EUROPEAN CENTRAL BANK

EUROSYSTEM

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Economic, financial and monetary developments

Summary

At its meeting on 11 April 2024, the Governing Council decided to keep the three key ECB interest rates unchanged. The incoming information broadly confirmed the Governing Council's previous assessment of the medium-term inflation outlook. Inflation has continued to fall, led by lower food and goods price inflation. Most measures of underlying inflation are easing, wage growth is gradually moderating, and firms are absorbing part of the rise in labour costs in their profits. Financing conditions remain restrictive and the past interest rate increases continue to weigh on demand, which is helping to push down inflation. But domestic price pressures are strong and are keeping services price inflation high.

The Governing Council is determined to ensure that inflation returns to its 2% medium-term target in a timely manner. It considers that the key ECB interest rates are at levels that are making a substantial contribution to the ongoing disinflation process. The Governing Council's future decisions will ensure that the key ECB interest rates will stay sufficiently restrictive for as long as necessary. If the updated assessment of the inflation outlook, the dynamics of underlying inflation and the strength of monetary policy transmission were to further increase the Governing Council's confidence that inflation is converging to its target in a sustained manner, it would be appropriate to reduce the current level of monetary policy restriction. In any event, the Governing Council will continue to follow a data-dependent and meeting-by-meeting approach to determining the appropriate level and duration of restriction, and it is not pre-committing to a particular rate path.

Economic activity

The economy remained weak in the first quarter of 2024. While spending on services is resilient, manufacturing firms are facing weak demand and production is still subdued, especially in energy-intensive sectors. Surveys point to a gradual recovery over the course of this year, led by services. This recovery is expected to be supported by rising real incomes, resulting from lower inflation, increased wages and improved terms of trade. In addition, the growth of euro area exports should pick up over the coming quarters, as the global economy recovers and spending shifts further towards tradables. Finally, monetary policy should exert less of a drag on demand over time.

The unemployment rate is at its lowest level since the start of the euro. At the same time, the tightness in the labour market continues to gradually decline, with employers posting fewer job vacancies.

Governments should continue to roll back energy-related support measures so that disinflation can proceed sustainably. Implementing the EU's revised economic governance framework fully and without delay will help governments bring down budget deficits and debt ratios on a sustained basis. National fiscal and structural policies should be aimed at making the economy more productive and competitive, which would help to reduce price pressures in the medium term. At the European level, an effective and speedy implementation of the Next Generation EU programme and a strengthening of the Single Market would help foster innovation and increase investment in the green and digital transitions. More determined and concrete efforts to complete the banking union and the capital markets union would help mobilise the massive private investment necessary to achieve this, as the Governing Council stressed in its statement[1] of 7 March 2024.

Inflation

Inflation has continued to decline, from an annual rate of 2.6% in February to 2.4% in March, according to Eurostat's flash estimate. Food price inflation dropped to 2.7% in March, from 3.9% in February, while energy price inflation stood at -1.8% in March, after -3.7% in the previous month. Goods price inflation fell again in March, to 1.1%, from 1.6% in February. However, services price inflation remained high in March, at 4.0%.

Most measures of underlying inflation fell further in February, confirming the picture of gradually diminishing price pressures. While domestic inflation remains high, wages and unit profits grew less strongly than anticipated in the last quarter of 2023, but unit labour costs remained high, in part reflecting weak productivity growth. More recent indicators point to further moderation in wage growth.

Inflation is expected to fluctuate around current levels in the coming months and to then decline to the 2% target next year, owing to weaker growth in labour costs, the unfolding effects of the Governing Council's restrictive monetary policy, and the fading impact of the energy crisis and the pandemic. Measures of longer-term inflation expectations remain broadly stable, with most standing around 2%.

Risk assessment

The risks to economic growth remain tilted to the downside. Growth could be lower if the effects of monetary policy turn out stronger than expected. A weaker world economy or a further slowdown in global trade would also weigh on euro area growth. Russia's unjustified war against Ukraine and the tragic conflict in the Middle East are major sources of geopolitical risk. This may result in firms and households becoming less confident about the future and global trade being disrupted. Growth could be higher if inflation comes down more quickly than expected and rising real

[1] See "Statement by the ECB Governing Council on advancing the Capital Markets Union", *press release*, ECB, 7 March 2024.

incomes mean that spending increases by more than anticipated, or if the world economy grows more strongly than expected.

Upside risks to inflation include the heightened geopolitical tensions, especially in the Middle East, which could push energy prices and freight costs higher in the near term and disrupt global trade. Inflation could also turn out higher than anticipated if wages increase by more than expected or profit margins prove more resilient. By contrast, inflation may surprise on the downside if monetary policy dampens demand more than expected, or if the economic environment in the rest of the world worsens unexpectedly.

Financial and monetary conditions

Market interest rates have been broadly stable since the Governing Council's monetary policy meeting on 7 March 2024 and wider financing conditions remain restrictive. The average interest rate on business loans edged down to 5.1% in February, from 5.2% in January. Mortgage rates were 3.8% in February, down from 3.9% in January.

Still elevated borrowing rates and associated cutbacks in investment plans led firms to further reduce their demand for loans in the first quarter of 2024, as reported in the April 2024 euro area bank lending survey. Credit standards for loans remained tight, with a further slight tightening for lending to firms and a moderate easing for mortgages.

Against this background, credit dynamics remain weak. Bank lending to firms grew marginally faster in February, at an annual rate of 0.4%, up from 0.2% in January. Growth in loans to households remained unchanged in February, at 0.3% on an annual basis. Broad money – as measured by M3 – grew at a subdued rate of 0.4% in February.

Monetary policy decisions

The interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility remain unchanged at 4.50%, 4.75% and 4.00% respectively.

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

The Governing Council intends to continue to reinvest, in full, the principal payments from maturing securities purchased under the pandemic emergency purchase programme (PEPP) during the first half of 2024. Over the second half of the year, it intends to reduce the PEPP portfolio by €7.5 billion per month on average. The Governing Council intends to discontinue reinvestments under the PEPP at the end of 2024.

The Governing Council will continue applying flexibility in reinvesting redemptions coming due in the PEPP portfolio, with a view to countering risks to the monetary policy transmission mechanism related to the pandemic.

As banks are repaying the amounts borrowed under the targeted longer-term refinancing operations, the Governing Council will regularly assess how targeted lending operations and their ongoing repayment are contributing to its monetary policy stance.

Conclusion

At its meeting on 11 April 2024, the Governing Council decided to keep the three key ECB interest rates unchanged. The Governing Council is determined to ensure that inflation returns to its 2% medium-term target in a timely manner. It considers that the key ECB interest rates are at levels that are making a substantial contribution to the ongoing disinflation process. The Governing Council's future decisions will ensure that the key ECB interest rates will stay sufficiently restrictive for as long as necessary. If the updated assessment of the inflation outlook, the dynamics of underlying inflation and the strength of monetary policy transmission were to further increase the Governing Council's confidence that inflation is converging to its target in a sustained manner, it would be appropriate to reduce the current level of monetary policy restriction. In any event, the Governing Council will continue to follow a data-dependent and meeting-by-meeting approach to determining the appropriate level and duration of restriction, and it 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 returns to its medium-term target and to preserve the smooth functioning of monetary policy transmission.

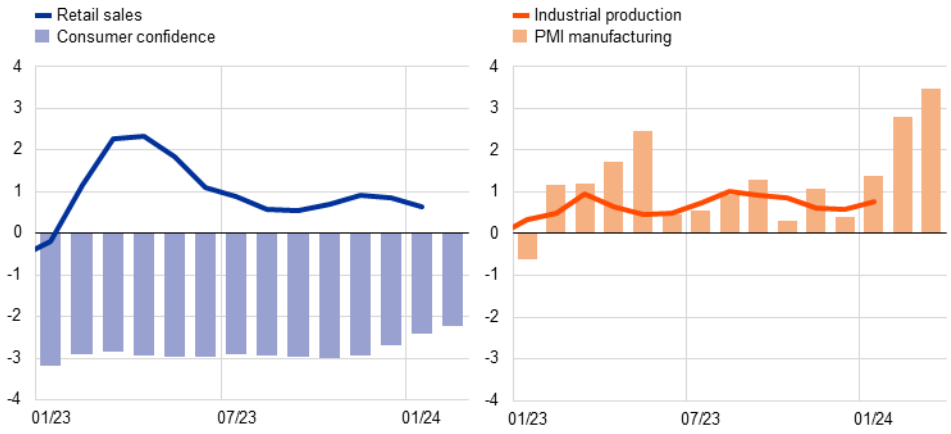
1 External environment

Global economic activity is set to improve slightly in the first quarter of 2024. Global trade is expected to gradually recover after a weak fourth quarter of last year. While the disruptions in the Red Sea persist, shipping prices started to recede and global supply chains remain resilient. Inflationary pressures remain elevated, but labour markets across advanced economies continue to cool down.

Global activity is set to recover but remain moderate in the first quarter of 2024. Indicators continue to point to improved global growth momentum early in the year, with the strongest signal coming from survey indicators. In March, the global (excluding the euro area) composite output Purchasing Managers' Index (PMI) remained at a solid 52.6, reflecting robust manufacturing output, which was also at 52.6. Other data, however, are painting a more nuanced picture. Global retail sales weakened slightly in January in three-month-on-three-month (momentum) terms, despite a recovery in consumer confidence, while momentum in global industrial production picked up somewhat (Chart 1). Overall, both the ECB's global growth nowcasting model and tracker suggest a modest pick-up in activity at the start of the year.

Chart 1
Global activity indicators

(retail sales and industrial production: 3-month-on-3-month percentage changes; confidence and PMI data: difference from expansion threshold)



Sources: OECD, S&P Global, Haver and ECB staff calculations.
Notes: Weighted average of 32 economies (AU, BR, BG, CA, CL, CN, CO, CZ, DK, HK, IN, ID, JP, HU, MX, MY, NZ, NO, PL, RO, RU, SG, ZA, KR, SE, CH, TW, TH, TR, UK, US, VN) covering 82% of the world excluding euro area GDP. Country indices are weighted by purchasing power parity. The latest observations are for January 2024 (retail sales and industrial production), February 2024 (consumer confidence) and March 2024 (PMI manufacturing output).

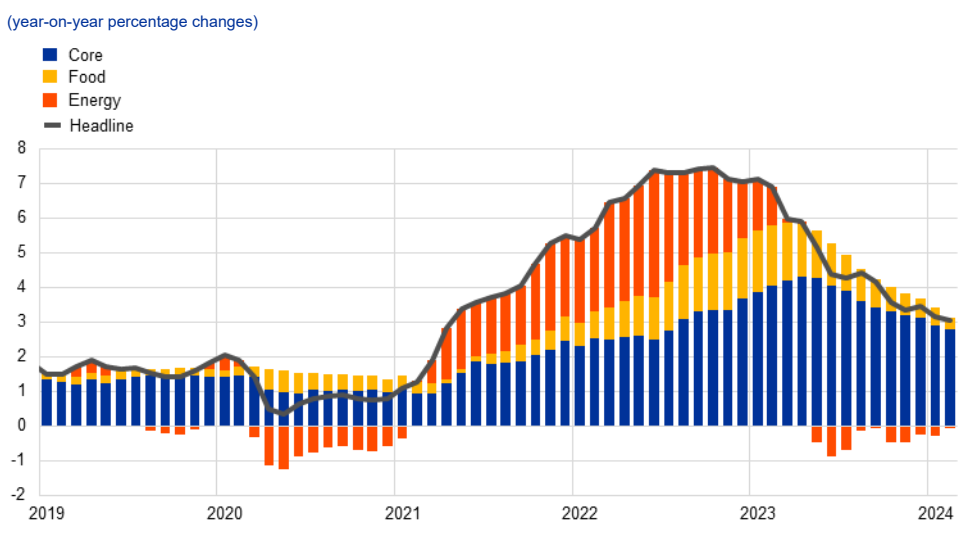
Global trade growth is also seen to recover after a weak fourth quarter of last year. Global PMI new export orders for both manufacturing and services in March indicate that growth in trade in goods and services should recover gradually in the near term. The improving momentum in global industrial production should also support trade. Post-pandemic-related factors that weighed on trade in 2023, such as the rebalancing of spending back from goods towards services and the inventory cycle correcting for an overbuild, are fading away, which should also allow global trade to gradually recover throughout 2024. Nonetheless, the disruptions to trade

through the Red Sea continue to pose a significant risk. Transit volumes in that area remain at around 60% below normal as shipping companies still circumvent this route. However, shipping prices, which rose sharply in the aftermath of the Houthi attacks, are now receding, while congestion in global ports has decreased since mid-January and stands below its pre-pandemic average in March. Spare capacity in the shipping industry, weak goods demand and high manufacturers' inventories have all cushioned the impact of longer shipping times, but an escalation of the Middle East conflict still poses a significant risk to trade and inflation.

Headline inflation across OECD economies held steady in February, while core inflation continued to ease, albeit modestly. In February, the annual headline consumer price index (CPI) inflation across OECD countries (excluding Türkiye) declined marginally to 3.1%, compared with 3.2% in the previous month (Chart 2). Excluding food and energy prices, OECD core inflation continued to slow to 3.6% in February, down 0.2 percentage points from January, amid easing labour market pressures in advanced economies. Early indicators for wages, based on online job listings, suggest that nominal wage growth has already passed its peak in advanced economies and will abate further. A declining vacancies-to-unemployment ratio across key advanced economies also points to a cooling of labour market pressures. In addition, while real wage growth turned positive in the United States and the United Kingdom in late 2023, firm-level evidence shows that firms' mark-ups are still above their pre-pandemic levels, suggesting some room for firms to absorb rising labour costs without passing them on to consumers through higher prices. As a result, global consumer prices are expected to continue to slow gradually over the coming months across advanced economies, although inflation could prove persistent in the very short run.

Chart 2

OECD consumer price inflation



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 February 2024.

Oil prices have increased by 5% since the March Governing Council meeting against the backdrop of geopolitical uncertainty in the Middle East. Oil prices remain sensitive to developments in the Middle East as a wider escalation of the conflict could significantly affect global oil supply. At the same time, OPEC+ extended production cuts to cover the second quarter of 2024, and the International Energy Agency revised its forecast of the oil supply-demand balance from a surplus of supply to a deficit for 2024. The increase in oil prices was dampened by weak oil demand in Europe and China. European gas prices increased by 7% but stayed below 30 EUR/MWh, as the EU enters the gas storage replenishment season at record-high storage levels of 60% of capacity. The recent uptick in gas prices was caused by disruptions to supply from Norway and the United States, while exports of liquified natural gas from Qatar have also been influenced by the Houthi attacks on ships in the Red Sea. However, European gas demand has remained historically low following weak industrial activity in gas-intensive sectors, favourable weather conditions and changes in behaviour by households and firms following the gas crisis. Non-energy commodity prices have also increased since the March Governing Council meeting. International food commodity prices were mainly driven by an unprecedented rally in cocoa prices triggered by severe supply shortages in West Africa, while grains prices increased more moderately, partly on the back of geopolitical uncertainty about supply from Russia and Ukraine. Meanwhile, metal prices increased due to supply disruptions in the copper and aluminium markets.

In the United States, activity and price developments continue to suggest a soft landing. High-frequency indicators point towards robust but decelerating economic activity in the first quarter. Consumer spending continues to support economic activity, but the delayed effects of the Federal Reserve System's restrictive monetary policy are expected to weigh on future economic activity. Moreover, the US labour market increasingly shows signs of cooling, with wage growth moderating and the number of people voluntarily quitting their job falling. Annual headline consumer price inflation, however, increased by 0.3 percentage points to 3.5% in March as energy prices rose, while core inflation remained stable at 3.8%. Services inflation in particular is expected to decline only gradually, potentially resulting in a sluggish downward path for inflation in the months ahead. In its March meeting, the Federal Open Market Committee (FOMC) maintained policy rates at between 5.25% and 5.5%. FOMC members revised their forecast for GDP in 2024 up considerably, to 2.1% from 1.4% in fourth-quarter-over-fourth-quarter terms, mainly reflecting better-than-expected data. Revisions to the inflation outlook for this year were much smaller, up by just 0.2 percentage points.

The recovery of the Chinese economy remains mixed as the property slowdown continues to weigh on growth. Industrial activity in China, at 7.0% year-on-year, exceeded expectations in January and February, as an upswing in the global "tech cycle" drove a double-digit expansion in computer and electronic equipment manufacturing, also pushing up Chinese export growth from December. However, activity in the property market continues to fall, causing consumer confidence to linger around historically low levels. Retail sales growth decreased to 5.5% in the first two months of the year from 8.3% in the fourth quarter of 2023. As a result, the government's GDP growth target of 5% for this year is seen as ambitious

in the absence of more fiscal stimulus. Although headline inflation turned positive in February, to 0.7% year-on-year, inflationary pressures remain subdued, with producer price inflation remaining negative in February.

In Japan, inflation and wage growth are firming, prompting the Bank of Japan to end its negative interest rate policy. At the start of the year, high-frequency data suggested that consumer spending and confidence may be picking up, in part reflecting rising wages. By contrast, manufacturing activity remains weak. Headline inflation picked up in February to 2.8%, from 2.2% in the previous month, largely reflecting base effects linked to last year's energy subsidies. Nevertheless, the first results of the annual spring wage negotiations showed an overall wage increase of 5.3%, the strongest in 33 years, which will further support wage growth in 2024. On 19 March, the Bank of Japan (BoJ) decided to formally end its negative interest rate policy and stop other monetary easing measures. The BoJ raised its uncollateralised overnight call rate to between 0% and 0.1%, which was the first rate increase by the Japanese central bank in 17 years. The decision reflected the BoJ's view that after a sustained period of below-target inflation, there is stronger evidence of a virtuous cycle between rising wages and prices, increasing confidence that the BoJ will achieve its 2% price stability target over the course of its projection horizon.

Indicators signal a short-term rebound in the growth momentum of the United Kingdom. After a largely stagnating GDP in 2023, surveys now indicate a moderate but consistent improvement in the outlook for activity. The recovery in GDP started in January (+0.2% month-on-month) and was supported by services and construction, while manufacturing output continued to shrink. UK headline CPI inflation declined in February, dropping to 3.4% from 4.0% in January, largely on account of a decrease in food price inflation. Core inflation also fell, to 4.5% in February from 5.1% in January, reflecting declines in both core goods and services inflation. The latter remains elevated and broad-based though, as more than a third of services items continue to grow at a rate above 8%. The Bank of England expects services inflation to fall from the current 7% to around 5% over the course of 2024. Moreover, the labour market has continued to loosen but remains relatively tight by historical standards. While looser labour market conditions and falling short-term inflation expectations point to a continued easing of wage pressures, survey data indicate that firms' expectations for wage growth remain high and above the Bank of England's expectations.

2 Economic activity

Economic activity in the euro area was essentially stagnant throughout 2023, amid tight financing conditions, subdued confidence and past loss of competitiveness. At the same time, jobs continued to be created during the year. Real GDP growth is expected to have remained subdued in the first quarter of 2024, given the persistent divergence between a struggling manufacturing sector and a more resilient services sector. Nevertheless, there are tentative signs of a gradual pick-up in growth later in the year. This recovery is expected to be supported by rising real incomes, resulting from lower inflation, increased wages and improved terms of trade. In addition, demand for euro area exports should rise in the coming quarters, and the dampening effect of past interest rate increases should gradually fade over time.

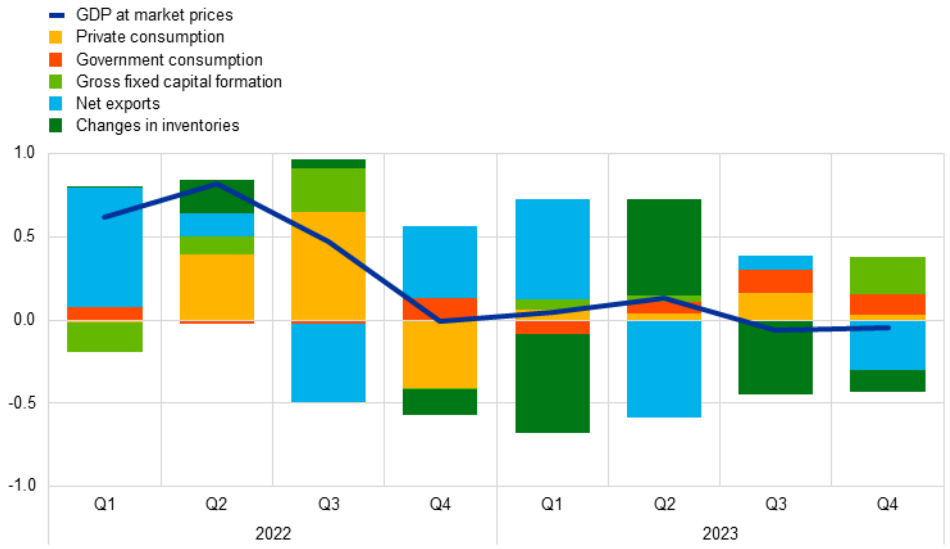
Euro area real GDP growth was flat in the fourth quarter of 2023, marking a fifth consecutive quarter of essentially stagnant economic activity.[2] This outcome brought GDP growth in 2023 to a modest 0.4% (not adjusted for working days), down from 3.4% in 2022. Domestic demand contributed positively to growth in the fourth quarter of last year, while net trade made a negative contribution and changes in inventories had a slight dampening effect (Chart 3). The euro area outcome and the composition of growth were affected by a steep decline in Irish GDP (-3.4% in the fourth quarter of 2023) caused by developments in the multinational-dominated sectors. Excluding Ireland, euro area GDP growth was 0.1% in the fourth quarter of 2023. Moreover, the largest euro area economies recorded markedly different growth rates, with GDP rising in Spain (0.6%), the Netherlands (0.3%), Italy (0.2%) and France (0.1%), but declining in Germany (-0.3%).

[2] According to the updated estimate released by Eurostat on 19 April, euro area real GDP declined by 0.1% in the fourth quarter of 2023. This estimate was not available at the cut-off date for this issue of the Economic Bulletin.

Chart 3

Euro area real GDP and its components

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

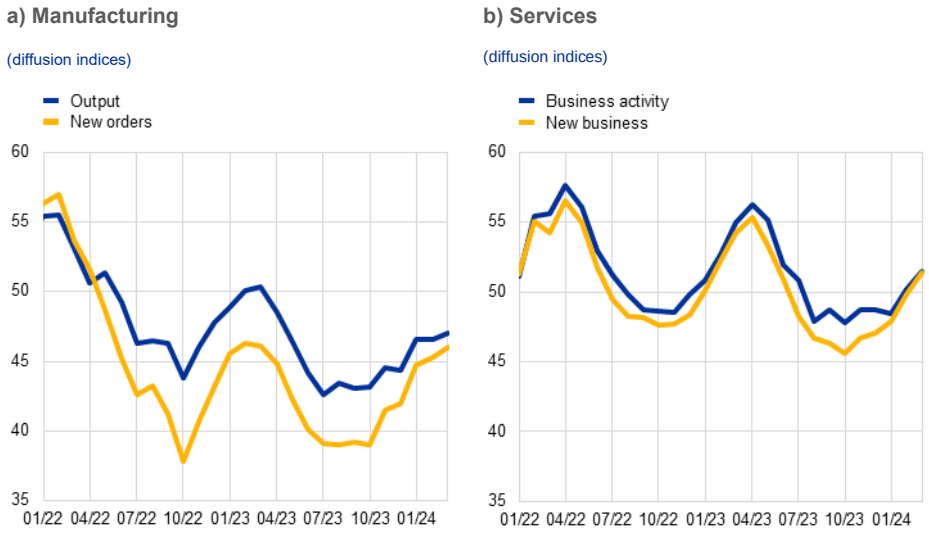


Sources: Eurostat and ECB calculations.
Note: The latest observations are for the fourth quarter of 2023.

The available indicators suggest that growth remained weak in the first quarter of 2024; however, surveys point to a gradual recovery over the course of this year, led by services. The composite output Purchasing Managers' Index (PMI) showed successive month-on-month improvements over the first quarter of 2024, reaching 50.3 in March, just above the growth threshold of 50. This suggests that the euro area economy is likely to have stagnated once again in the first quarter, but it also shows tentative signs of bottoming out. The improvement in the March PMI was mostly driven by the robust increase in services business activity (Chart 4). The manufacturing output PMI displayed positive momentum in March, but remained in negative growth territory, suggesting that the manufacturing sector continued to act as a drag on euro area output growth in the first quarter. The main findings from the ECB's recent contacts with non-financial companies point to a subdued start to the year, especially for the manufacturing sector, with some industries adversely affected by strikes and shipping delays. Nevertheless, there are also reports of the recent destocking cycle coming to an end and of a small increase in demand for manufactured goods (see Box 5). These signs of slightly improving growth dynamics going forward are corroborated by the rise in the European Commission's Economic Sentiment Indicator in March, following two months of decline. This improvement in confidence was broad-based across sectors. In addition, the PMI indicator of expectations for future activity (12-months ahead) rose further in March to reach its pre-pandemic average, suggesting that purchasing managers still expect a steady economic recovery this year.

Chart 4

PMI indicators across sectors of the economy



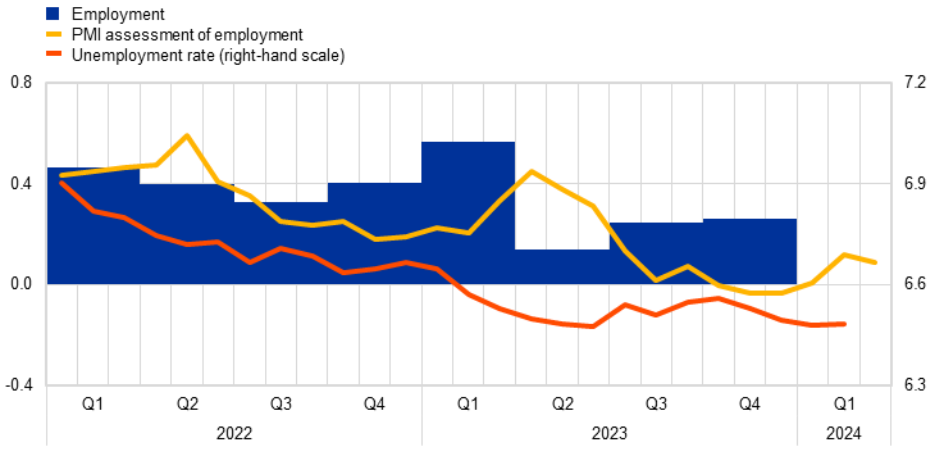
Source: S&P Global Market Intelligence.
Note: The latest observations are for March 2024.

The unemployment rate is at its lowest level since the start of the euro; at the same time, the tightness in the labour market continues to gradually decline, with employers posting fewer job vacancies. Employment rose by 0.3% in the fourth quarter of 2023, on the back of increases in labour force participation rates and population growth. Average working hours of persons employed decreased slightly in the fourth quarter, by 0.1%, after declining by 0.3% in the third quarter. Thus, the rise in employment has not been accompanied by an increase in working hours. While the labour force continued to grow, the unemployment rate remained at its lowest level since the euro was introduced, standing at 6.5% in February 2024, unchanged from its level in January (Chart 5). Recent short-term indicators, including the PMI employment indicator for the euro area economy, continue to suggest moderate growth in job creation in the first quarter of 2024. The PMI for employment stood at 50.9 in March, slightly above its neutral value of 50. With regard to the different sectors, the PMI for employment has declined in the manufacturing sector but has seen a further moderate increase in the services sector. The PMI composite employment indicator improved slightly during the first quarter of 2024, compared with the fourth quarter of 2023, but overall it has followed a downward trend since April 2023.

Chart 5

Euro area employment, the PMI assessment of employment and the unemployment rate

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



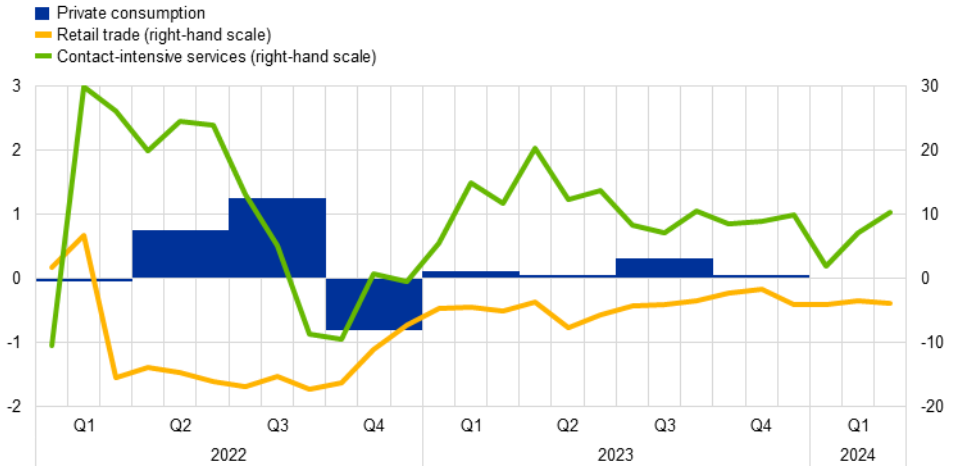
Sources: Eurostat, S&P Global Market Intelligence and ECB calculations.
Notes: The two lines indicate monthly developments; the bars show quarterly data. The PMI is expressed in terms of the deviation from 50 divided by 10. The latest observations are for the fourth quarter of 2023 for employment, March 2024 for the PMI assessment of employment and February 2024 for the unemployment rate.

Private consumption grew marginally at the end of 2023 and is likely to have remained weak in the first quarter of 2024, reflecting continued subdued consumption of goods. The weak growth in private consumption in the fourth quarter of 2023 (0.1% quarter on quarter) masked a marginal increase in the consumption of services, while the consumption of goods contracted further. Incoming data continue to signal overall weakness in spending on goods in the first quarter of 2024. The weakness in retail sales volumes and car sales persists, with both items remaining below their fourth-quarter 2023 levels on average in January and February. The European Commission's consumer confidence indicator improved further in March but is still somewhat below its long-term average. The Commission's indicators for expected retail trade business and expected major purchases by consumers were once again subdued in March. By contrast, expected demand for contact-intensive services improved further and was once again in positive growth territory (Chart 6). The ECB's Consumer Expectations Survey (CES) for February continues to signal resilience in expected demand for holiday bookings and a gradual increase in the propensity to spend on durable goods. So far, the labour market has remained resilient, with real disposable incomes increasing in the fourth quarter of 2023, amid declining inflation and robust nominal wage growth. Further improvements in purchasing power should act as a tailwind that gathers strength over the course of 2024 and support the recovery in consumer spending.

Chart 6

Private consumption, business expectations for retail trade and expected demand for contact-intensive services

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

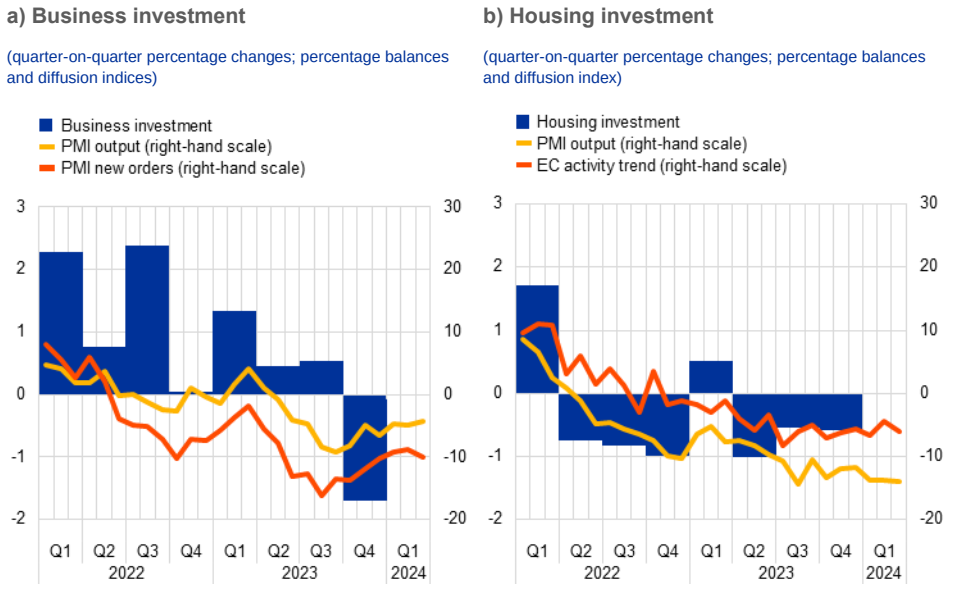


Sources: Eurostat, European Commission and ECB calculations.
Notes: Business expectations for retail trade and expected demand for contact-intensive services for the next three months refer to net percentage balances; "contact-intensive services" refers to accommodation, travel and food services. The latest observations are for the fourth quarter of 2023 for private consumption and March 2024 for business expectations for retail trade and expected demand for contact-intensive services.

Business investment contracted sharply in the fourth quarter of 2023 and is expected to have remained weak at the start of 2024. Modified non-construction investment (excluding Irish intangibles) fell by 1.7% quarter on quarter in the fourth quarter of 2023 (Chart 7, panel a). The underlying fall reflects a strong contraction in machinery and equipment investment (mainly in Germany) and a more generalised decline in transport equipment. Investment is expected to have remained weak in the first quarter of 2024, with industrial production in the capital goods sector (excluding Ireland) declining sharply in January (by 2.6% compared with the fourth quarter of 2023). Confidence among producers of capital goods fell throughout the first quarter, as output, outstanding business and new orders stayed deep in negative territory, according to PMI data, and financing conditions were restrictive. The ECB's April 2024 bank lending survey and the ECB's survey on the access to finance of enterprises in the euro area both point to ongoing weakness in fixed investment in the first quarter. ECB contacts with non-financial companies suggest that investment is likely to remain low for the first half of 2024 but should pick up later in the year to the extent that demand strengthens as expected (see Box 5). In addition, delayed disbursements of Next Generation EU funds are likely to help crowd in additional business investment related to the green and digital transitions ahead.

Chart 7

Real investment dynamics and survey data



Sources: Eurostat, European Commission (EC), S&P Global Market Intelligence and ECB calculations.
Notes: Lines indicate monthly developments, while bars refer to quarterly data. The PMIs are expressed in terms of the deviation from 50. In panel a), business investment is measured by non-construction investment excluding Irish intangibles. The lines refer to responses from the capital goods sector. The latest observations are for the fourth quarter of 2023 for business investment and March 2024 for the PMIs. In panel b), the line for the European Commission's activity trend indicator refers to the building construction sector's assessment of the trend in activity compared with the preceding three months. The latest observations are for the fourth quarter of 2023 for housing investment and March 2024 for the European Commission survey and the PMIs.

Housing investment declined once again in the fourth quarter of 2023 and likely also contracted in the first quarter of 2024. Housing investment fell by 0.6% in the fourth quarter of 2023 and by 2.3% in the year as a whole. More recently, building construction output dropped by 1.5% in January 2024 compared with its average level in the fourth quarter of 2023. In addition, survey-based activity measures, such as the European Commission's indicator for building construction activity in the last three months and the PMI for residential construction output, have remained in contractionary territory up to March (Chart 7, panel b). According to the European Commission's business and consumer survey on factors limiting construction activity, insufficient demand was cited by firms more frequently in the first quarter of 2024 than in the fourth quarter of 2023. This was once again the most mentioned factor, followed by labour shortages. Residential building permits increased slightly in the fourth quarter of 2023 after six quarters of decline. Overall, these developments suggest that momentum in housing investment is likely to remain weak in the near future, consistent with subdued lending for house purchase. This weak outlook for housing investment is linked to the considerable rise in the cost of owning and living in a home since the start of the recent monetary tightening cycle, which is likely to weigh further on housing demand (see Box 4). The increase in the housing cost burden is also evident from CES data, which show that more households expected to make late payments on their rent, mortgage or utility bills in the first quarter of 2024 than in 2023 (see Box 3).

Euro area exports are showing tentative signs of recovery. Extra-euro area goods export volumes increased by 0.6% in January 2024 in three-month-on-three-

month terms, supported by the recovery in global demand. The gradual easing of some price competitiveness challenges, amid falling energy prices and the fading effects of the euro's appreciation last year, has provided additional support to export growth. In the near term, forward-looking indicators – for exports of both goods and services – suggest that the recovery in exports could continue, but may be subdued. Extra-euro area goods import volumes contracted once again, by 1.9%, in three-month-on-three-month terms. This reflects the ongoing sluggish activity and a destocking of inventories in the euro area.

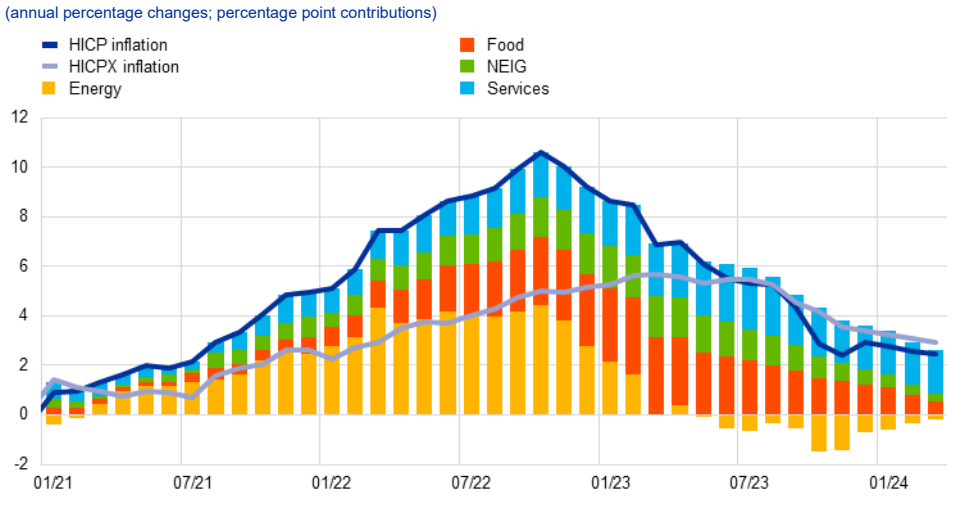
In summary, despite a weak start to the year, activity in the euro area economy is still expected to improve over the course of 2024. GDP growth should strengthen gradually, as declining inflation and robust wage growth are expected to underpin further increases in real disposable incomes, and thus in private consumption. In addition, euro area exports should pick up in parallel with improvements in global growth. Finally, monetary policy should exert less of a drag on demand over time.

3 Prices and costs

Euro area headline inflation declined to 2.4% in March from 2.6% in February 2024. Inflation excluding energy and food declined, from 3.1% in February to 2.9% in March, driven by the decline in goods inflation but concealing unchanged high services inflation. Most measures of underlying inflation have been decreasing, confirming the picture of gradually diminishing price pressures. Wage growth eased in the fourth quarter of 2023, and while unit labour costs growth remained high, in part reflecting weak productivity growth, firms are absorbing part of the rise in labour costs in their profits. Measures of longer-term inflation expectations mostly stand at around 2%, while measures of shorter-term inflation expectations have decreased.

According to Eurostat's flash estimate, euro area headline HICP inflation declined to 2.4% in March from 2.6% in February (Chart 8). The decrease was driven by lower rates of food and non-energy industrial goods (NEIG) inflation. The disinflation in headline inflation is continuing gradually, reflecting the declining growth rates for food and NEIG. The lower growth rate for NEIG stems from the continued easing of pipeline price pressures, despite some increase in energy inflation largely driven by base effects.

Chart 8
Headline inflation and its main components



Sources: Eurostat and ECB calculations.
Note: The latest observations are for March 2024 (flash estimate).

Energy inflation, although still negative, increased from -3.7% in February to -1.8% in March. The main drivers of the less negative annual rate of change were an upward base effect and a small impact from the reversal of compensatory measures. The latter partly reflects the postponing of the reversal of the cut in VAT on gas and heat energy in Germany.

Food inflation weakened further, falling to 2.7% in March from 3.9% in February (Chart 9). The decrease in the annual rate was observed for both main components, processed and unprocessed food, but was stronger for unprocessed food. Processed food inflation dropped to 3.6% in March from 4.5% in February. This

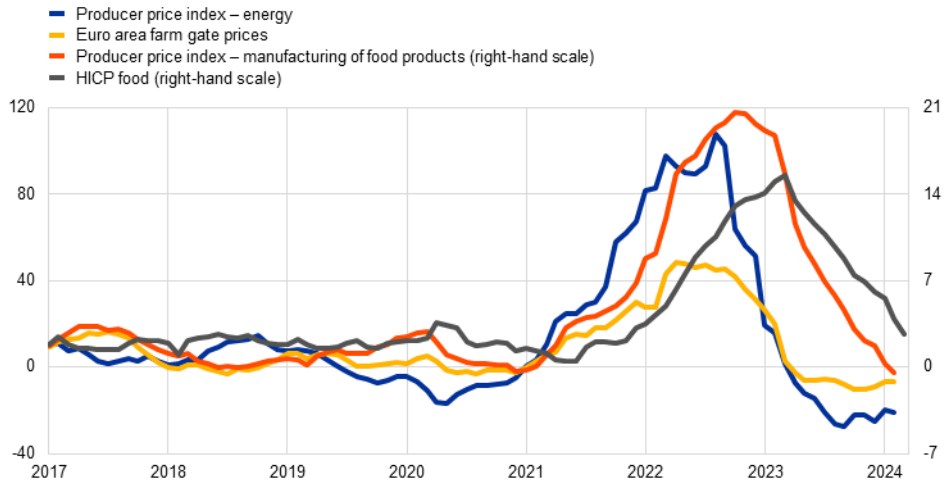
drop reflects declines in energy costs and food commodity prices as measured by, for instance, euro area farm gate prices. Unprocessed food price inflation decreased significantly from 2.1% in February to -0.4% in March. The decline in the annual rate of inflation for unprocessed food was also due to a negative base effect associated with last year's elevated price dynamics.

