	33,286.0	967.2	12,398.7	9,921.7	13,540.9	15,549.6	7.1	7,038.9	7,814.7	1,267.6	16,653.6
Q3	34,531.2	33,419.0	1,112.2	12,171.4	9,733.1	13,843.4	15,888.5	-3.9	7,201.3	7,797.4	1,319.0	16,690.5
Outstanding amounts as percentage of GDP												
2024 Q3	230.2	222.7	7.4	81.1	64.9	92.3	105.9	0.0	48.0	52.0	8.8	111.2
Transactions												
2023 Q4	-325.7	-438.2	112.5	-323.5	-300.5	45.2	91.5	21.9	-75.7	-229.2	6.4	-
2024 Q1	568.3	453.8	114.5	128.2	32.3	172.1	198.5	13.5	253.4	223.1	1.2	-
Q2	180.2	51.3	128.9	-31.7	-104.8	173.1	254.2	16.9	18.1	-98.1	3.7	-
Q3	412.3	274.2	138.0	5.4	-12.7	166.5	217.4	-8.3	252.6	69.5	-4.0	-
2024 June	-15.4	-103.7	88.3	-22.2	-33.9	66.9	115.9	2.3	-63.6	-185.7	1.3	-
July	127.8	78.1	49.7	14.4	-11.9	51.9	59.9	-2.2	66.9	30.1	-3.1	-
Aug.	94.1	69.5	24.6	-9.6	-1.9	40.6	64.3	-7.7	73.8	7.1	-3.0	-
Sep.	190.4	126.7	63.7	0.6	1.2	74.0	93.1	1.6	112.0	32.4	2.2	-
Oct.	86.3	55.1	31.3	12.1	7.5	68.8	46.1	20.2	-14.5	1.5	-0.2	-
Nov.	162.9	153.8	9.1	6.8	4.5	38.5	61.9	-0.8	117.0	87.3	1.3	-
12-month cumulated transactions												
2024 Nov.	1,085.5	646.0	439.5	-65.5	-234.9	620.0	852.0	42.4	485.4	28.8	3.3	-
12-month cumulated transactions as percentage of GDP												
2024 Nov.	7.2	4.3	2.9	-0.4	-1.6	4.1	5.7	0.3	3.2	0.2	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												
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	1,536.2	8,809.5	10,345.6	2,294.1	2,460.4	4,754.6	15,100.2	184.9	739.7	70.8	995.3	16,095.6
2024	1,556.9	9,015.7	10,572.6	2,530.4	2,468.9	4,999.4	15,572.0	253.3	873.0	28.1	1,154.4	16,726.4
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	787.0	72.9	1,052.3	16,189.7
Q2	1,533.9	8,792.8	10,326.7	2,535.8	2,425.4	4,961.3	15,288.0	210.4	815.9	59.2	1,085.5	16,373.5
Q3	1,541.7	8,842.5	10,384.2	2,590.7	2,424.8	5,015.5	15,399.7	237.3	858.7	47.3	1,143.3	16,543.0
Q4 [p]	1,556.9	9,015.7	10,572.6	2,530.4	2,468.9	4,999.4	15,572.0	253.3	873.0	28.1	1,154.4	16,726.4
2024 July	1,536.5	8,746.8	10,283.3	2,540.8	2,424.8	4,965.6	15,248.9	226.0	827.1	57.8	1,110.9	16,359.8
Aug.	1,538.8	8,791.8	10,330.5	2,558.5	2,426.5	4,985.0	15,315.5	242.4	839.9	52.0	1,134.2	16,449.7
Sep.	1,541.7	8,842.5	10,384.2	2,590.7	2,424.8	5,015.5	15,399.7	237.3	858.7	47.3	1,143.3	16,543.0
Oct.	1,545.6	8,892.1	10,437.7	2,556.0	2,427.7	4,983.7	15,421.4	248.9	854.8	51.7	1,155.4	16,576.8
Nov.	1,550.9	8,995.4	10,546.3	2,560.3	2,433.8	4,994.0	15,540.4	244.8	859.6	38.9	1,143.3	16,683.7
Dec. [p]	1,556.9	9,015.7	10,572.6	2,530.4	2,468.9	4,999.4	15,572.0	253.3	873.0	28.1	1,154.4	16,726.4
Transactions												
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	-4.1	-969.2	-973.3	920.7	-99.5	821.2	-152.1	40.3	93.8	23.5	157.6	5.5
2024	21.3	162.2	183.5	203.5	8.9	212.4	395.9	76.3	123.0	-37.6	161.6	557.5
2024 Q1	-9.3	-75.0	-84.3	144.1	-28.9	115.2	30.8	9.9	47.1	7.3	64.3	95.2
Q2	7.7	52.0	59.7	71.4	-5.6	65.9	125.5	17.6	25.9	-13.4	30.1	155.6
Q3	7.8	28.0	35.8	59.5	-0.5	58.9	94.7	28.2	38.8	-11.0	56.0	150.7
Q4 [p]	15.2	157.2	172.4	-71.5	43.9	-27.6	144.8	20.5	11.2	-20.5	11.2	156.0
2024 July	2.6	-44.0	-41.5	5.7	-0.7	4.9	-36.5	15.8	9.9	-2.0	23.7	-12.8
Aug.	2.3	18.7	20.9	20.5	1.9	22.4	43.3	17.1	11.4	-5.8	22.8	66.1
Sep.	3.0	53.4	56.3	33.3	-1.7	31.6	87.9	-4.7	17.4	-3.3	9.4	97.4
Oct.	3.9	43.9	47.7	-38.3	2.8	-35.5	12.2	10.6	-4.9	4.6	10.3	22.5
Nov.	5.3	96.9	102.2	-1.5	6.0	4.5	106.7	-5.4	3.9	-15.6	-17.1	89.6
Dec. [p]	6.0	16.5	22.5	-31.7	35.1	3.4	25.9	15.2	12.2	-9.4	18.0	43.9
Growth rates												
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	44.3	19.3	0.0
2024	1.4	1.8	1.8	8.9	0.4	4.5	2.6	41.7	16.6	-57.8	16.3	3.5
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	17.0	-29.5	18.9	2.2
Q3	0.5	-1.6	-1.3	22.9	-1.7	9.6	2.0	61.5	19.3	-34.3	21.8	3.2
Q4 [p]	1.4	1.8	1.8	8.9	0.4	4.5	2.6	41.7	16.6	-57.8	16.3	3.5
2024 July	0.2	-3.6	-3.0	30.7	-3.3	11.5	1.2	65.4	18.5	-26.3	21.6	2.4
Aug.	0.3	-2.5	-2.0	26.2	-2.2	10.5	1.7	79.0	19.2	-37.6	22.7	2.9
Sep.	0.5	-1.6	-1.3	22.9	-1.7	9.6	2.0	61.5	19.3	-34.3	21.8	3.2
Oct.	0.7	0.1	0.2	16.8	-1.1	7.3	2.4	55.6	18.7	-35.8	20.3	3.4
Nov.	1.1	1.5	1.5	13.3	-0.6	6.1	2.9	39.2	17.9	-48.8	17.0	3.8
Dec. [p]	1.4	1.8	1.8	8.9	0.4	4.5	2.6	41.7	16.6	-57.8	16.3	3.5