HICP inflation excluding energy and food (HICPX) decreased further from 3.1% in February to 2.9% in March. In terms of components, NEIG inflation declined from 1.6% to 1.1%, reflecting the gradually fading impact of past shocks. Services inflation was unchanged, for the fifth consecutive month, at 4.0% in March. The relatively greater persistence in services inflation is in line with strong wage growth and the more prominent role that labour costs play in the production of services.

Chart 9

Energy and food input costs, and HICP food prices

(annual percentage changes)



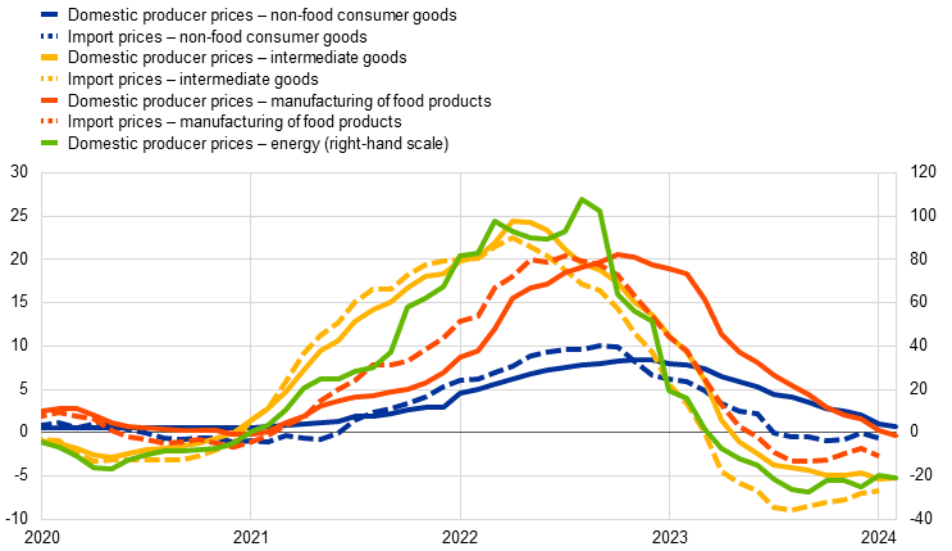
Source: Eurostat.
Note: The latest observations are for March 2024 (flash estimate) for HICP food inflation and February 2024 for the other data.

Producer price pressures continued to ease across all main goods categories (Chart 10). At the early stages of the pricing chain, producer price inflation for domestic sales of intermediate goods was negative (-5.3% in February, after -5.4% in January). At the later stages of the pricing chain, the annual growth rates of producer prices for non-food consumer goods continued to decline to 0.7% in February, down from 1.0% in January, reaching the lowest level since February 2021. The same unwinding tendencies hold for producer prices in the manufactured consumer goods segment with producer prices entering negative territory (-0.4% in February, down from 0.2% in January), confirming the general gradual easing of pipeline pressures on consumer goods prices. The annual growth rates of import prices have been negative since mid-2023, converging with those of domestic producer prices to contribute to subdued price pressures.

Chart 10

Indicators of pipeline pressures

(annual percentage changes)



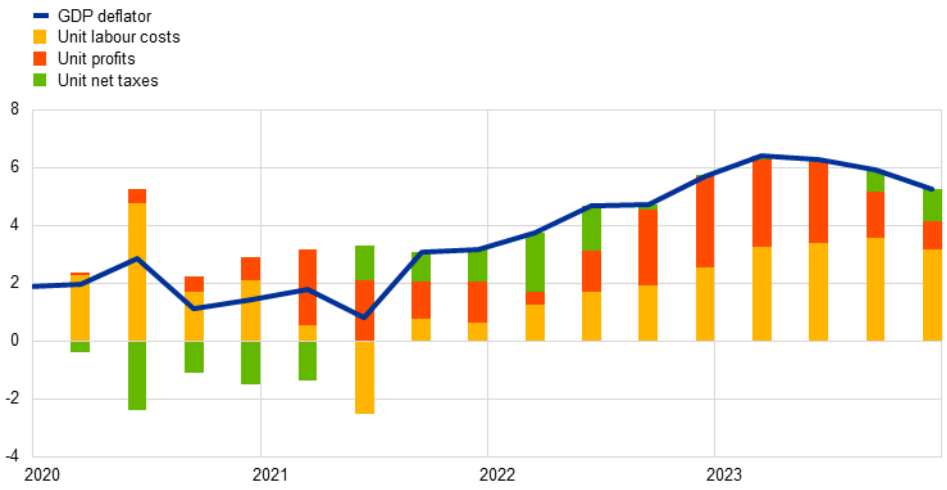
Sources: Eurostat and ECB calculations.
Note: The latest observations are for January 2024 for import prices and February 2024 for domestic producer prices.

Domestic cost pressures, as measured by growth in the GDP deflator, decreased to 5.3% in the fourth quarter of 2023, down from 5.9% in the previous quarter, owing to a smaller contribution from unit profits and unit labour costs (Chart 11). After a peak of 6.4% in the first quarter of 2023, the annual growth rate of the GDP deflator eased further. The decline in the fourth quarter of 2023 was mainly driven by the decrease in unit profits growth, with their contribution going down to 1.0 percentage points, from 1.6 percentage points in the previous quarter. Similarly, the contribution of unit labour costs also decreased further to 3.2 percentage points, from 3.6 percentage points in the previous quarter. Nevertheless, labour costs are still the main contributor to domestic price pressures. Meanwhile, the contribution from unit net taxes saw an uptick in the fourth quarter of 2023, from 0.8 percentage points to 1.1 percentage points.

Chart 11

Breakdown of the GDP deflator

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.
Notes: The latest observations are for the fourth quarter of 2023. Compensation per employee contributes positively to changes in unit labour costs and labour productivity contributes negatively.

Wage pressures eased somewhat at the end of 2023 and are expected to moderate further in 2024. The latest available data refer to the fourth quarter of 2023 and show a decrease in the annual growth rate of negotiated wages to 4.5%, down from 4.7% in the third quarter of 2023. Actual wage growth, as measured by compensation per employee and compensation per hour, decreased in the fourth quarter of 2023 to 4.6% and 4.4% respectively, down from 5.1% and 5.0% in the third quarter. The forward-looking wage trackers signal continued high but moderating wage pressures. Information on wage agreements that has become available since the end of last year implied that average negotiated wage growth in 2024 was successively lower in all active wage contracts, including one-offs, from 4.4% at the time of the January Governing Council meeting to 4.2% at the March meeting and 4.1% at the April meeting.[3]

Survey-based indicators of longer-term inflation expectations and market-based measures of inflation compensation were also broadly unchanged, with most standing at around 2.0% (Chart 12). In both the ECB Survey of Professional Forecasters for the second quarter of 2024 and the March 2024 ECB Survey of Monetary Analysts, average longer-term inflation expectations (for 2028) stood at 2.0%. Market-based measures of inflation compensation (based on the HICP excluding tobacco) at the longer end of the yield curve edged up mildly, with the five-year forward inflation-linked swap rate five years ahead standing at around 2.3%. While these market-based measures of inflation compensation include inflation risk premia and therefore do not directly gauge the genuine inflation expectations of market participants, model-based estimates of genuine inflation expectations, excluding inflation risk premia, indicate that market participants expect inflation to be around 2.0% in the longer term. Market-based measures of near-term

[3] For methodological details, see 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.

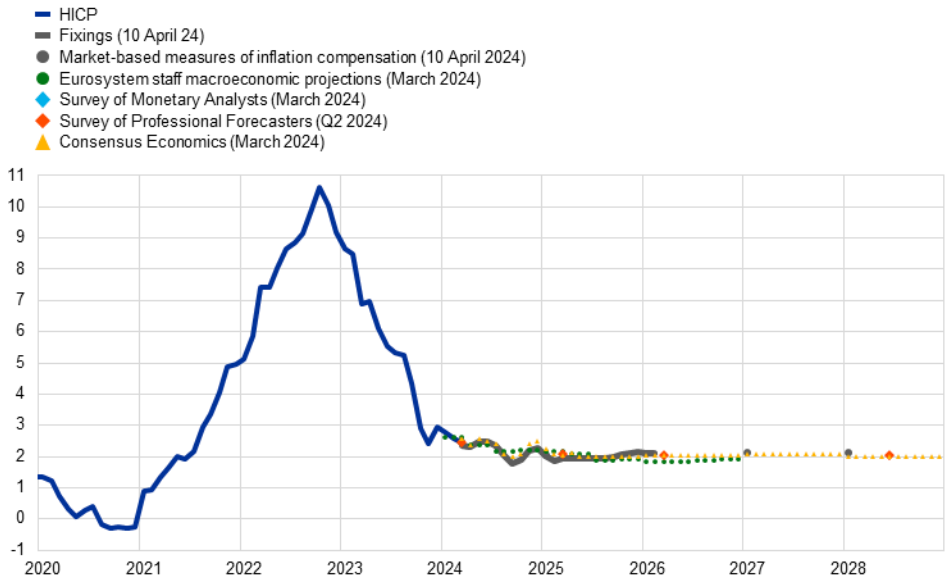
euro area inflation outcomes suggest that investors expect inflation to decline further in 2024, standing on average at 2.0% in the second half of the year. The one-year forward inflation-linked swap rate one year ahead was broadly unchanged over the review period, standing at 2.1%. On the consumer side, the February 2024 ECB Consumer Expectations Survey reported that median expectations for headline inflation over the next year have declined to 3.1%, compared with 3.3% in January, while inflation expectations for three years ahead have remained unchanged at 2.5%.

Chart 12

Headline inflation, inflation projections and expectations

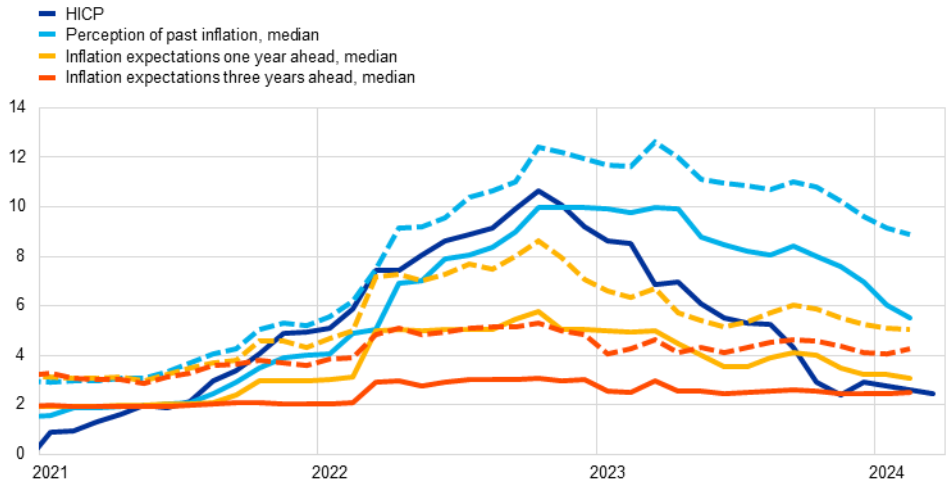
a) Headline inflation, survey-based indicators of inflation expectations, inflation projections and market-based measures of inflation compensation

(annual percentage changes)



b) Headline inflation and ECB Consumer Expectations Survey

(annual percentage changes)



Sources: Eurostat, Refinitiv, Consensus Economics, CES, SPF, SMA, March 2024 ECB staff macroeconomic projections and ECB calculations.
Notes: 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 7 March 2024. Inflation fixings are swap contracts linked to specific monthly releases in euro area year-on-year HICP inflation excluding tobacco. The SPF for the second quarter of 2024 was conducted between 18 and 21 March 2024. The cut-off date for the Consensus Economics long-term forecasts was January 2024. For the CES, dashed lines represent the mean and solid lines the median. The cut-off date for data included in the ECB staff macroeconomic projections was 9 February 2024. The latest observations are for March 2024 (flash estimate) for HICP and February 2024 for CES.

4 Financial market developments

Over the review period from 7 March to 10 April 2024, developments in euro area financial markets were relatively contained, and the market focus remained on the pace of disinflation and the timing of monetary policy adjustments. Following the Governing Council's widely expected monetary policy decision in March 2024 to leave the key ECB policy rates unchanged, the short end of the euro area risk-free yield curve fluctuated only marginally over the review period. This reflected a firming-up of market participants' expectations that ECB policy rates would remain unchanged at the April meeting and that the first rate cut would occur at the June meeting. Further ahead, option-implied volatility of policy rate expectations declined but remained at elevated levels. Across the euro area, sovereign bond yields moved broadly in line with risk-free rates, which picked up somewhat, amid a mild increase in sovereign spreads. Euro area equity prices increased, in particular for financial corporations, on the back of favourable risk sentiment globally and a resulting lower equity risk premium. Corporate bond spreads in the euro area showed some divergence as investment-grade spreads narrowed slightly while high-yield spreads widened amid a stagnating economy. In foreign exchange markets the euro was broadly stable in trade-weighted terms.

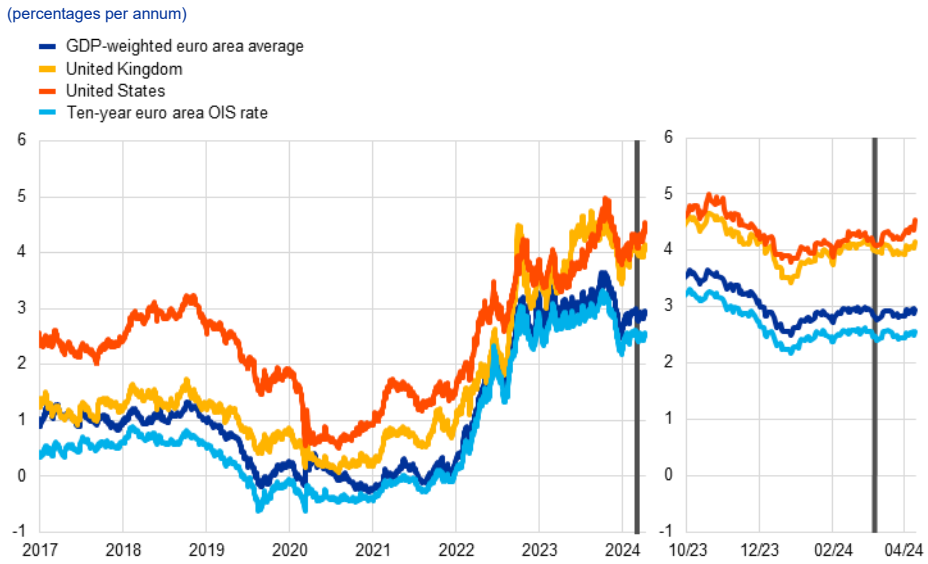
Euro area near-term risk-free rates had remained stable throughout the review period since the March meeting of the Governing Council. The euro short-term rate (€STR) averaged 3.91% over the review period. Excess liquidity decreased by around €244 billion to stand at €3,255 billion. This decrease mainly reflected repayments of the third series of targeted longer-term refinancing operations (TLTRO III) and the decline in the asset purchase programme (APP) portfolio, as the Eurosystem no longer reinvests the principal payments from maturing securities under this portfolio. The overnight index swap (OIS) forward curve, which is based on the €STR, remained stable for short-term maturities of up to one year following the Governing Council's widely expected decision in March to keep the key ECB policy rates unchanged. The option-implied volatility of short-term forward rates declined but remained at elevated levels as markets continued to focus on the pace of disinflation and the timing of monetary policy adjustments. Overall, markets priced out any remaining probability of a rate cut by the ECB in April 2024 and affirmed their expectations that the first cut might occur in June. At the end of the review period, markets had priced in a rate cut of 20 basis points for June and cumulative rate cuts of 78 basis points by the end of 2024. Longer-term euro area risk-free rates increased mildly during the review period. For example, the ten-year nominal euro area risk-free rate edged up to 2.7%, ending the review period with an overall increase of 10 basis points.

Long-term sovereign bond yields moved broadly in line with risk-free rates amid a mild increase in sovereign spreads (Chart 13). The ten-year GDP-weighted euro area sovereign bond yield closed the review period at around 2.9%, 14 basis points higher than at the beginning of the review period, implying that the spread over the ten-year euro area risk-free rate had widened by 5 basis points. This widening of the GDP-weighted spread not only reflected spread movements observed in most euro area jurisdictions, it was also the result of a narrowing

negative German spread. Overall, sovereign spread movements across euro area jurisdictions were limited throughout the review period, as record high net issuances so far this year were met with high levels of demand from investors. Similar to the euro area long-term rate, the ten-year UK sovereign bond yield increased by 16 basis points, but to a higher level of 4.2%. In contrast, the ten-year US Treasury yield increased significantly, by 46 basis points, to reach 4.6%.

Chart 13

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 7 March 2024. The latest observations are for 10 April 2024.

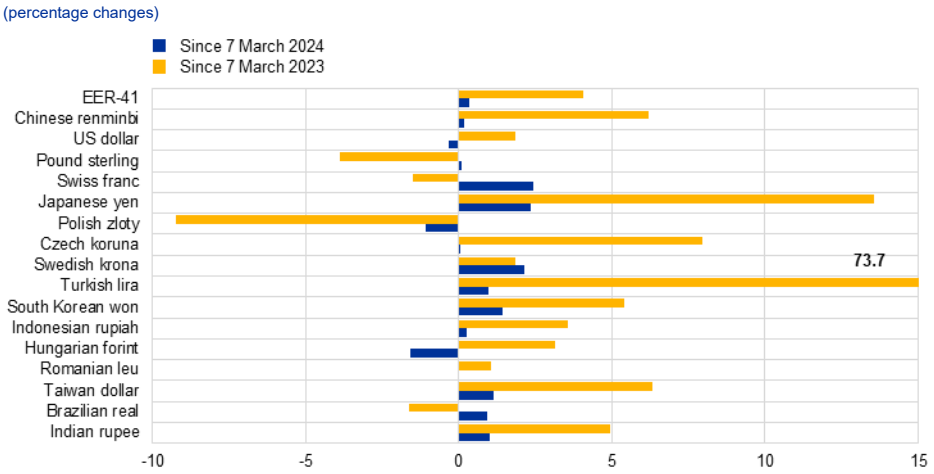
Euro area corporate bond spreads diverged somewhat as investment-grade spreads narrowed slightly and high-yield spreads widened. By the end of the review period, spreads for investment-grade firms had narrowed slightly, continuing the trend seen over the past year and in line with the overall corporate bond market in the United States. By contrast, spreads of euro area firms in the high-yield segment had widened by 32 basis points amid a stagnating economy but remained at compressed levels overall.

Euro area equity prices increased, in particular for financial corporations, as risk sentiment was favourable globally, resulting in a lower equity risk premium. Over the review period, broad stock market indices in the euro area increased by 1.1% amid favourable risk sentiment, whereas their US counterparts remained broadly stable. Equity price gains in the euro area were notably pronounced in the financial sector. The outperformance of euro area financial stocks compensated for their underperformance earlier in the year. This improvement was the result of declining concern about the risk exposure of the banking sector as a whole to commercial real estate. On net, the equity prices of euro area non-financial corporations remained unchanged, while the equity prices of euro area banks and of other financial corporations increased by 9.8% and 6.2% respectively. In the United States, equity prices also remained unchanged for non-financial corporations and increased by 1.7% for banks and by 1.0% for other financial corporations.

In foreign exchange markets, the euro was broadly stable in trade-weighted terms (Chart 14). During the review period, the nominal effective exchange rate of the euro – as measured against the currencies of 41 of the euro area's most important trading partners – was broadly stable (+0.3%). A small depreciation against the US dollar (-0.3%) was more than compensated for by an appreciation against other major currencies. The stability of the euro against the US dollar came following initial upward pressure on the US dollar due to market expectations of tighter-for-longer US monetary policy. This pressure was partly reversed after the March Federal Open Market Committee meeting reassured markets that the Federal Reserve System still plans to cut rates at a similar pace this year. In terms of bilateral exchange rate movements against other major currencies, the euro appreciated against the Swedish krona (by 2.1%), the Swiss franc (by 2.4%), as the Swiss National Bank decided to cut rates, and the Japanese yen (by 2.4%), despite the Bank of Japan deciding to raise interest rates, as the decision had been widely anticipated by markets.

Chart 14

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



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 10 April 2024.

5 Financing conditions and credit developments

In February 2024 composite bank funding costs and bank lending rates remained high. The cost to non-financial corporations (NFCs) of market-based debt remained virtually unchanged over the period from 7 March to 10 April 2024, while the cost of equity declined. In the April 2024 euro area bank lending survey, banks reported broadly unchanged credit standards in the first quarter of 2024. Loan demand from firms declined substantially, contrary to bank expectations of a recovery. In February bank lending remained weak overall, despite the moderate increase in the annual growth rate of lending to firms, and lending to households remained broadly stable at levels marginally above zero. In the Survey on the Access to Finance of Enterprises for the first quarter of 2024, firms reported a modest reduction in their need for bank loans, along with a smaller decline in the availability of bank loans. The annual growth rate of broad money (M3) rose but remained low, driven by high opportunity costs, stagnant lending and the reduction in the Eurosystem balance sheet.

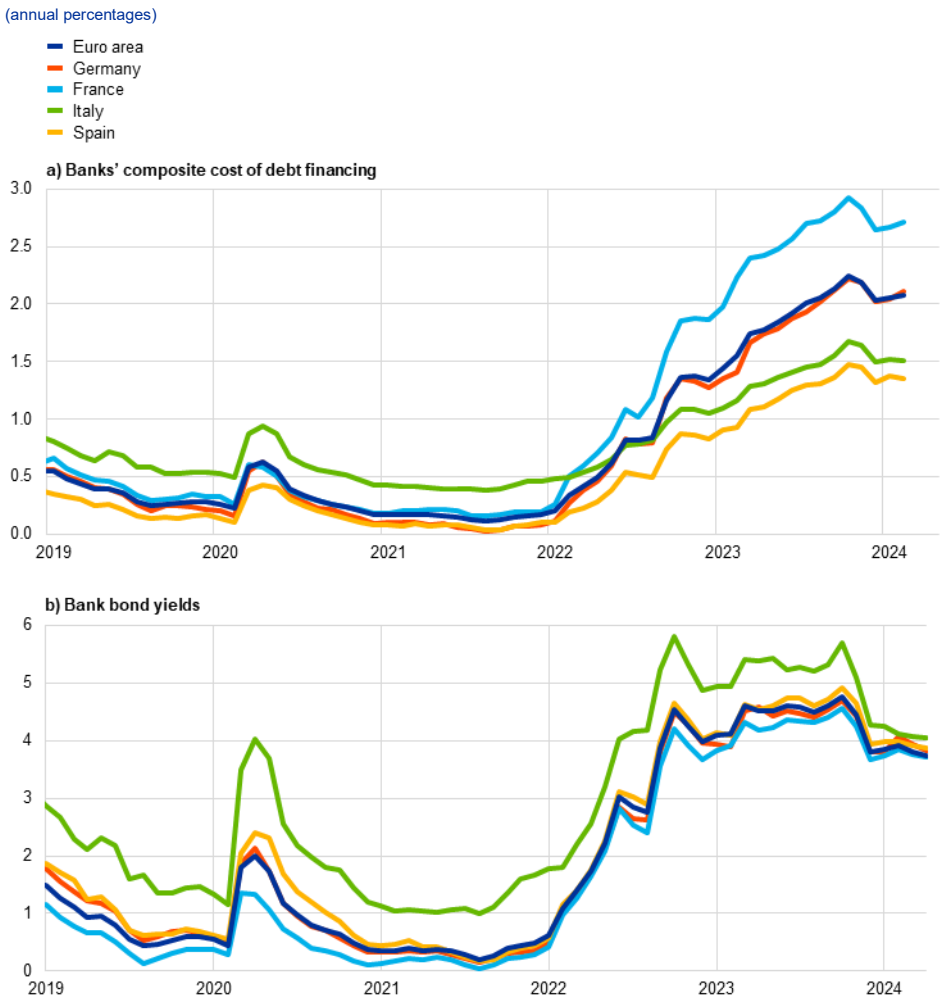
Euro area bank funding costs remained high by historical standards. In February 2024 the composite cost of debt financing for euro area banks stood at 2.08%, slightly below its recent peak of 2.24% in October 2023 (Chart 15, panel a). This was driven by ongoing shifts towards more expensive funding sources and slightly higher bank bond yields in February 2024, amid considerable cross-country heterogeneity and increased volatility (Chart 15, panel b). Deposit rates remained broadly unchanged, with variation across instruments and sectors. Rates on overnight deposits remained stable in February, while rates on time deposits fell, resulting in a slight narrowing of the large spread between the two. At the same time, rates on deposits redeemable at a period of notice of up to three months continued to rise.

Central bank lending operations continue to decline smoothly, contributing to higher bank funding costs. Banks have made sizeable repayments (both mandatory and, in particular, voluntary) of funds borrowed under the targeted longer-term refinancing operations (TLTROs). On 27 March 2024 repayments of €251 billion were made on the third series of operations (TLTRO III). A total of €1.972 trillion TLTRO III funds have been repaid since the recalibration of the terms and conditions came into effect on 23 November 2022, amounting to a 93% reduction in outstanding amounts.[4] Amid the winding-down of TLTROs and the decline in deposits, banks have increased their issuance of bonds, which are remunerated above deposit and policy rates.

[4] See "ECB recalibrates targeted lending operations to help restore price stability over the medium term", *Press Release*, ECB, 27 October 2022.

Chart 15

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 February 2024 for banks' composite cost of debt financing and for 4 April 2024 for bank bond yields.

Bank balance sheets have been robust overall, despite a weak economic environment. In the fourth quarter of 2023 banks continued to increase their capitalisation and maintained capital ratios well above Common Equity Tier 1 (CET1) requirements. A well-capitalised banking system is key to ensuring the sustainable provision of credit to the real economy under adequate conditions. Against a backdrop of high bank funding costs, stagnant loan growth and worsening asset quality, bank profitability over the last year was mainly driven by net interest rate income, reflecting wide interest rate margins and with considerable cross-country heterogeneity. Loan-deposit margins on new business continued their broad-based decline across euro area countries, while margins on outstanding amounts remained broadly stable. Overall, bank non-performing loans remained at low levels in the fourth quarter of 2023, but default rates on both corporate and retail exposures are on the rise, pointing to further increases in non-performing loans. Banks may

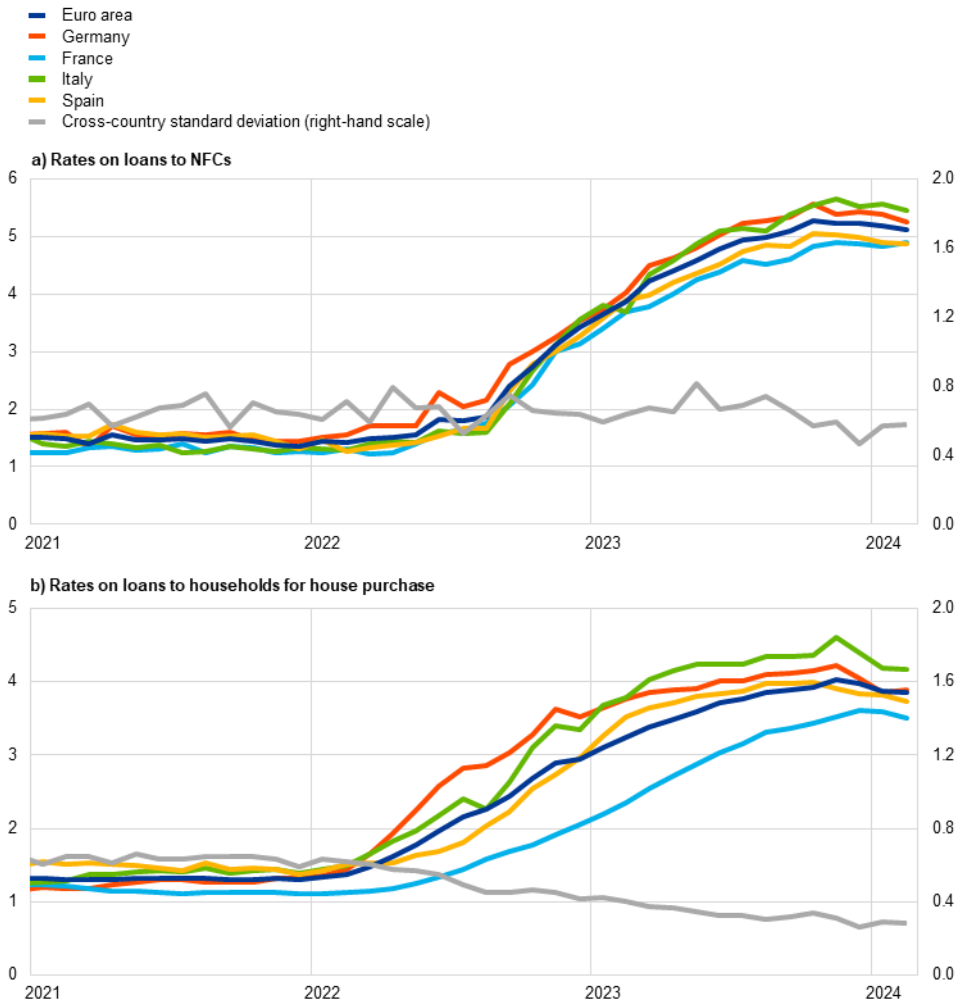
face higher provisioning costs if risks to the non-financial sectors materialise as a result of weak economic conditions.

In February 2024 lending rates for firms and for housing loans decreased further. In February lending rates for firms fell to 5.12%, down from 5.18% in January and below the recent peak of 5.27% in October 2023 (Chart 16). This decline was heterogeneous across euro area countries and was more pronounced for large loans with medium-term maturities. The spread between interest rates on small and large loans to euro area firms widened in February to 0.52%, reflecting both lower rates on large loans and higher rates on small loans. Lending rates on new loans to households for house purchase decreased for the third consecutive month to 3.84% in February, down from 3.88% in January and below the recent high of 4.02% seen in November 2023 (Chart 19). This fall was broad-based across maturity segments but was most pronounced for housing loans with medium-term maturities of between one and five years. Variable-rate mortgages remained considerably more costly for borrowers than fixed-rate mortgages. Bank rates on new loans to households for consumption and to sole proprietors also declined in February. The cross-country dispersion of lending rates for firms and households remained at a low level (Chart 16), suggesting smooth monetary policy transmission across euro area countries.

Chart 16

Composite bank lending rates for NFCs and households in selected countries

(annual percentages; standard deviation)



Sources: ECB and ECB calculations.
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for February 2024.

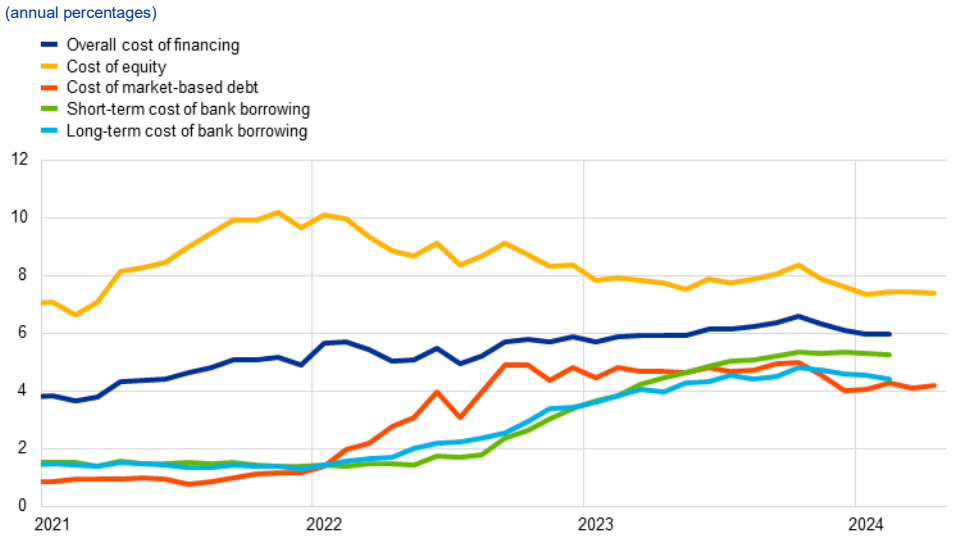
Over the period from 7 March to 10 April 2024, the cost of market-based debt to NFCs did not change, while their cost of equity declined. Based on the available monthly data, the overall cost of financing for NFCs – i.e. the composite cost of bank borrowing, market-based debt and equity – stood at 6.0% in February, broadly unchanged compared with the level in January and considerably lower than the multi-year high reached in October 2023 (Chart 17).[5] This stability was due to the slightly higher cost of equity and market-based debt seen until February largely being offset by the lower cost of both short and long-term loans. The daily data on the cost of market-based debt confirm that there was no change over the period from 7 March to 10 April 2024, although there were differences across bond rating classes. The slight rise in the risk-free rate – as approximated by the ten-year

5 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 February 2024.

overnight index swap rate – seen over the period and the widening of the spreads on NFC bonds in the high-yield segment was offset by some compression of the spreads on NFC bonds in the investment-grade segment. At the same time, the cost of equity financing declined over the same period, reflecting lower equity risk premiums that outweighed the marginally higher risk-free rate (Section 4).

Chart 17

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



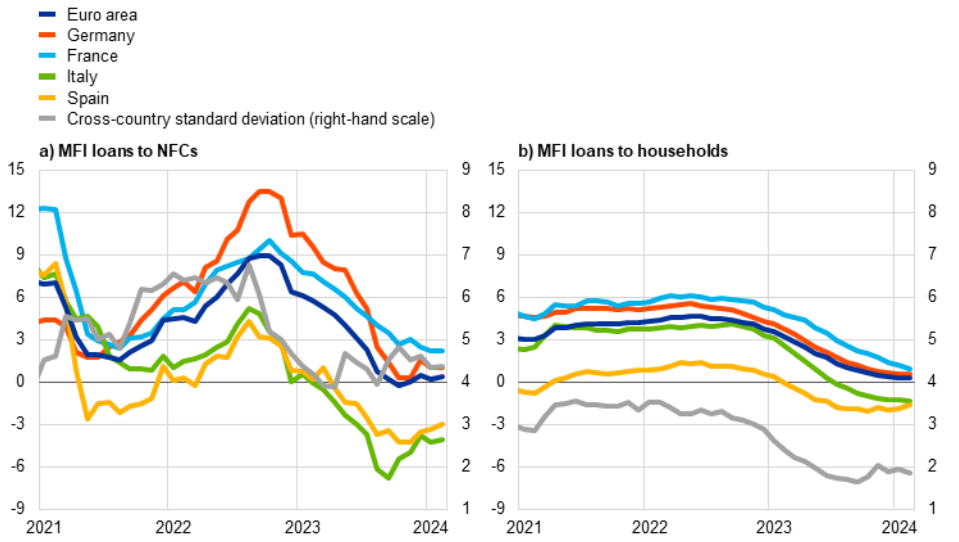
Sources: ECB, Eurostat, Dealogic, Merrill Lynch, Bloomberg, Thomson Reuters and ECB calculations.
Notes: The overall cost of financing for non-financial corporations (NFCs) is based on monthly data and is calculated as a weighted average of the cost of borrowing from banks (monthly average data), market-based debt and equity (end-of-month data), based on their respective outstanding amounts. The latest observations are for 10 April 2024 for the cost of market-based debt and the cost of equity (daily data), and for February 2024 for the overall cost of financing and the long and short-term cost of bank borrowing (monthly data).

In February 2024 the annual growth rate of bank lending to firms increased modestly but remained low, while for households it remained broadly stable at levels marginally above zero. Annual growth in loans to NFCs saw a slight rise to 0.4% in February, up from 0.2% in January (Chart 18, panel a), amid considerable cross-country heterogeneity. The ongoing weakness in loan growth reflects the stagnant lending dynamics observed since the beginning of 2023 on the back of weak aggregate demand, tight credit standards and restrictive monetary policy. The annual growth rate of loans to households showed signs of stabilising at low levels, remaining unchanged at 0.3% in February (Chart 18, panel b) amid negative housing market prospects, tight credit standards and high lending rates. This stabilisation was seen across segments, although at different levels: housing loans showed slightly positive growth and consumer loans remained resilient, but loans to sole proprietors continued to have negative growth rates. The results of the ECB's Consumer Expectations Survey in March 2024 were that a large, but declining, net percentage of survey respondents had the impression that credit access had become harder over the previous 12 months and expected it to become even more difficult over the next 12 months.

Chart 18

MFI loans in selected euro area countries

(annual percentage changes; standard deviation)



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 cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for February 2024.

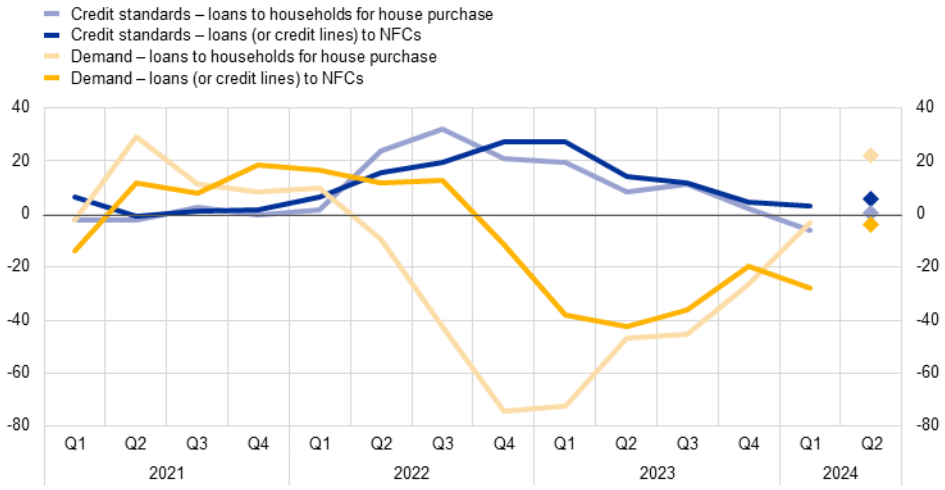
According to the April 2024 euro area bank lending survey**, banks reported a further small tightening of their credit standards for loans to firms and a moderate easing of credit standards for loans to households for house purchase in the first quarter of 2024 (Chart 19).** The tightening of credit standards for firms was smaller than banks had expected in the previous round, but still added to the substantial cumulative tightening seen since 2022. Banks also reported further tightening for consumer credit which, like lending to firms, was driven primarily by risk perceptions linked to the economic outlook and borrower credit worthiness. By contrast, the easing reported for housing loans arose from competitive pressures and, to a smaller extent, from higher risk tolerance. Euro area banks expect a moderate tightening for loans to firms in the second quarter of 2024 and unchanged credit standards for loans to households.

Banks reported a further substantial decline in demand for loans by firms and a small fall in demand for housing loans in the first quarter of 2024, contrary to bank expectations of a recovery. Banks also reported broadly unchanged demand for consumer credit and other lending to households. As in recent quarters, loan demand by firms was mainly dampened by higher interest rates and lower fixed investment, while demand for housing loans came under pressure from weaker housing market prospects and low consumer confidence. The substantial decline in loan demand by firms contrasted with banks' prior expectations of stabilisation, and the small decrease in demand for housing loans contrasted with bank expectations of a net increase. Moreover, banks reported a further net increase in the share of rejected applications across all loan segments. Banks expect to see a moderate fall in demand for loans to firms and rising demand for loans to households in the second quarter of 2024.

Chart 19

Changes in credit standards and net demand for loans to NFCs and 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: 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 the expectations reported by banks in the current round. The latest observations are for the first quarter of 2024.

Furthermore, banks expect the reduction in the Eurosystem balance sheet to continue to exert tightening pressure and that the positive impact of past policy rate decisions on bank profits will diminish over the next six months. In the first quarter of 2024, banks' access to funding improved for debt securities and, to a lesser extent, for money markets, while access to retail funding deteriorated. Banks indicate that the reduction of the ECB's monetary policy asset portfolio had continued to weigh on their financing conditions and liquidity positions over the past six months, resulting in a moderate tightening of terms and conditions and adversely affecting lending volumes. The impact on credit standards was reported as broadly neutral, although banks expect further tightening pressure over the next six months. In addition, the phase-out of TLTRO III continued to negatively affect banks' liquidity positions. Reflecting the very significant repayments of TLTRO III funds since November 2022 and the comparatively small remaining outstanding amounts, banks reported only a small tightening impact on their overall funding conditions and a neutral effect on lending conditions. Banks also indicated that ECB key interest rate decisions had again had a marked positive impact on their net interest margins over the past six months, and a dampening effect via their lending volumes that is expected to persist for the next six months. The increase in margins outweighed the volume effect, yielding a high share of banks reporting a positive impact on their net interest income and overall profitability. Banks expect the cumulative net impact of the ECB's key interest rate decisions on bank profitability to diminish over the next

six months, with a moderately negative contribution from higher provisioning needs and impairments.[6]

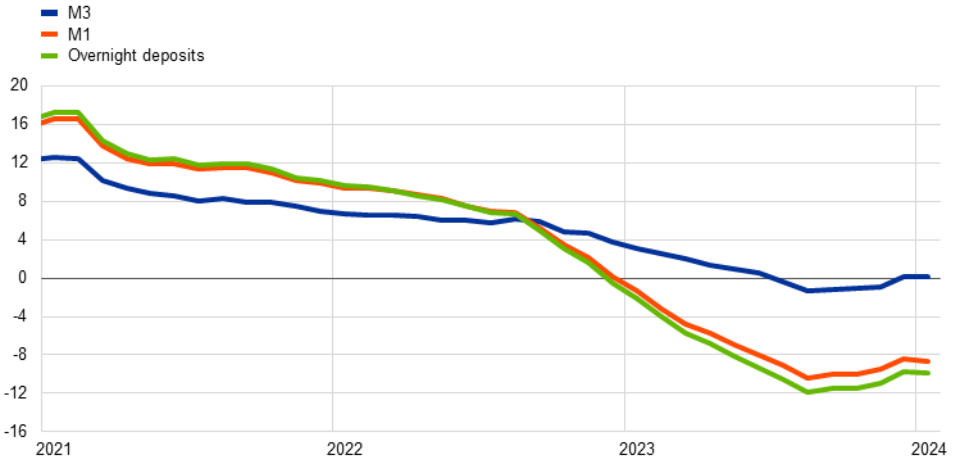
According to the Survey on the Access to Finance of Enterprises **for the first quarter of 2024, firms signalled a modest reduction in the need for bank loans, while fewer firms reported a decline in the availability of bank loans**. Accordingly, the increase in the financing gap was smaller than in the previous survey round. Firms perceived the general economic outlook to be the main factor hampering the availability of external financing, while their perceptions of banks' willingness to lend, which reflects banks' risk aversion, improved further.

Firms and households continued to reallocate overnight deposits to time deposits in February 2024. The annual growth rate of overnight deposits was less negative and stood at -8.9% in February, up from -9.9% in January (Chart 20). The continued strong preference for time deposits is explained by the sizeable spread between the rates on time deposits and those on overnight deposits, reflecting the large opportunity costs of holding highly liquid instruments.[7] The rates offered to firms for holding time deposits remained close to the ECB's deposit facility rate and above those for households. There was another large monthly shift from overnight to time deposits for households, while the pace at which firms rebalanced these two instruments slowed again. This suggests that firms' deposit allocation is moving closer to the desired level based on historical patterns. High short-term interest rates also supported the substitution of liquid instruments for money market funds.

Chart 20

M3, M1 and overnight deposits

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



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

The annual growth rate of broad money (M3) increased in February 2024 but remained low, driven by high opportunity costs, stagnant lending and the

6 The impact reflects both past and expected key ECB interest rate decisions.

7 As in previous tightening cycles, interest rates on overnight deposits have adjusted to policy rate changes more slowly than those on time deposits. See also the box entitled "Monetary dynamics during the tightening cycle", *Economic Bulletin*, Issue 8, ECB, 2023.

further reduction in the Eurosystem balance sheet. M3 growth in the euro area increased to 0.4% in February, up from 0.1% in January (Chart 20). Annual growth for narrow money (M1) – which comprises the most liquid assets of M3 – contracted further, but its pace slowed to -7.7% in February, compared with -8.6% in January. After a sizeable monthly outflow in January, M3 recorded a monthly inflow in February, driven by a decline in central government deposits and by increased lending to other financial institutions amid stagnant lending to the private sector. Money creation was dampened in February by the issuance of long-term bank bonds, the further reduction in the Eurosystem balance sheet and, for the first time since September 2022, a negative contribution from external sector financial transactions amid higher short-term volatility.

Boxes

1 Recent inflation developments and wage pressures in the euro area and the United States

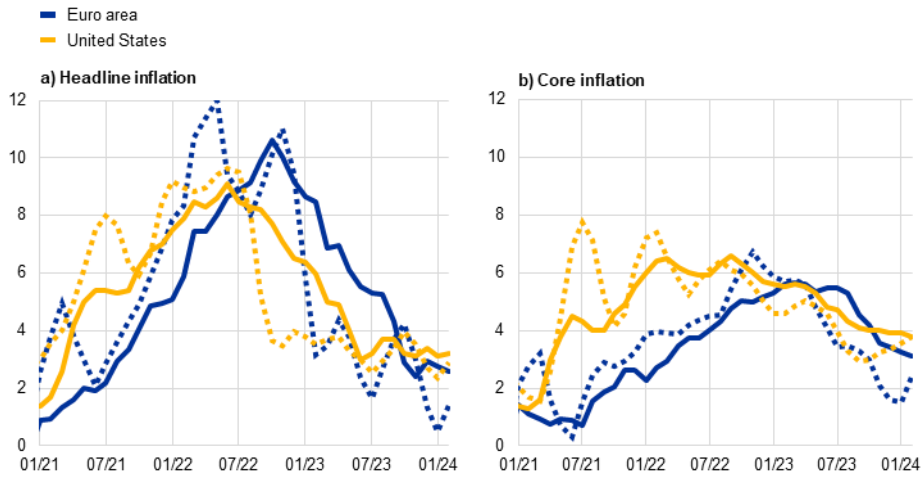
Prepared by Anna Beschin, Katalin Bodnár, Ramon Gomez-Salvador, Eduardo Gonçalves, Marcel Tirpák and Marco Weißler

Headline and core inflation levels and momentum dynamics in the euro area are currently somewhat weaker than in the United States. Headline inflation has fallen faster and from a higher peak in the euro area than in the United States in annual percentage terms − from 10.6% in October 2022 to 2.6% in February 2024 in the euro area and from 9.1% in June 2022 to 3.2% in February 2024 in the United States.[1] Momentum (measured as annualised three-month-on-three-month growth) is also weaker in the euro area, for both headline inflation and core inflation (Chart A). In both economic blocs, falling energy prices and moderating food inflation have been significant drivers of the decline in headline inflation, while core inflation remains elevated in both economies.[2]

Chart A

Headline and core inflation and their momentum in the euro area and the United States

(annual percentage changes, three-month-on-three-month annualised percentage changes)



Sources: Eurostat and Bureau of Labor Statistics.
Notes: HICP inflation is reported for the euro area and CPI inflation is reported for the United States. The dotted lines show the momentum. The latest observations are for February 2024.

1 See also the box entitled "Inflation developments in the euro area and the United States", *Economic Bulletin*, Issue 8, ECB, 2022.

2 There are some differences between the euro area and the United States in the classification of certain categories in the inflation statistics. In particular, food services are part of services prices in the euro area and part of food prices in the United States. At the same time, alcoholic beverages and tobacco are included in food prices in the euro area and in goods prices in the United States.

Services inflation is keeping core inflation elevated in both economic areas. Core inflation in the United States peaked at 6.6% in September 2022 before declining to 3.8% in February 2024. In the euro area, it peaked later, at 5.7% in March 2023, and fell to 3.1% in February 2024. In both economies, core inflation remains persistent, with services inflation acting as the main driver. Over recent years, services inflation has been stronger in the United States than in the euro area (Chart B, panel a). The persistence in the United States is mainly linked to stubbornly high (albeit declining) rent inflation, which is responding only slowly to the significant slowdown of rent inflation in new contracts. Rent inflation accounts for more than half of core services inflation in the United States, making it an important driver of core inflation dynamics. Core services inflation excluding rents currently stands at 4.4%. This is above its pre-pandemic average of around 2% and strongly driven by inflation in the transport and recreation sectors. In the euro area, increases in rents have been more moderate and rent inflation contributes significantly less to services inflation.[3] Services inflation stands at 4.0% (the same when excluding rents), also well above the pre-pandemic average of 1.9%. Tourism and recreation-related (more contact-intensive) services inflation, at 4.5%, is also higher than total services inflation in the euro area, notwithstanding strong declines over the course of 2023.

By contrast, goods inflation has decreased considerably in both economies, with the fall commencing significantly earlier in the United States. Goods inflation has slowed down markedly in both economies in line with the supply chain normalisation at the global level, lower commodity prices and monetary policy tightening (Chart B, panel b). This trend has been reinforced by the shift in consumer spending from goods to services since the start of the post-pandemic reopening. In the United States, the contribution of goods inflation to overall inflation is already slightly negative, in line with pre-pandemic trends. In the euro area, goods inflation is still somewhat higher than its long-term average and than in the United States. This is likely due to a lagged impact of the energy shock following the Russian invasion of Ukraine, which hit the euro area harder, together with differences in the timing of monetary policy tightening.[4]

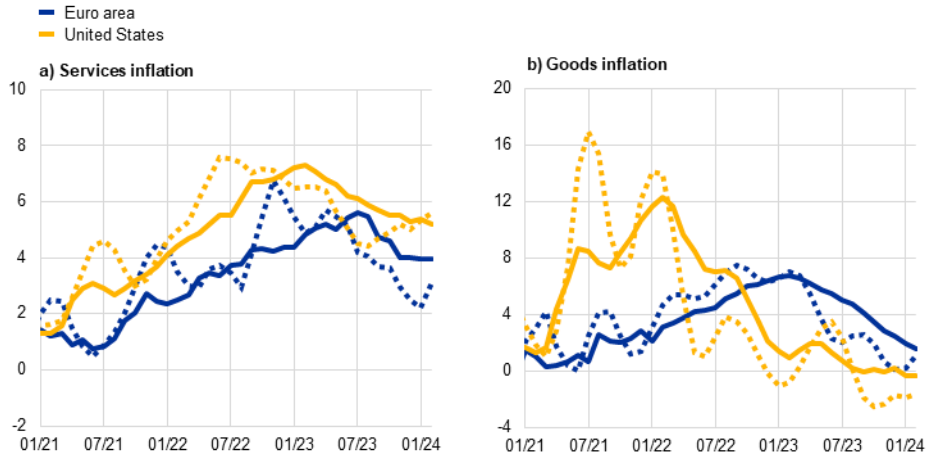
[3] In 2023 the average weight of rents in services core inflation was 57% in the United States – with the rent of primary residence representing 13% while the owners' equivalent rent reached 44% − and 13% in the euro area. Owners' equivalent rent is not included in euro area HICP.

[4] The relative weights of goods and services inflation differ in the euro area and the United States, which also contributes to the differences in core inflation. Services make up about 40% of HICP inflation in the euro area and about 60% of CPI in the United States

Chart B

Services and goods inflation and their momentum in the euro area and the United States

(annual percentage changes, three-month-on-three-month annualised percentage changes)



Sources: Eurostat and Bureau of Labor Statistics.
Notes: HICP inflation is reported for the euro area and CPI inflation for the United States. For the euro area, goods inflation refers to non-energy industrial goods. The dotted lines show the momentum. The latest observations are for February 2024.

Measures of underlying inflation have been broadly declining from their respective peaks in both the euro area and the United States (Chart C). These measures, which aim to capture the more persistent component of inflation and relate to the HICP in the euro area and to the personal consumption expenditure (PCE) index in the United States, rose considerably after the coronavirus (COVID-19) pandemic, but began to generally decline in 2023.[5] The range of indicators started crossing the 2% threshold in the last few months. In both economies, the Persistent and Common Component of Inflation (PCCI) measures are at the bottom of the respective ranges. In part, this reflects the fact that the PCCI extracts signals in a more timely manner from monthly price dynamics across many items.[6] In the euro area, the domestic inflation indicator, which includes HICP items with a low import intensity, is currently the highest and most persistent measure, demonstrating the importance of price pressures in the domestic economy, such as wage and profit developments.[7] In the United States, the cyclical core inflation indicator, which tracks price developments in categories sensitive to the unemployment gap, stands at the top of the range after reaching much higher levels than the other underlying inflation measures, likely reflecting still relatively tight labour market conditions in the United States. The Supercore indicator for the euro area, which follows a comparable approach to the US cyclical core inflation indicator, showed similar developments

5 For the euro area, see the box entitled "Underlying inflation measures: an analytical guide for the euro area", *Economic Bulletin*, Issue 5, ECB, 2023. For the United States, underlying inflation measures are based on PCE inflation, the Fed's preferred measure, rather than CPI inflation.

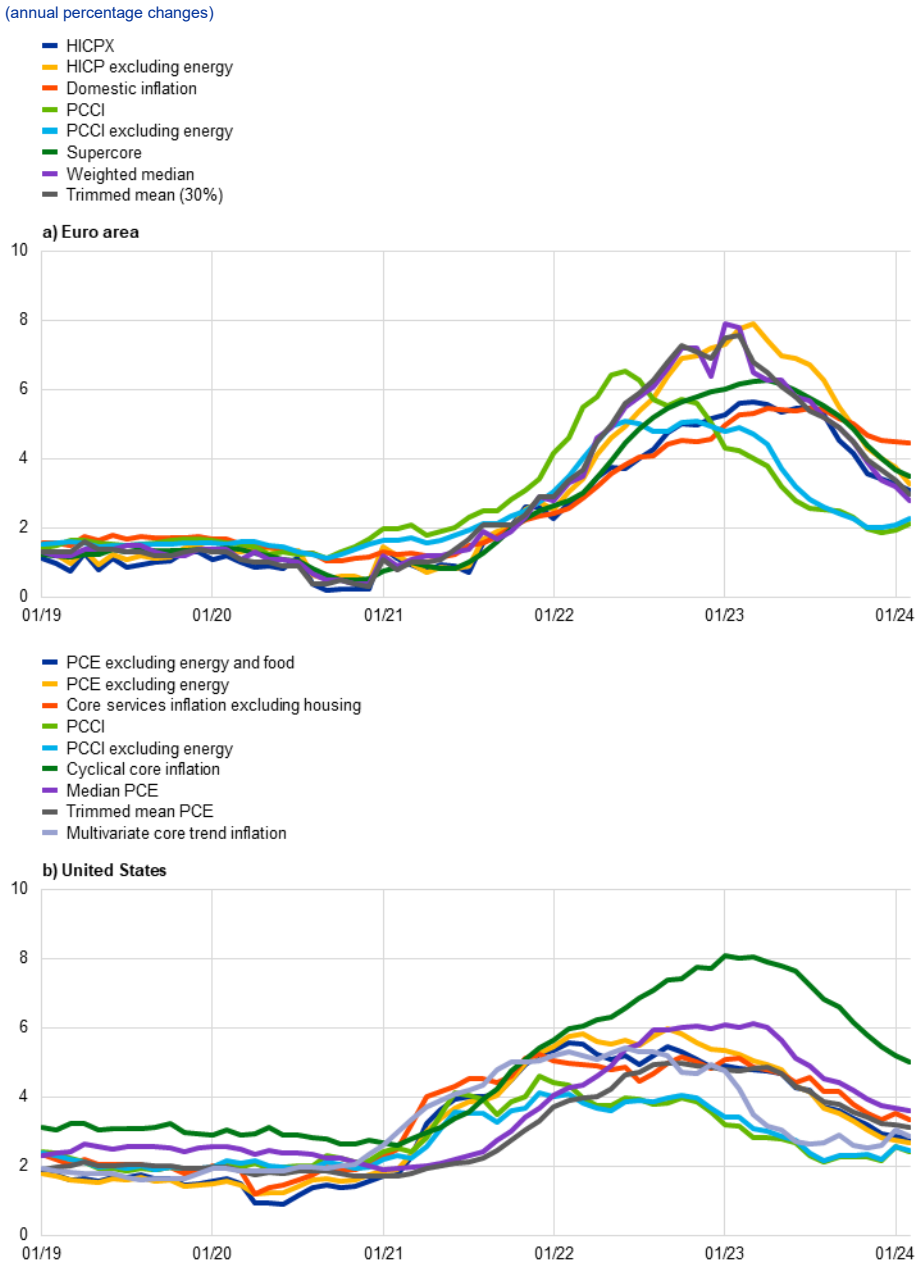
6 See Bańbura, M. and Bobeica, M., "PCCI – a data-rich measure of underlying inflation in the euro area", *Statistics Paper Series*, No 38, ECB, 2020.

7 See the box entitled "A new indicator of domestic inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2022.

over the last 12 months, but now stands at a lower level, consistent with the weaker demand in the euro area than in the United States.[8]

Chart C

Measures of underlying inflation in the euro area and the United States



Sources: Eurostat, Haver Analytics, Bureau of Economic Analysis, Federal Reserve Bank of San Francisco, Federal Reserve Bank of Cleveland, Federal Reserve Bank of Dallas, Federal Reserve Bank of New York and ECB staff calculations.
Notes: For the euro area measures, see the box entitled "Underlying inflation measures: an analytical guide for the euro area", Economic Bulletin, Issue 5, ECB, 2023. The PCCI and the PCCI excluding energy measures for the United States PCE index are estimated using the methodology in Bańbura, M. and Bobeica, E., op. cit. The latest observations are for February 2024. HICPX stands for HICP inflation excluding energy and food.

[8] The Supercore indicator includes only those items of HICP inflation excluding energy and food (HICPX) that are deemed sensitive to slack, as measured by the output gap. See the article entitled "Measures of underlying inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2018.

The euro area and the United States are at different points in the economic cycle, which is contributing to differences in inflation. In the euro area, real GDP remained largely flat over 2023 and the output gap was estimated to be around zero.[9] By contrast, the US economy grew strongly over the same period, particularly in the second half of the year, and the output gap is estimated by most international organisations to have remained in positive territory. Moreover, growth in the United States is supported by buoyant consumption in particular, further contributing to consumer inflation. This contrasts with the anaemic growth in consumption recorded in the euro area. Notwithstanding the differences in the cyclical developments, monetary policy has been effective in cooling inflationary pressures in both economies.[10]

The different cyclical positions of the two economies, as well as institutional factors, are also reflected in the growth of unit labour costs. Unit labour cost growth remains elevated in the euro area, while in the United States it has been moderating since the end of 2022. The difference is being driven by both wages and productivity. Higher unit labour cost growth in the euro area during 2023 reflects both stronger wage growth and weaker productivity developments (Chart D, panel a). By contrast, unit labour cost growth in the United States already started to decrease in 2023 (Chart D, panel b), due to both wage growth moderation and strong productivity dynamics. In addition to cyclical developments, such differences are also attributable to institutional differences in labour markets between the euro area and the United States.

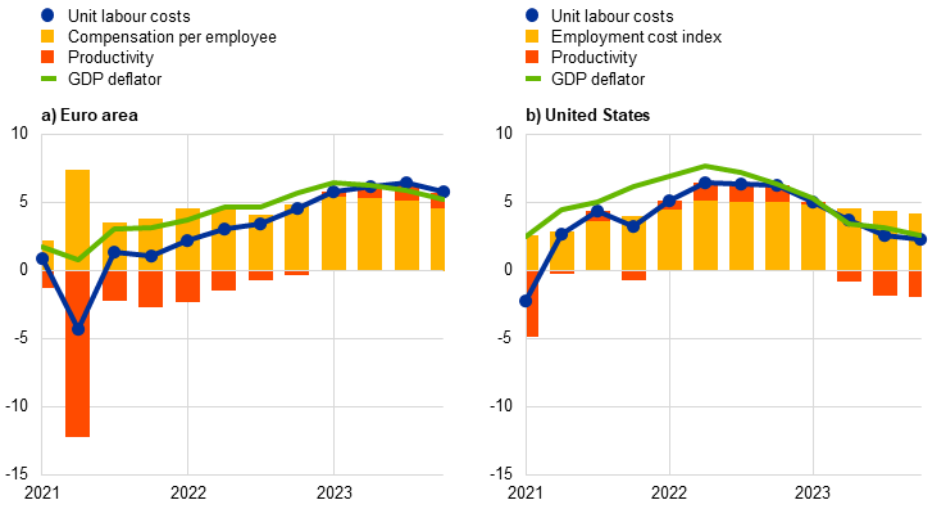
9 See European Commission European Economic Forecast, Autumn 2023. Source: AMECO database.

10 In the euro area, model-based evidence confirms a dampening impact of the monetary policy tightening on HICP inflation. See the box entitled "A model-based assessment of the macroeconomic impact of the ECB's monetary policy tightening since December 2021", *Economic Bulletin*, Issue 3, ECB, 2023. For an analysis of the macroeconomic impact of the Federal Reserve's latest tightening cycle, see D'Amico, S. and King, T., "Past and Future Effects of the Recent Monetary Policy Tightening", *Chicago Fed Letter*, No 483, Federal Reserve Bank of Chicago, September 2023, and Crump, R., Del Negro, M., Dogra, K., Gundam, P., Lee, D., Nallamotu, R. and Pacula, B., "A Bayesian VAR Model Perspective on the Lagged Effect of Monetary Policy", *Liberty Street Economics*, Federal Reserve Bank of New York, 21 November 2023.

Chart D

Unit labour cost growth and its decomposition in the euro area and the United States

(annual percentage changes)



Sources: Eurostat, Bureau of Economic Analysis and Bureau of Labor Statistics.
Notes: Productivity growth reduces unit labour cost growth, so it appears in the decomposition with an inverted sign. Euro area unit labour cost growth in 2021 was affected by compensation per employee and productivity developments in 2020, reflecting the impact of job retention schemes. The latest observations are for the fourth quarter of 2023.

In the euro area, the pace of wage growth seems to have reached its peak around mid-2023, while in the United States it has been subsiding from high levels since the end of 2022. Wage growth in the euro area picked up from rather subdued levels in early 2021, with employees aiming to recoup purchasing power lost to high inflation amid tight labour markets. It started to ease during 2023, albeit remaining well above past averages. Labour market tightness began to diminish in the United States at the end of 2022, as reflected in a decline in the ratio of vacancies to unemployment, and wage growth subsequently started to subside from high levels. Despite its slow yet steady decline, US wage growth remains above the levels the Federal Reserve System considers compatible with its inflation target.[11] The later peak of wage pressures in the euro area compared with the United States is explained by both cyclical and structural factors. Specifically, a more flexible US labour market makes wage growth more sensitive to changes in labour market tightness.[12] In addition, collective bargaining coverage is higher in the euro area, but so is wage coordination. Wage negotiations mainly take place at the sector level, resulting in a more staggered response of wages to the impact of shocks. By contrast, the predominant firm-level model of wage bargaining in the United States may lead to wages responding faster to prevailing labour market conditions.

In the second half of 2023, labour productivity grew below its pre-pandemic trend in the euro area, while accelerating in the United States. These differences partly reflect both structural and cyclical factors. In terms of structural differences, labour productivity was already growing at a slower rate in the euro area than in the

11 See, for example, the opening remarks by Chair Powell at Spelman College on 1 December 2023.

12 See the box entitled "Labour market developments in the euro area and the United States in 2022", *Annual Report*, ECB, 2022, and the box entitled "Comparing labour market developments in the euro area and the United States and their impact on wages" in "Wage developments and their determinants since the start of the pandemic", *Economic Bulletin*, Issue 8, ECB, 2022.

United States before the pandemic. Over the period from 2016 to 2019, the average year-on-year growth rate of productivity was around 0.6% in the euro area and around 1.1% in the United States. The structural differences relate among other factors to the lack of firms at the global technology frontier and the slower diffusion of new technologies, which have led to slower growth of capital stock and total factor productivity in the euro area.[13] On the cyclical side, productivity growth has declined in the euro area − a cyclical behaviour common to the more rigid euro area labour markets where firms tend to hoard labour during times of low or negative GDP growth.[14] By contrast, the above-average labour productivity growth in the United States in the second half of 2023 was driven by exceptionally strong GDP growth. This followed negative productivity growth in 2022 due to the strong recovery in services employment after the post-pandemic reopening of the economy. In the euro area, the projected uptick in GDP growth and a recovery in productivity to levels closer to pre-pandemic trends should support lower unit labour cost growth in the future.

13 See, for instance, the box entitled "Firm productivity dynamism in the euro area", *Economic Bulletin*, Issue 1, ECB, 2022.

14 See also Arce, O., Consolo, A., Dias da Silva, A. and Mohr, M., "More jobs but fewer working hours", The ECB Blog, 7 June 2023.

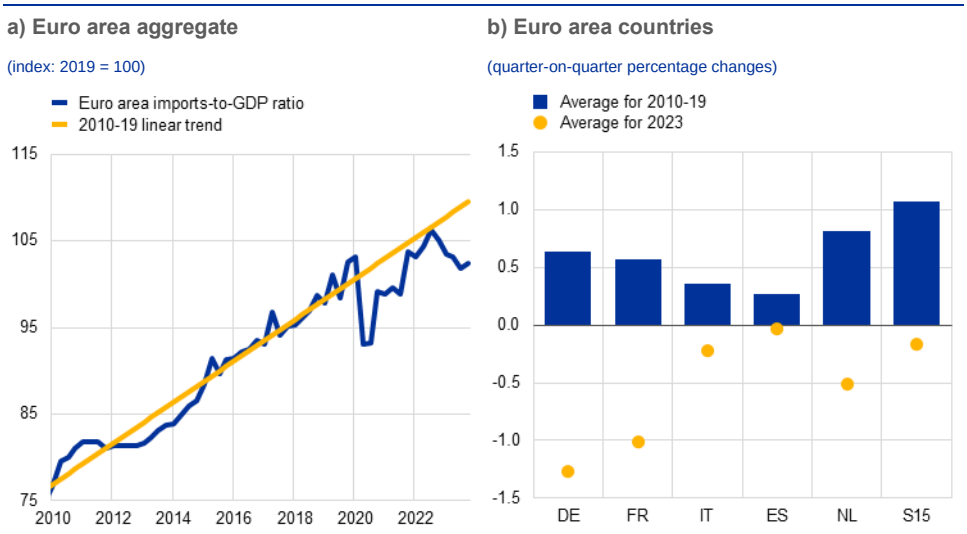
2 Why did the import intensity of GDP slow down in 2023?

Prepared by Laura Lebastard, Laura Olivero and Giacomo Pongetti

Euro area imports were subdued in 2023 despite supply bottlenecks easing significantly. During the pandemic, euro area trade declined more than economic activity as supply bottlenecks limited trade in goods and mobility restrictions curbed trade in services, particularly travel and tourism.[1] However, after rebounding in mid-2022, the euro area imports-to-GDP ratio fell in the first quarter of 2023 and has remained at a lower level since then, well below its long-term trend (Chart A, panel a). This can be attributed to the current weakness in imports, which is relatively homogenous across euro area countries, affecting large and smaller countries alike (Chart A, panel b). In this box, we investigate the drivers of the weakened import intensity of euro area GDP in 2023. We show that this weakness was mainly because of the composition of GDP growth following a period characterised by weak exports and consumption, which are among the most import-intensive components of GDP. In addition, we demonstrate that the reduction of inventories also played an important role in the decline in the import intensity of GDP.

Chart A

Ratio of imports to GDP for the euro area



Source: Eurostat.
Notes: Panel a) refers to both intra and extra-euro area real imports of goods and services. Panel b) refers to total real imports of goods and services. S15 stands for the 15 smaller euro area countries. The ratio for the 15 smaller countries is a weighted average. The latest observations are for the fourth quarter of 2023.

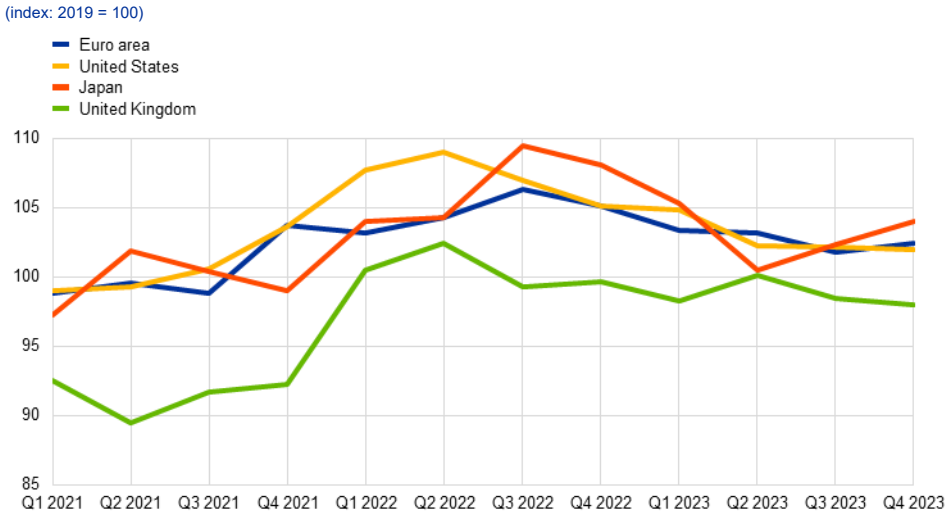
The slowdown of import growth compared with economic activity in 2023 was not limited to the euro area, rather it was widespread across advanced economies. Most advanced economies experienced a similar downturn in their imports-to-GDP ratio in 2023 (Chart B). The weakness in global trade that year

[1] See the box entitled "The impact of supply bottlenecks on trade", *Economic Bulletin*, Issue 6, ECB, 2021, and the box entitled "Developments in the tourism sector during the COVID-19 pandemic", *Economic Bulletin*, Issue 8, ECB, 2020.

reflected a less trade-intensive composition of global economic activity alongside the unwinding of order backlogs and previous stockbuilding activities.[2]

Chart B

Ratio of imports to GDP for selected advanced economies



Sources: Eurostat and IMF World Economic Outlook database.
Notes: For the United States, Japan and the United Kingdom, this chart refers to total real imports of goods and services. For the euro area, it refers to both intra and extra-euro area real imports of goods and services. The latest observations are for the fourth quarter of 2023.

In the euro area, the composition of demand and the reduction of inventories can largely explain the fall in imports and, consequently, in the trade intensity of GDP in 2023. As in the case of other advanced economies, one of the driving factors behind the weakness in euro area imports was the shift in the composition of demand towards less trade-intensive components. Aggregate measures of economic activity, such as GDP, are not an ideal measure of import demand because they give a high weight to less trade-intensive components, such as government spending, which tend to be countercyclical in recessions or periods of weak growth. To take account of such composition effects, it is helpful to use import intensity-adjusted demand (IAD) as a measure of demand because higher weights are assigned to the most import-intensive components of GDP, such as exports and investment.[3] Using IAD and a lagged indicator of inventories in a simple regression framework shows that the disproportionate fall in trade-intensive components of final demand explains a large part of the moderation in imports in 2023 (Chart C). However, the swing in the inventory cycle was also an important contributing factor, as firms ran down stocks and thereby reduced import demand.[4]

2 See the box entitled "Global trade in the post-pandemic environment", *Economic Bulletin*, Issue 1, ECB, 2024.

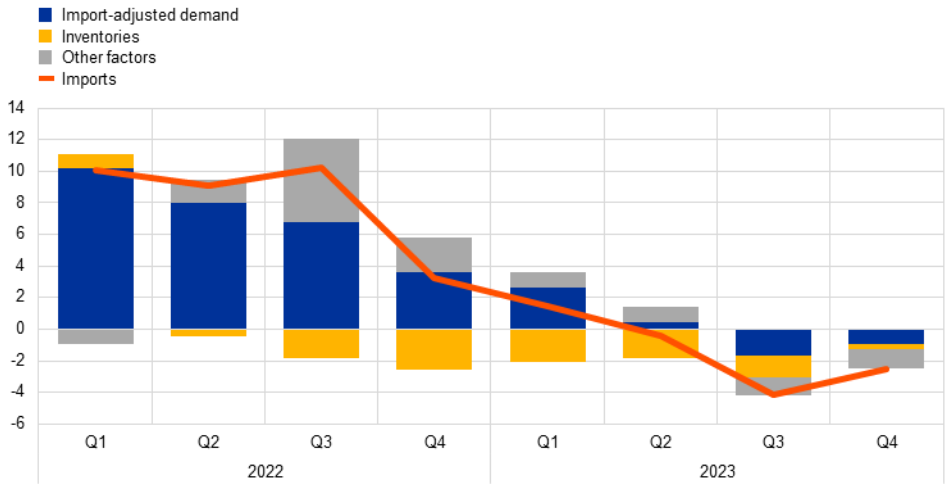
3 IAD is a measure of demand that uses input-output tables to include both direct and indirect imports. For further details, see Bussière, M., Callegari, G., Ghironi, F., Sestieri, G. and Yamano, N., "Estimating Trade Elasticities: Demand Composition and the Trade Collapse of 2008-2009", *American Economic Journal*, Vol. 5, No 3, July 2013.

4 IAD is typically computed excluding inventories owing to their high volatility in input-output tables.

Chart C

Decomposition of euro area import developments

(year-on-year percentage changes)



Sources: Eurostat and Asian Development Bank.
Notes: Import intensity weights for IAD are computed following Bussière et al. (2013). Annual weights are computed for the period 2007-22 and then averaged. The regression is run on quarterly data from the first quarter of 1996 to the third quarter of 2023. Inventories are measured using European Commission survey data.

The rotation of domestic demand from goods to services also contributed to the weakness in euro area imports. The other factors shown in Chart C could be related to the shift in consumption from goods to services, which meant that household spending became less import-intensive over the course of 2023 (Chart D). Indeed, the share of imports in goods consumption was 51% in 2022, compared with 13% for services consumption.[5] The faster growth in the services sector than in the manufacturing sector in 2023 reflects the difference in the effects of the post-pandemic reopening, the monetary policy tightening and the rise in energy prices.[6] Real imports of gas and oil in the euro area decreased in 2023 by 7% and 5% respectively compared with 2022, reflecting lower energy consumption caused by the extraordinary surge in energy commodity prices.

Looking ahead, the euro area imports-to-GDP ratio is expected to recover. Over the medium term, the recovery of more import-intensive components, as highlighted in the March 2024 ECB staff macroeconomic projections for the euro area, is expected to bring the trade intensity of euro area GDP back to its long-term trend.[7] In the short term, forward-looking indicators of consumption point to a more robust pick-up in households' consumption of goods in 2024 compared with services. Together with the slowing drawdown of inventories, this should lead to a higher import intensity of demand components.

5 Import intensities are computed following Bussière et al., op. cit. They are very stable over time. The average value over the period 2007-22 is 43% for goods and 10% for services.

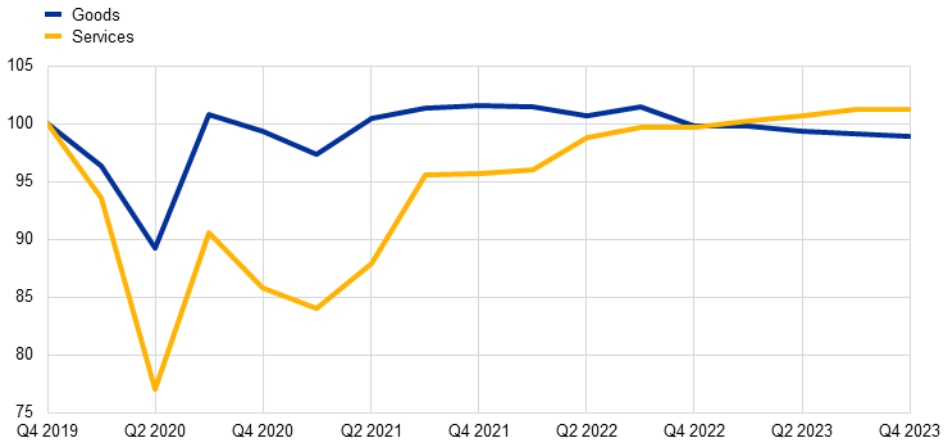
6 See the boxes entitled "What role do reopening effects play across countries and sectors?", *Economic Bulletin*, Issue 6, ECB, 2023; "Monetary policy and the recent slowdown in manufacturing and services", *Economic Bulletin*, Issue 8, ECB, 2023; "The impact of higher energy prices on services and goods consumption in the euro area", *Economic Bulletin*, Issue 8, ECB, 2022.

7 See "ECB staff macroeconomic projections for the euro area, March 2024", published on the ECB's website on 7 March 2024.

Chart D

Real private consumption in the euro area

(index: Q4 2019 = 100)



Source: Eurostat.
Note: The latest observations are for the fourth quarter of 2023.

3 How big is the household housing burden? Evidence from the ECB Consumer Expectations Survey

Prepared by Omiros Kouvavas and Desislava Rusinova

In recent quarters, euro area households have been faced with higher housing costs, including mortgage costs. According to the ECB Consumer Expectations Survey, in the years since the outbreak of the COVID-19 pandemic and amid the surge in energy prices, households in the eleven largest euro area countries have seen rising housing costs, including expenditure on rent or higher mortgage interest payments, home maintenance and utilities (such as gas, electricity and water).[1] Chart A, panel a), shows the dynamics of the overall monthly housing-related burden for outright owners, renters and mortgagors. In January 2024 households were paying an average of €765 per month in total housing-related costs, including utilities, home maintenance and rent or mortgage costs. Over the period from July 2022 – the beginning of the interest rate hiking cycle – to January 2024, the average housing costs reported in the Consumer Expectations Survey rose cumulatively by around 10.2%, compared with a cumulative rise in the Harmonised Index of Consumer Prices (HICP) of 5.5%. Additionally, the dispersion in the monthly housing costs for each of the ownership types has increased. For mortgagors in particular, the higher costs would seem to be driven by the upper end of the distribution, with the cost for the lower end remaining relatively constant. This greater dispersion might suggest heterogeneous effects across mortgagors, i.e. while households with existing fixed-rate mortgages have not, as yet, been affected significantly by the ECB's monetary policy tightening and the successive interest rate hikes, households taking out new loans or renewing or refinancing existing mortgages are already facing increased interest rate payments.

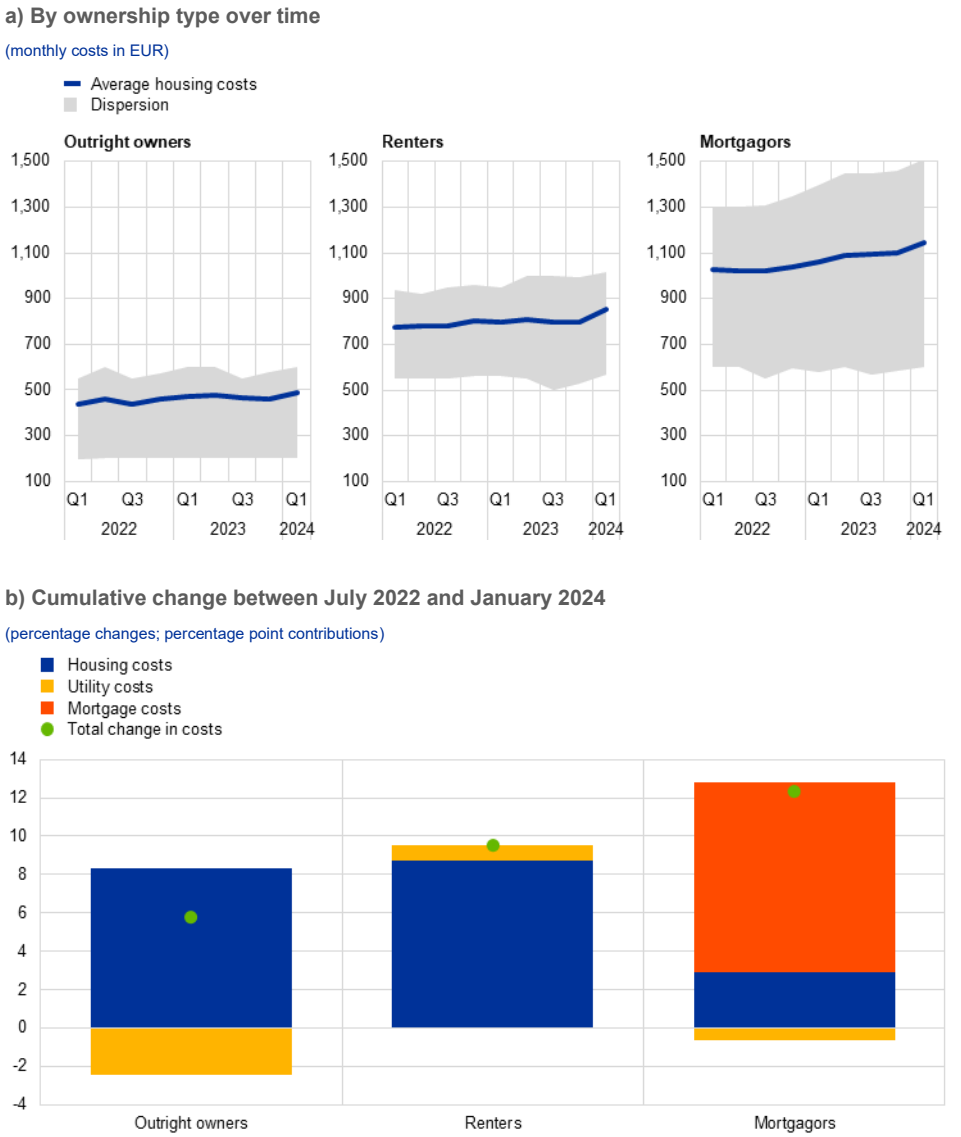
Housing costs differ across ownership types and by country. Chart A, panel b), shows the percentage change in housing costs from July 2022 to January 2024 for all three categories of households, namely outright owners, mortgagors and renters. The overall costs have increased by around 6% for outright owners, but by 12% and 9% for mortgagors and renters respectively. Different factors are at play in each case: i) for outright owners, the change is driven by rising home maintenance costs, although utility costs have fallen slightly owing to the recent moderation of energy prices following their surge in the course of 2022; ii) for mortgagors, the primary driver has been the increase in mortgage payments attributable to higher interest rates on existing variable-rate mortgages and even more noticeably on new, renewed and refinanced mortgage loans; and iii) for renters, costs have largely followed rent developments, as well as utility price trends owing to renters' having

[1] For general information on the Consumer Expectations Survey, see "ECB Consumer Expectations Survey: overview and first evaluation", *Occasional Paper Series*, No 287, ECB, December 2021.

less flexibility in absorbing unexpected expenses[2].[3] With regard to individual euro area countries, Chart A, panel c), shows that there is significant cross-country heterogeneity in housing costs and that the difference between costs excluding mortgage payments and those including such payments is substantial, especially for countries such as Italy and Spain that tend to have a higher proportion of adjustable-rate mortgages.

Chart A

Average housing costs

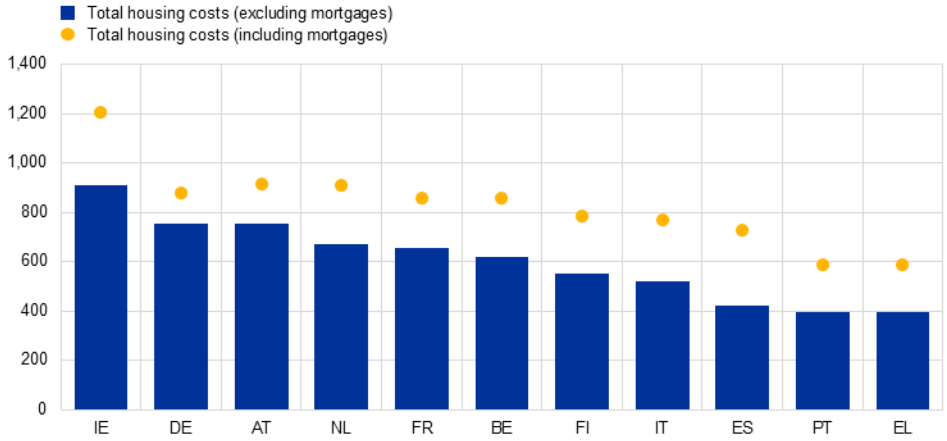


2 For more information on the varying impact of utility prices on ownership types see, for example, Carliner, M., "Reducing Energy Costs in Rental Housing – The Need and the Potential", *Research Brief,* No. 13, Issue 2, Joint Center for Housing Studies of Harvard University, December 2013.