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													
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
2024	3,431.3	2,500.6	792.7	133.7	4.3	8,755.0	5,197.6	1,254.6	2,301.3	1.5	1,306.1	231.5	544.5
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	3,364.8	2,404.7	823.6	125.6	11.0	8,618.8	5,091.3	1,260.4	2,266.2	1.0	1,330.8	230.1	550.8
Q4 [p]	3,431.3	2,500.6	792.7	133.7	4.3	8,755.0	5,197.6	1,254.6	2,301.3	1.5	1,306.1	231.5	544.5
2024 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	8,618.8	5,091.3	1,260.4	2,266.2	1.0	1,330.8	230.1	550.8
Oct.	3,378.3	2,422.1	816.0	127.5	12.7	8,658.0	5,122.0	1,267.7	2,267.3	0.9	1,319.2	220.5	548.7
Nov.	3,408.7	2,453.5	812.2	129.8	13.2	8,698.4	5,164.8	1,261.6	2,271.2	0.8	1,334.3	229.4	563.5
Dec. [p]	3,431.3	2,500.6	792.7	133.7	4.3	8,755.0	5,197.6	1,254.6	2,301.3	1.5	1,306.1	231.5	544.5
Transactions													
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
2024	95.1	75.7	16.5	2.9	0.1	296.2	54.2	233.9	8.0	0.1	56.5	3.4	-0.5
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	-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
Q4 [p]	62.1	88.7	-34.2	8.1	-0.5	131.5	105.3	-9.4	35.1	0.5	-36.4	0.1	-7.1
2024 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.	9.5	14.9	-8.9	1.9	1.6	36.8	29.2	6.6	1.1	0.0	-14.7	-10.0	-2.7
Nov.	26.2	28.8	-5.1	2.3	0.3	38.2	43.2	-8.6	3.8	-0.2	8.7	8.3	14.5
Dec. [p]	26.4	45.0	-20.2	3.9	-2.3	56.4	32.9	-7.4	30.2	0.8	-30.4	1.8	-19.0
Growth rates													
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
2024	2.9	3.1	2.1	2.2	1.8	3.5	1.0	23.0	0.4	6.1	4.6	1.5	-0.1
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	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
Q4 [p]	2.9	3.1	2.1	2.2	1.8	3.5	1.0	23.0	0.4	6.1	4.6	1.5	-0.1
2024 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.	1.7	0.5	5.9	-2.5	17.5	3.2	-1.2	39.1	-0.9	25.2	7.9	3.6	0.2
Nov.	2.3	1.7	4.6	-1.0	-4.1	3.5	0.2	30.1	-0.4	-3.1	7.7	1.6	4.6
Dec. [p]	2.9	3.1	2.1	2.2	1.8	3.5	1.0	23.0	0.4	6.1	4.6	1.5	-0.1