3 Mortgage costs account for a substantial proportion of the user cost of housing and their increase is related to the interest-rate changes of recent times. The rise seen in the user cost of housing is, however, also associated with the long-standing decline in housing investment – see Box 4, entitled "Housing investment and the user cost of housing in the euro area" in this issue of the Economic Bulletin.

c) By country for January 2024

(monthly costs in EUR)



Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: The calculations are based on weighted estimates. Average total housing costs comprise home maintenance and utility costs, together with rent for renter households or debt repayments for mortgagors, these costs being winsorised for each ownership type. It is assumed that for mortgagors, debt repayment primarily consists of the payment of principal and interest on mortgages. In panel b), housing costs include home maintenance and, for renters, also comprise rent. In panel c), countries are ordered by housing costs in descending order.

Since 2022 growth in household nominal income has largely offset the rise in housing costs, and the ratio of housing costs to income has therefore remained relatively stable. The housing cost ratio, defined as total housing costs divided by disposable income, has remained unchanged overall since the beginning of 2022. Chart B, panel a), shows that this is largely the case for all categories, i.e. outright owners, renters and mortgagors. Housing costs take up around 20% of disposable income for outright owners, 40% for renters and 35% for mortgagors. Nevertheless, this differs across income groups, with the housing cost ratio having increased slightly for the top 20% of earners among mortgage and renter households, but remaining fairly stable for the bottom 50% of earners. This difference reflects, on the one hand, the fact that higher-income households are more likely to take out mortgages and generally do so for larger amounts, while, on the other hand, there has been stronger income growth for lower-income households, possibly attributable in part to recent targeted income-support measures implemented by the larger euro area governments.[4] As Chart B, panel b), shows, including mortgage costs as a factor adds substantially to the average housing-related burden.

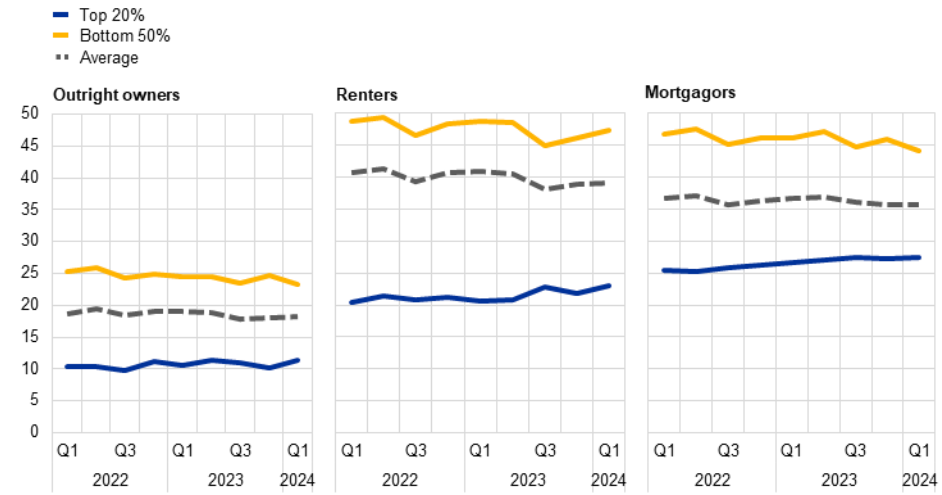
[4] See Box 5, entitled "A primer on measuring household income", *Economic Bulletin*, Issue 8, ECB, 2023.

Chart B

Housing cost to income ratio

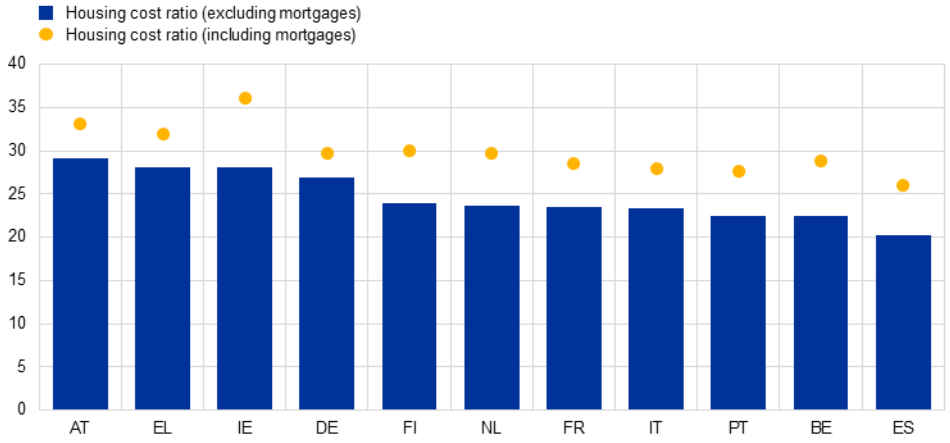
a) By ownership type over time

(percentages)



b) By country for January 2024

(percentages)



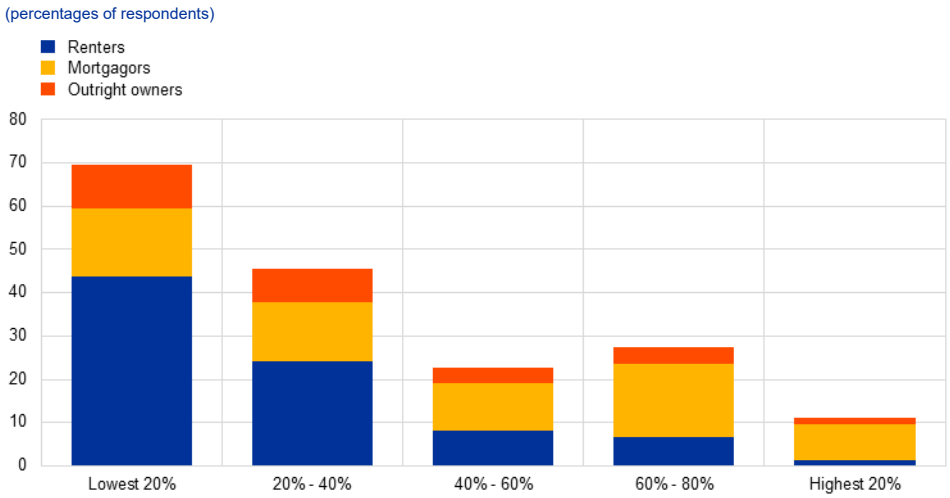
Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: The housing cost ratio is calculated at micro level for each household by dividing the housing cost by household disposable income, and the mean household housing cost ratio is then determined for each ownership type for each country. Countries are ordered by the values of the housing cost ratio in descending order.

Among lower-income groups, a substantial proportion of households are overburdened by their housing costs. According to Eurostat's definition, households are considered to be overburdened if their total housing-related costs take up more than 40% of household disposable income. Chart C plots the proportions of overburdened households for the eleven euro area countries covered by the Consumer Expectations Survey, broken down by income quintile and ownership type. The proportions vary dramatically across income categories. In the lowest income quintile more than 60% of households are overburdened, and in particular renter households. Although the proportion of overburdened households in the higher income quintiles is substantially lower, it nevertheless encompasses about 45% of households in the second income quintile and over 20% of those in the third

quintile. “Overburdened” households with a higher income are mostly mortgagors who face difficulties in paying their mortgage costs. Interestingly, the share of overburdened households in the fourth income quintile is higher than in the third, driven by mortgagors. This may reflect the fact that, in the low interest rate environment of the past, such households took out disproportionately more mortgage debt relative to their incomes.

Chart C

Share of overburdened households by income quintile for January 2024



Sources: ECB Consumer Expectations Survey, Eurostat and ECB calculations.
Notes: The calculations are based on weighted estimates. The overburden ratio is the proportion of households with housing costs exceeding 40% of their disposable household income and is calculated for all three ownership types. The proportion of overburdened households for each type is then stacked to obtain the total proportion of overburdened households per income quintile.

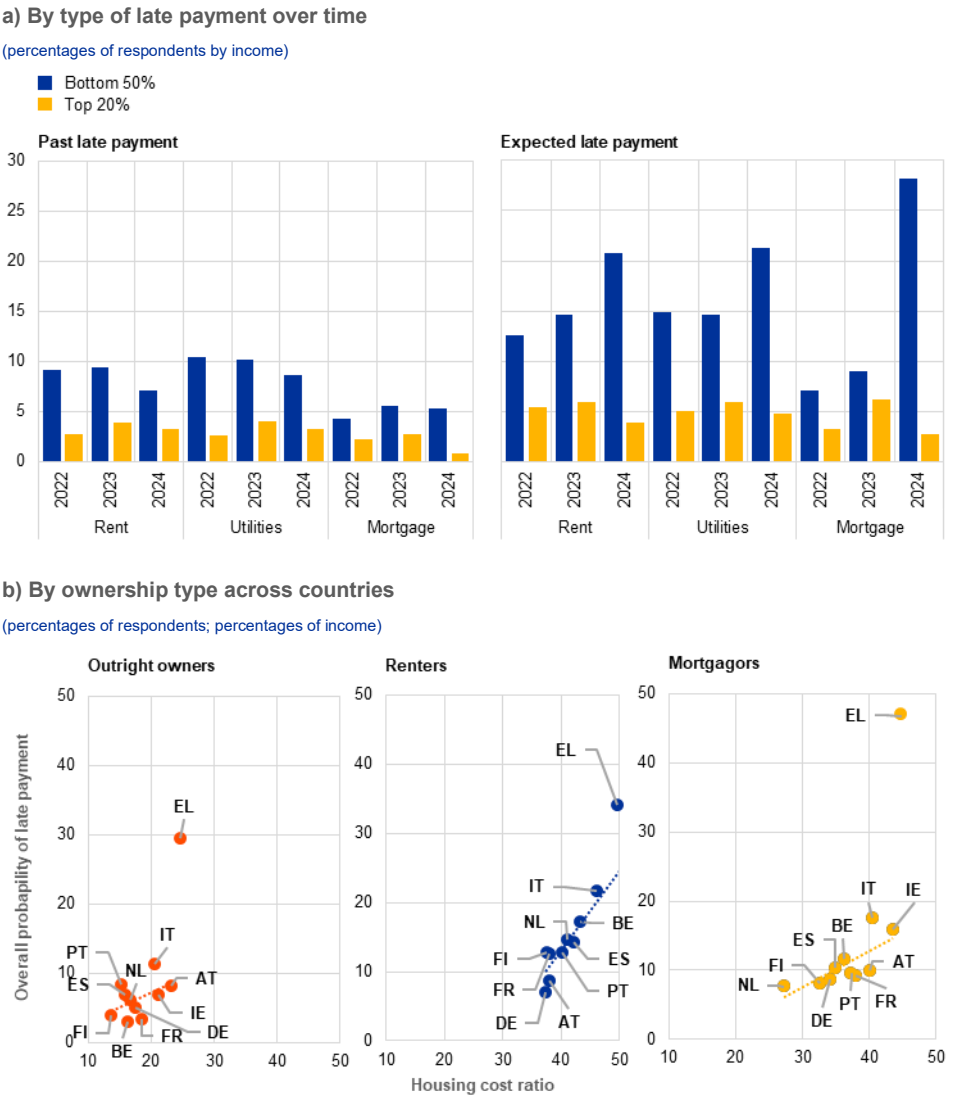
More households, and in particular lower-income households, have indicated in recent months that they expect to make late payments of their rent or mortgage and/or their utilities. Given the present and future effects of both increased interest rates and loss of purchasing power owing to inflation, the ability of households to meet their housing-related costs and mortgage payments is a source of concern, especially for lower-income households. In recent years, some 5-10% of low-income households have stated that they have made a late payment of rent or a mortgage and/or utilities in the past three months (Chart D, panel a). This percentage has remained relatively stable over time, although it decreased slightly in the first quarter of 2024. By contrast, the forward-looking indicator of late payment risk, measured as the proportion of households expecting to make a late payment in the next three months, has risen substantially among lower-income households. In the first quarter of 2024, the proportion of households expecting to make late payments for utilities or rent rose to over 20%, up from about 15% in 2023, and nearly doubled to 30% for late mortgage payments.

Housing cost ratios are positively correlated with the frequency of late payment, the strongest correlation being for mortgage and renter households. Average housing costs to income ratios differ substantially across countries, as does the frequency of late payments for households of different ownership types. The correlation is, however, strong across all ownership categories (Chart D, panel b).

The increased risk of making late payments as housing costs rise is the largest for renters, who also have the highest average values for the housing cost ratio and for the probability of late payment. With regard to renters, any change in either indicator, which tends to be more prevalent for lower-income households, needs to be monitored carefully, given that this might have major consequences for both household consumption behaviour and indebtedness.

Chart D

Late payment



Sources: ECB Consumer Expectations Survey, Eurostat and ECB calculations.
Notes: The calculations are based on weighted estimates. In panel a), the housing cost ratio refers to the sum of the relevant cost categories (namely rent, or a mortgage, utilities and home maintenance) for each ownership type divided by disposable household income. The late payment indicator takes a value of one if a household has made a late payment in the past three months in at least one of the cost categories. Expected late payments takes a value of one if a household expects to make a late payment in the next three months in at least one of the cost categories. The values for the years 2022 and 2023 are annual averages, whereas the value for 2024 is for January only. In panel b), the housing cost ratio refers to the average ratio of total housing costs to disposable household income for the respective ownership type, calculated at micro level. Greece is excluded from the regression lines.

4 Housing investment and the user cost of housing in the euro area

Prepared by Niccolò Battistini and Johannes Gareis

Housing investment in the euro area as a whole has fallen significantly from its post-pandemic peak. Housing investment in the euro area fell by about 4% between the first quarter of 2022 and the fourth quarter of 2023, with a particularly sharp decline in Germany and France, a slight rise in Spain and a significant rise in Italy. The fall in housing investment in the euro area was preceded by a sharp increase in construction costs during the pandemic and a significant rise in long-term risk-free rates from the start of the recent monetary policy tightening cycle at the end of 2021 onwards. The rise in interest rates was also accompanied by a tightening of bank credit standards, which in turn contributed to rising mortgage rates and slowing credit flows. These developments, along with the subsequent decline in house prices, prompted an increase in the implied cost of living for homeowners, as measured by the "user cost of housing". As mortgage rate rises and house price declines appear to be slowing or even reversing to some extent, the question arises of how housing investment will evolve in the period ahead. To shed light on this issue, this box examines the current level of housing investment in the euro area in relation to a novel measure of the user cost of housing.[1]

The user cost of housing is a fundamental driver of housing investment.[2] The affordability of housing can be measured by the cost of capital invested by a household in its dwelling, i.e. the user cost of housing.[3] This measure corresponds to a homeowner's opportunity cost of living in a dwelling compared with the utility of consuming other (current or future) goods and services, making it an important determinant of housing investment.[4] The user cost of housing is usually expressed as a percentage of the value of the dwelling and contains both costs and

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1 For a discussion of housing-related costs based on evidence from the ECB's Consumer Expectations Survey, see the box entitled "How big is the household housing burden? Evidence from the ECB Consumer Expectations Survey" in this issue of the Economic Bulletin.

2 As the user cost of housing determines the rent that the property-holding household would have to pay for the use of its home, the "imputed rent", it was also considered in the ECB's latest strategy review as a possible measure for owner-occupied housing price indices to improve the Harmonised Index of Consumer Prices (HICP). However, owner-occupied housing costs were not considered suitable, mainly because of the inclusion of interest payments, which would establish a direct link to the ECB's key interest rates. For further details, see "Inflation measurement and its assessment in the ECB's monetary policy strategy review", *Occasional Paper Series*, No 265, ECB, September 2021, and the article entitled "Owner-occupied housing and inflation measurement", *Economic Bulletin*, Issue 1, ECB, 2022.

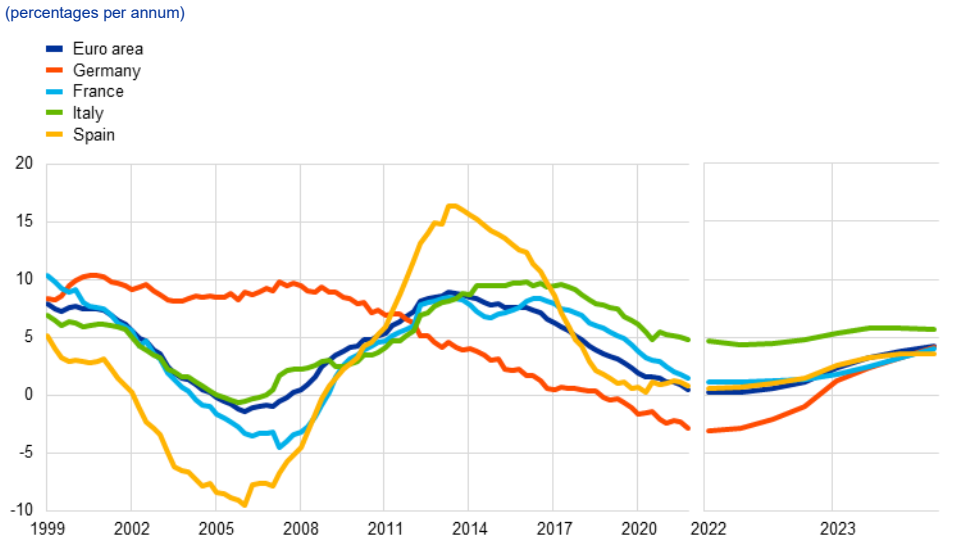
3 Housing affordability is also often measured by the expenditure households incur to finance housing, which is a narrower definition of affordability than the user cost of housing. For a comparison of the two concepts, see Haffner, M. and Heylen, K., "User Costs and Housing Expenses. Towards a more Comprehensive Approach to Affordability", *Housing Studies*, Vol. 26, Issue 4, 2011, pp. 593-614.

4 Another important determinant of housing investment is Tobin's q, which is the ratio of the price of houses to their replacement cost. For a classical reference of the user cost of housing, see Poterba, J., "Tax Subsidies to Owner-occupied Housing: An Asset Market Approach", *Quarterly Journal of Economics*, Vol. 99, Issue 4, 1984, pp.729-752. For the definition of Tobin's q, see Tobin, J., "A General Equilibrium Approach to Monetary Theory", *Journal of Money, Credit and Banking*, Vol. 1, No 1, 1969, pp. 15-29. For an empirical application of Tobin's q to the housing market, see the box entitled "Evaluating housing market risks using a combined demand-supply framework", *Macroprudential Bulletin*, Issue 23, ECB, 2023.

compensating benefits. These include (i) mortgage interest expenses, which measure the debt service cost for financing the dwelling; (ii) foregone income, which gauges unrealised earnings from investing in a non-housing asset; (iii) expected capital gains, reflecting the reduction in costs owing to the expected increase in the value of the house; (iv) the loan-to-value (LTV) ratio, which determines the relative weight of the debt service cost versus foregone income; (v) net taxes, including property taxes as well as tax deductions on debt service and taxes on foregone income; and (vi) other items, including maintenance and repair costs, depreciation and risk premia.[5] Bundling items (iv), (v) and (vi), the user cost of housing increases with higher debt service costs, foregone income, expected capital losses, or (net) tax payments and other expenses, which reduces the amount of investment households might wish to make in owner-occupied housing. In sum, the user cost of housing provides a broad measure of the cost of owning and living in a home and reflects the consumption of housing services that underlies a household's decision to invest in a home of its own.

Chart A

User cost of housing across the euro area



Sources: Barrios et al. (op. cit.), Eurostat, ECB and ECB calculations.
Note: The user cost of housing for the euro area represents the weighted average of the national cost measures, using household housing wealth as a weighting factor.

[5] The user cost of housing ω is formally calculated as follows: $\omega = [\lambda(1-\tau^M)r^M + (1-\lambda)(1-\tau^I)r^F - \pi^e + \kappa](1+\tau^T)$, with λ denoting the LTV ratio, τ^M the mortgage tax deductibility rate, r^M the mortgage rate, τ^I the interest income tax rate, r^F the rate from an alternative investment, π^e expected capital gains, τ^T the property transfer tax rate and κ other terms including the recurrent property tax rate, maintenance costs, depreciation and risk premia. This box uses quarterly data on bank interest rates for new loans to households for house purchase to measure r^M, the ten-year euro area OIS rates to obtain r^F and the five-year moving average of year-on-year house price growth to calculate π^e. These data are combined with information on tax rates and structural characteristics of residential construction and housing finance from the EU Science Hub (see Barrios, S., Denis, C., Ivaškaitė-Tamošiūnė, V., Reut, A. and Torres, E.V., "Housing taxation: a new database for Europe", *JRC Working Papers on Taxation and Structural Reforms*, No 08, European Commission, 2019). For expected capital gains, a five-year period is considered that reflects the tendency of households to extrapolate recent house price inflation into future expectations. See Muellbauer, J., "When is a Housing Market Overheated Enough to Threaten Stability?", Reserve Bank of Australia, RBA Annual Conference Volume – 2012, in *Property Markets and Financial Stability*, pp. 73-105.

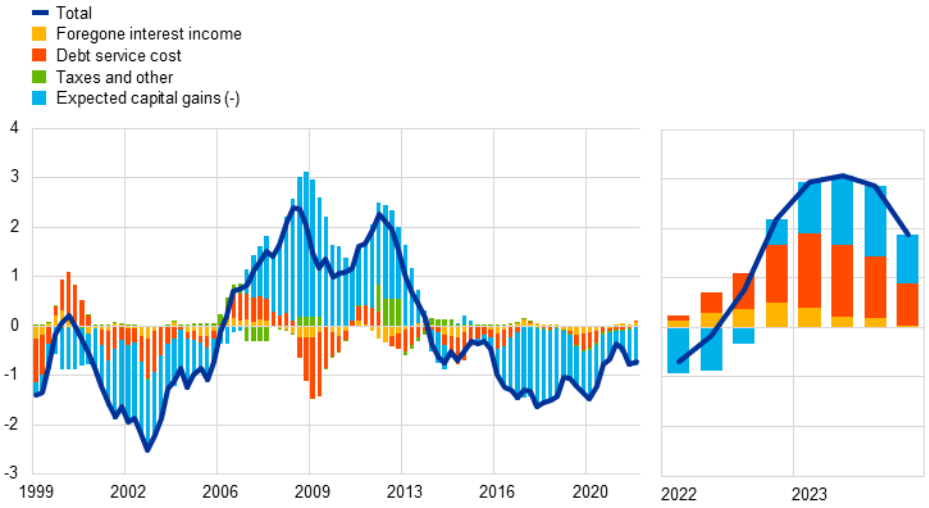
The user cost of housing has risen significantly across the euro area over the last two years, mainly as a result of the higher debt service cost. The user cost of housing has fluctuated considerably in the euro area since 1999, reaching a historic low at the beginning of the global financial crisis in 2007-08 and peaking at the end of the euro area sovereign debt crisis in 2010-12 (Chart A). After the long decline that followed the sovereign debt crisis, the user cost of housing has risen significantly during the recent period of monetary policy tightening. At country level, the increase has been particularly marked in Germany. In terms of drivers, fluctuations in the user cost of housing largely stem from changes in expected capital gains (Chart B, panel a). However, the recent increase has mainly been caused by the rise in the debt service cost, in line with previous episodes of significant changes in monetary policy interest rates. While the increase in the debt service cost is the most important factor in France, Italy and Spain, expected capital losses are more significant in Germany, reflecting the relatively sharp fall in house prices since the start of the recent monetary policy tightening (Chart B, panel b).

Chart B

Drivers of the user cost of housing

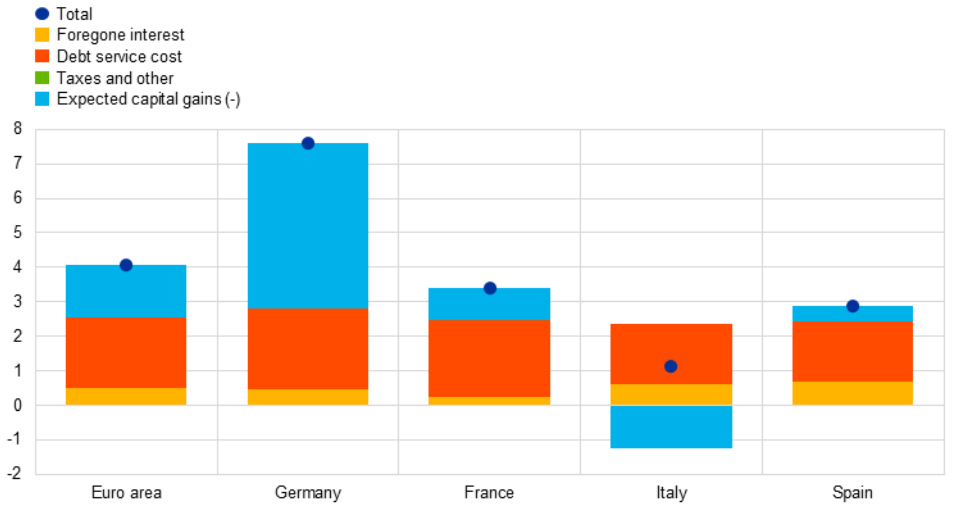
a) Changes in the user cost of housing in the euro area

(year-on-year changes, percentage points and percentage point contributions)



b) Recent changes in the user cost of housing in the euro area and its four largest economies

(changes between Q1 2022 and Q4 2023, percentage points and percentage point contributions)



Sources: Barrios et al. (op. cit.), Eurostat, ECB and ECB calculations.
Note: Expected capital gains offset other housing costs and are therefore included in the user cost of housing with a negative sign.

We use an empirical model to relate the level of housing investment to the user cost of housing. A linear regression model links the level of housing investment to the contemporaneous and lagged values of the user cost of housing and the lagged level of the housing stock. The model thus reflects the historical relationship between housing investment and the user cost of housing, where the lagged values of the user cost of housing allow for the gradual response of households to changes in housing costs and the modelling of market frictions, such as a shortage of available land or excessive bureaucracy.[6] If the model prediction matches the actual level of housing investment, changes in housing investment can be linked to changes in the user cost of housing and its underlying drivers. However, if housing investment deviates temporarily from the model prediction, this may be for other reasons and not explicitly modelled. Nonetheless, housing investment should gradually adjust to the value implied by the user cost of housing, as any significant gaps are expected to be corrected over time.[7]

Housing investment in the euro area remained above the level implied by the user cost of housing at the end of 2023, despite the significant decline during 2022-23. According to the results for the euro area, housing investment and the predicted values from the user cost model exhibit a clear positive relationship, confirming that the user cost of housing is an important driver of housing investment (Chart C, panel a). In the period before the global financial crisis, housing investment exceeded the level implied by the user cost of housing and subsequently fell to a level below that suggested by the model, reflecting the boom-and-bust cycle of

6 To avoid ad hoc selection on the number of lagged values for the user cost of housing, the model is estimated using elastic net regularisation by penalising the coefficients through cross-validation. Moreover, the model assigns a zero weight to the observations for the second quarter of 2020, when housing investment in the euro area fell significantly owing to pandemic-related restrictions. See Coulombe P.G., Leroux, M., Stevanovic, D. and Surprenant, S., "How is machine learning useful for macroeconomic forecasting?", *Journal of Applied Econometrics*, Vol. 37, Issue 5, 2022, pp. 920-964.

7 See also Kopcke, R.W., "The determinants of business investment: has capital spending been surprisingly low?", *New England Economic Review*, Federal Reserve Bank of Boston, 1993, pp. 3-31.

housing investment during this period.[8] While broadly following the model prediction during the recovery phase after the sovereign debt crisis, housing investment significantly exceeded the level implied by the model in the aftermath of the pandemic, which could have been the result of pandemic-related shifts in household housing preferences.[9] At the end of 2023 housing investment in the euro area was still more than 4% higher than the level predicted by the model, even though it had already fallen significantly. At country level, housing investment in Italy in the fourth quarter of 2023 was significantly higher than the level implied by the model. This was likely a result of the generous tax incentives associated with the "Superbonus", which boosted housing investment to an all-time high in the fourth quarter of 2023 but is not captured by the user cost (Chart C, panel b).[10] By contrast, housing investment in Germany and Spain in the fourth quarter of 2023 was broadly in line with the model prediction, while in France it was below the predicted level.[11]

8 At country level, this boom-bust cycle is reflected in the estimates for Spain in particular, where housing investment exceeded the level implied by the user cost model to a much greater extent than in the other large euro area economies in 2007, and the subsequent decline was more pronounced than the level implied by the user cost model.

9 For an assessment of euro area housing market developments during the pandemic, see the article entitled "The euro area housing market during the COVID-19 pandemic", *Economic Bulletin*, Issue 7, ECB, 2021.

10 The Superbonus provides for temporary tax deductions for expenditure on energy-efficient and earthquake-proof renovations of residential buildings. The scheme was initiated in 2020; it has been amended several times and is set to be gradually phased out from the beginning 2024. See "La dimensione economica del superbonus", *Documentazione parlamentare*, Camera dei deputati, October 2023. As the Superbonus is temporary and conditional on meeting energy efficiency requirements, this box assumes that the user cost of housing in Italy is not affected by this measure, in line with the information available in the EU Science Hub database on housing taxation. Excluding Italy, housing investment in the euro area would be closer to, but still slightly above, the level implied by the user cost model in the fourth quarter of 2023.

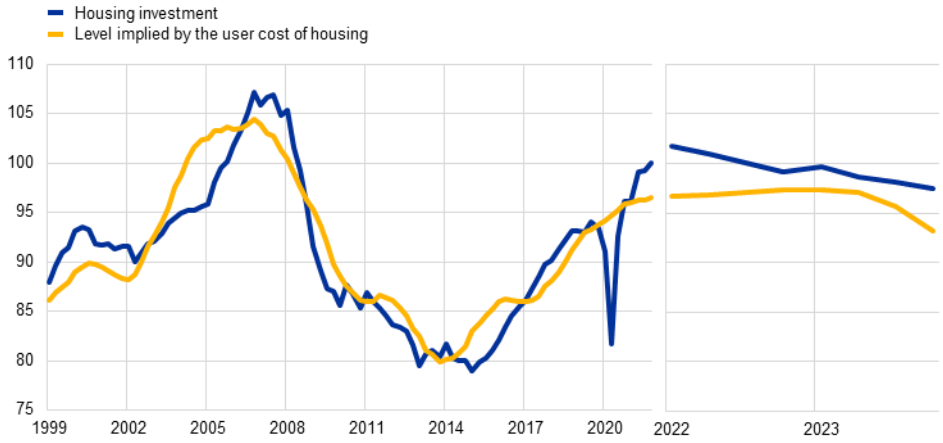
11 While the level of housing investment derived from the user cost of housing did not change during the pandemic, actual housing investment fluctuated widely across the largest euro area economies, reflecting the timing and relative restrictiveness of the containment measures, with construction activity being temporarily halted in France, Italy and Spain, while it was able to continue in Germany. See, for example, the study entitled "Impacts of the COVID-19 pandemic on EU industries", *European Parliament*, March 2021.

Chart C

Housing investment and the level implied by the user cost of housing

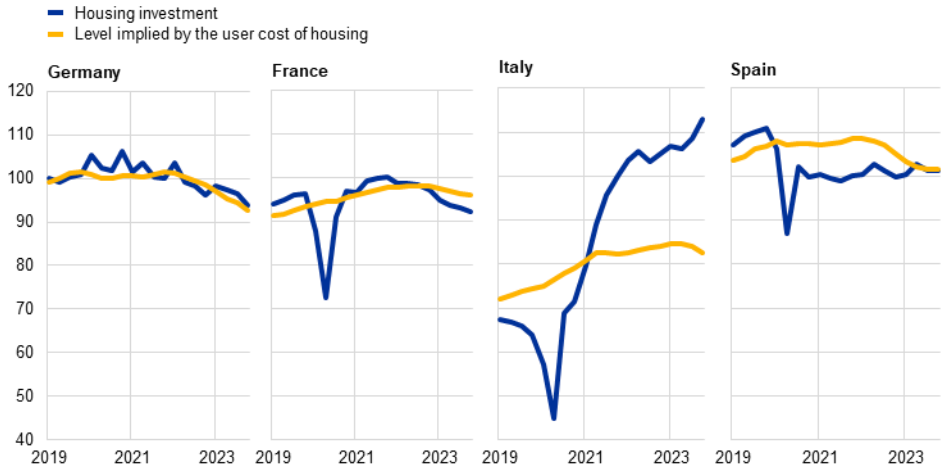
a) Housing investment and model predictions for the euro area

(Q4 2021 = 100)



b) Housing investment and model predictions for the four largest euro area economies

(Q4 2021 = 100)



Sources: Barrios et al. (op. cit.), Eurostat, ECB and ECB calculations.
Note: The level implied by the user cost of housing is the level predicted by a linear regression model relating the log level of housing investment to several lagged values of the user cost of housing and the lagged log level of the housing capital stock for the period from the first quarter of 1999 to the fourth quarter of 2023.

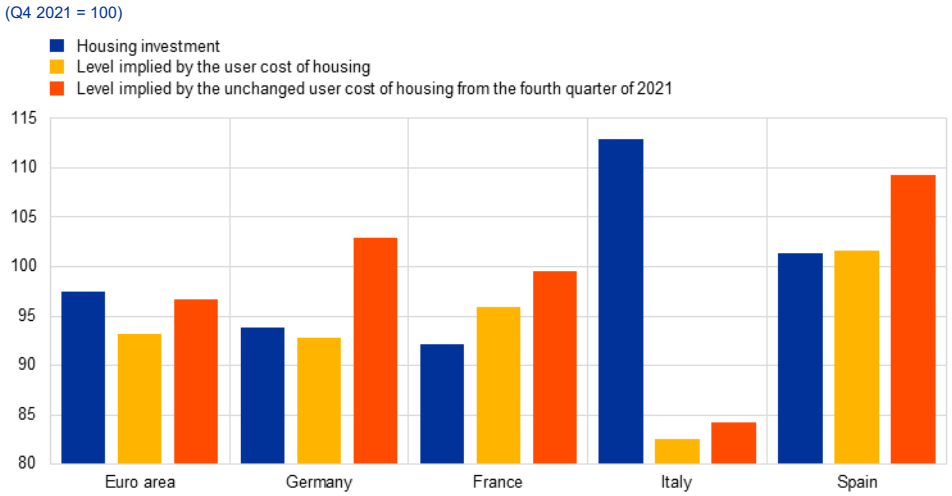
A counterfactual scenario for the user cost of housing illustrates the dampening effects of the recent monetary policy tightening on housing investment. The counterfactual scenario assumes that the user cost of housing remains constant from the fourth quarter of 2021, when the monetary policy tightening cycle began. Thus, the user cost of housing is neither directly affected by the recent monetary policy tightening via interest rates, particularly mortgage rates, nor indirectly affected by the decline in house price growth.[12] According to this counterfactual analysis, housing investment in the euro area would have been about

[12] For a description of the direct and indirect impact of monetary policy through the user cost of housing channel, see Mishkin, F.S., "Housing and the monetary transmission mechanism", *Proceedings – Economic Policy Symposium – Jackson Hole*, Federal Reserve Bank of Kansas City, 2007, pp. 359-413.

4% higher at the end of 2023 than the value assumed by the model based on the actual evolution of the user cost of housing (Chart D). In this context, significant differences between countries can be explained either by the magnitude of the change in actual user costs (i.e. in Germany) or the sensitivity of housing investment to changes in the user costs based on past regularities (i.e. in Spain). Overall, the results suggest that the recent monetary policy tightening has had a significant negative impact on the level of housing investment across the euro area from the perspective of the user cost of housing.

Chart D

Counterfactual analysis



Sources: Barrios et al. (op. cit.), Eurostat, ECB and ECB calculations.
Notes: The level implied by the user cost of housing is the level predicted by a linear regression model relating the log level of housing investment to several lagged values of the user cost of housing and the lagged log value of the housing capital stock. The counterfactual level is the level predicted by the model assuming an unchanged level for the user cost of housing from the fourth quarter of 2021 onwards.

Housing investment in the euro area is likely to weaken further in the near term. Looking ahead, the future development of the user cost of housing is crucial for the outlook for housing investment in the euro area. The fact that housing investment in the euro area was still above the level implied by the user cost of housing at the end of 2023 indicates the possibility of further weakness in housing investment. Moreover, while the debt service cost appears to be stabilising, expected capital gains could fall further owing to their delayed adjustment to past changes, putting additional upward pressure on the user cost of housing.

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

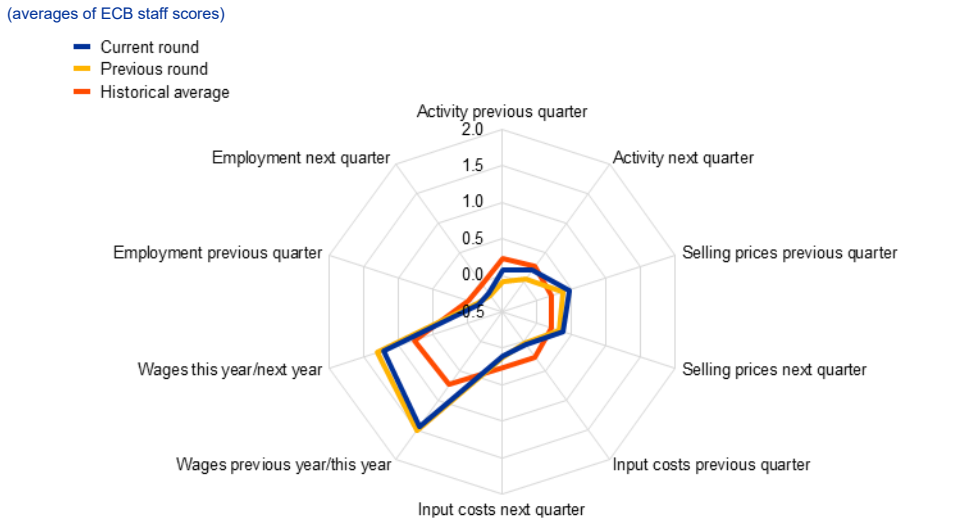
Prepared by Peter Healy, Friderike Kuik, Richard Morris and Michal Slavik

This box summarises the findings of recent contacts between ECB staff and representatives of 57 leading non-financial companies operating in the euro area. The exchanges took place between 11 and 19 March 2024.[1]

Contacts reported a subdued start to the year for activity, but also a slight uptick in demand (Chart A and Chart B, panel a). In the first months of 2024 activity was affected, to some extent, by industrial unrest and by production delays due to the continuing attacks on shipping in the Red Sea area, but this was more than offset by some recovery in demand for manufactured goods. Perceptions continued to vary significantly, however, both across and within sectors. An increasing number of contacts also stressed differences between growth rates in southern Europe and the more subdued activity in northern Europe, especially Germany.

Chart A

Summary of views on activity, employment, prices and costs



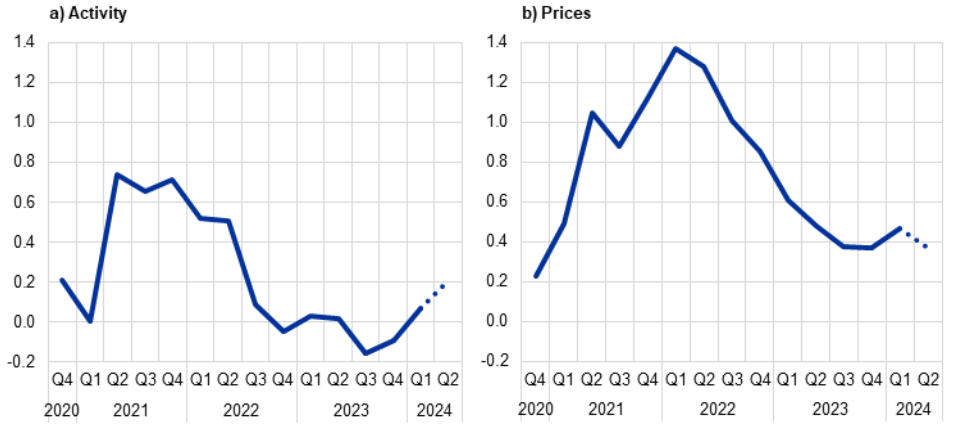
Source: ECB.
Notes: The scores reflect the average of scores given by ECB staff in their assessment of contacts' statements about quarter-on-quarter developments in activity (sales, production and orders), input costs (material, energy, transport, etc.) and selling prices, and their statements about 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 first and second quarters of 2024 respectively, while for the previous round these refer to the fourth quarter of 2023 and the first quarter 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 reflects an average of scores compiled using summaries of past contacts extending back to 2008.

[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.

Chart B

Evolution of views on developments in and the outlook for activity and 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 activity (sales, production and orders) and selling prices. Scores range from -2 (significant decrease) to +2 (significant increase). A score of 0 would mean no change. The dotted line refers to expectations for the next quarter.

There was a slight overall pick-up in demand as the recent destocking cycle came to an end, along with tentative signs of improving consumer confidence. After several quarters of contraction, contacts in the intermediate goods sector reported demand stabilising or even growing as their customers were no longer destocking. Contacts in the consumer goods sector reported reasonable growth overall. Segments that had been performing well recently – such as personal care and luxury goods – saw ongoing positive momentum, while demand for household appliances seemed to be stabilising, albeit at a low level. There were also reports that demand for consumer electronics was starting to recover. Retailers were nevertheless still quite downbeat about the overall outlook for the retail sector. Moreover, contacts in the agri-food industry saw no reversal yet in the "downtrading" spending pattern of food consumers but neither further deterioration. Growth in demand for consumer services – in particular tourism (based, for example, on hotel bookings and on airlines' reserved take-off and landing slots) – looked set to continue, albeit with notable variation across countries.