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												
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
2024	6,258.1	987.9	5,244.3	15,761.5	13,245.5	13,500.5	5,182.7	6,676.5	1,246.4	139.9	1,578.8	937.2
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
Q4	6,258.1	987.9	5,244.3	15,761.5	13,245.5	13,500.5	5,182.7	6,676.5	1,246.4	139.9	1,578.8	937.2
2024 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.	6,245.8	986.6	5,233.4	15,667.9	13,165.7	13,415.5	5,144.1	6,661.0	1,224.9	135.7	1,572.7	929.5
Nov.	6,276.3	990.3	5,260.2	15,686.1	13,179.0	13,419.4	5,149.6	6,673.6	1,221.2	134.6	1,576.0	931.0
Dec.	6,258.1	987.9	5,244.3	15,761.5	13,245.5	13,500.5	5,182.7	6,676.5	1,246.4	139.9	1,578.8	937.2
Transactions												
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
2024	-64.7	-2.7	-62.5	268.2	226.6	269.0	67.1	44.2	113.7	1.6	10.7	30.9
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
Q4	5.3	10.7	-5.5	120.5	99.5	124.3	44.8	21.6	26.3	6.8	12.3	8.8
2024 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.	6.6	8.6	-1.9	35.4	22.0	40.9	7.3	0.2	11.7	2.8	10.5	2.9
Nov.	-6.3	4.7	-11.0	6.0	6.2	-3.1	3.5	13.3	-9.3	-1.2	-1.1	0.8
Dec.	4.9	-2.6	7.4	79.1	71.2	86.6	34.0	8.0	23.9	5.2	2.8	5.1
Growth rates												
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
2024	-1.0	-0.3	-1.2	1.7	1.7	2.0	1.3	0.7	10.1	1.2	0.7	3.4
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
Q4	-1.0	-0.3	-1.2	1.7	1.7	2.0	1.3	0.7	10.1	1.2	0.7	3.4
2024 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	-0.2	-1.0	1.2	1.2	1.7	0.6	0.5	8.6	0.2	-0.1	3.8
Nov.	-0.7	0.5	-1.0	1.3	1.2	1.5	0.8	0.5	7.0	0.0	0.3	4.7
Dec.	-1.0	-0.3	-1.2	1.7	1.7	2.0	1.3	0.7	10.1	1.2	0.7	3.4