The investment outlook remained more subdued. Contacts in, or supplying, the capital goods industry pointed mostly to still declining demand and falling production, which were reflecting the effect of the recent monetary policy tightening and diminishing order backlogs. Suppliers of machinery and equipment expected at least another one or two quarters of contraction. In the automotive sector, disappointing EV sales were having a dampening effect on passenger car production, while commercial vehicle production was undergoing a downward correction from previously high levels. The outlook for construction remained bleak, with the ongoing sharp decline in residential activity only partly offset by growth in infrastructure spending. Most contacts in, or supplying, the industry did not expect residential investment to start recovering before 2025. Uncertainty about house prices amid low transaction volumes was an important factor holding back business, although there were signs of transactions starting to pick up as mortgage rates eased somewhat.

Contacts generally concurred with a baseline narrative of a gradual but modest recovery in activity over the course of the year. Whether or not they saw evidence of this yet, most contacts agreed that lower inflation and hence rising real wages should lead to some recovery in consumer spending. In spite of the still widespread geo-political uncertainty, growth in consumption would then be followed by higher investment. Several contacts nonetheless considered that lower interest rates would be important to stimulate demand. Moreover, some stressed that growth in the euro area would still lag that in other regions, owing to adverse demographics, various regulatory headwinds and investment that, in some sectors, was increasingly geared to delivering climate goals rather than raising productive capacity.

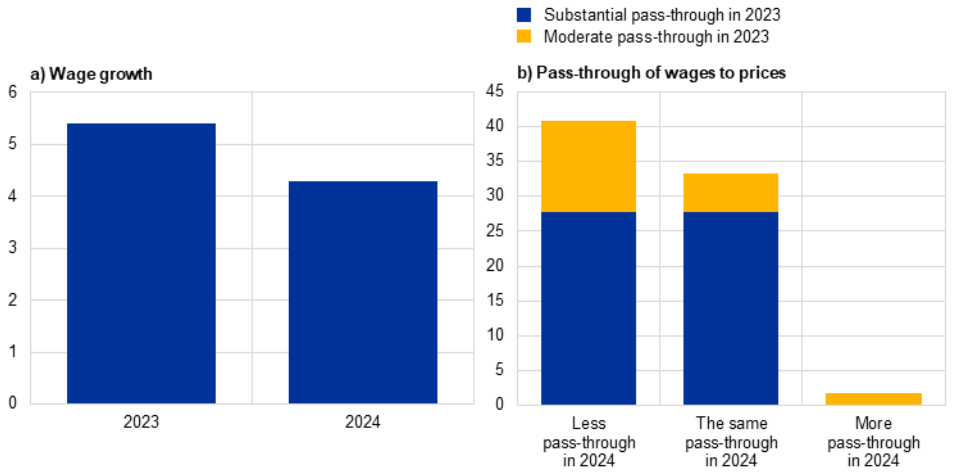
Contacts described a weak employment outlook amid limited recruitment needs and a continued focus on cost containment. While there was considerable variation across countries and sectors, the aggregate employed trend described was negative, with reductions particularly focused in the more energy-intensive parts of the intermediate goods sector, the automotive supply chain, agriculture and retail. In these sectors, employment was being adjusted to lower levels of demand. More generally, firms were seeking efficiency savings where possible, to contain unit labour costs in a context of rising wages. This adjustment could generally be achieved by limiting vacancies in light of high retirement rates, so forced lay-offs were rare. Employment agencies corroborated the perception of an overall weak job market, with firms reluctant to offer new positions and potential candidates also increasingly unwilling to change jobs. Notwithstanding, contacts in sectors with increasing employment needs still found recruitment a challenge, either generally (in the case of labour-intensive services) or for specific skills (e.g. those needed to deliver the energy transition).

Contacts reported a slight uptick in price growth, mainly due to a rebound in the prices of some intermediate goods and services, but growth in prices closer to the final consumer continued to ease gradually (Chart A and Chart B, panel b). The prices of intermediate goods such as steel, chemicals and paper had fallen to extremely low levels in late 2023 and, despite the aforementioned pick-up in demand supporting a partial recovery in these prices, they still stood at low levels. At the same time, the disruption to shipping in the Red Sea area and the application of the EU Emissions Trading System to shipping to and from ports within the European Union were factors pushing up transport costs, albeit from low levels. The overall price and cost environment in the industrial sector was nevertheless reported to be rather stable overall. Contacts in the consumer goods and retail sectors described an increasingly challenging pricing environment, characterised by tough negotiations between suppliers and retailers, although this environment remained more favourable for luxury goods and personal care products. Food prices had largely stabilised and in some cases were even falling, although specific products continued to be affected by climate-induced shortages. Growth in selling prices remained robust in the labour-intensive services sectors (e.g. travel and tourism, hospitality and employment services) and in areas such as media, telecoms and software, but had started to moderate slightly.

Chart C

Quantitative assessment of wage growth and pass-through of wages to prices

(panel a: percentages, panel b: percentage of respondents)



Source: ECB.
Notes: Panel a – Contacts' perception of wage growth in their sector in 2023 and their expectation for 2024. Panel b – Contacts' assessment of the extent to which wage costs were passed through to selling prices in their sector in 2023 and whether they expect the pass-through to be smaller, the same or larger in 2024. The chart excludes respondents (around one-quarter) who said that there was no pass-through of wages to prices in either 2023 or 2024 because this did not reflect the pricing model or strategy in their sector.

Contacts continued to expect wage growth to ease somewhat this year and indicated that the pass-through to selling prices would be weaker than last year (Chart C). Taking a simple average of the quantitative indications provided, contacts expected wage growth to decrease from around 5.4% in 2023 to 4.3% in 2024. This was in line with the indications from the January 2024 survey round. As stated at the time, there was still an element of catch-up in actual or expected wage agreements for 2024 for some companies and sectors. However, most contacts now saw the easing of inflation and subdued demand as factors contributing to a moderation, or even normalisation, of wage growth. In 2023, a still dynamic pricing environment had supported the pass-through of rising wage costs to prices. In the industrial sectors, especially, the falling prices of other inputs (e.g. materials, energy and transport) had made it possible to maintain or even increase profit margins in spite of rising unit labour costs. In 2024, however, a more stable price and cost environment and increased competition meant that rising wage costs would have to be offset through productivity gains or be absorbed by profit margins to a greater extent.

6 Decomposing HICPX inflation into energy-sensitive and wage-sensitive items

Prepared by Bruno Fagandini, Eduardo Goncalves, Ieva Rubene, Omiros Kouvavas, Katalin Bodnar and Gerrit Koester

Understanding the role of different factors behind inflation developments is important for monetary policy. Because of their large share in input costs, especially in the services sector, changes in wage costs are an important factor for developments in HICP inflation excluding energy and food (HICPX inflation). Energy costs account usually for a smaller share of input costs than wages – but in the event of large swings in energy prices they can also have a very substantial impact on HICPX inflation.[1] While energy price movements often have their origin in the external environment, movements in wages are typically more domestically determined. To the extent that energy and wage costs are passed through to consumer prices for goods and services, these also affect HICPX inflation. For instance, the marked increase in HICPX inflation which started in the second half of 2021 and peaked in early 2023 can be linked to indirect effects from the surge in energy prices. The fact that HICPX inflation was relatively persistent for some months after that period, at a time when energy prices were falling, could be linked to high wage growth.

Data from different sources can be matched to derive indicators that show the importance of energy and wage costs for HICPX inflation. Eurostat's input-output tables illustrate the structure of the economy in terms of the inputs used and outputs generated in each sector – allowing inter-sectoral linkages to be analysed.[2] This information can be used to derive the direct and indirect shares of energy and wage inputs in all sectors of the economy (according to the NACE 2 classification).[3] The indicator of the importance of energy in the HICPX is computed by estimating energy costs relative to the total output of each sector. This estimate takes into account the direct costs and the indirect costs (via the use of intermediate inputs from other industries) of energy in the production of items in the HICPX.[4] The wage indicator is then obtained using the share of wages in total (labour and non-labour) input costs. Only the direct input costs from wages are taken into account, as the indirect costs via intermediate inputs from other industry and services sectors are likely to occur with some lag because wage-setting is normally staggered. It is also likely that changes in non-labour input costs, such as energy costs, will feed more quickly through the pricing chain as a whole than changes in labour costs, as they are more

1 See the box entitled "Underlying inflation measures: an analytical guide for the euro area", *Economic Bulletin*, Issue 5, ECB, 2023.

2 For more information see Remond-Tiedrez, I. and Rueda-Cantuche, J.M. (eds.),"EU inter-country supply, use and input-output tables – Full international and global accounts for research in input-output analysis (FIGARO)", *Statistical Working Papers*, Eurostat, European Union, 2019.

3 The energy and wage shares estimated for the purpose of these indicators are based on the Eurostat symmetric input-output table for 2019. The classification may change when more recent input-output tables become available.

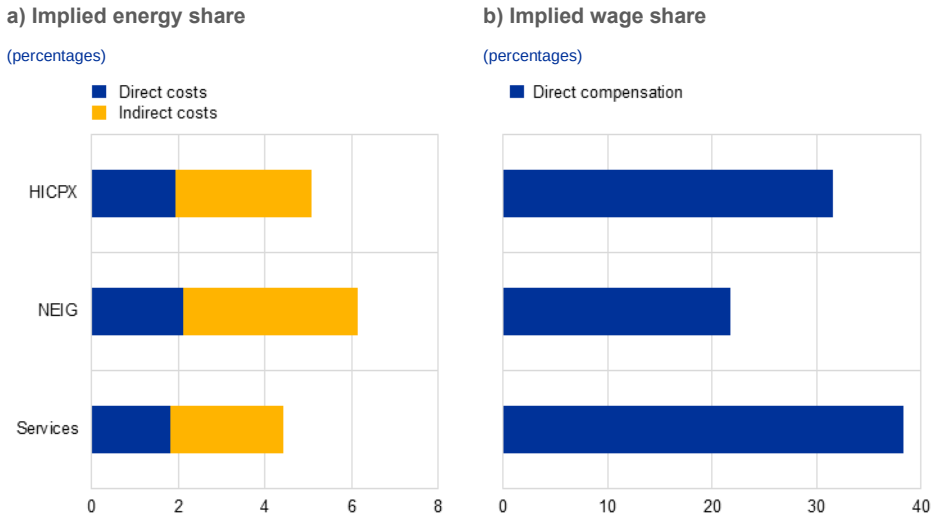
4 These indicators do not capture second-round effects on consumer prices via subsequent possible adjustments in prices and wages.

visible to all parties in the chain. The sectors of the economy according to the NACE 2 classification are then matched with the 211 items in the HICPX basket (based on the ECOICOP 5-digit classification), which allows each item to be classified according to the shares of energy and wages in its costs. This is seen to reflect the sensitivity of the items to the changes in energy and wage costs.[5]

The indicators show that energy accounts for a somewhat larger share of costs for non-energy industrial goods (NEIG) than for services, while wages are especially important in services (Chart A). In the euro area, total energy costs account for a weighted average of around 5.1% of the total output costs for HICPX items. The share is somewhat larger for NEIG (around 6%), reflecting a larger contribution from indirect costs than for services (around 4.5%). Indirect energy costs make up around half of total energy costs in the HICPX and the services component, but have a larger share (around two-thirds) in the NEIG component. This is in line with intermediate non-labour inputs playing a larger role in goods production. For wages, the average direct share in costs for HICPX items is 32%, with a somewhat larger share in services (38%) and a smaller share in NEIG (22%).[6]

Chart A

Implied energy and wage shares in euro area HICPX



Sources: Eurostat and ECB calculations.
Notes: Direct and indirect cost shares are calculated using the Eurostat symmetric input-output table for 2019. HICPX and services inflation in panel a) exclude rents, which have a wage share of close to zero. Direct costs are the share of energy used for production, whereas the indirect share captures the impact of energy costs via the use of intermediate inputs from all other sectors of the economy. Implied energy shares are calculated relative to total output, whereas implied wage shares are calculated relative to total (labour and non-labour) input costs.

Once HICPX items have been identified as energy-sensitive or wage-sensitive, these can be aggregated to obtain the corresponding inflation rates. To

5 The use of the ECOICOP 5-digit classification means that the derived indices start as of January 2017 (and annual inflation rates as of January 2018).

6 The thresholds for wage-sensitivity and energy-sensitivity, as well as the subsequent classification of the consumer price index items, are affected by whether total output or only total inputs (labour and non-labour) are used as the denominator and also depend on whether only direct or also indirect effects (via intermediate inputs) are taken into account. These choices may yield somewhat different implied inflation rates for the energy-sensitive and wage-sensitive HICPX, but the dynamics in these rates and their indications for the role of wage and energy costs in the development of HICPX inflation are very similar and robust across these choices.

construct wage-sensitive and energy-sensitive indices, thresholds are chosen above which HICPX items are considered wage-sensitive or energy-sensitive. For the indicators described in this box, an item is classified as energy-sensitive if its energy cost share is greater than the average for, respectively, NEIG (6.1%) and services (4.4%). The resulting energy-sensitive sub-basket of the HICPX covers around 36% of the total HICPX basket (based on 2023 HICP weights).[7] For wage-sensitive items, the threshold is set at 38% on the basis of the average share of direct wage costs in total inputs for services items.[8] For the NEIG basket, no item has a share of wages in direct input costs above the threshold – which is why the wage-sensitive HICPX indicator includes only services items.[9] Applying separate thresholds for NEIG and services based on the average shares of wages in input costs in these two categories would have led to several NEIG items (e.g. newspapers, jewellery or cleaning equipment) being classified as wage-sensitive despite having only a relatively small share of wage costs. Their prices would likely be affected to a much smaller degree than services prices by changes in wages. The threshold applied thus allows wage-sensitivity to be effectively captured at the HICPX level.

The resulting indicator for energy-sensitive HICPX illustrates the important role of the past energy shock in HICPX inflation developments over the last few years (Chart B). While differences between energy-sensitive and not energy-sensitive HICPX inflation rates were small until mid-2021, energy-sensitive HICPX inflation subsequently increased more strongly than HICPX inflation, especially in 2022. Following the marked decreases in energy prices more recently, a large part of the gap has now closed.

7 Energy-sensitive HICPX items according to the ECOICOP 5-digit classification are the following: 03141, 03142, 04310, 04410, 05122, 05401, 05402, 05403, 05521, 05522, 05611, 05612, 07211, 07224, 07241, 07242, 07243, 07311, 07312, 07321, 07322, 07331, 07332, 07341, 07342, 07350, 07361, 07362, 07369, 08101, 08109, 09331, 09332, 09341, 09342, 09411, 09412, 09423, 09425, 09429, 09541, 09601, 09602, 11111, 11112, 11120, 11201, 11202, 11203, 12111, 12112, 12113, 12132 and 12703 (all other items of the HICPX are classified as not energy-sensitive).

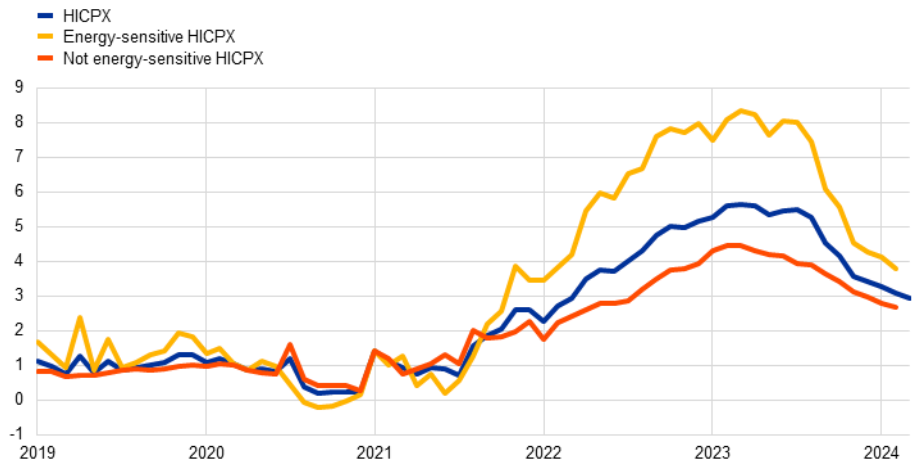
8 The average share for energy and wage input costs for NEIG and services is obtained as the weighted average across the respective basket after the sectoral level shares have been mapped from the input-output tables to the HICP items.

9 Wage-sensitive HICPX items according to the ECOICOP 5-digit classification are the following: 03141, 03220, 04321, 04322, 04323, 04324, 04325, 04329, 04420, 04430, 04441, 04442, 05123, 05130, 05204, 05330, 05404, 05523, 05621, 05622, 05623, 05629, 06133, 06211, 06212, 06220, 06231, 06232, 06239, 06300, 07230, 08101, 08109, 09150, 09230, 09323, 09411, 09412, 10101, 10102, 10200, 10300, 10400, 10500, 12111, 12112, 12113, 12122, 12313, 12323, 12401, 12402, 12403, 12404, 12701, 12703 and 12704 (all other items of the HICPX are classified as not wage-sensitive). The wage-sensitive HICPX indicator comprises only services items. It is therefore identical to the wage-sensitive services indicator.

Chart B

Developments in energy-sensitive HICPX inflation

(annual percentage changes)



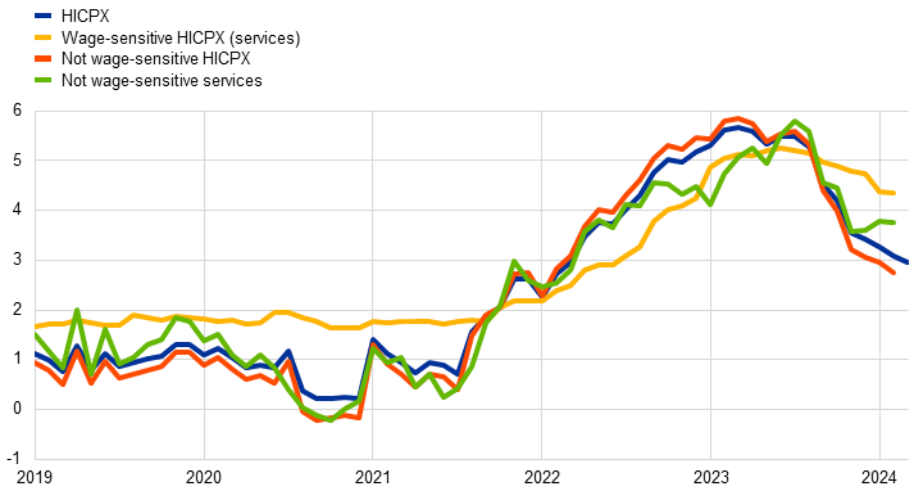
Sources: Eurostat and ECB staff calculations.
Note: The latest observations are for February 2024 for energy-sensitive and not energy-sensitive HICPX, and March 2024 for HICPX (flash estimate).

The indicator for wage-sensitive inflation points to an important role for wages as a driver of HICPX inflation in the euro area more recently (Chart C). Given the inertia in wage-setting in euro area countries and the resulting persistence in wage growth, wage-sensitive HICPX inflation was relatively stable at levels around 2% in 2018 and 2019 – in line with the long-term average growth of unit labour costs in the euro area. The gap between the wage-sensitive and not wage-sensitive HICPX rates over this period may reflect compensation per employee growth above HICPX inflation and thus suggest greater dampening pressures from non-labour input costs than from labour costs as well as downward nominal wage rigidities. With the surge in headline inflation starting in the second half of 2021, wage-sensitive HICPX inflation first increased more gradually than not wage-sensitive HICPX and services inflation, which were more strongly affected by the energy input cost surge and supply shortages. However, since mid-2023 wage-sensitive HICPX inflation (which by construction is equal to wage-sensitive services inflation) has been persistently above HICPX – reflecting the high level of wage growth and indicating that wages and labour costs have become an important factor behind the relative persistence of HICPX inflation in the euro area. Not wage-sensitive services inflation has declined to a greater extent, as for this indicator the considerable easing of energy input cost pressures and upward pressures from supply shortages have played a more important role.

Chart C

Developments in wage-sensitive HICPX inflation

(annual percentage changes)



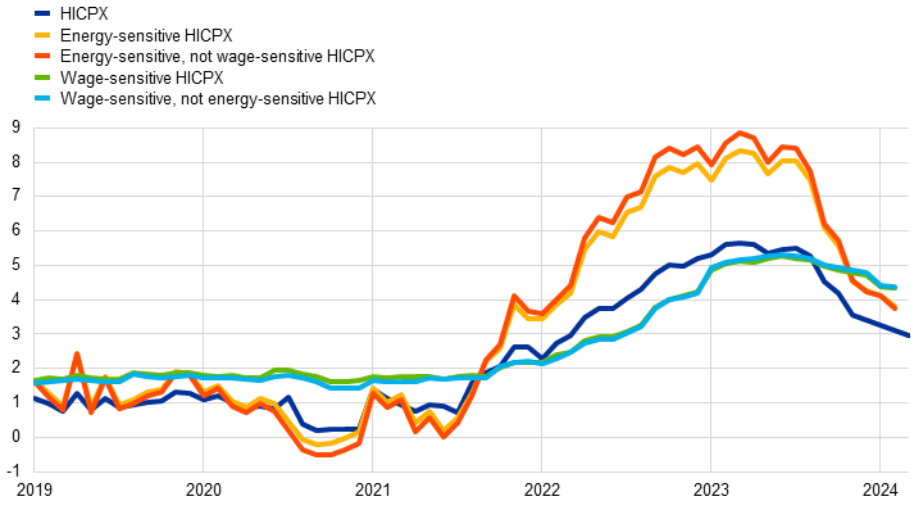
Sources: Eurostat and ECB staff calculations.
Note: The latest observations are for February 2024 for wage-sensitive and not wage-sensitive HICPX, and March 2024 for HICPX (flash estimate). By construction the indicator for wage-sensitive HICPX is identical to an indicator for wage-sensitive services, because they comprise the same set of items (only services items are included in the wage-sensitive HICPX).

The items underlying the calculation of the proposed indicators of wage-sensitive and energy-sensitive HICPX have little overlap, which helps the interpretation of their signals. Excluding items that are classified as both wage and energy-sensitive has very limited effect on the dynamics of the two indicators (Chart D). This makes it easier to use the indicators to understand the respective roles of wages and energy in the development of HICPX inflation.

Chart D

Role of energy-sensitive and wage-sensitive components in HICPX inflation

(annual percentage changes)



Sources: Eurostat and ECB calculations.
Note: The latest observations are for February 2024 for the four wage/energy-sensitive indicators and March 2024 for HICPX (flash estimate).

7 The role of technical factors in euro area inflation-linked swap rates

Prepared by Asger Munch Grønlund, Kasper Jørgensen and Fabian Schupp

This box looks at whether euro area inflation-linked swap (ILS) rates purely reflect inflation compensation – or if these also reflect "technical" factors, which would reduce their information content. When long-term ILS rates for the euro area peaked at 2.7% in summer 2023, their underlying drivers and their information content for monetary policy purposes came under scrutiny. Conceptually, ILS rates comprise the genuine inflation expectations of market participants plus inflation risk premia – referred to together as "inflation compensation" – in the absence of market imperfections. According to asset-pricing theory, risk-averse investors demand inflation risk premia as compensation for being exposed to inflation risk, which is typically positive in periods dominated by aggregate supply shocks.[1] However, owing to market imperfections, ILS rates may not solely reflect inflation compensation as narrowly defined above. For instance, a pension fund that was subject to regulation as regards its exposure to risks might be willing to pay more to hedge inflation risk than one would anticipate on the basis of its inflation expectations and a measure of uncertainty about the inflation outlook. Instrument-specific liquidity risk premia could also create a wedge between ILS rates and pure inflation compensation. This box uses the catch-all term "technical factors" to cover all additional components arising from market imperfections.

We propose a simple econometric model which quantifies the share of total variation in euro area ILS rates that can be explained by inflation compensation in a narrow sense, thereby quantifying the role played by any technical factors. Our method adds a new econometric perspective and complements existing qualitative and quantitative approaches to identifying technical distortions in market-based measures of inflation compensation.[2] We do not decompose inflation compensation into genuine inflation expectations and inflation risk premia, instead regarding the two components as a single fundamental factor.[3]

Our econometric approach is based on the idea that all relevant information about pure inflation compensation (i.e. inflation compensation excluding any technical factors) should be reflected in nominal overnight index swap (OIS) rates. Conceptually, €STR OIS rates should comprise euro area real rates plus inflation compensation. Hence, we test the hypothesis that ILS rates mainly reflect

1 See Campbell, J.Y., Sunderam, A. and Viceira, L.M., "Inflation Bets or Deflation Hedges? The Changing Risks of Nominal Bonds", *Critical Finance Review*, Vol. 6, No 2, 2017, pp. 263-301.

2 See Work stream on inflation expectations, "Inflation expectations and their role in Eurosystem forecasting", *Occasional Paper Series*, No 264, ECB, 2021. The authors of that paper assess potential technical factors in ILS markets using analysis of market depth, activity indicators and regression analyses, estimating the sensitivity of ILS rates to bid-ask spreads for inflation-linked bonds (ILBs) and other liquidity indicators.

3 For more information on model-based decompositions of ILS rates into genuine expectations and inflation risk premia, see the box entitled "Decomposing market-based measures of inflation compensation into inflation expectations and risk premia", *Economic Bulletin*, Issue 8, ECB, 2021.

inflation compensation by estimating the variation in ILS rates that can be explained by information inferred from OIS rates. We assume that nominal OIS rates are explained by a factor model: the OIS rate for each maturity is the weighted sum of a small set of (possibly unobservable) economic pricing factors, with each maturity having its own weights. Real OIS rates are assumed to be weighted sums of the same pricing factors, but with different weights. Accordingly, the (unobserved) inflation compensation contained in OIS rates is also, necessarily, a weighted sum of the underlying pricing factors. Suppose that observable ILS rates reflect not only fundamental inflation compensation, but also an ILS-specific technical factor (e.g. a liquidity premium). That additional driver would not form part of the aforementioned fundamental pricing factors. In that case, if we back out pricing factors from OIS rates (using statistical principal component analysis, for example) and regress ILS rates on those factors, any ILS-specific technical factors not covered by OIS rates will show up in the residual.[4,5]

The share of total variation that is not explained by this simple econometric model constitutes an upper bound for the role of technical factors. If those technical factors are all absent, theory suggests that all variation should be explained by the fundamental factors, and the regression will thus achieve an R^2 of 1.[6] In practice, even in the absence of technical factors, such an extreme result seems unlikely for several reasons. First, the underlying OIS factors are not directly observable (requiring estimation on the basis of a finite sample). Second, there may be non-linearities in the relationship between OIS rates and the pricing factors (e.g. owing to the effective lower bound on nominal interest rates). Third, ILS rates are affected by an indexation lag, whereas OIS rates, being purely forward-looking, are not. And fourth, the pricing factors recovered from OIS rates may not capture "hidden" factors that have opposing impacts on the inflation compensation and real rate components of OIS rates such that those components offset each other completely.[7] By implication, this means that if the regression model, despite those reasons, still produces a high value for R^2, technical factors are unlikely to be making a meaningful contribution to the dynamics of ILS rates.

Our empirical results suggest that euro area ILS rates mainly reflect pure inflation compensation, with little room for technical factors outside of some short-lived distortions in short-term ILS rates at times of extreme market volatility. Using the model outlined above, we regress ILS rates with maturities of one to ten years on the first three principal components inferred from OIS rates with maturities of between three months and ten years, as well as realised

4 In addition to the pricing factors inferred from OIS rates, our model also includes measures of realised inflation in order to account for the fact that, by contrast with OIS rates, ILS rates are subject to an indexation lag, which the OIS pricing factors may not properly reflect. The indexation lag means that the final pay-off for an ILS contract will depend on year-on-year inflation realised three months prior to the end of the contract.

5 It is possible that OIS rates are also driven by OIS-specific technical factors. This is not an issue, since such factors would simply be redundant for ILS rates: the ILS weights on such factors would be zero.

6 Speck, C., "Break-Even Inflation Rates for the Euro Area", *Discussion Papers*, Deutsche Bundesbank, forthcoming, follows the same approach for bond-based break-even inflation. However, the analysis in that paper builds on principal components drawn from German Bund yields and does not – unlike this box – include other control variables such as measures of realised inflation.

7 In such a situation, OIS rates would not load on such factors, while inflation compensation would, and principal component analysis of OIS rates, for example, would not be able to identify those factors.

month-on-month and year-on-year headline inflation.[8] Overall, the regression model fits observed ILS rates very well, meaning that the fitted series closely reflect the observed levels and dynamics of ILS rates across maturities (see Charts A and B for one-year forward rates one year ahead and five-year forward rates five years ahead respectively).[9] This is also reflected in a high average R^2 of 0.9 across maturities (see the blue bars in Chart C), with the room for technical factors being slightly larger for the shortest maturities.[10] While the residuals are small on average, there are a few periods where they deviate more significantly from zero – most notably, the global financial crisis, the start of the COVID-19 pandemic and the aftermath of the Russian invasion of Ukraine. As those were periods of heightened market volatility, it is not unreasonable to think that the signal from market-based measures of inflation compensation could have been distorted somewhat by factors other than inflation expectations and inflation risk premia. However, the deviations are only short-lived, as reflected in the near-zero means for the residuals in each individual year in the sample, while the volatility of the residuals – as captured by their standard deviation – spikes in the years that include those episodes (see Charts A and B).

8 Realised inflation is included in order to account for the indexation lag in ILS rates. For example, a one-year ILS contract in month t would be linked to inflation developments between t-3 and t+9, while a similar one-year OIS contract would be tied to €STR developments between t and t+12. In addition, we add a dummy that equals one as of 2021 and interaction terms with this dummy for all explanatory variables in order to account for the possibility that the recent period of high inflation might have caused a structural break.

9 Indeed, the results confirm that while a regression model based solely on OIS factors produces a good fit, adding realised inflation significantly improves that fit, particularly at shorter maturities where the indexation lag matters more. This is consistent with findings for the UK inflation market in Bahaj, S., Czech, R., Ding, S. and Reis, R., "The market for inflation risk", *Staff Working Papers*, No 1028, Bank of England, 2023.

10 Although OIS and ILS rates are both persistent, with autocorrelations close to one, the level regressions do not appear to be spurious. Ex ante, if OIS and ILS rates were non-stationary, we would expect them to be cointegrated. Indeed, we reject the null hypothesis that the residuals are I(1) for all maturities, indicating that OIS and ILS rates are cointegrated (see Engle, R. and Granger, C., "Co-integration and error correction: Representation, estimation, and testing", *Econometrica,* Vol. 55, No 2, 1987, pp. 251-276).

Chart A

Fit for one-year forward ILS rates one year ahead

(left-hand scale: percentages per annum; right-hand scale: percentage points)

Sources: Bloomberg and ECB calculations.
Notes: This chart depicts: (i) one-year forward ILS rates one year ahead implied by observed spot ILS rates (blue line); (ii) fitted one-year forward ILS rates one year ahead derived by regressing implied ILS forward rates on the first three principal components drawn from EONIA/€STR OIS rates and realised month-on-month and year-on-year HICP inflation in the euro area (yellow line); and (iii) the residuals for that regression, computed as the difference between observed and fitted ILS rates (green line). The latest observations relate to February 2024.

Chart B

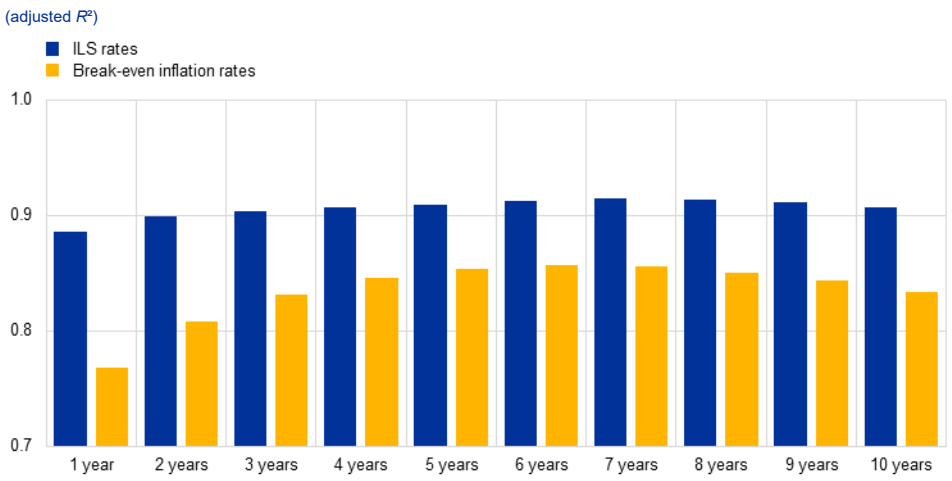
Fit for five-year forward ILS rates five years ahead

(left-hand scale: percentages per annum; right-hand scale: percentage points)

Sources: Bloomberg and ECB calculations.
Notes: This chart depicts: (i) five-year forward ILS rates five years ahead implied by observed spot ILS rates (blue line); (ii) fitted five-year forward ILS rates five years ahead derived by regressing implied ILS forward rates on the first three principal components drawn from EONIA/€STR OIS rates and realised month-on-month and year-on-year HICP inflation in the euro area (yellow line); and (iii) the residuals for that regression, computed as the difference between observed and fitted ILS rates (green line). The latest observations relate to February 2024.

Chart C

Variation in euro area ILS rates and break-even inflation rates that can be explained by OIS factors and realised inflation



Sources: Bloomberg and ECB calculations.
Note: This chart depicts the R^2 derived by regressing euro area ILS rates and break-even inflation rates (BEIRs) on the first three principal components drawn from EONIA/€STR OIS rates and realised month-on-month and year-on-year HICP inflation in the euro area.

However, our analytical framework suggests that there is more room for technical factors in euro area BEIRs inferred from inflation-linked bonds. The regressions using BEIRs derived from the bond market generally have a lower R^2 (see the yellow bars in Chart C). This is consistent with the commonly held view that BEIRs are more prone to technical factors owing to the relatively low levels of liquidity in the ILB market.[11] These results suggest that the average R^2 of 0.9 achieved for euro area ILS rates is strikingly high and that such high levels of explanatory power are not common. In particular, such high levels are not seen in markets with relatively low levels of liquidity, such as the ILB market.

11 The supply of bonds is constrained by the fairly mechanical issuance and tapping schedules of debt management offices, resulting in relatively low price elasticity of supply. It is a well-established fact that this relatively inelastic supply and the low total outstanding volume of €500 billion means that BEIRs based on government bonds contain a liquidity premium (see Fleckenstein, M., Longstaff, F.A. and Lustig, H., "The TIPS-treasury bond puzzle", *The Journal of Finance*, Vol. 69, No 5, 2014, pp. 2151-2197). In contrast, there are few constraints on the supply of ILSs, as any two market participants can essentially agree bilaterally to "create" a new swap at will, which is reflected in a very high price elasticity of supply.

8 The reformed EU fiscal framework – potential macroeconomic implications for the euro area

Prepared by Othman Bouabdallah, Cristina Checherita-Westphal, Sebastian Hauptmeier and Philip Muggenthaler

This box presents a preliminary assessment of the potential macroeconomic implications for the euro area of the adherence of member countries to the revised rules of the Stability and Growth Pact (SGP) over the period 2025-26.[1] In light of the provisional political agreement reached by the EU co-legislators on 10 February 2024, this box analyses possible implications of the reform for the euro area's fiscal stance, as well as for the growth and inflation outlook according to the March 2024 ECB staff macroeconomic projections for the euro area.[2] The relevant horizon for the analysis is the period 2025-26, as the revised fiscal rules are expected to take effect from 2025.

The newly agreed fiscal framework relies on a debt sustainability analysis (DSA) to derive medium-term fiscal adjustment trajectories, combined with numerical safeguards in terms of debt reduction and deficit resilience. EU Member States with public debt ratios above 60% of GDP and/or deficits higher than 3% of GDP in 2024 must submit a medium-term fiscal structural plan on the basis of a reference trajectory provided by the European Commission.[3] The adjustment path contained in the national plan will cover a period of four years (2025-28), which is extendable to up to seven years (2025-31) if it is underpinned by commitments to investment and reforms (including those financed under the Recovery and Resilience Facility). The fiscal adjustment, which will be operationalised via multiannual net expenditure trajectories, is set as the maximum resulting from the following two criteria:

(i) **DSA-based trajectory:** the debt ratio beyond the chosen adjustment horizon (four to seven years) must be on a plausibly and continuously declining path, as demonstrated via:

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1 Following the European Commission's legislative proposals of April 2023, the ECOFIN Council reached agreement on a reform of the fiscal rules underpinning the EU's Stability and Growth Pact on 20 December 2023. For more details, see the Council of the EU press release of 21 December and the accompanying draft Council regulations. While keeping the Council compromise largely intact, the February provisional agreement, which is still pending adoption by the European Parliament, envisages excluding national expenditure on the co-financing of EU-funded programmes from the expenditure path in order to create more incentives to invest. This exclusion does not affect the quantitative estimates in this box.

2 See "ECB staff macroeconomic projections for the euro area, March 2024", published on the ECB's website on 7 March 2024.

3 Countries whose starting deficit level (in 2024) is below 3% of GDP and starting debt level is below 60% of GDP will, upon request, only receive "technical information" from the Commission as guidance to draw up their national medium-term fiscal structural plans. According to the European Commission's Autumn 2023 Economic Forecast, these countries are Estonia, Ireland, Croatia, Lithuania, Luxembourg and the Netherlands. In the simulations considered in this box, these countries are assumed to request the technical information from the Commission and to make additional consolidation efforts if required by the new framework.

1. deterministic DSA scenarios (i.e. the debt ratio should decline over a ten-year period along a baseline adjusted for the most demanding of three shock scenarios); and

2. stochastic DSA analysis (i.e. the debt ratio should be on a declining path over a five-year horizon with 70% probability).[4]

(ii) **Correction under an excessive deficit procedure (EDP):** if the budget deficit is higher than 3% of GDP, Member States must correct it by making a minimum annual adjustment of 0.5 percentage points of GDP. This adjustment will relate to the structural primary balance for the transitional period 2025-27, and to the structural balance afterwards.

In addition, two safeguards apply under the SGP's preventive arm, and these are shared across countries:

(iii) **Debt sustainability safeguard:** countries with a debt ratio in 2024 that is higher than 90% of GDP must reduce it by a minimum annual average of 1 percentage point of GDP, while those with a debt ratio lower than 90% of GDP must reduce it by 0.5 percentage points of GDP.[5]

(iv) **Deficit resilience safeguard:** fiscal adjustment must ensure there is a safety margin before the Treaty-based deficit threshold of 3% of GDP is reached, i.e. before the structural balance reaches -1.5% of GDP. To this end, the required annual improvement in the structural primary balance will be 0.4 percentage points of GDP for a four-year adjustment path, and 0.25 percentage points for a seven-year path.

Based on these requirements, several fiscal adjustment scenarios are considered for the euro area over the period 2025-26 (Chart A, left column). The scenarios start from the "face value" adjustment path that satisfies the above requirements based on the European Commission's Autumn 2023 forecast.[6] The implied annual average adjustment requirements are calibrated in terms of changes in the structural primary balance for the four and seven-year adjustment paths. The analysis also considers these scenarios relative to the March 2024 ECB staff projections baseline (shown as striped lines) by netting out the adjustment – in terms

4 For the deterministic DSA scenarios, the shocks are designed as: (1) a higher interest rate-growth differential (r-g); (2) a financial stress event; and (3) a lower structural primary balance (SPB) path. The most binding in almost all cases is the r-g shock, conceived as a 1 percentage point higher r-g (0.5 percentage point higher interest rate and 0.5 percentage point lower growth). The financial stress event embeds a 1 percentage point higher marginal interest rate shock, and the SPB scenario a lower (-1 percentage point of GDP) SPB path.

5 This condition, which is specifically intended for high debt countries to ensure a minimum level of debt reduction, is applicable over the adjustment period (2025 to 2028 or 2031). However, in the case of countries under deficit-based EDP, it is only applicable after the year in which the EDP is abrogated.

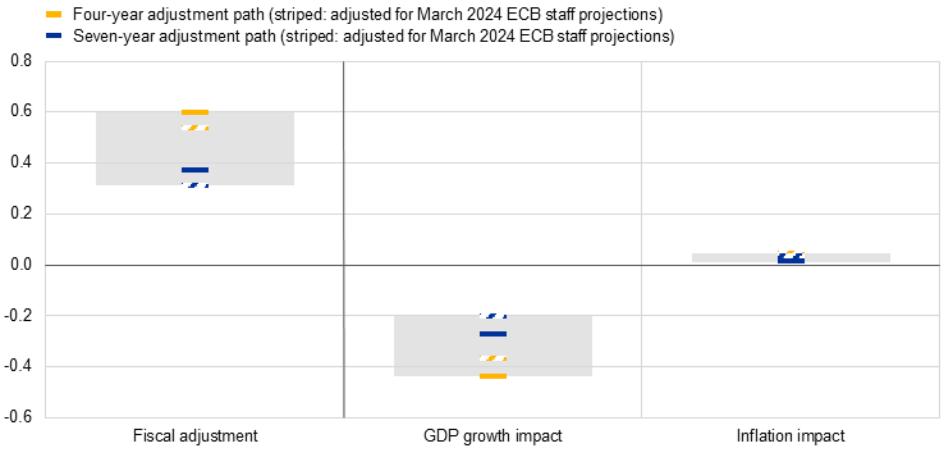
6 The provisional agreement among EU co-legislators envisages national medium-term fiscal-structural plans being submitted to Member States by 20 September 2024. The Commission would transmit prior guidance, in the form of reference trajectories, to Member States by 21 June 2024 at the latest. These reference trajectories would be based on the Commission's Spring 2024 Economic Forecast.

of the change in the structural primary balance – that is already embedded in this baseline.[7]

Chart A

Euro area fiscal adjustment scenarios under the reformed EU fiscal framework and their potential macroeconomic implications over the period 2025-26

(percentage points of GDP and percentage points, annual averages over 2025 and 2026)



Sources: ECB staff calculations, European Commission Autumn 2023 Economic Forecast and March 2024 ECB staff macroeconomic projections for the euro area.
Notes: Fiscal adjustment in percentage points of GDP (the figures do not reflect revisions in ageing costs available after the cut-off date of the calculations in this box). Positive figures denote additional fiscal tightening. The scenarios presented assume that countries do not make use of the margin of deviation allowed under the "control account". The macroeconomic impacts refer to deviations in percentage points from the baseline. The impacts are calculated per year (and also reflect lagged effects of the fiscal shock in the preceding year) and then averaged across 2025 and 2026. The simulation results for the euro area aggregate are averages across a range of three ECB and Eurosystem macroeconomic models used in the projections. Simulations are conducted at individual country level and then aggregated at the euro area level with two of the models, while with the other model the fiscal shock is first aggregated at the euro area level before its macro effects are simulated.

In terms of the impact on the euro area aggregate fiscal stance, adherence to the reformed EU fiscal framework would, overall, imply some additional fiscal tightening over 2025-26 compared with the March 2024 ECB staff projections baseline. Depending on the length of the adjustment period (four to seven years), at face value the scenarios assume that governments would take consolidation measures under the new framework amounting to 0.4 to 0.6 percentage points of GDP, on average, over 2025-26, while in the scenario adjusted for the effort already included in the ECB baseline, these consolidation measures would amount to between 0.3 and 0.5 percentage points of GDP.[8] In particular, the scenarios that assume that all countries would opt for a four-year adjustment period can be considered as upper bounds for the 2025-26 period.

The fiscal scenarios considered in this box imply some downside risks to growth, although these are rather small, while the impact on inflation is limited

7 This adjustment amounts to 0.13 percentage points of GDP in 2025 and is close to zero in 2026. The scenarios relative to the ECB baseline also take into account any changes in fiscal measures since the December 2023 Eurosystem staff projections, whose cut-off date is close to the Commission's Autumn Economic Forecast. Finally, according to ECB calculations, the average annual effort implied by the change in the structural primary balance and the expenditure benchmark (the latter will be used in specifying the measures of the respective plans) are similar at the euro area aggregate level.

8 The "face value" scenarios assume that governments take new consolidation measures in addition to those already included in the ECB projections baseline.

(Chart A, middle and right columns). The simulations consider a country-specific composition of fiscal adjustment whenever reliable information exists. This composition is tilted towards cuts in public transfers and government consumption. Otherwise, a standardised composition is assumed, with an equal share for four fiscal instruments (fiscal transfers, government consumption, indirect taxes, and direct taxes and social security contributions). Given that government investment is intended to be preserved under the revised fiscal framework (especially when taking into account public investment and structural reforms extending over a seven-year adjustment horizon), this instrument is excluded from the assumed consolidation measures. Overall, at the euro area aggregate level, the scenarios assume that 70% of the consolidation will be implemented on the expenditure side and 30% on the revenue side (with less than half of the latter, or 13% of the total, being implemented via net indirect taxes). Given this composition, the scenarios using the March 2024 ECB staff projections as a direct benchmark would entail only moderate GDP effects, especially when the adjustment is over a seven-year horizon. The inflation effects are generally limited. The very small positive inflation effect is due to the fact that the increase in (net) indirect taxes (which can originate from higher indirect taxes and/or cuts in product subsidies) has an immediate, albeit temporary, positive effect on inflation, while the demand effect of changes in other fiscal instruments (dampening inflation) is smaller and materialises more gradually.

The size and nature of the fiscal adjustment requirements and, correspondingly, the macroeconomic effects presented in this exercise are surrounded by significant uncertainty. This uncertainty stems mainly from: (i) the fiscal adjustment requirements, as well as the timing and composition of the consolidation, which still need to be agreed in national fiscal structural plans following bilateral discussions between Member States and the Commission; (ii) practical implementation risks; (iii) potential changes in the Commission's forecast (Spring 2024 versus Autumn 2023); and (iv) other macroeconomic and financial factors. As regards implementation, risks can also stem from the flexibility allowed ex post if countries make use of the margin of deviation allowed under the "control account". The control account has been introduced to keep track of cumulative upward or downward deviations of actual net expenditure from the agreed net expenditure path, recording a debit when the actual annual net expenditure in a country is above the agreed net expenditure path, and a credit when it is below this path. When the cumulated balance of the control account exceeds 0.6% of GDP, the Commission may launch an EDP. An EDP may also be launched if the marginal debit in the control account exceeds 0.3% in a single year.[9]

In its statement on the fiscal policy orientation for 2025, the Eurogroup stressed its commitment to ensure that the new fiscal framework is implemented consistently and swiftly.[10] This should contribute to improving the sustainability of public finances through sufficient and differentiated debt reduction paths across countries, supported by future primary surpluses. As shown in this box,

9 In addition, the low debt and low deficit countries (see footnote 3) may not request a technical information path from the Commission. In this case, they will not be bound by adjustment requirements, which could further reduce the size of the fiscal adjustment considered in this box.

10 See "Eurogroup statement on the fiscal policy orientation for 2025".

for the period 2025-26 the estimated inflation impact is limited across all scenarios, while there are some downside risks to short-term growth if the adjustment requirements are delivered over a short time period and in full (on top of the fiscal measures already in place). These growth effects would appear to be more limited when factoring in the available flexibility provided by the revised fiscal framework.[11] In particular, fiscal adjustment requirements may be smoothed over time to support growth via incentives for public investment and structural reforms. Finally, possible confidence effects, deriving for instance from lower sovereign bond yield spreads or higher potential growth prospects (not accounted for in this box), could temper the short-term downside impact on growth, especially for the high debt countries.

11 However, delays in fiscal adjustment, and thus in lowering debt levels, would result in higher adjustment requirements in the future.

Articles

1 Trust in the ECB – insights from the Consumer Expectations Survey

Prepared by Ferdinand Dreher

1 Introduction

Trust in the ECB among euro area residents is important for the efficacy of the ECB's monetary policy. The euro itself relies on the trust of its users, as is the case with any fiat currency, and increased trust in the ECB has been shown to better anchor inflation expectations.[1] Trust is thus integral to the effective conduct of monetary policy. However, multiple global crises and increased global uncertainty since the start of the pandemic, coupled with elevated inflation over the last two years, have put central banks in the spotlight. An in-depth understanding of the state of trust in the ECB is thus particularly relevant.

The ECB monitors trust in the institution mainly through surveys. A prominent metric for assessing trust is the European Commission's Standard Eurobarometer, which has been surveying European citizens with a focus on their opinions on the ECB since 1999. It asks whether respondents "tend to trust" or "tend not to trust" the ECB, and hence provides binary response options.[2]

Since 2020 the ECB has been conducting its Consumer Expectations Survey (CES), which primarily asks euro area residents about their economic circumstances and expectations for the future, but also asks about their trust in the ECB.[3] While the evolution of trust in the ECB is often analysed at an aggregate level (typically at national or euro area level), trust in the ECB has also been linked to a variety of sociodemographic factors and economic beliefs specific to individuals.[4] An in-depth analysis at the level of the individual respondent therefore

1 See, for example, Christelis, D., Georgarakos, D., Jappelli, T. and van Rooij, M., "Trust in the Central Bank and Inflation Expectations", *International Journal of Central Banking*, Vol. 16, No 6, 2020, pp. 1-37.

2 The Eurobarometer asks: "Please tell me if you tend to trust or tend not to trust these European institutions: [NAME OF INSTITUTION]". Respondents can also respond "don't know", an answer given by 15% of respondents in the latest survey wave.

3 On trust, the CES asks: "How much do you trust each of the following institutions and organisations? ECB; European Parliament; European Commission; United Nations; national central bank. (Please rate your level of trust on a scale from 0 to 10, where 0 means you have no trust at all in the institution and 10 means you trust it completely.)"

4 See, for example, Ehrmann, M., Soudan, M. and Stracca, L., "Explaining European Union Citizens' Trust in the European Central Bank in Normal and Crisis Times", *The Scandinavian Journal of Economics*, Vol. 115, No 3, July 2013, pp. 781-807, for evidence on sociodemographic factors. And see, for instance, van der Cruijsen, C. and Samarina, A., "Drivers of trust in the ECB during the pandemic", *Applied Economics*, Vol. 55, No 13, 2023, pp.1454-1476, for evidence on the association between respondents' expectations regarding their future financial situation and trust in the ECB.

has the potential to tell us more about the nature of trust and how aggregate dynamics reflect the characteristics of trust among individuals.

The granularity of the CES allows more detailed analysis than the Eurobarometer, especially at the level of the individual respondent. This article exploits three features of the CES to delve deeper into individual respondents' perspectives on trust in the ECB. First, a scale of 0 to 10 for responses to the question on trust allows a differentiation to be made between individuals with levels of trust across a spectrum from one extreme to the other – providing for a greater granularity of responses than the corresponding question in the Eurobarometer. Second, the CES tracks the same individuals through multiple survey waves, while the Eurobarometer surveys new respondents in each wave.[5] This allows changes in trust to be traced over time at the level of individuals, rather than on aggregate only. Third, the CES also asks about trust not only in other EU institutions, but also in the respondent's national central bank, while the Eurobarometer does not. The two surveys also differ in various other respects.[6] However, a direct comparison of the two surveys' results also requires more years of data for the CES, which has only been running for four years.

Following a discussion of aggregate results for trust in the ECB in both the Eurobarometer and the CES, this article focuses specifically on insights that can be gained from the three features of the CES mentioned above.

2 Trust in the ECB since the start of the pandemic

On aggregate, according to the Eurobarometer, trust in the ECB held up relatively well during the pandemic and in the period of heightened inflation thereafter. Average trust across euro area countries declined significantly during the global financial crisis and the sovereign debt crisis, but slowly recovered afterwards (Chart 1). In the latest Eurobarometer survey, conducted in October and November 2023, 43% of euro area respondents expressed trust in the ECB, while 42% said they did not trust the institution and 15% answered that they did not know. Net trust in the ECB, defined as the percentage share of respondents that "tend to trust" the ECB minus the percentage share of respondents that "tend not to trust" the ECB, was thus marginally positive. After having increased from 2020 to mid-2021, it declined into negative territory in early 2022 and recovered to pre-pandemic levels thereafter.[7] This relative stability has persisted despite high inflation being cited as a

5 In its pilot phase in April 2020, the CES interviewed around 10,000 consumers from the six largest euro area countries (Germany, France, Italy, Spain, the Netherlands and Belgium), offering nationally representative data. Since 2022, the survey has extended its coverage to five additional countries (Austria, Finland, Portugal, Greece and Ireland), interviewing about 19,000 consumers in total.

6 Differences between the Standard Eurobarometer and the CES relate to the formulation and ordering of questions, sampling techniques, country coverage and frequency.

7 During the pandemic, the survey methodology of the Eurobarometer was changed in some respects; for example, the face-to-face interviews that had previously been conducted in respondents' homes were, in many cases, not possible. Changes in aggregate results of the Eurobarometer might thus also reflect changes in the methodology, thereby limiting the comparability of results from one survey wave to another over the pandemic period. In addition, the regular pattern of two surveys per year was disrupted by the pandemic, resulting in the release of only one survey in 2020, two surveys in 2021 and 2022, and three surveys in 2023.

main concern by survey respondents since 2021, as well as unprecedented global tensions.

Trust in the ECB, as measured through the CES since the introduction of the survey in 2020, has shown similar patterns. While methodological differences and its shorter survey sample preclude a direct comparison between the CES and surveys such as the Eurobarometer, there is co-movement of responses in the two surveys. With CES respondents being asked at a monthly frequency how much they trust the ECB on a scale of 0 to 10, average trust in the ECB is now close to its initial level at the start of the pandemic – just above the scale's mid-point of 5. Average trust in the ECB showed a small increase from April 2020 to mid-2021, which occurred at the same time as a range of policy measures implemented following the onset of the pandemic, both by central banks such as the ECB and by other EU institutions and national governments. That increase in trust in the ECB was followed by a more gradual decline by the same amount as of mid-2021 (Chart 1), a period during which inflation increased to substantially above the 2% target and Russia's invasion of Ukraine had a major impact on the euro area economy.

Chart 1

Trust in the ECB according to the Eurobarometer and the Consumer Expectations Survey

(left-hand scale: net trust in the ECB across euro area respondents (Eurobarometer), percentages; right-hand scale: average trust in the ECB (CES), scale of 0 to 10)

Sources: Standard Eurobarometer, ECB Consumer Expectations Survey and ECB calculations.
Notes: Standard Eurobarometer data cover survey waves 51 (spring 1999) to 100 (autumn 2023). Net trust is the percentage of respondents answering "tend to trust" minus the percentage answering "tend not to trust". Respondents who answered "don't know" are disregarded. CES data are a weighted average and cover monthly survey waves from April 2020 to December 2023. The CES trust question is answered on a scale of 0 to 10 (with 0 being no trust at all and 10 being complete trust).

Until now, analyses of trust in the ECB, in the absence of an adequate survey such as the CES, have not focused on the evolution of individuals' trust over time. While insights generated from the CES should be interpreted with caution, as the survey so far covers only a few years, the CES allows some questions to be answered on the nature of trust in the ECB that cannot be answered by the Eurobarometer. In particular, the panel structure of the CES allows an analysis of whether the relative stability of trust over time at the aggregate level is also found at the individual level. Academic research has typically concentrated on differences in trust between various individuals at a single point in time, while policy analyses

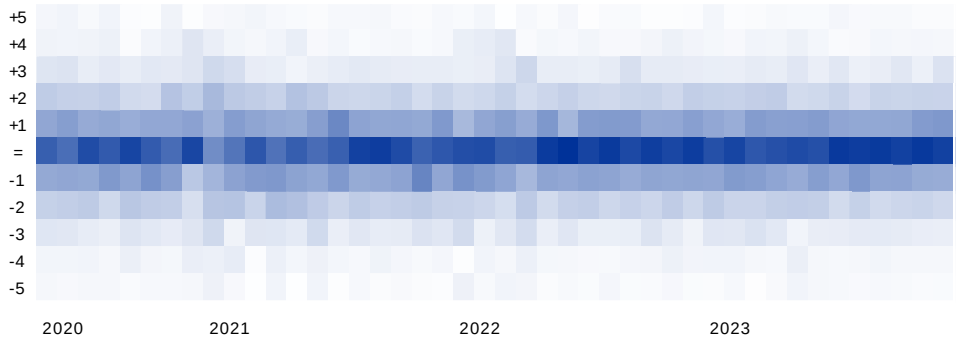
usually examine how trust evolves over time within large sociodemographic groups.[8] Nonetheless, the temporal aspect of an individual's trust is significant for understanding overall trust, including how deeply rooted specific views about the ECB are.

Month on month, individuals typically exhibit only marginal changes, if any, in their trust in the ECB. Given the high frequency of the CES and the common view in the academic literature that trust in institutions is built gradually, respondents reconsider their level of trust only marginally from one monthly survey wave to the next.[9] Specifically, around one-third of respondents in each survey wave do not change their trust level at all, while a further third adjust it by only +/-1 (Chart 2).[10] Changes are generally distributed symmetrically, leading to only small aggregate month-on-month changes over time. The patterns observed in month-on-month changes in trust remain largely consistent across longer time horizons, such as quarterly or annual changes in trust of individuals.

Chart 2

Distribution of month-on-month changes in trust of individual respondents

(y-axis: change in trust level; shading: percentage shares of respondents)



Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: Weighted CES estimates covering monthly survey waves from April 2020 to December 2023. The cell shading reflects the share of respondents in a given survey wave (month) that changed their trust in the ECB vis-à-vis the previous month by the amount shown on the scale. A darker shade represents a larger share of respondents – for example, the highest share is seen in June 2022, when 38% of respondents reported an unchanged level of trust relative to the previous survey wave (month). For simplicity, month-on-month changes greater than +5 or -5 are not shown, as they reflect less than 5% of respondents in each wave. To avoid tenure effects, the chart is based on respondents completing the survey for a second (consecutive) time.

8 A partial exception is the analysis by Stanislawska, E. and Paloviita, M., "Responsiveness of Consumers' Medium-Term Inflation Expectations: Evidence from a New Euro Area Survey", SSRN, November 2022. This traces individuals through consecutive CES survey waves and shows that their medium-term inflation expectations adjust in response to changes in both their short-term inflation expectations and, to a lesser extent, their inflation perceptions, but that this mechanism is weaker for individuals with high trust in the ECB.

9 Survey responses of individuals exhibit a "tenure effect", i.e. the more survey waves a respondent has participated in, the more likely they are to give the same trust score as in the previous wave. The likelihood of an individual adjusting their trust score from the previous month is around 70% in the first few waves in which they participate and then gradually declines, stabilising at around 55-60% as the individual completes more surveys. This effect is independent of when the individual joins the survey and applies to trust in all institutions. Owing to this trend, it is important to distinguish between respondents who have completed many or only a few surveys. Chart 2 therefore includes only the month-on-month change in trust for individual respondents responding to the survey for the second time. In the survey as a whole, the tenure effect is partially mitigated by the fact that each survey wave introduces first-time respondents, while a number of respondents also leave the panel.

10 The CES does not remind respondents of the answer they provided to the same question in previous surveys. In view of the question using an 11-point answer scale, this suggests strong month-on-month stability in trust levels.

Variation in trust across the panel of CES respondents stems mainly from differences between respondents. With variation in trust of individuals over time being relatively limited, variation in trust across the entire sample primarily stems from differences between respondents, rather than changes in their individual responses. This is confirmed by a decomposition of the standard deviation of trust levels in the CES panel, revealing that variation in trust across respondents is twice as high as the variation for individual respondents over time.[11] In other words, while differences between respondents are relatively high, levels of trust for individual respondents are relatively stable.

3 Nuances in the degree of trust among respondents

The granular (0-10) scale of the CES allows a finer distinction between trust and the absence of trust than can be achieved with the Eurobarometer. As trust is often regarded as being built up incrementally over time, a granular scale is helpful to better analyse developments in trust, especially at the extremes, while binary trust variables mask such granular information.

CES microdata confirm that trust is a non-binary concept. The granularity of the answer scale of the CES shows that trust is not a matter of "yes" or "no"; rather, it exists on a spectrum (Chart 3). While average trust in the ECB stands above the scale's mid-point over the entire sample, some individuals have a lot of trust in the ECB, others have some trust, and some have very little trust in the ECB, with these varying degrees of trust potentially leading to different attitudes and behaviours. On a scale of 0 to 10, most respondents have a trust level between 5 and 8. In the December 2023 survey wave, the left tail of this bimodal distribution was characterised by around 12% of respondents with no trust at all in the ECB, while a smaller share of respondents expressed complete trust.[12]

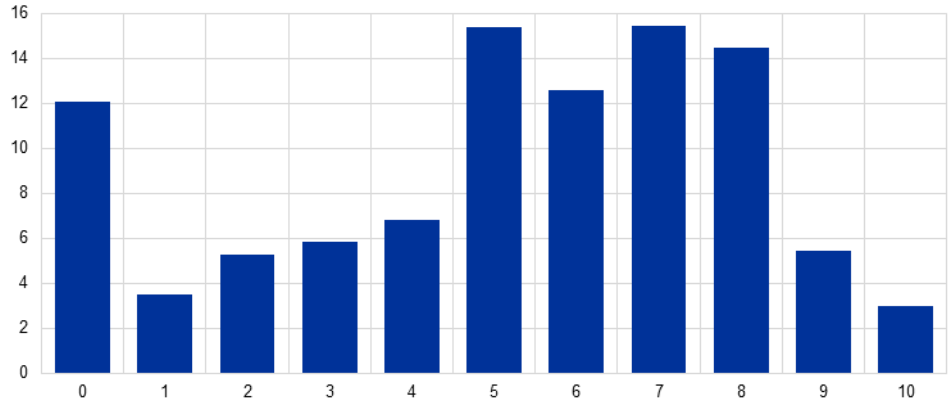
11 In a panel setting, total variation in the trust of individual *i* at time *t* can be decomposed into variation arising from differences in average trust between respondents ("between" variation) and remaining variation arising over time but for the same respondent ("within" variation).

12 This confirms stylised trends using CES data up until March 2021. See van der Cruijsen, C. and Samarina, A., "Drivers of trust in the ECB during the pandemic", op. cit.

Chart 3

Distribution of trust values, December 2023

(x-axis: trust level; y-axis: percentage shares of respondents)



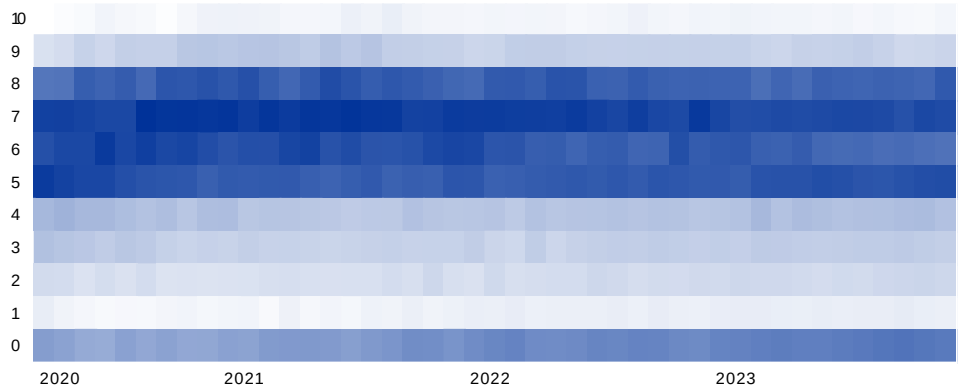
Sources: ECB Consumer Expectations Survey and ECB calculations.
Note: Weighted CES estimates covering survey waves from April 2020 to December 2023.

The aggregate distribution of expressions of trust is relatively stable over time. Despite going through a period of great uncertainty due to multiple crises over a short period of time, the distribution of trust values has remained stable (Chart 4). This reflects the stability of opinions at the individual level.

Chart 4

Distribution of trust over time

(y-axis: trust level; shading: percentage shares of respondents)



Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: Weighted CES estimates covering monthly survey waves from April 2020 to December 2023. The cell shading reflects the share of respondents in a given survey wave (month) that had the level of trust in the ECB shown on the scale. A darker shade represents a larger share of respondents – for example, the highest share is seen in September 2020, when 17% of respondents reported a trust level of 7.

A significant majority of survey respondents express either some trust or a high level of trust in the ECB, with those expressing a complete lack of trust remaining a relatively small group. The CES questionnaire informs respondents that a score of 10 means complete trust in the institution, while a score of 0 means no trust in the institution at all.[13] In practice, each respondent may attach their own interpretation to the different values on the scale. For example, an individual's score

[13] Scores from 1 to 9 are not given a concrete definition.

of 0 might mean a complete absence of trust, but it could also reflect active distrust ("negative trust"). In fact, the relatively high share of respondents with a trust level of 0, relative to the trust level of 1, suggests that individual scores of 0 reflect more than one underlying sentiment. Thus, the distribution of trust levels is potentially left-censored. Several studies point out that the concept of distrust is not the same as the absence of trust and that distrust might imply greater familiarity with what is being judged.[14]

The share of respondents with no trust in the ECB stood at around 9% at the inception of the survey – and increased slightly after inflation started to climb beyond 2% in mid-2021, reaching 12% in December 2023. While the average level of trust in the ECB increased slightly in 2020, and thereafter declined very gradually to its starting value by December 2023, the share of respondents with no trust has increased by around 3 percentage points since 2020. This share varies significantly across countries, but it gradually increased in most countries over the sample period. In some countries, it declined in 2022 and 2023, coinciding with the decline in inflation rates.

In general, respondents with no trust remain critical over longer time horizons. Over the relatively short sample period of the CES, almost 80% of individuals with no trust in the ECB in the previous survey wave are likely to also have no trust in the current wave (Chart 5, dark blue cell). Respondents with no trust in the ECB are also more likely to report the same level of trust in the following wave than respondents with complete trust.[15] Since the trust levels of individual respondents with no trust are thus fairly stable from one month to another, trust that reaches 0 may remain at that level for an extended period of time. This corroborates the finding that variation between individuals is a greater contributor to overall variation than variation for individuals over time. It will only be possible to determine whether this conclusion holds in the longer term, including in periods that are economically and geopolitically more benign, once the survey has a longer sample.

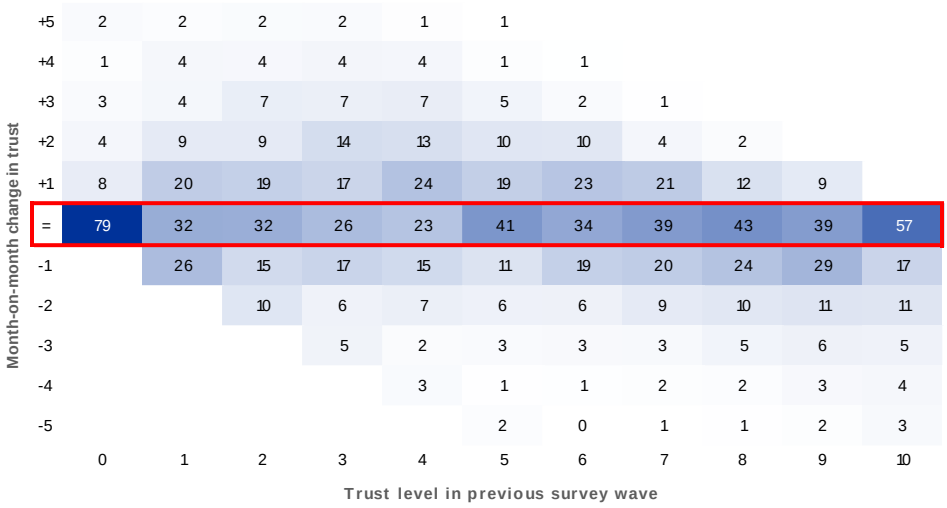
14 Various studies looking at psychology (e.g. Hardin, R., *Trust and trustworthiness*, Russell Sage Foundation, 2002), organisation (e.g. Lewicki, R.J., McAllister, D.J. and Bies, R.J., "Trust and Distrust: New Relationships and Realities", *The Academy of Management Review*, Vol. 23, No 3, July 1998, pp. 438-458) and marketing (e.g. Harrison McKnight, D. and Chervany, N.L., "Trust and Distrust Definitions: One Bite at a Time", in Falcone, R., Singh, M. and Tan, Y.H. (eds.), *Trust in Cyber-societies, Lecture Notes in Computer Science*, Vol. 2246, Springer, December 2001) (for an overview, see Van De Walle, S. and Six, F., "Trust and Distrust as Distinct Concepts: Why Studying Distrust in Institutions is Important", *Institutions and Governance in Comparative Policy Analysis Studies*, Routledge, 2020) have argued that trust and distrust are separate constructs and that the absence of trust is not the same as distrust, and vice versa. Both trust and distrust, in contrast to the mere absence of trust, imply an active disposition that includes an expectation regarding the object of the trust or distrust. Hence, both might be more positively correlated with knowledge than the mere absence of trust.

15 On a 0-10 scale, an individual with a trust level of 0 or 10 can only revise their trust level in one direction (up from 0 or down from 10) or keep it unchanged. Therefore, it is to be expected that the likelihood of keeping the trust level unchanged is greatest at the two ends of the scale.

Chart 5

Month-on-month changes in trust level, by trust level in previous survey wave

(x-axis: previous trust level; y-axis: change in trust level; shading: percentage shares of respondents)



Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: Weighted CES estimates covering survey waves from April 2020 to December 2023. The cell shading reflects the share of respondents with a given change in trust in the ECB in the current survey wave relative to the previous survey wave. A darker shade represents a larger share of respondents – for example, the highest share in the chart is the 79% of respondents with a trust level of 0 in the previous wave who do not change their trust level in the current wave. For simplicity, month-on-month changes greater than +5 or -5 are not shown, as they reflect less than 5% of respondents.

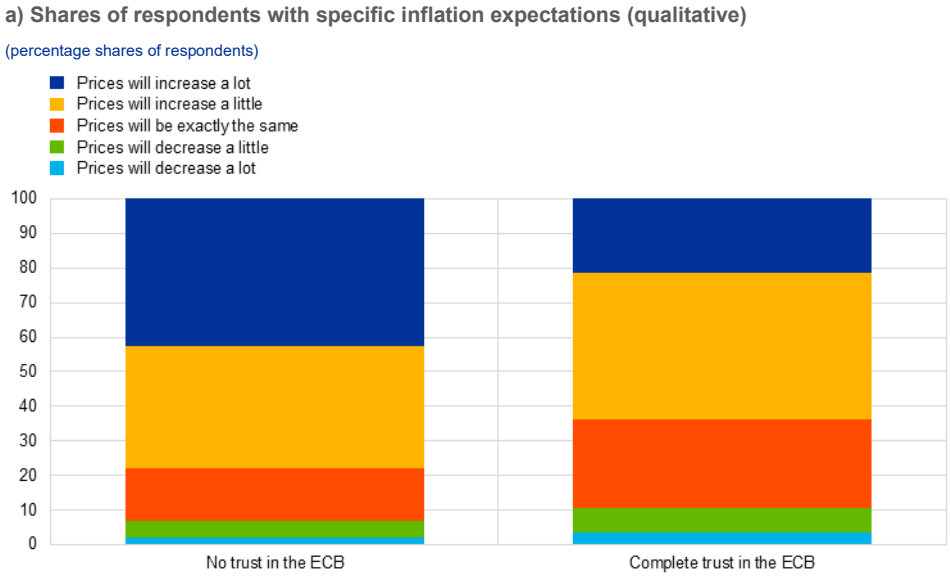
Trust in the ECB appears to be associated with inflation expectations and other expectations regarding economic developments. Among respondents with no trust in the ECB, around 40% on average over the sample period expected prices to increase a lot over the following three years (Chart 6, panel a). In contrast, only around 20% of respondents with complete trust in the ECB expected prices to rise a lot.[16] Mean inflation expectations expressed in quantitative terms were also consistently higher among respondents with no trust in the ECB than among respondents with complete trust in the ECB. However, this gap is not stable over time and widens substantially in periods of higher inflation (Chart 6, panel b), which might imply that trust can, at least in the short term, anchor inflation expectations

16 Inflation expectations are responsive to economic developments across all trust levels. The overall share of respondents with high inflation expectations increases and decreases over time, broadly in line with developments in realised inflation in the preceding months. The shares of respondents with high inflation expectations move in tandem across trust levels, such that the absolute shares change substantially, but the difference between the share for respondents with complete trust and the share for respondents with no trust remains constant.

when an economic shock occurs, corroborating findings in the literature.[17] As well as lower inflation expectations, individuals with complete trust in the ECB also have lower expectations for unemployment and higher expectations for economic growth over the following 12 months.

Chart 6

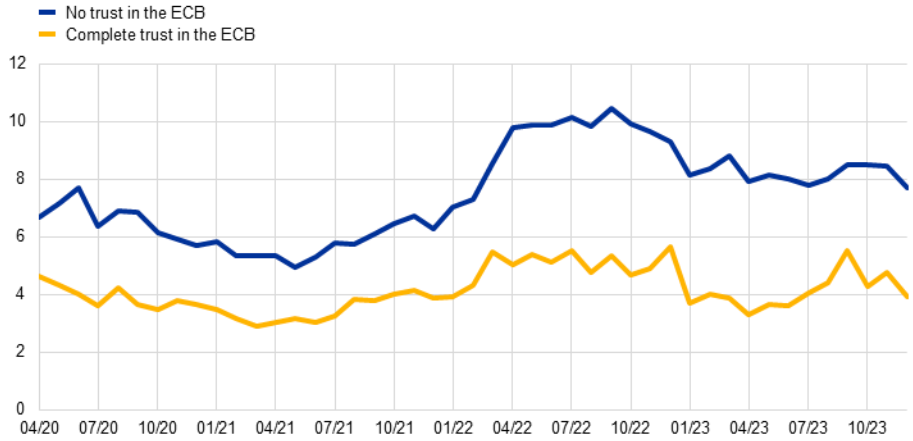
Inflation expectations, by level of trust in the ECB



[17] Trust in the ECB remained stable for several months following the economic shock caused by the Russian invasion of Ukraine, despite an increase in inflation expectations – see Georgarakos, D., Kenny, G. and Meyer, J., "Recent changes in consumers' medium-term inflation expectations – a detailed look", *Research Bulletin*, No 104, ECB, February 2023. More generally, the academic literature documents an anchoring impact of trust on inflation expectations, and recent research has also started to focus on the impact of inflation on trust. Recent papers use instrumental variables such as individuals' trust in other people (Christelis, D. et al., op. cit., and Brouwer, N. and de Haan, J., "Trust in the ECB: Drivers and consequences", *European Journal of Political Economy*, Vol. 74, September 2022, pp. 1-14) and general institutional trust (Mellina, S. and Schmidt, T., "The role of central bank knowledge and trust for the public's inflation expectations", *Discussion Papers*, No 32/2018, Deutsche Bundesbank, 2018) to provide evidence that individuals with higher levels of trust have inflation expectations that are lower and more aligned with the central bank's target. See, in addition, Rumler, F. and Valderrama, M.T., "Inflation literacy and inflation expectations: Evidence from Austrian household survey data", *Economic Modelling*, Vol. 87, May 2020, pp. 8-23, van der Cruijsen, C. and Samarina, A., "Trust in the ECB in turbulent times", DNB Working Papers, No 722, De Nederlandsche Bank, July 2021, and Stanislawska, E. and Paloviita, M., op. cit., for evidence of trust anchoring inflation expectations. Van der Cruijsen, C., de Haan, J. and van Rooij, M., "The impact of high inflation on trust in national politics and central banks", *DNB Working Papers*, No 762, De Nederlandsche Bank, January 2023, finds that higher inflation perceptions negatively impact trust, while Farvaque, E., Hayat, M.A. and Mihailov, A., "Who Supports the ECB? Evidence from Eurobarometer Survey Data", *The World Economy*, Vol. 40, No 4, April 2017, pp. 654-677, suggests that expected inflation determines trust.

b) Inflation expectations over time (quantitative)

(mean inflation expectations; annual percentage changes)



Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: Weighted CES estimates covering survey waves from April 2020 to December 2023. "No trust in the ECB" denotes a trust level of 0; "complete trust in the ECB" denotes a trust level of 10. The mean inflation expectations in panel b are winsorised at the 2nd and 98th percentiles for each survey round and country. The survey question on quantitative inflation expectations is open-ended.

Box 1

Who are the individuals at the extremes of the trust scale?

Prepared by Marc Beckmann and Ferdinand Dreher

As Section 3 of this article explains, while the group of respondents with no trust in the ECB is relatively small, accounting for about 10% of survey participants across the sample, their perspective may offer valuable insights. This box therefore seeks to understand this group by comparing their socioeconomic characteristics with those of the respondents who have complete trust in the ECB.

Chart A presents the shares of respondents with complete trust and no trust in the ECB grouped by socioeconomic characteristics. It includes some of the time-invariant variables that academic studies have found to be related to trust in the ECB, like age, gender, education, household income and financial knowledge.[18] We also consider respondents' perception of income inequality, as it is associated with mean trust and potentially reflective of a discontent that underlies the extremes of trust in the ECB.[19]

As regards age, the share of individuals with complete trust in the ECB is broadly stable across age groups, while the share of respondents with no trust in the ECB is particularly high in the 35-49 age group and smallest in the 65 and above age group.[20]

18 See Hudson, J., "Institutional Trust and Subjective Well-Being across the EU", *Kyklos*, Vol. 59, No 1, February 2006, pp. 43-62; and Hayo, B. and Neuenkirch, E., "The German public and its trust in the ECB: The role of knowledge and information search", *Journal of International Money and Finance*, Vol. 47, October 2014, pp. 286-303.

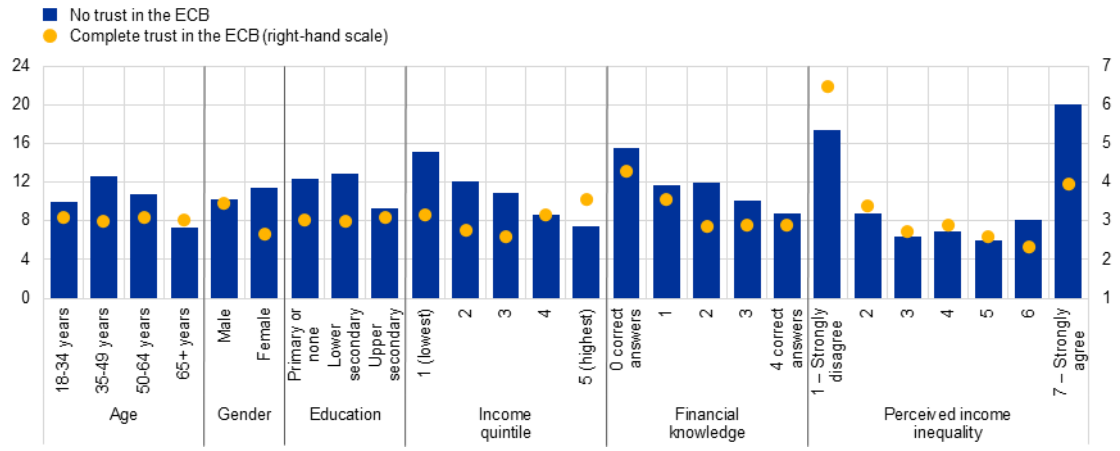
19 See Box 1 in the article entitled "Economic inequality and public trust in the European Central Bank", *Economic Bulletin*, Issue 3, ECB, 2022.

20 Previous studies found that age is positively related to trust, as measured in binary terms in the Eurobarometer (see Ehrmann, M. et al., op. cit., and Farvaque, E. et al., op. cit.), while analyses that used non-binary measurements (see Hayo, B. and Neuenkirch, E., op. cit., and van der Cruijsen, C. and Samarina, A., "Drivers of trust in the ECB during the pandemic", op. cit.) found that the relationship can be visualised as a U shape, meaning that young and old age groups have relatively high trust levels, while trust is lowest for middle-aged individuals.

Chart A

Shares of respondents with no trust and complete trust in the ECB, by socioeconomic characteristics

(Percentage shares of respondents)



Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: Weighted CES estimates covering survey waves from April 2020 to December 2023. Financial knowledge is measured by the number of correct answers to survey questions on real interest rates, compounding of interest and risk diversification.

When it comes to gender, the percentage of respondents with complete trust is slightly higher for men than for women. However, for individuals with no trust in the ECB, it is the other way round. The literature so far is ambiguous on what effect gender tends to have on higher trust levels.[21]

Looking at formal education, the share of respondents with complete trust slightly increases with the level of education. In contrast, the share of individuals with no trust in the ECB is significantly lower for those with at least upper secondary education than for those with lower levels of education.

As regards income quintiles, the share of individuals in the highest trust group is greatest in the top income quintile, but the relationship is not linear. By contrast, there is a clear linear relationship between the relative size of the no trust group and the income quintile, with the share of respondents expressing no trust being greatest in the bottom income quintile.

An interesting picture emerges when looking at financial knowledge, as it seems inversely related to both having no trust and having complete trust in the ECB. This suggests that both extremes of trust in the ECB may reflect a lack of specific ECB-relevant knowledge.[22]

As regards perceptions of income inequality, the extremes of trust in the ECB seem to be related to extreme perceptions of income inequality. However, perceptions of very high inequality outweigh

21 Ehrmann, M. et al., op. cit., and Farvaque, E. et al., op. cit., using Eurobarometer data, found that women trust the ECB less than men. However, Hayo, B. and Neuenkirch, E., op. cit., based on a survey of German households, and Brouwer, N. and de Haan, J., op. cit., based on a survey of Dutch households, suggested the opposite. Van der Cruijsen, C. and Samarina, A., "Drivers of trust in the ECB during the pandemic", op. cit., examining data from the ECB's Consumer Expectations Survey, found that men have more trust in the ECB than women.

22 Van der Cruijsen, C. and Samarina, A., "Drivers of trust in the ECB during the pandemic", op. cit., and Hayo, B. and Neuenkirch, E., op. cit., find a positive relationship between financial knowledge and mean trust in the ECB.

perceptions of very low inequality among individuals with no trust, while the reverse is the case for individuals with complete trust.[23]

4 Trust in the ECB and trust in other institutions

Trust in the ECB appears to co-move with, or even reflect, trust in central banks and EU institutions more broadly. Within the universe of national and international policymaking institutions, the unique structure of the Eurosystem and the ECB's mandate and objectives mean the ECB has characteristics in common with both national central banks and other European institutions. Particularly for respondents with less formal education, the distinction between institutions may not be clear, and may lead to a high correlation of trust for very different institutions (see also Box 2). Individuals may also show distrust in institutions in general, even when aware of their different mandates.[24] It is therefore important to understand the extent to which trust in the ECB is associated with trust in other institutions and the extent to which it is ECB-specific.[25]

CES data show a high correlation of trust across institutions. This is evident from trust levels (correlation rate of over 72% for all institution pairs when pooling all survey responses) and from month-on-month changes in trust (39%). This corroborates the findings of studies using the Eurobarometer survey. In fact, similar shares of respondents with no trust are observed for the European Parliament, the European Commission, the United Nations and national central banks – casting doubt on the interpretation of trust levels for any institution in isolation. These results are also supported by a simple principal component analysis (PCA).[26] In other words, trust in any of the institutions covered by the survey, including the United Nations with its global mandate, is highly correlated with trust in the ECB, with the same holding for changes in levels of trust. This has implications for the ECB, also in view of the elevated inflation rates during the sample period. If increased inflation

23 In comparison, an earlier Economic Bulletin article looked at this association in a linear form, suggesting that high perceived income inequality is associated with lower average trust in the ECB. See Box 1 in the article entitled "Economic inequality and public trust in the European Central Bank", *Economic Bulletin*, Issue 3, ECB, 2022.