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										
2022	5,126.5	5,126.4	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	5,138.2	907.3	1,090.3	3,125.6	6,648.1	6,866.2	731.3	5,228.8	688.0
2024	5,182.7	5,203.3	921.7	1,099.0	3,162.1	6,676.5	6,928.0	744.2	5,255.6	676.7
2024 Q1	5,115.5	5,131.7	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	5,145.0	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	5,160.8	912.4	1,088.6	3,137.7	6,661.4	6,899.2	742.4	5,245.1	674.0
Q4	5,182.7	5,203.3	921.7	1,099.0	3,162.1	6,676.5	6,928.0	744.2	5,255.6	676.7
2024 July	5,124.8	5,140.9	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	5,135.9	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	5,160.8	912.4	1,088.6	3,137.7	6,661.4	6,899.2	742.4	5,245.1	674.0
Oct.	5,144.1	5,162.5	920.4	1,088.5	3,135.2	6,661.0	6,907.5	741.7	5,240.6	678.7
Nov.	5,149.6	5,166.0	919.0	1,087.3	3,143.3	6,673.6	6,918.4	741.1	5,250.4	682.1
Dec.	5,182.7	5,203.3	921.7	1,099.0	3,162.1	6,676.5	6,928.0	744.2	5,255.6	676.7
Transactions										
2022	269.0	308.3	78.0	77.3	113.7	241.8	250.0	23.2	217.7	0.9
2023	-5.7	24.0	-43.9	10.3	27.9	7.7	26.8	18.9	10.1	-21.3
2024	67.1	78.1	11.6	13.3	42.3	44.2	76.8	25.6	28.8	-10.3
2024 Q1	-2.1	0.8	-14.9	-1.1	13.9	-2.4	9.7	8.4	-6.1	-4.7
Q2	14.2	17.0	13.5	-1.2	2.0	4.9	10.5	0.4	5.9	-1.4
Q3	10.2	14.2	6.1	3.3	0.7	20.0	20.9	7.2	17.9	-5.1
Q4	44.8	46.0	6.9	12.3	25.6	21.6	35.7	9.6	11.1	0.9
2024 July	-0.1	-1.4	-0.3	-0.5	0.8	1.5	4.1	2.8	3.0	-4.3
Aug.	7.2	-1.2	1.3	0.5	5.4	10.7	7.5	2.5	9.0	-0.8
Sep.	3.0	16.8	5.2	3.3	-5.5	7.8	9.3	1.9	5.9	0.0
Oct.	7.3	6.2	6.2	0.5	0.6	0.2	9.7	3.2	-3.2	0.2
Nov.	3.5	1.0	-2.4	-1.3	7.2	13.3	11.6	1.8	9.1	2.5
Dec.	34.0	38.9	3.2	13.1	17.8	8.0	14.4	4.5	5.2	-1.7
Growth rates										
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
2024	1.3	1.5	1.3	1.2	1.4	0.7	1.1	3.5	0.6	-1.5
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
Q4	1.3	1.5	1.3	1.2	1.4	0.7	1.1	3.5	0.6	-1.5
2024 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	0.5	0.5	0.8	3.1	0.4	-1.8
Nov.	0.8	1.0	1.3	0.3	0.8	0.5	0.9	3.2	0.4	-1.5
Dec.	1.3	1.5	1.3	1.2	1.4	0.7	1.1	3.5	0.6	-1.5