24 Survey design may also matter for correlation in trust across institutions, as questions about trust in the different institutions are grouped in one section of the survey and respondents may display survey fatigue, attributing identical trust levels to all institutions. The CES attempts to partially mitigate this concern by randomising the order of institutions in the survey (except for the national central bank, which always appears last).

25 Multiple studies of trust in the ECB refer to such associations and correlations with trust in other institutions (e.g. Ehrmann, M. et al., op. cit.; Hayo, B. and Neuenkirch, E., op. cit.; Farvaque, E. et al., op. cit.; Mellina, S. and Schmidt, T., op. cit.; and Brouwer, N. and de Haan, J., op. cit.) and typically control for this in regressions on the drivers of trust in the ECB.

26 PCA results indicate that 85% of the full sample variation is explained by the first component, which has similar loadings across all institutions and can thus be interpreted as an approximation of trust in institutions in general. PCA is a data reduction technique in which the principal components are those linear combinations of variables that explain the highest share of variation in the original data. Loadings are the correlations between the original (trust) variables and the principal components, and hence are usually named after the set of variables they are most correlated with. Caveats for this analysis are that the survey includes only one national institution and only five institutions overall, and that the sample period covers several diverse economic shocks to the euro area that may limit the generalisability of results. PCA is also used in Hayo, B. and Neuenkirch, E., op. cit., and Mellina, S. and Schmidt, T., op. cit., to extract a common component of general institutional trust.

rates and inflation expectations are associated with lower trust across different institutions, then respondents may be viewing all institutions as responsible and/or may be unaware of the mandates of individual institutions.[27] Similarly, trust in the ECB may also be affected by developments not related to its mandate. Indeed, it is likely that trust in the ECB is also strongly influenced by broader trust in – or the performance of – institutions as a whole and thus cannot be interpreted in isolation from other institutions.[28]

Principal component analysis suggests the presence of underlying associations with other EU institutions and central banks which have an impact on trust in the ECB. To simplify the interpretation of the components in a PCA which capture the variation in the original data, they can be rotated. These rotations are transformations of the original components which aim to achieve a simpler structure of loadings in order to more easily interpret patterns between variables.[29] These rotated components indicate that levels of trust in the ECB are influenced by broader trust developments for EU institutions and central banks (Chart 7). Component 1 puts a heavy loading on trust in the European Parliament (0.66) and the European Commission (0.65), and partially on trust in the ECB (0.37), suggesting the existence of an "EU factor". Component 2 loads heavily on trust in the national central bank (0.90) and partially on trust in the ECB (0.44), indicating a "central bank factor". A third component primarily relates to levels of, and changes in, trust in the United Nations (1.00).[30] This is tentative evidence of both a European dimension and a central banking dimension in the evolution of trust in the ECB.[31]

27 Using a survey of Dutch households, van der Cruijsen, C. et al., op. cit., find that people have less trust in those authorities that they see as having a duty to keep inflation low. At the same time, respondents' views suggest that they are more likely to regard controlling inflation as a responsibility of the national government (over 70%), rather than a responsibility of the ECB (over 50%) or the national central bank (just under 40%).

28 See Bergbauer, S., Hernborg, N., Jamet, J.-F. and Persson, E., "The reputation of the euro and the European Central Bank: interlinked or disconnected?", *Journal of European Public Policy*, Vol. 27, No 8, January 2020, pp. 1178-1194, which shows that trust in the ECB is dependent on citizens' satisfaction with the EU's performance in several areas, notably as regards tackling crises.

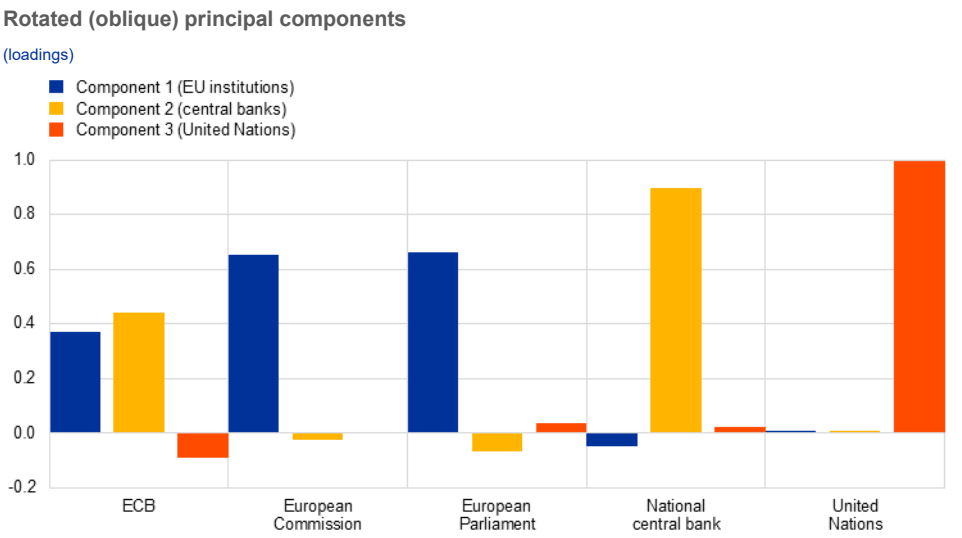
29 The rotation relaxes the assumption in the unrotated PCA that factors are completely orthogonal to each other and allows variables to cluster around components.

30 PCA results on changes in trust suggest that respondents adjust their trust in the ECB strongly in line with changes in their trust in national central banks (second principal component loading of 0.65 for the ECB and 0.76 for the national central bank).

31 All PCA results also hold when leaving out trust values of 0 to account for potential left-censoring of the trust value distribution.

Chart 7

Principal component analysis of trust levels



Sources: ECB Consumer Expectations Survey and ECB calculations.
Note: Weighted CES estimates covering survey waves from April 2020 to December 2023.

Box 2

Co-movement of trust in different institutions

Prepared by Marc Beckmann and Ferdinand Dreher

Section 4 of this article documents the presence of high correlations across institutions, both in levels of trust and in changes in trust. In other words, respondents who trust the ECB more (less), tend to also trust other institutions more (less). This box seeks to understand the nature of this association between individuals' trust in the ECB and their trust in other institutions. In particular, it asks whether correlations differ depending on the respondent's level of trust and financial knowledge.

Correlations in individuals' trust across institutions do not vary significantly over time.[32] Furthermore, on average, an individual's level of trust in the ECB also corresponds to their level of trust in other (national and international) institutions in the CES.

The correlation of an individual's levels of trust across institutions appears to be negatively associated with the level of trust in the ECB itself (Chart A, panel a).[33] The correlation is highest at very low trust levels, meaning that respondents with no trust in the ECB are more likely to have a similar level of trust in all other institutions, while a respondent with more trust in the ECB is more likely to have more differentiated views across institutions.[34]

32 This is also true after correcting for the tenure effect described in footnote 9, as correlations rise the longer respondents remain on the survey panel. The correlations calculated for individuals are based on a minimum of five observations per set of institutions and a maximum of ten observations (to limit the impact of the tenure effect).

33 While Section 4 reports the full pooled sample correlation across individuals and over time, this box looks at the average correlation over time for an individual.

34 As the distribution of the trust variable is potentially left-censored, the estimates shown in panel a of Chart A are based on a quadratic fitted line.

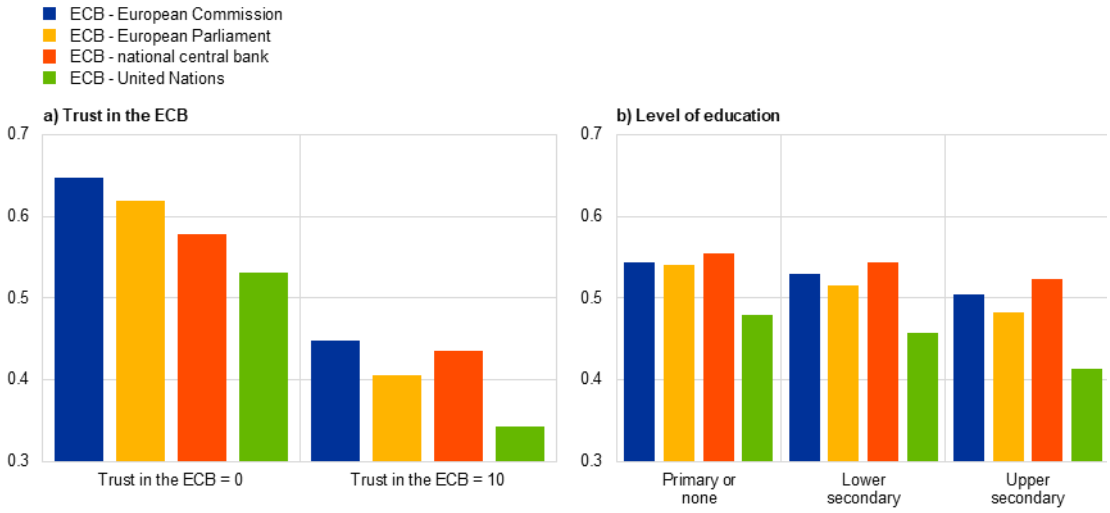
Another interesting question is whether a higher level of formal education is related to an individual having levels of trust that are more strongly differentiated across institutions. Using the CES variable on level of education, we indeed find that an individual with higher formal education tends to differentiate more in their trust ratings for different institutions.

Overall, these results suggest that respondents appear to differentiate more in their assessment of different institutions when they have higher levels of formal education and when they have greater trust in the ECB.

Chart A

Association between individuals' trust correlations and trust in the ECB and level of education

(average correlation between individuals' trust in the ECB and trust in other institutions)



Sources: ECB Consumer Expectations Survey and ECB calculations.
Notes: Weighted CES estimates covering survey waves from April 2020 to December 2023. To limit the tenure effect, only the first ten survey responses of an individual are used to calculate the individual correlations. A minimum of five observations are used to calculate the correlation.

5 Conclusion

To summarise, analysis of CES data at the level of the individual reveals that trust in the ECB is a multifaceted concept, with a significant majority of survey respondents expressing either some trust or a high level of trust in the ECB. However, to confirm that the findings in this article also hold in times of lower global uncertainty, the CES sample period would need to be longer. Granularity in the CES trust variable shows that trust is a non-binary concept that extends beyond a simple binary distinction between trusting and not trusting. Although, on a scale of 0 to 10, most survey respondents have a trust level between 5 and 8, around 10% of respondents have no trust in the ECB at all across the sample. Over short or medium-term horizons, an individual's trust in the ECB tends not to change significantly, with those who have no trust in the ECB being the least likely to change their opinion. Finally, when analysed in conjunction with trust in national central banks and other EU and international institutions, trust in the ECB co-moves strongly with broader institutional trust, and respondents who express no trust in the ECB also tend to have no trust in other institutions. Principal component analysis

produces the same result. As the CES has only been running for a relatively short (and turbulent) period of time, the results presented here will need to be confirmed in the longer term as well. Nonetheless, the CES trust variable has already proved to be a useful complement to the long-running Eurobarometer surveys.

The fact that most individuals' level of trust fluctuates only slightly over short time horizons confirms that trust takes time to build and requires continuous communication efforts by the ECB. Given the importance of citizens' trust in the ECB for the efficient transmission of monetary policy to economic expectations, its slow-moving nature as confirmed by the CES highlights the need for continuous efforts to build trust in a gradual manner. While a certain degree of scepticism towards any institution is, in principle, a desirable feature of a democracy in which citizens follow the institution's policy decisions, the findings in this article underline the particular importance of the ECB's efforts in the area of accountability and transparency. In this regard, clear and effective communication – including, for example, explaining the stabilising role of monetary policy – can boost public trust in the ability of a central bank to deliver on its price stability objective.[35]

[35] See Ehrmann, M., Georgarakos, D. and Kenny, G., "Credibility gains from communicating with the public: evidence from the ECB's new monetary policy strategy", *Working Paper Series*, No 2785, ECB, February 2023.

2 What does new micro price evidence tell us about inflation dynamics and monetary policy transmission?

Prepared by Luca Dedola, Lukas Henkel, Christian Höynck, Chiara Osbat and Sergio Santoro

1 Introduction

Inflation depends on whether individual firms decide to change the prices of their goods and services and, if so, by how much. Each month, some prices increase, some decrease and the rest (usually the majority) remain unchanged. These price-setting decisions depend on factors that are specific to the individual firm or to the industry in which it operates, as well as on aggregate shocks and general macroeconomic conditions that affect all firms.

Price adjustment in the data is "lumpy", meaning that individual prices change infrequently, but price increases and decreases can be large, with both elements being crucial determinants of inflation dynamics. The frequency of price adjustment matters for the transmission of monetary policy, as it influences the speed at which changes in the monetary stance affect inflation. In addition, the size of price changes, i.e. by how much reset prices differ from the prices charged by firms before the adjustment, also has an impact on inflation dynamics.[1] A key factor is whether price setting is state dependent, that is, whether a firm's decision to change prices seeks to balance a fixed cost incurred from resetting prices (known as the "menu cost") against the loss from keeping prices unchanged but misaligned with their reset values.[2] When a firm's loss from the price misalignment is large enough relative to the menu cost – owing to large shifts in demand or nominal costs, for example – the firm will change its price. As a result, firms are more likely to change those prices that are more misaligned. In this case, sizeable price changes can be associated with small aggregate shocks, possibly amplifying the reaction of aggregate inflation. Moreover, since the decision of changing prices depends on the state of the economy, non-linear effects on the frequency of price changes are also possible, depending on the size of aggregate shocks.

Whether inflation rises as a result of larger average price increases or because of more frequent price changes has consequences for inflation dynamics. If, for instance, firms change prices more frequently in response to a large shock to nominal costs, the pass-through to consumer prices will be faster and inflation will be

1 The reset price refers to the new price after a price change.

2 Menu costs include any costs that occur as a result of a firm changing its prices. For instance, there is empirical evidence that changing prices in supermarkets is a complex process, requiring many steps and a significant amount of resources. See Levy, D., Bergen, M., Dutta, S. and Venable, R., "The Magnitude of Menu Costs: Direct Evidence from Large U. S. Supermarket Chains", *The Quarterly Journal of Economics*, Vol. 112, No 3, 1997, pp. 791-825. Specifically, the menu costs documented in this study comprise "(1) the labor cost of changing shelf prices, (2) the costs of printing and delivering new price tags, (3) the costs of mistakes made during the price change process, and (4) the cost of in-store supervision of the price change process".

initially higher, albeit more short-lived, than if the frequency of price changes had remained constant. Sharp increases in the frequency of price changes have been observed empirically in periods of elevated inflation and can be explained by economic models that feature state-dependent price setting. In these models, for a given menu cost, large demand or cost shocks cause prices to be more misaligned with their reset values, thus increasing the likelihood of price changes. Therefore, state-dependent price setting typically implies a non-linear relation between the frequency of price changes and inflation: at relatively stable inflation rates, the frequency of price changes is relatively constant over time, whereas large changes to the inflation rate (e.g. owing to large shocks) imply sharp changes to the frequency of price setting. Conversely, in the main alternative model of price setting (known as a "time-dependent" model), prices change exogenously and independently of their misalignment, so the frequency of price changes is not affected by inflation swings. Observing the characteristics of firm-level price changes is key to determining the degree of state dependence in pricing behaviour more accurately, even when inflation is relatively low.

How often and by how much prices change over time, as well as how this affects inflation, can be best studied with microdata, the collection and analysis of which have been at the heart of the work of the Price-setting Microdata Analysis Network (PRISMA). The Eurosystem's Inflation Persistence Network (IPN) pioneered studies of micro price data in the early 2000s. Its successor, the PRISMA research network set up by the European System of Central Banks, revamped and extended the IPN's analysis of firms' price-setting behaviour. The microdata collected by PRISMA comprise 135 million individual price quotes used to build aggregate price indexes such as the Harmonised Index of Consumer Prices (HICP) in 11 euro area countries from 2010 to 2019. These price quotes encompass 166 product categories, amounting to around 60% of the HICP basket (but excluding categories such as energy and unprocessed food). PRISMA also reported and used new price-setting statistics (such as the full distribution of the size of price changes, which is crucial for understanding firms' behaviour) and documented their evolution over time. Finally, it examined how the frequency and size of price changes shape the transmission of monetary policy and inflation dynamics, including in response to demand and supply shocks.

This article discusses the evidence on price setting gathered by PRISMA and focuses on the relation between inflation and the characteristics of the distribution of firm-level price changes.

2 Evidence on state-dependent price setting from microdata

State dependence in price setting, as defined above, implies that the prices that are more likely to change are those that are further away from their reset values; this implication provides an important test of the theory, based on microdata. The reaction of inflation to shocks depends not only on how many prices change, but also on which prices change and by how much. This can be as important as the frequency of price changes. If changes in the prices that are

adjusted are large, reflecting significant misalignments, then the aggregate price level may be very flexible and respond strongly to aggregate shocks, even if only a few firms change their prices. Measuring this feature (called the "selection effect") is particularly challenging because price gaps – defined as the difference between the current price and the counterfactual reset price a firm would like to choose – are unobservable.

PRISMA's research overcomes the challenge of directly testing the extent of the selection effect, as a way to gauge the relevance of state-dependent pricing, by using supermarket scanner data. These data make it possible to develop a proxy measure of the price gap that, even in an environment of stable inflation, provides information about the extent of state dependence, at least in the pricing of goods sold in supermarkets. Calculating a proxy for each product's price gap makes it possible to look at the shape of its hazard function (the "price-gap hazard"), defined as the probability that its price will change as a function of the price gap.[3] Price-gap hazard functions were estimated for four large euro area countries (Germany, France, Italy and the Netherlands) between 2013 and 2017 and for the United States between 2001 and 2012. While these periods do not overlap, they were both characterised by low and stable inflation.

The estimated price-gap hazard functions provide clear microeconomic evidence that firms' pricing behaviour is state dependent. Chart 1 panel a) shows that the probability that a firm will adjust the price of a product rises with the price gap, both in the euro area (based on the four large countries considered) and in the United States. The fact that the likelihood of a price adjustment depends on the size of the price gap is consistent with state dependence in price setting. For instance, a negative 10% price gap is associated with a 15% probability of a price increase. By contrast, in time-dependent models of price setting, prices change exogenously, for instance randomly with constant probability at each point in time in the popular Calvo model.[4] Nevertheless, the V-shape hazard functions suggest that state dependence is moderate, since the probability does not increase sharply with the price gap.[5] Chart 1 panel b) validates the price gap measures, showing a close relationship between the gap and the actual size of eventual price changes. The question then arises of how quantitatively relevant this evidence is for inflation dynamics following large shocks in the euro area. We will look at this question in the next two sections.

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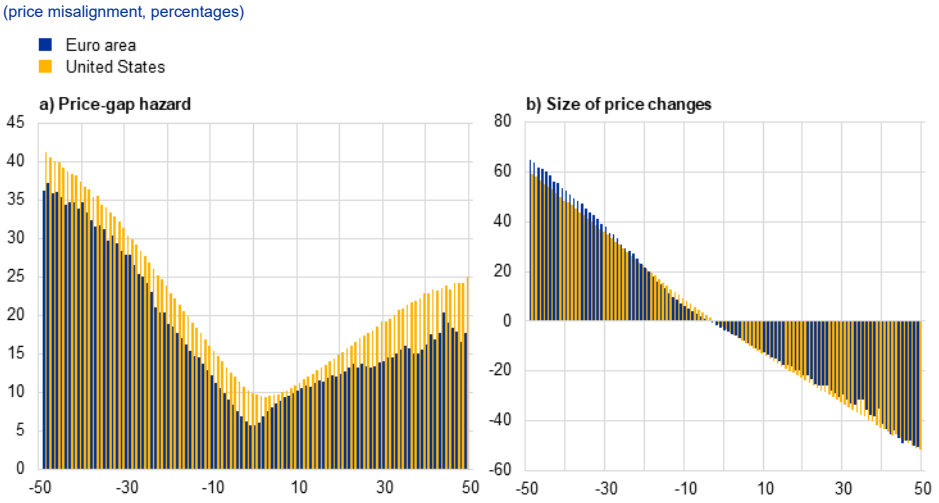
3 The price-gap proxy is constructed as the difference between the price of an item ("barcode") in a given shop and the average price of the same item in other nearby shops where this price has changed in the same month, after controlling for permanent shop-category differences in prices stemming from variation in market power, geography and amenities. See Karadi, P., Amann, J., Sánchez Bachiller, J., Seiler, P. and Wursten, J., "Price setting on the two sides of the Atlantic – Evidence from supermarket scanner data", *Journal of Monetary Economics*, Vol. 140, 2023, pp. S1-S17.

4 For a textbook exposition, see Gali, J., *Monetary Policy, Inflation, and the Business Cycle*, Princeton University Press, Princeton, 2015.

5 In many menu cost models, there is a discrete jump in the probability of price adjustment once the price gap reaches a threshold value. See, for example, Golosov, M. and Lucas Jr., R.E., "Menu Costs and Phillips Curves", *Journal of Political Economy*, Vol. 115, No 2, 2007, pp. 117-199.

Chart 1

Price-gap hazard and the size of non-zero price changes as a function of the price gap



Source: Gautier et al.[1])
Note: The chart shows the frequency of reference price changes (panel a) and the average size of non-zero reference price changes (panel b) as a function of the price gap for four euro area countries (Germany, France, Italy and the Netherlands) and the United States.
1) Gautier, E. et al., "Price adjustment in the euro area in the low-inflation period: evidence from consumer and producer micro price data", *Occasional Paper Series*, No 319, ECB, Frankfurt am Main, 2023.

3 The theoretical and empirical relation between inflation and the frequency and size of price changes

A useful decomposition of monthly inflation is the number of prices that change (frequency of price adjustment) multiplied by the amount by which these change (average size of price changes). Specifically, denoting monthly inflation with π and the frequency and average size of (non-zero) price changes with f and dp respectively, we can write the following expression:[6]

$$\pi = f \times dp$$

Moreover, we can further decompose the frequency as the sum of the frequency of price increases (f^+) and price decreases (f^-), i.e. $f = f^+ + f^-$. With this frequency decomposition, monthly inflation is obtained as the frequency of price increases multiplied by the size of average price increases $(f^+ \times dp^+)$ minus the frequency of price decreases multiplied by the (absolute) size of average price decreases $(f^- \times dp^-)$. As shown by PRISMA research, in the euro area data the absolute size of average price decreases tends to be larger than that of price increases (with mean values, excluding sales prices, over the period from 2010 to 2019 standing at around 11.6% and 9% respectively). Therefore, the prevailing positive inflation rate in the data reflects the fact that price increases are more frequent than price decreases (on

6 Using the appropriate weights to aggregate from elementary product categories to aggregate inflation.

average, around 69% of price changes in the period from 2010 to 2019 were increases, excluding sales prices).[7]

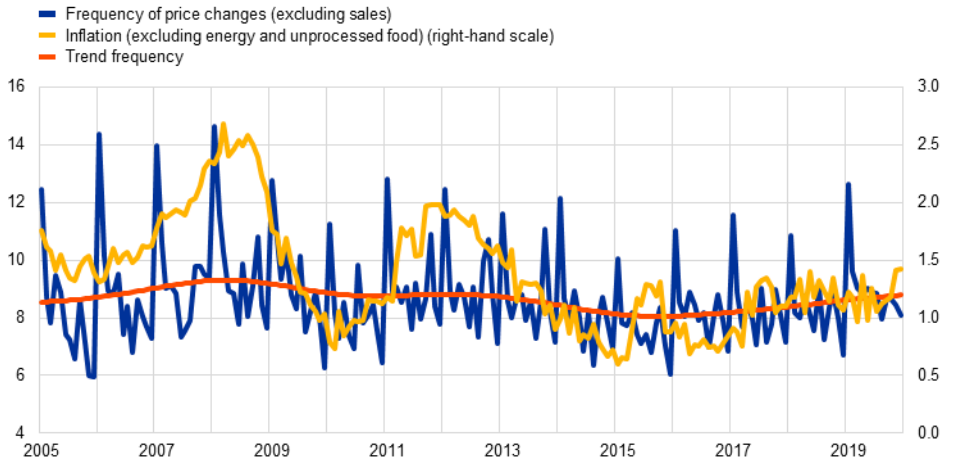
In the 2010-19 low inflation period analysed by PRISMA, the limited cyclical variation in inflation was mostly driven by fluctuations in the average of price changes. As shown in Chart 2, small cyclical variations in frequency did not contribute greatly to fluctuations in aggregate HICP inflation[8] (excluding energy and unprocessed food, for which microdata were not available to PRISMA), which instead mainly reflected shifts in the average of non-zero price changes (Chart 3).

Over the same period, for a given frequency, variation in average price changes resulted mainly from variation in the share of price increases and decreases rather than from variation in their absolute size. Consistent with idiosyncratic shocks being the main driver of firm-level price changes during the low inflation period, average price changes responded to aggregate disturbances through variation in the relative share of price increases or decreases, rather than through variation in their absolute size. However, this "linear" behaviour of aggregate inflation breaks down when aggregate shocks become larger than usual, owing to the non-linearities in firm-level decisions discussed above.

Chart 2

Inflation and frequency of price changes over time

(left-hand scale: percentages, right-hand scale: year-on-year percentage change)



Source: Banque de France staff calculations.
Notes: Based on PRISMA HICP microdata. The trend is computed using the standard Hodrick-Prescott filter for monthly data.

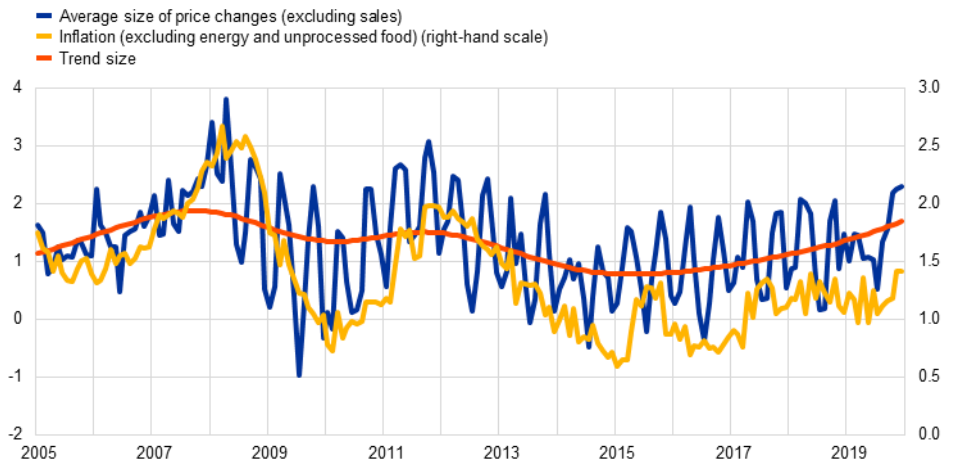
7 Gautier, E. et al., op. cit.

8 The seasonal patterns in the frequency of price changes would be consistent with the predictions of a class of time-dependent models with some degree of staggering (most evidently, price changes are more frequent in January); they would also be consistent with underlying seasonality in cost changes such as wages, which, under state dependence, would in turn affect frequency.

Chart 3

Inflation and average size of (reset) price changes

(left-hand scale: percentages, right-hand scale year-on-year percentage change)



Source: Banque de France staff calculations.
Notes: Based on PRISMA HICP microdata. The trend is computed using the standard Hodrick-Prescott filter for monthly data.

Historical episodes of elevated inflation point to a positive relation between the level of inflation and both the frequency and the average size of non-zero price changes, reflecting a rise in the frequency of price increases. Some papers have documented the features of price adjustment in the mid-1970s and 1980s, when inflation was high and more volatile in advanced economies.[9] These papers have provided several insights into price adjustment patterns using consumer price index (CPI) micro price data for Norway and the United States, contrasting the mid-1970s and 1980s with periods when inflation was lower and less volatile. The frequency of price adjustment correlates much more strongly with inflation when the inflation rate is high and more volatile than when it is low and relatively stable. For instance, during the Great Inflation in the United States, in the period 1978-82 the frequency of price adjustment was over 15%, compared with 10% during the subsequent Great Moderation. The absolute size of price increases did not rise with inflation in the United States, while in Norway the absolute size of price changes actually fell with inflation. Results for periods of hyperinflation in other countries, such as Argentina and Mexico, corroborate these findings on the link between the level of inflation and the frequency of price changes.[10] Overall, when inflation is higher than 5%, the correlation between frequency and inflation becomes significant.

For the recent inflation surge, an update of PRISMA microdata for several euro area countries documents a sharp rise in the frequency of price changes, owing to a corresponding rise in the frequency of price increases. Box 1

9 See Nakamura, E., Steinsson, J., Sun, P. and Villar, D., "The Elusive Costs of Inflation: Price Dispersion during the U.S. Great Inflation", *The Quarterly Journal of Economics*, Vol. 133, No 4, 2018, pp. 1933-1980, and Wulfsberg, F., "Inflation and Price Adjustments: Micro Evidence from Norwegian Consumer Prices 1975-2004", *American Economic Journal: Macroeconomics*, Vol. 8, No 3, 2016, pp. 175-194.

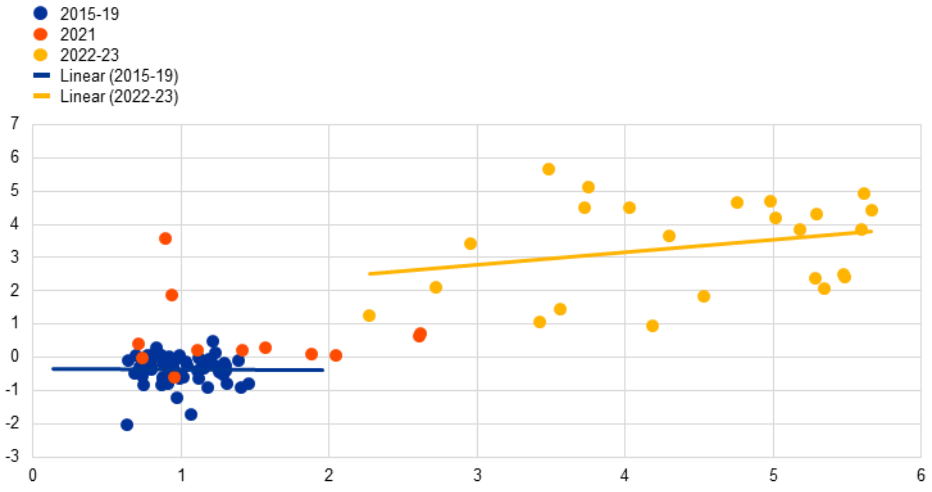
10 See Alvarez, F., Beraja, M., Gonzalez-Rozada, M. and Neumeyer, A., "From Hyperinflation to Stable Prices: Argentina's Evidence on Menu Cost Models", *The Quarterly Journal of Economics*, Vol. 134, No 1, 2018, pp. 451-505, and Gagnon, E., "Price Setting during Low and High Inflation: Evidence from Mexico", *The Quarterly Journal of Economics*, Vol. 124, No 3, 2009, pp. 1221-1263.

presents results based on an update of PRISMA HICP microdata for seven countries. In line with the evidence discussed above, when inflation is low, there is little correlation between the frequency of price changes and inflation (Chart 4). Since inflation started to rise in the second half of 2021, the frequency of price changes has also risen, driven by an upsurge in the frequency of price increases. Regarding the absolute size of the price changes, there is no strong link before or after 2022. Further evidence on state dependence between April 2022 and January 2024 is provided by a new daily price dataset collected by the ECB via web scraping.[11] Box 2 details how the frequency of price increases of food items (retrieved from online supermarkets in Germany, Spain and Italy) rose significantly in 2022 but has declined in recent months towards its pre-2020 levels. These pieces of evidence, together with Box 3, suggest that retailers revise their prices more frequently when inflation is higher. Larger shocks lead to aggregate factors becoming an important motive for price changes, as predicted by state-dependent price-setting models. In turn, these models predict a faster pass-through of large cost shocks compared with small ones, resulting in higher and more short-lived inflation, as shown by the simulation results discussed in the next section.

Chart 4

Inflation and frequency of price adjustment

(x-axis: euro area HICP inflation excluding energy and food (year-on-year percentage change); y-axis: seasonally adjusted frequency of price adjustment (month on month))



Source: Banque de France and ECB staff calculations.
Notes: Frequency of price adjustment based on consumer price micro-datasets from the national statistical institutes of Germany, Estonia, Spain, France, Italy, Latvia and Lithuania (see Box 1 for details). Each dot corresponds to the frequency of price adjustment in a month, minus the average frequency of price adjustment in that calendar month over the period 2011-19 on the y-axis and annual HICP inflation excluding energy and food in that month for the euro area on the x-axis. 2020 is excluded, as it was heavily affected by the coronavirus (COVID-19) pandemic. For more details on price setting during the pandemic, see Henkel, L. et al., "Price setting during the coronavirus (COVID-19) pandemic", *Occasional Paper Series*, No 324, ECB, Frankfurt am Main, 2023.

[11] For details on the web-scraped data, see Box 3 in Strasser, G. et al., "E-commerce and price setting: evidence from Europe", *Occasional Paper Series*, No 320, ECB, Frankfurt am Main, 2023.

Box 1

How price adjustment patterns change with higher inflation: recent evidence from euro area micro consumer price data

Prepared by Erwan Gautier, Cristina Conflitti, Ludmila Fadejeva, Eduardo Gutiérrez, Valentin Jouvanceau, Jan-Oliver Menz, Alari Paulus, Pau Roldan-Blanco and Elisabeth Wieland

This box presents preliminary evidence on how the recent surge in inflation has affected patterns of consumer price adjustment in the euro area based on CPI microdata. For this purpose, we have updated the results of Gautier et al. to cover the most recent period (2021-23) for seven countries accounting for around 80% of euro area HICP (Germany, Estonia, Spain, France, Italy, Latvia and Lithuania).[12] The analysis is conducted on a common sample of 166 product categories covering food, non-energy industrial goods (NEIG) and services, which together account for around 60% of euro area HICP.[13]

Over the period 2021-22, the European economy was hit by a sharp rise in the cost of imported raw materials (mainly energy inputs), reflecting tensions in energy markets in the wake of the Russian invasion of Ukraine and the supply chain bottlenecks caused by the post-lockdown reopening of the economy. This surge in firms' costs was transmitted to producer prices and then to consumer prices and inflation. The transmission was quicker than usual, with firms and retailers increasing the frequency at which they change their prices (Chart A).[14] In contrast with the low inflation period, where the frequency of price changes was very flat, at around 8.5% on average, the frequency of price changes increased over the course of 2022 to 12.5% on average. Prices appear to have been more flexible in response to the large inflation shock than they were in the low and less volatile inflation period between 2010 and 2019. The frequency of price changes declined somewhat over the course of 2023. This large shift in the frequency of price changes was mainly due to a sharp rise in the frequency of price increases, reflecting the fact that many retailers decided to increase their prices immediately instead of waiting to change them (as they used to do in the low inflation period) and suffering induced losses.

12 Gautier, E. et al., "New Facts on Consumer Price Rigidity in the Euro Area" *American Economic Journal: Macroeconomics*, 2024, forthcoming, covers the low inflation period (2000-19) for 11 euro area countries, relying on datasets which together amount to about 130 million price observations collected by national statistical institutes to compute CPIs and HICP.

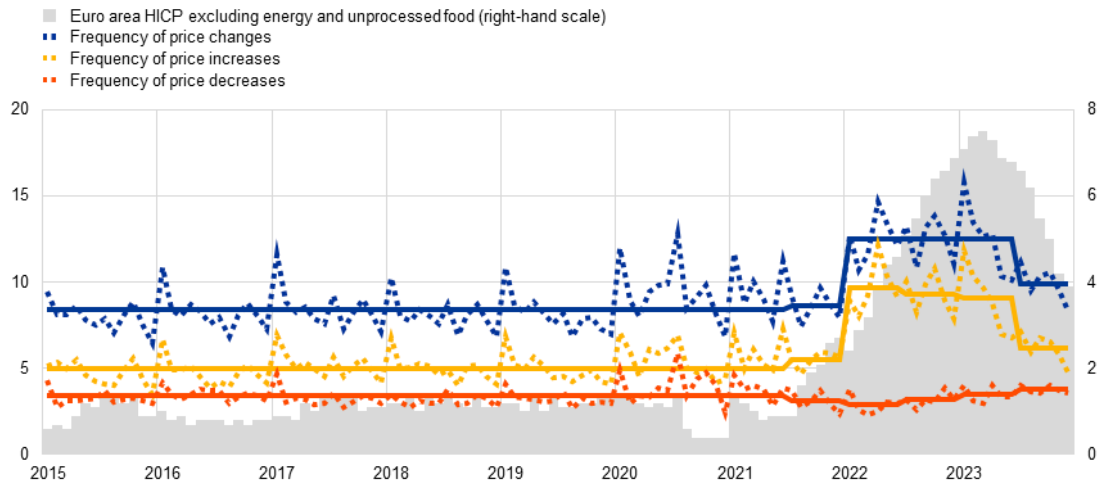
13 In the recent data update, the datasets end in December 2023 for Estonia, Spain, Italy and Latvia, October 2023 for Germany and France, and March 2023 for Lithuania (for more details on Lithuania, see Jouvanceau, V., "Consumer price rigidity in a context of low and high inflation: the case of Lithuania", *Discussion Paper Series*, No 34, Bank of Lithuania, 2023). The German dataset from January to October 2023 only contains prices collected in the state of Hesse, although these are highly representative of the country as a whole.

14 For survey evidence on producer price adjustment in France during the high inflation period, see Gautier, E., Le Bihan, H. and Lippi, F., "Why prices transmit large-scale shocks more quickly", *Eco Notepad*, No 324, Banque de France, 2023.

Chart A

Frequency of consumer price changes over time (all sectors)

(left-hand scale: percentages; right-hand scale: annual percentage change)



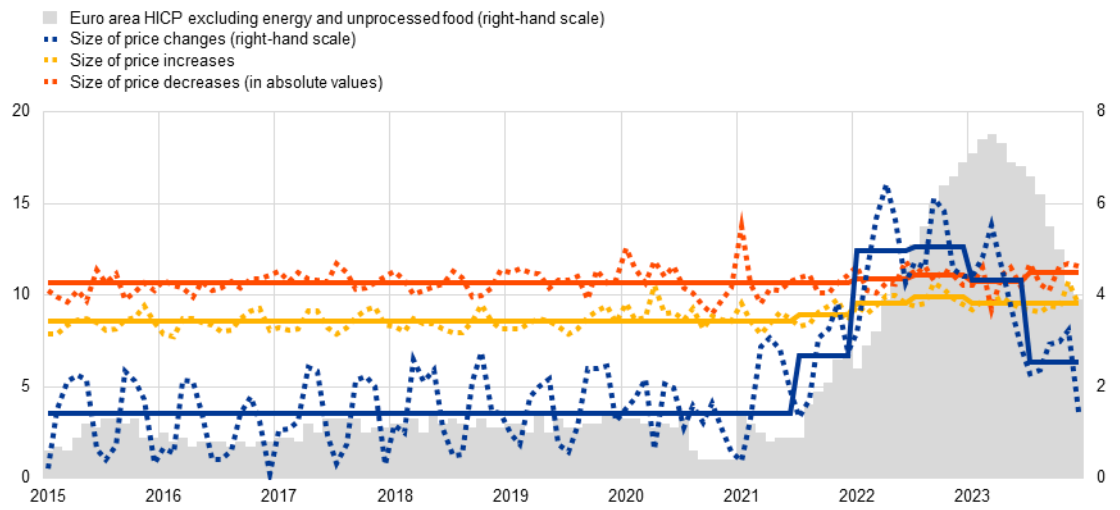
Source: Consumer price micro-datasets from the national statistics institutes of Germany, Estonia, Spain, France, Italy, Latvia and Lithuania.
Notes: The chart shows the weighted average frequencies of price changes (excluding sales). VAT changes in Germany (2020-21) and Spain (2020-23) have been excluded. The solid lines plot the average over the period 2015-21 and half-year averages over the period 2021-23. The latest observations are for December 2023.

The average size of (non-zero) price changes increased during the inflation surge (Chart B). This rise is related to the larger share of price increases among price changes over the recent period: 75% of price changes were price increases in the high inflation period, whereas this share was around 60% during the period between 2010 and 2019 in the countries considered. By contrast, even if aggregate shocks were large, the absolute sizes of price increases and price decreases remained stable at levels comparable to those seen during the low inflation period. This suggests that retailers decided to increase their prices more frequently, but by the same size as before, in order to limit the losses induced by not changing their prices. The increase in the frequency of price changes is consistent with the prediction of a state-dependent model of price setting with menu costs, but not with the predictions of a Calvo model, where the frequency remains stable. This broad pattern has been similar in all of the seven euro area countries for which updated CPI microdata are available for the period between 2021 and 2023.

Chart B

Size of consumer price changes over time (all sectors)

(left-hand scale: percentages; right-hand scale: annual percentage change)



Source: Consumer price micro-datasets from the national statistical institutes of Germany, Estonia, Spain, France, Italy, Latvia and Lithuania.
Notes: The chart shows the weighted average sizes of price changes (excluding sales). VAT changes in Germany (2020-21) and Spain (2020-23) have been excluded. The solid lines plot the average over the period 2015-21and half-year averages over the period 2021-23. The latest observations are for December 2023.