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										
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	1,858.1	213.1	155.0	152.6
2024	377.7	7,834.1	1,843.9	116.5	2,587.2	3,286.5	2,691.0	227.6	140.4	135.9
2024 Q1	395.4	7,457.1	1,828.2	103.9	2,492.2	3,032.8	2,050.3	225.6	178.0	174.2
Q2	410.5	7,526.1	1,828.2	109.9	2,530.1	3,057.9	2,243.6	298.5	182.6	176.5
Q3	402.8	7,679.4	1,833.1	114.3	2,541.1	3,190.9	2,490.1	246.3	184.9	188.5
Q4 (p)	377.7	7,834.1	1,843.9	116.5	2,587.2	3,286.5	2,691.0	227.6	140.4	135.9
2024 July	404.8	7,578.3	1,821.5	111.6	2,528.5	3,116.8	2,342.4	181.3	166.9	154.9
Aug.	419.2	7,608.9	1,822.6	112.7	2,537.4	3,136.3	2,397.6	231.3	193.2	170.7
Sep.	402.8	7,679.4	1,833.1	114.3	2,541.1	3,190.9	2,490.1	246.3	184.9	188.5
Oct.	445.4	7,752.7	1,832.2	115.7	2,560.6	3,244.2	2,602.9	258.3	169.6	172.2
Nov.	424.2	7,806.0	1,839.7	115.9	2,575.9	3,274.5	2,642.4	309.1	176.8	164.0
Dec. (p)	377.7	7,834.1	1,843.9	116.5	2,587.2	3,286.5	2,691.0	227.6	140.4	135.9
Transactions										
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	459.2	-208.2	19.7	9.0
2024	-69.2	293.3	16.4	26.3	169.1	81.5	574.0	4.0	-12.0	-16.7
2024 Q1	-51.7	112.3	3.4	13.6	89.3	5.9	139.3	18.3	25.6	21.5
Q2	15.7	43.3	-0.1	6.0	32.7	4.7	150.2	49.3	4.6	2.3
Q3	-7.7	68.5	7.5	4.4	40.7	15.9	173.7	-26.7	2.4	12.0
Q4 (p)	-25.6	69.2	5.6	2.2	6.5	55.0	110.7	-36.9	-44.5	-52.6
2024 July	-5.7	8.8	-6.0	1.6	6.1	7.1	66.0	-90.6	-15.7	-21.6
Aug.	14.4	26.7	2.4	1.1	20.7	2.5	46.4	28.0	26.4	15.8
Sep.	-16.4	33.0	11.1	1.6	13.9	6.3	61.4	35.9	-8.3	17.8
Oct.	42.5	10.5	-3.0	1.4	4.6	7.4	46.3	-12.8	-15.3	-16.3
Nov.	-21.5	7.8	5.4	0.2	2.0	0.3	8.4	67.8	7.2	-8.2
Dec. (p)	-46.6	50.9	3.2	0.6	-0.2	47.2	56.0	-91.9	-36.3	-28.1
Growth rates										
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
2024	-15.5	4.0	0.9	29.1	7.0	2.6	-	-	-8.0	-10.9
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	-11.2	3.9	0.0	54.7	9.6	0.6	-	-	22.1	15.4
Q4 (p)	-15.5	4.0	0.9	29.1	7.0	2.6	-	-	-8.0	-10.9
2024 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.	0.6	3.7	0.1	47.0	8.7	0.9	-	-	5.6	13.7
Nov.	0.2	3.6	0.6	37.4	8.0	0.9	-	-	5.3	1.2
Dec. (p)	-15.5	4.0	0.9	29.1	7.0	2.6	-	-	-8.0	-10.9

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 Q4	-3.6	.	.	.	.	-1.8
2024 Q1	-3.6	.	.	.	.	-1.8
Q2	-3.5	.	.	.	.	-1.6
Q3	-3.2	.	.	.	.	-1.4

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 Q4	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
2024 Q1	46.0	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	46.2	45.4	13.3	12.3	14.7	0.8	49.6	44.4	9.9	5.9	1.8	22.6	5.3
Q3	46.4	45.5	13.3	12.4	14.7	0.8	49.6	44.5	9.9	6.0	1.9	22.7	5.1

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 Q4	87.4	2.4	12.2	72.8	.	.	.	.	.	.	.	.	.	.
2024 Q1	87.9	2.3	12.0	73.6	.	.	.	.	.	.	.	.	.	.
Q2	88.2	2.2	11.9	74.0	.	.	.	.	.	.	.	.	.	.
Q3	88.2	2.2	11.8	74.1	.	.	.	.	.	.	.	.	.	.

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 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	-1.4	1.8	-0.5	-0.7	-0.8	-0.1	0.1	0.1	0.4	-0.3	-2.6	2.6
Q2	-0.6	1.6	-0.3	-0.5	-0.6	-0.1	0.1	0.1	0.3	-0.1	-2.0	2.8
Q3	-0.2	1.4	0.0	-0.3	-0.4	0.0	0.1	0.1	0.3	0.0	-1.6	3.0

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
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
2024	12.9	11.4	4.2	1.4	0.4	8.2	2.1	1.3	2.1	2.1	1.8	3.5	2.9
2024 Q1	12.8	11.4	3.8	1.3	0.3	8.3	2.0	1.3	2.1	2.1	1.5	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	3.8	2.8
Q3	13.0	11.5	3.9	1.4	0.4	8.2	2.1	1.3	2.3	2.1	1.6	3.7	2.9
Q4	12.9	11.4	4.2	1.4	0.4	8.2	2.1	1.3	2.1	2.1	1.8	3.5	2.9
2024 July	12.9	11.5	3.7	1.4	0.4	8.3	2.1	1.4	2.3	2.1	1.6	3.8	2.8
Aug.	13.0	11.6	4.1	1.4	0.4	8.2	2.1	1.3	2.1	2.1	1.6	3.8	2.8
Sep.	13.0	11.5	3.9	1.4	0.4	8.2	2.1	1.3	2.3	2.1	1.6	3.7	2.9
Oct.	13.2	11.7	3.8	1.4	0.4	8.2	2.1	1.3	2.0	2.1	1.8	3.6	2.9
Nov.	13.0	11.6	3.7	1.4	0.4	8.2	2.1	1.3	2.0	2.1	1.8	3.6	2.9
Dec.	12.9	11.4	4.2	1.4	0.4	8.2	2.1	1.3	2.1	2.1	1.8	3.5	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 Q4	-4.2	-2.6	-2.8	1.5	-1.3	-3.5	-5.5	-0.9	-7.2	2.0
2024 Q1	-4.1	-2.7	-3.0	1.4	-0.6	-3.7	-5.6	-0.8	-6.6	3.7
Q2	-4.2	-2.6	-3.5	1.9	0.3	-3.3	-5.7	-1.7	-6.1	4.3
Q3	-4.5	-2.6	-3.1	5.0	1.1	-3.2	-6.0	-2.0	-5.1	4.2
	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 Q4	103.1	62.9	20.2	43.3	163.9	105.1	110.0	61.8	134.8	73.6
2024 Q1	106.6	62.6	24.1	42.5	161.8	106.3	110.8	62.0	135.2	72.6
Q2	106.6	61.9	23.8	42.7	160.0	105.3	112.4	60.0	136.9	70.5
Q3	105.6	62.4	24.0	42.2	158.2	104.3	113.8	59.7	136.3	69.7

	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 Q4	-2.4	-0.7	-0.8	-4.6	-0.4	-2.6	1.2	-2.6	-5.2	-3.0
2024 Q1	-1.9	-0.6	-0.1	-3.8	-0.3	-2.8	0.9	-2.0	-5.1	-3.5
Q2	-1.8	-0.9	-0.1	-3.5	-0.4	-3.3	1.2	-2.0	-5.5	-4.1
Q3	-1.1	-1.4	0.0	-2.9	-0.3	-3.7	1.0	-1.8	-4.6	-4.7
	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 Q4	45.0	37.3	25.6	47.7	45.2	78.6	97.9	68.4	56.1	77.3
2024 Q1	46.3	39.1	27.1	47.3	44.0	80.9	99.4	70.0	60.6	78.1
Q2	46.4	37.4	26.8	46.4	43.3	82.9	100.7	69.5	60.4	80.1
Q3	47.7	38.4	26.6	45.3	42.2	83.2	97.5	66.9	60.3	81.5

Source: Eurostat.

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

The cut-off date for the statistics included in this issue was 29 January 2025.

PDF ISSN 2363-3417, QB-01-25-044-EN-N
HTML ISSN 2363-3417, QB-01-25-044-EN-Q