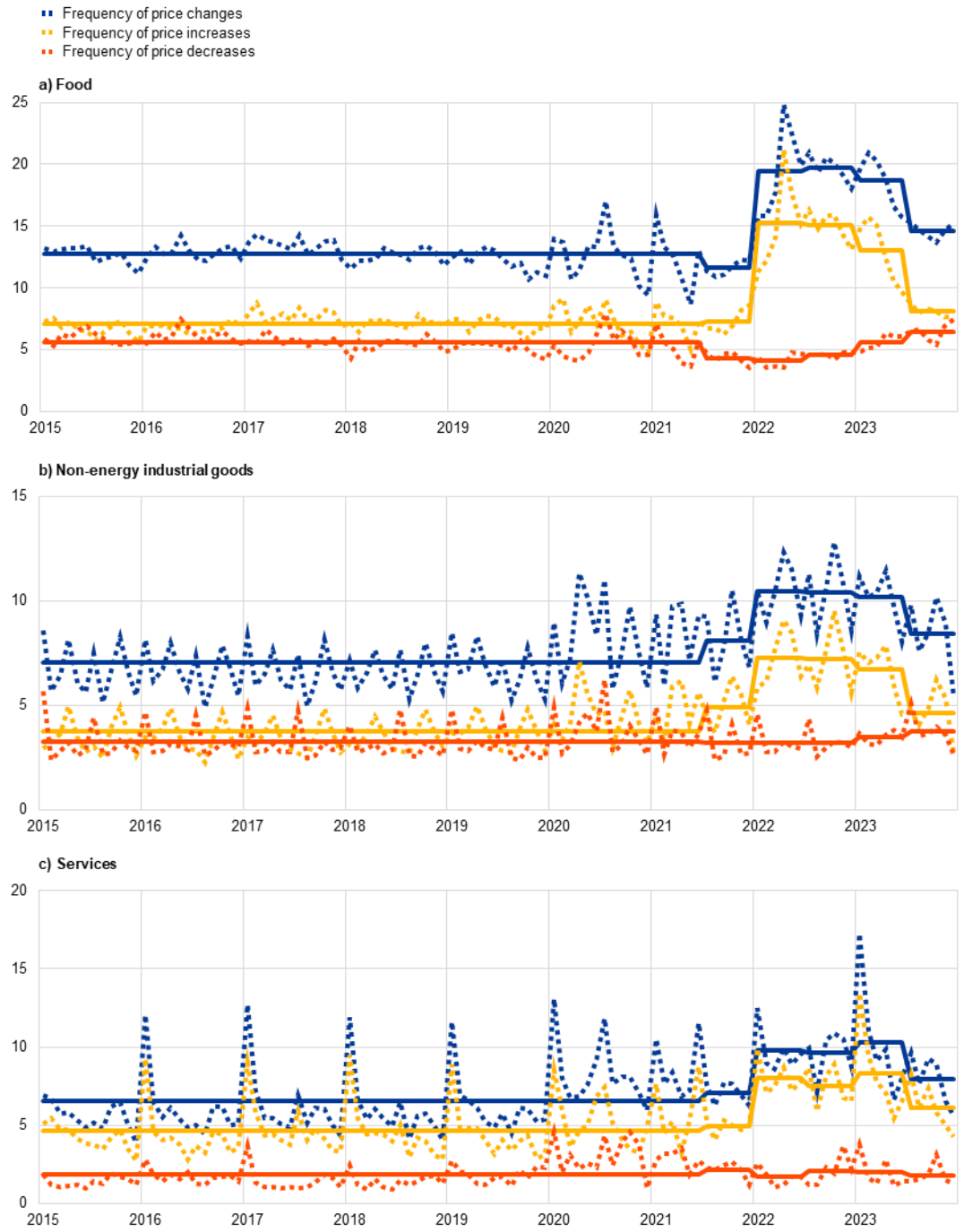
This sharp rise in the frequency of price increases was common to all broad product categories underlying the HICP (Chart C). Gautier et al. document that, on average, food prices are more flexible than NEIG or services prices.[15] The same finding holds for the more recent period: the rise in the frequency of price increases has been sharper for food products than for NEIG or services. In the food sector, the frequency of price increases rose from around 8% on average before 2020 to close to 15% in 2022, whereas price decreases were a little less frequent than usual. For NEIG and services, the rise in the frequency of price increases has also been significant, albeit much smaller than the one observed for food (with NEIG and services both recording a rise of around 3 percentage points), whereas the frequency of price decreases has remained mostly stable. Finally, the frequency of price increases fell in all three sectors during the second half of 2023.

15 Gautier, E. et al., op. cit., 2024, forthcoming.

Chart C

Frequency of consumer price changes over time, by aggregate product category

(percentages)



Source: Consumer price micro-datasets from the national statistical institutes of Germany, Estonia, Spain, France, Italy, Latvia and Lithuania.
Notes: The chart shows the weighted average frequencies of price changes (excluding sales). VAT changes in Germany (2020-21) and Spain (2020-23) have been excluded. The solid lines plot the average over the period 2015-21 and half-year averages over the period 2021-23. The latest observations are for December 2023.

Box 2

Insights into recent developments in price setting: evidence from micro-level daily price data from online supermarkets

Prepared by Chiara Osbat, Lucas Gurovich, Lukas Henkel, Christian Höynck and Giacomo Orsi

This box presents preliminary evidence on state-dependent price setting using data from online supermarkets in three of the largest euro area countries (Germany, Spain and Italy) covering the most recent period (April 2022 to January 2024). The ECB's Daily Price Dataset contains detailed information on each product, covering all product categories within the food basket in the respective countries. It can be used to understand how the recent surge in food prices has affected patterns of online price adjustment in the euro area.

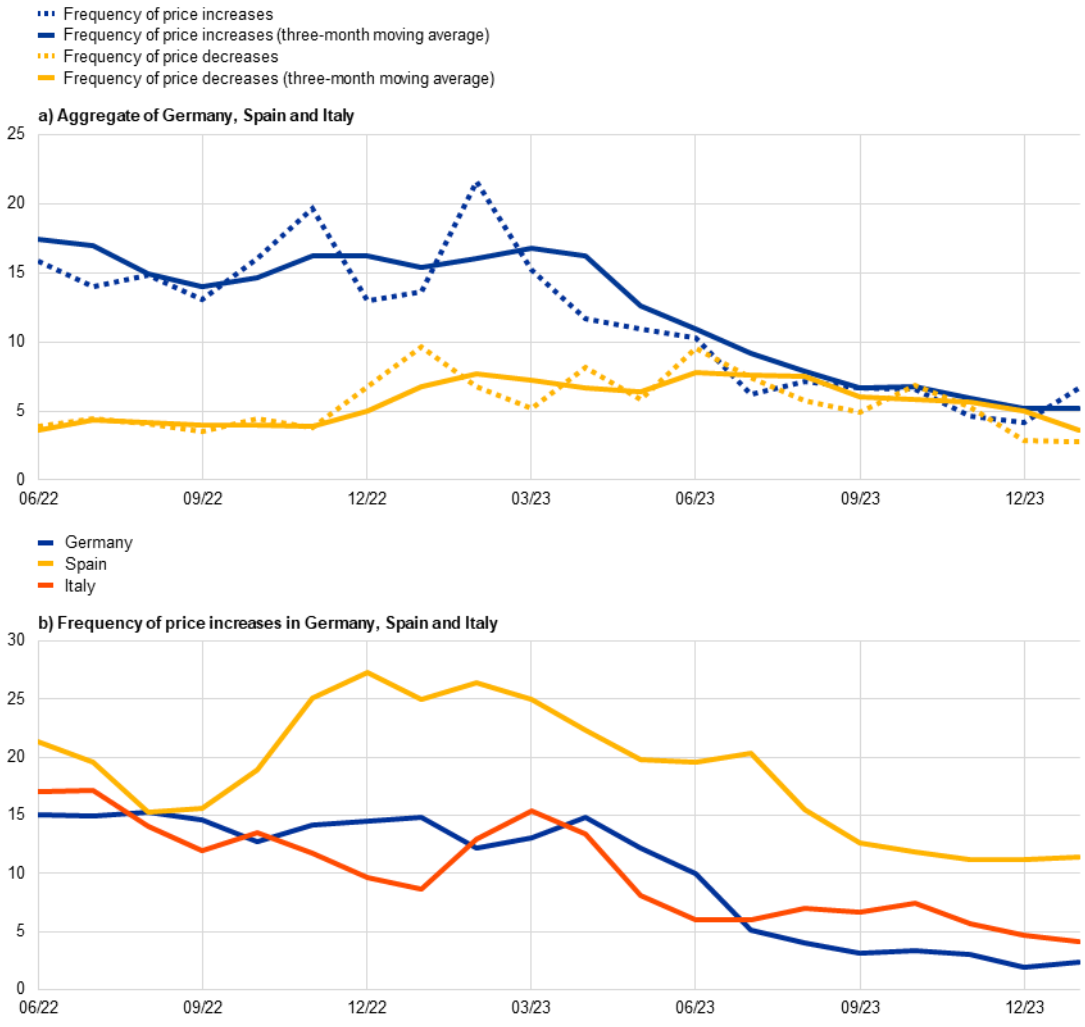
Firms' price-setting behaviour, as tracked by the Daily Price Dataset, clearly shows that the frequency of price increases in food items rose significantly in 2022 but has declined in recent months towards its pre-2020 levels. Chart A shows that the frequency of price increases of food items was elevated over the course of 2022 and reached a peak in February 2023. These levels are significantly higher than those observed before the pandemic. Based on CPI microdata, between 2010 and 2019, the monthly frequency of price changes was around 6.4% on average for processed food and 13.8% for unprocessed food. Online prices for processed food in Germany changed with a monthly frequency of around 4.1% on average between 2015 and 2019.[16] In 2023 the frequency of price increases fell, reflecting the fading impact of past shocks, and as of January 2024 it is returning towards pre-pandemic levels. In fact, the frequency of price increases is now similar to the frequency of price decreases. At the same time, the absolute size of price changes (increases or decreases) remained relatively unchanged. There is a significant level of heterogeneity across countries, as illustrated in Chart A panel b). The frequency of price increases has declined significantly in Germany and Italy, but less so in Spain, where it remains elevated.

[16] For more information, see Strasser, G. et al., "E-commerce and price setting: evidence from Europe", *Occasional Paper Series*, No 320, ECB, Frankfurt am Main, 2023.

Chart A

Frequency of food price changes over time

(percentages)



Source: ECB.
Notes: Panel a) shows the average monthly frequency of price increases and decreases of food products across Germany, Spain and Italy (dotted lines) and its three-month moving average (solid lines). Panel b) shows the three-month moving average frequency of price increases for Germany, Spain and Italy. The latest observations are for January 2024.

4 Implications of state-dependent pricing for the transmission of large inflationary shocks

PRISMA analysed the macroeconomic implications of the micro evidence on price setting by using simulations from economic models calibrated to match key characteristics of price setting in euro area microdata. The micro price evidence can be used to derive implications for the monetary policy transmission mechanism through the lens of state-of-the-art price-setting models which feature state dependence in firms' price-changing decisions.

Large aggregate inflationary shocks are predicted to increase the frequency of price adjustment in state-dependent models of price setting calibrated to euro

area price microdata. These price adjustment models are built on the notion that price changes do not occur randomly across firms but depend on how large the price gap of a product is. The larger a shock to nominal costs, the more firms will experience misaligned prices and decide to change them, driving up the aggregate frequency of price adjustment. Therefore, in a more volatile macroeconomic environment, the degree of price flexibility should increase, as discussed above. This feature is supported by the model analysis carried out by PRISMA.[17] Specifically, using economic models that allow for variation in the frequency of price adjustment depending on the state of the economy and which are calibrated using microdata from the pre-pandemic period collected by PRISMA results in sizeable increases in the frequency of price adjustment following large shocks affecting nominal costs. As documented by PRISMA, the frequency of price adjustment varies across the three main sectors analysed (processed food, non-energy industrial goods (NEIG) and services), with food prices changing much more often than NEIG and services prices. This reflects differences in cost volatility across sectors, which in turn stems from different cost structures – the services sector has a relatively larger share of less volatile labour costs, whereas the other two sectors have a relatively larger share of more volatile raw and intermediate inputs.

In the simulations, starting from a baseline with price adjustment only being driven by idiosyncratic shocks, the frequency of price changes is relatively flat for small aggregate shocks but increases at a non-linear pace as the cost shocks move beyond 10% (Chart 5), in line with the euro area evidence for the periods before and after the pandemic-related lockdowns.[18] Moreover, while the frequency increases in all three sectors, for a given size of shock, the largest increase is predicted to be in the processed food sector and the smallest in the services sector. This sectoral heterogeneity is consistent with the euro area evidence covering the recent surge in inflation, presented in Box 1.

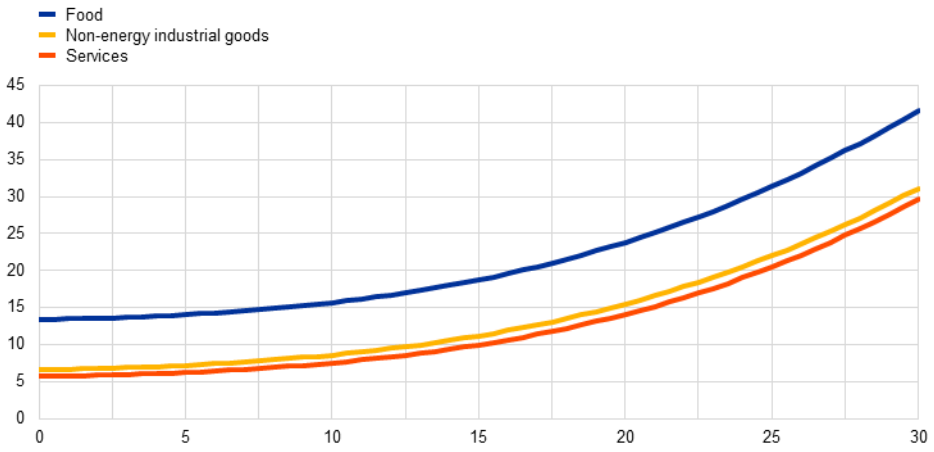
17 See Dedola, L. et al., "Some implications of micro price-setting evidence for inflation dynamics and monetary transmission", *Occasional Paper Series*, No 321, ECB, Frankfurt am Main, 2023.

18 Notably, Chart B of Box 1 shows that average price increases and decreases in the euro area are around 8% and 10% (in absolute values) respectively.

Chart 5

Model-based relation between nominal cost shocks and the frequency of price changes

(x-axis: size of nominal cost shock (percentage); y-axis: monthly frequency of price changes (percentages))



Source: Dedola, L. et al., op. cit.
Note: Based on ECB staff calculations using PRISMA HICP microdata.

A higher frequency of price adjustment implies a frontloaded and faster pass-through of shocks to inflation. If the frequency of price adjustment increases, it means that more firms are revisiting their prices each period and incorporating the effects of the shocks. As prices become more flexible, this can lead to a faster reaction of inflation to the shock on impact. Additionally, all else being equal, the reaction becomes less persistent because more firms change their prices immediately after the shock rather than waiting until a later date. In the United Kingdom, this effect was found to be empirically relevant for inflation dynamics before the inflation surge.[19] Time-varying price flexibility associated with the change in the frequency of price adjustment in UK CPI microdata is a key factor shaping inflation dynamics in that country. Inflation was more volatile and less persistent in periods of high price flexibility, highlighting in general the importance of taking into account endogenous shifts in the frequency of price changes for understanding and forecasting inflation dynamics.

Similarly, large shocks to nominal costs have non-linear effects on inflation dynamics in the calibrated models. Non-linearities in price setting imply that, in the model-based simulations, the initial inflationary effects increase more than proportionally with the size of nominal shocks. However, these cost shocks must be larger than 15% for non-linearities to significantly accelerate simulated inflation dynamics in the aftermath. All else being equal, not only will inflation rise more quickly, but its convergence back to the central bank's target rate will also be faster.

The impact of large shocks on the frequency of price changes should be temporary and disappear as inflation returns to its long-term trend. After firms have responded to a large cost shock by adjusting their prices more quickly, once the shock dissipates – and if there are no changes in other factors relevant for price

19 Petrella, I., Santoro, E., and de la Porte Simonsen, L., "Time-varying Price Flexibility and Inflation Dynamics", *CEPR Discussion Paper*, No 13027, Centre for Economic Policy Research, 2018.

adjustment – inflation should revert to its trend, and firms' price-setting decisions should also become similar to those prevailing before the shock. As a result, the frequency of price changes should also converge back to pre-shock levels. In line with this theoretical prediction, Box 1, Box 2 and Box 3 present evidence from different sources that shows that the frequency of price changes fell significantly in 2023, together with the inflation rate, and is getting closer to its pre-pandemic levels.[20]

Workhorse macroeconomic models used in policy institutions do not typically allow for variation in the frequency of price adjustment, thereby potentially missing non-linearities when inflation is high and shocks are large. Workhorse models capture the price adjustment mechanism via a time-dependent pricing model in which the frequency of price adjustment is constant. Time-dependent pricing models are a good approximation when inflation is stable and aggregate shocks are small.[21] In these models, however, the frequency of price adjustment does not have any state-dependent feature. This means that they are certain to miss the non-linear effects stemming from the large shocks likely associated with the recent inflation surge. This feature of workhorse macroeconomic models does not necessarily make them less useful in informing policy decisions (such as in the context of economic projections), provided they are complemented with a judgement-based adjustment that takes into account such non-linearities (for example by trying to readjust the parameters governing price setting).

Box 3

Price setting during and after the high inflation period: evidence from a survey of large firms

Prepared by Friderike Kuik, Richard Morris and Octavia Zahrt

This box summarises the findings of a short ad hoc ECB survey of leading euro area firms on their price-setting behaviour during and after the recent period of high inflation.[22] It is a partial update of a survey conducted in 2019.[23] 66 responses were received.

As discussed in Section 4, theory predicts that a firm will decide when to change its prices and by how much by balancing the cost of resetting prices with that of keeping prices unchanged but misaligned. This depends on the variation in firms' costs and on the ability of firms to pass through cost changes as a function of market power, demand conditions and competitors' prices. It may therefore be expected that, in the light of substantial cost increases, firms will have reviewed and changed their prices more frequently during the recent high inflation episode, but that price-setting

20 State-dependent models predict non-linearities to be symmetric in the sign of the shocks, and there is evidence that, like small inflationary shocks, small deflationary shocks also do not seem to affect the frequency of price changes. However, there is no comparable evidence for large deflationary shocks.

21 Auclert, A., Rigato, R., Rognlie, M. and Straub, L., "New Pricing Models, Same Old Phillips Curves?", *Quarterly Journal of Economics*, Vol. 139, No 1, 2024, pp. 121-186.

22 The survey was conducted in the context of the ECB's regular contacts with non-financial firms. For more details, see the article entitled "The ECB's dialogue with non-financial companies", *Economic Bulletin*, Issue 1, ECB, 2021.

23 See the box entitled "Price-setting behaviour: insights from a survey of large firms", *Economic Bulletin* Issue 7, ECB, 2019. Although the samples of firms responding to the two surveys differ, there is some overlap (32 firms responded to both the 2019 survey and the most recent survey). When only the sub-sample of overlapping firms is analysed, all of the results remain consistent.

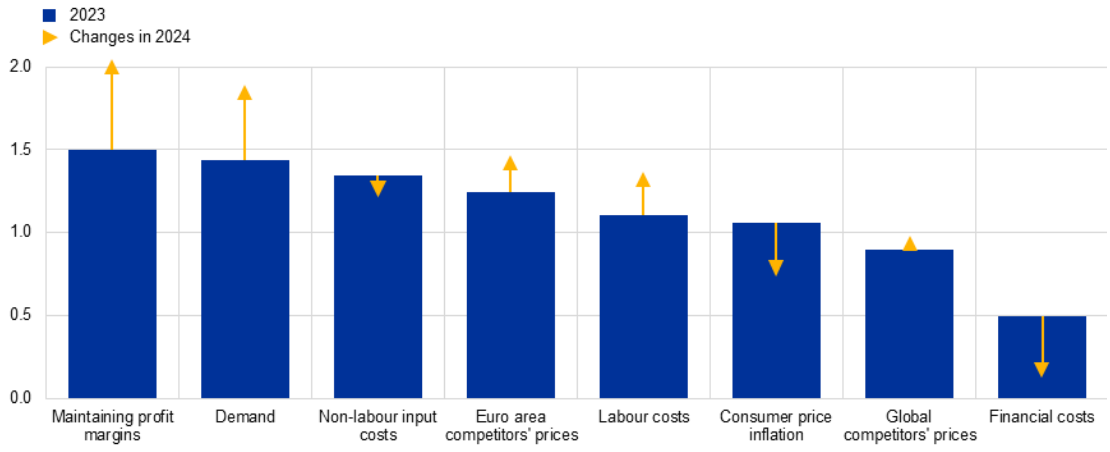
behaviour should normalise again as inflation moderates. The survey sheds light on whether this is indeed the case and reveals the importance that firms attach to different factors when setting prices in practice.

According to the responses, on average, firms considered maintaining profit margins; demand for their product or service; input costs, especially non-labour costs; euro area and global competitors' prices and consumer price inflation to be important for their price-setting decisions in 2023 (Chart A). Financial costs were considered less important. To the extent that the response options overlapped, the answers on what was important for price setting differed very little from those in the 2019 survey.[24] For 2024, on average, respondents indicated that maintaining profit margins and demand for their product or service would be increasingly important, as would, albeit to a lesser extent, competitors' prices and labour costs. Consumer price inflation and financial costs would become less important.

Chart A

Relevant factors for firms' price-setting decisions

(average score of responses, 2023: 0 = not important, 1 = important, 2 = very important; changes in 2024:1 = more important, -1 = less important)



Source: ECB.
Note: Based on 63-65 responses depending on the item.

Firms' replies suggest that the frequency of price reviews and changes was elevated in 2023 and that the frequency of price reviews will remain so in 2024, while the frequency of price changes will moderate somewhat (Chart B and Chart C). When compared with the 2019 survey, the main change in 2023 was the very sharp fall (to negligible levels) in the share of firms saying that they only reviewed prices annually and the sharp fall in the share of firms saying that they only changed prices annually. This was offset by increases in the shares of firms reviewing and changing prices at a semi-annual, quarterly or monthly frequency. Firms also tended to be moving from irregular to regular reviews. For 2024 only a small number signalled changes to their reviewing behaviour, and there was no clear direction of change in terms of higher or lower frequency. By contrast, a somewhat larger number of firms signalled a change in their expectations about how often they would change prices, and nearly all of these pointed to a lower frequency, mostly moving from

[24] In 2019 competitors' prices, costs (non-labour and labour) and demand all ranked among the most important considerations for firms when setting prices. Maintaining profit margins and consumer price inflation were not listed as a response option in 2019.

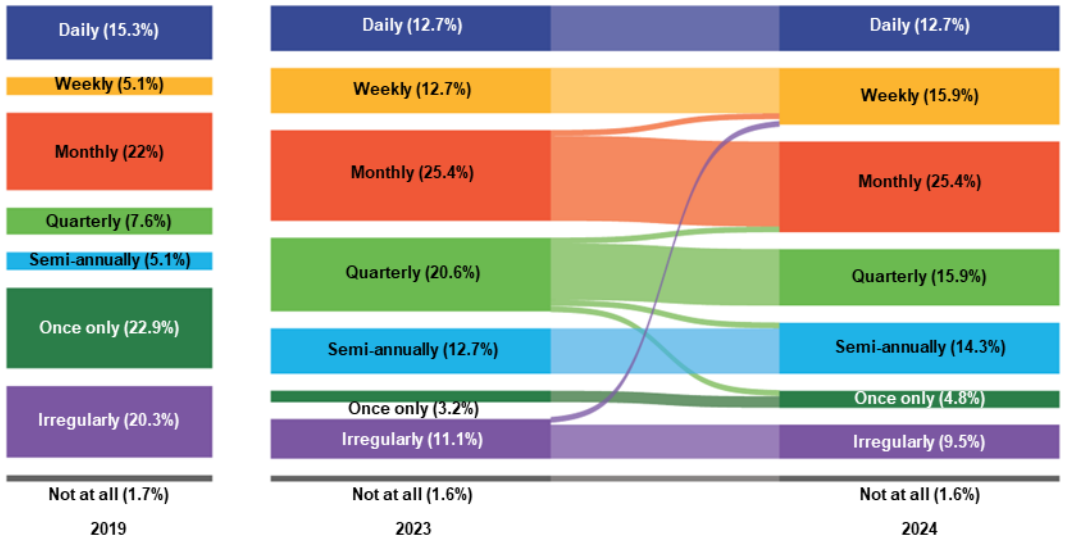
semi-annual or quarterly price changes (back) to annual ones. Overall, the replies point to the average frequency of price changes in 2024 still being higher than in 2019.

Firms expect the growth of selling prices in 2024 to moderate more than the growth of input costs.[25] A subset of 24 firms opted to indicate the (expected) growth of their selling prices and input costs in 2023 and 2024. For 2023 they reported broadly similar selling price and overall input cost increases, at close to 6%. However, in 2024 selling price increases were expected to be consistently lower than input cost increases, suggesting that, in particular, labour cost increases in 2024 – which are expected to be roughly twice as high as non-labour cost increases – may be buffered to some extent by profit margins.

Chart B

Frequency of price reviews in 2019, 2023 and 2024

(percentage of responses)



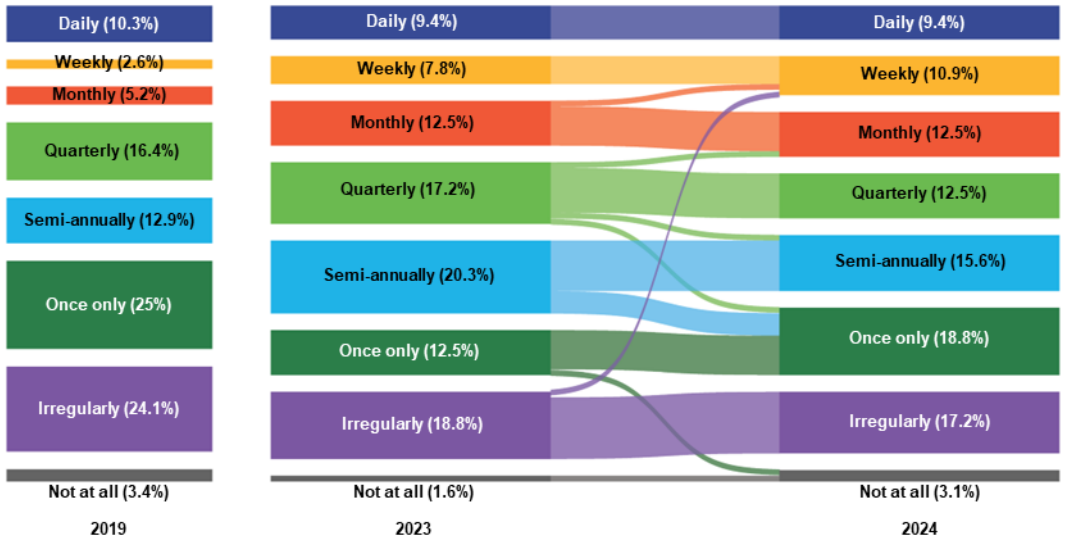
Source: ECB.
Note: The figure shows the flows between frequencies from 2023 to 2024. The response options in the 2019 survey differed slightly, such that the options "Every 1-3 years" and "Less often than every 3 years" were mapped to the 2024 options of "Once only" and "Not at all", as the question in the 2024 survey asked about changes in the previous/upcoming year.

[25] See the box entitled "Main findings from the ECB's recent contacts with non-financial companies" in this issue of the Economic Bulletin.

Chart C

Frequency of price changes in 2019, 2023 and 2024

(percentage of responses)



Source: ECB.
Note: The figure shows the flows between frequencies from 2023 to 2024. The response options in the 2019 survey differed slightly, such that the options "Every 1-3 years" and "Less often than every 3 years" were mapped to the 2024 options of "Once only" and "Not at all", as the question in the 2024 survey asked about changes in the previous/upcoming year.

5 Conclusion

The PRISMA research network gathered key empirical facts on nominal rigidities in the euro area based on microdata, providing evidence of state dependence in price setting even during the period of low and stable inflation. In a high inflation environment characterised by large shocks, the empirical implications of state-dependent pricing for inflation dynamics and the transmission of monetary policy are even more pronounced.

With large inflationary shocks, the frequency of price changes increases, resulting in stronger and faster inflation dynamics. For a given degree of persistence of the underlying cost shocks, inflation will rise more quickly than if the frequency of price changes had remained unaffected. At the same time, the pass-through of the shocks to the aggregate price level will be faster and inflation will return to the central bank's target more quickly.

Once firms have absorbed the large cost shock into their prices, state dependence implies that the frequency of price adjustment will return to its long-term norm. As price flexibility returns to its pre-shock levels, and if inflation is not expected to stay elevated, a decline in aggregate demand may lead to a slow-down in economic activity rather than lower inflation, since fewer firms respond by reducing prices. As a result, in the absence of further large shocks, the transmission of monetary policy should, all else being equal, more closely reflect the historical patterns prevailing in the pre-pandemic period of stable inflation. For any given

change in monetary policy stance, either contractionary or expansionary, its effects on inflation should materialise with lags similar to those seen before the pandemic.

Statistics

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2	Economic activity	S 3
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4	Financial market developments	S 13
5	Financing conditions and credit developments	S 18
6	Fiscal developments	S 23

Further information

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

Conventions used in the tables

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

1 External environment

1.1 Main trading partners, GDP and CPI

	GDP [1] (period-on-period percentage changes)						CPI (annual percentage changes)						
							OECD countries						
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	Total	excluding food and energy	United States	United Kingdom (HICP)	Japan	China	Memo item: euro area [2] (HICP)
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021	6.6	5.8	8.7	2.6	8.4	5.9	3.0	4.0	4.7	2.6	-0.2	0.9	2.6
2022	3.2	1.9	4.3	1.0	3.0	3.4	6.8	9.5	8.0	9.1	2.5	2.0	8.4
2023	3.2	2.6	0.1	1.9	5.2	0.4	7.0	6.9	4.1	7.4	3.2	0.2	5.4
2023 Q2	0.7	0.5	0.0	1.0	0.6	0.1	7.0	6.6	4.0	8.4	3.3	0.1	6.2
Q3	0.8	1.2	-0.1	-0.8	1.5	-0.1	7.0	6.4	3.5	6.7	3.2	-0.1	5.0
Q4	0.7	0.8	-0.3	0.1	1.0	0.0	6.8	5.9	3.2	4.2	2.9	-0.3	2.7
2024 Q1	.	.	.	.	.	.	.	.	3.2	.	.	.	2.6
2023 Oct.	-	-	-	-	-	-	6.9	6.0	3.2	4.6	3.3	-0.2	2.9
Nov.	-	-	-	-	-	-	6.8	5.8	3.1	3.9	2.8	-0.5	2.4
Dec.	-	-	-	-	-	-	6.7	6.0	3.4	4.0	2.6	-0.3	2.9
2024 Jan.	-	-	-	-	-	-	6.6	5.7	3.1	4.0	2.2	.	2.8
Feb.	-	-	-	-	-	-	6.4	5.7	3.2	3.4	2.8	.	2.6
Mar.	-	-	-	-	-	-	.	.	3.5	.	.	.	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
2021	-	-	-	-	-	-	-	-	-	11.3	10.0	12.8
2022	-	-	-	-	-	-	-	-	-	2.6	4.2	0.9
2023	52.0	51.2	51.2	51.8	52.5	49.7	49.8	52.3	47.6	-2.4	-3.8	-0.9
2023 Q2	54.0	53.6	53.9	53.1	53.9	52.3	50.5	54.8	47.6	-0.2	-1.2	0.8
Q3	51.5	50.8	49.3	52.3	51.5	47.5	49.3	51.4	47.0	-0.6	-0.4	-0.8
Q4	51.0	50.8	50.5	50.0	51.4	47.2	49.4	50.9	47.9	1.3	1.1	1.4
2024 Q1	52.6	52.2	52.9	51.3	52.6	49.2	51.1	52.4	49.2	.	.	.
2023 Oct.	50.6	50.7	48.7	50.5	50.0	46.5	48.9	50.4	47.5	0.5	0.6	0.5
Nov.	50.9	50.7	50.7	49.6	51.6	47.6	49.9	50.6	48.1	0.9	1.2	0.6
Dec.	51.6	50.9	52.1	50.0	52.6	47.6	49.4	51.6	48.1	1.3	1.1	1.4
2024 Jan.	52.5	52.0	52.9	51.5	52.5	47.9	50.3	52.3	48.8	0.1	0.2	0.0
Feb.	52.6	52.5	53.0	50.6	52.5	49.2	51.2	52.4	49.3	.	.	.
Mar.	52.6	52.1	52.8	51.7	52.7	50.3	51.9	52.5	49.5	.	.	.

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	12,474.4	11,980.4	6,354.5	2,737.1	2,726.9	1,388.6	761.4	570.3	161.9	494.1	6,172.3	5,678.2
2022	13,507.1	13,265.8	7,069.1	2,900.5	3,017.3	1,560.4	847.4	602.4	279.0	241.2	7,440.0	7,198.8
2023	14,372.5	13,853.5	7,533.4	3,033.8	3,174.4	1,625.5	904.0	637.3	112.0	518.9	7,391.2	6,872.3
2023 Q1	3,540.2	3,408.8	1,855.5	740.1	782.7	405.1	223.2	152.5	30.6	131.4	1,895.5	1,764.1
Q2	3,579.9	3,445.6	1,873.8	753.8	788.3	405.6	225.9	155.0	29.7	134.3	1,858.5	1,724.2
Q3	3,601.8	3,465.4	1,898.5	766.2	793.4	406.7	228.4	156.4	7.3	136.4	1,828.0	1,691.6
Q4	3,650.4	3,527.1	1,908.4	774.5	808.0	408.5	225.5	172.1	36.2	123.2	1,836.8	1,713.6
as percentage of GDP												
2023	100.0	96.4	52.4	21.1	22.1	11.3	6.3	4.4	0.8	3.6	-	-
Chain-linked volumes (prices for the previous year)												
quarter-on-quarter percentage changes												
2023 Q1	0.0	-0.6	0.1	-0.4	0.3	0.7	1.9	-2.9	-	-	-0.5	-1.6
Q2	0.1	0.7	0.1	0.4	0.2	-0.4	0.4	1.4	-	-	-1.1	-0.1
Q3	-0.1	-0.2	0.3	0.6	0.0	-0.5	0.6	0.4	-	-	-1.2	-1.4
Q4	0.0	0.3	0.1	0.6	1.0	-0.4	-2.3	9.5	-	-	0.0	0.6
annual percentage changes												
2021	5.9	4.7	4.4	4.2	3.5	5.8	8.1	-6.5	-	-	11.5	9.2
2022	3.4	3.6	4.2	1.6	2.5	1.3	4.5	2.6	-	-	7.2	7.9
2023	0.4	0.2	0.5	0.7	1.1	-0.9	3.2	3.4	-	-	-1.1	-1.6
2023 Q1	1.3	0.7	1.3	0.0	2.0	-0.6	5.8	3.5	-	-	2.6	1.5
Q2	0.6	0.7	0.6	0.5	1.7	-0.6	5.2	2.5	-	-	-0.5	-0.4
Q3	0.1	-0.4	-0.3	1.2	0.4	-0.4	2.4	-0.3	-	-	-3.0	-4.1
Q4	0.1	0.3	0.6	1.2	1.4	-0.7	0.5	8.2	-	-	-2.8	-2.5
contributions to quarter-on-quarter percentage changes in GDP; percentage points												
2023 Q1	0.0	-0.5	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.6	0.6	-	-
Q2	0.1	0.7	0.0	0.1	0.0	-0.1	0.0	0.1	0.6	-0.6	-	-
Q3	-0.1	-0.1	0.2	0.1	0.0	-0.1	0.0	0.0	-0.4	0.1	-	-
Q4	0.0	0.3	0.0	0.1	0.2	-0.1	-0.2	0.4	-0.1	-0.3	-	-
contributions to annual percentage changes in GDP; percentage points												
2021	5.9	4.8	2.4	1.0	0.9	0.7	0.5	-0.3	0.6	1.4	-	-
2022	3.4	3.5	2.2	0.3	0.5	0.2	0.3	0.1	0.4	0.0	-	-
2023	0.4	0.2	0.3	0.2	0.3	-0.1	0.2	0.2	-0.5	0.3	-	-
2023 Q1	1.3	0.7	0.7	0.0	0.5	-0.1	0.4	0.2	-0.5	0.6	-	-
Q2	0.6	0.7	0.3	0.1	0.4	-0.1	0.3	0.1	-0.1	-0.1	-	-
Q3	0.1	-0.5	-0.2	0.3	0.1	0.0	0.2	0.0	-0.7	0.6	-	-
Q4	0.1	0.3	0.3	0.3	0.3	-0.1	0.0	0.4	-0.6	-0.2	-	-

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	Manufac-turing energy and utilities	Const-ruction	Trade, transport, accomo-dation and food services	Infor-mation and commu-nication	Finance and insurance	Real estate	Pro-fessional, business and support services	Public administra-tion, education, health and social work	Arts, entertain-ment 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	11,191.4	186.6	2,220.1	594.5	2,021.5	598.5	515.1	1,247.2	1,297.6	2,172.8	337.6	1,283.0
2022	12,165.3	215.4	2,453.1	655.9	2,332.9	632.9	532.5	1,299.5	1,397.2	2,274.3	371.6	1,341.8
2023	13,001.6	221.4	2,627.2	723.3	2,447.0	678.6	611.1	1,411.5	1,491.1	2,391.1	399.4	1,370.8
2023 Q1	3,200.5	57.2	660.6	178.1	604.9	164.1	147.4	343.8	364.3	582.8	97.4	339.7
Q2	3,243.7	55.5	662.0	180.1	612.5	169.2	152.1	349.7	372.0	591.6	99.0	336.1
Q3	3,255.7	54.7	653.0	181.8	611.5	170.9	155.3	353.1	374.5	600.6	100.2	346.2
Q4	3,297.4	53.8	661.7	184.1	618.6	173.0	155.9	359.0	381.3	609.2	100.7	352.9
	as percentage of value added											
2023	100.0	1.7	20.2	5.6	18.8	5.2	4.7	10.9	11.5	18.4	3.1	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2023 Q1	0.1	0.9	-1.5	1.9	0.1	0.9	-0.3	0.9	0.1	0.3	2.1	-0.5
Q2	0.1	-0.2	-0.2	-0.5	0.1	1.4	0.6	-0.1	0.5	0.1	0.7	0.1
Q3	-0.1	-1.2	-1.0	0.0	0.0	0.8	0.1	0.2	0.0	0.1	1.7	0.0
Q4	0.0	0.8	-0.4	-0.2	-0.3	0.2	-0.4	0.1	0.4	0.6	-1.4	-0.3
	annual percentage changes											
2021	5.8	1.1	8.8	2.9	7.8	9.3	5.6	1.9	6.6	3.5	4.3	7.2
2022	3.5	-2.4	1.2	1.1	7.7	6.0	0.6	1.8	4.9	1.9	12.1	2.6
2023	0.6	0.4	-1.9	0.6	0.4	4.2	0.5	1.3	1.4	1.1	3.9	-1.2
2023 Q1	1.8	0.7	0.1	0.9	2.5	5.2	0.6	1.7	2.0	1.6	6.6	-2.4
Q2	0.9	1.0	-0.7	0.3	0.2	4.8	0.9	1.2	1.6	1.1	3.3	-1.2
Q3	0.1	-0.3	-2.5	1.2	-0.6	3.6	0.9	1.2	1.1	0.8	3.1	-0.3
Q4	0.1	0.2	-3.1	1.2	-0.1	3.4	0.0	1.1	1.1	1.2	3.1	-0.6
	contributions to quarter-on-quarter percentage changes in value added; percentage points											
2023 Q1	0.1	0.0	-0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	-
Q2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	-
Q3	-0.1	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-
Q4	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	-
	contributions to annual percentage changes in value added; percentage points											
2021	5.8	0.0	1.8	0.2	1.4	0.5	0.3	0.2	0.8	0.7	0.1	-
2022	3.5	0.0	0.2	0.1	1.4	0.3	0.0	0.2	0.6	0.4	0.4	-
2023	0.6	0.0	-0.4	0.0	0.1	0.2	0.0	0.1	0.2	0.2	0.1	-
2023 Q1	1.8	0.0	0.0	0.0	0.5	0.3	0.0	0.2	0.2	0.3	0.2	-
Q2	0.9	0.0	-0.1	0.0	0.0	0.2	0.0	0.1	0.2	0.2	0.1	-
Q3	0.1	0.0	-0.5	0.1	-0.1	0.2	0.0	0.1	0.1	0.1	0.1	-
Q4	0.1	0.0	-0.6	0.1	0.0	0.2	0.0	0.1	0.1	0.2	0.1	-

Sources: Eurostat and ECB calculations.

2 Economic activity

2.3 Employment [1)]

(quarterly data seasonally adjusted; annual data unadjusted)

		By employment status		By economic activity									
	Total	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	86.1	13.9	3.0	14.4	6.3	24.1	3.1	2.4	1.0	14.0	25.0	6.6
2022	100.0	86.2	13.8	2.9	14.2	6.4	24.4	3.2	2.3	1.0	14.1	24.8	6.5
2023	100.0	86.3	13.7	2.8	14.2	6.4	24.5	3.3	2.3	1.0	14.1	24.8	6.5
annual percentage changes													
2021	1.4	1.6	0.4	0.2	0.0	3.2	0.3	4.5	0.6	0.4	2.9	2.1	0.9
2022	2.3	2.4	1.3	-0.8	1.2	3.2	3.4	5.8	0.0	2.8	3.0	1.6	1.5
2023	1.4	1.5	1.1	-1.3	0.9	1.5	1.9	3.5	1.0	1.6	1.6	1.4	0.9
2023 Q1	1.7	1.8	1.2	-1.3	1.3	1.8	2.3	4.9	1.1	2.3	2.0	1.4	1.1
Q2	1.4	1.5	0.9	-2.2	1.1	1.0	1.9	4.0	1.0	2.2	1.9	1.4	0.7
Q3	1.4	1.4	0.9	-1.0	0.8	1.4	2.0	2.4	1.1	0.8	1.4	1.5	0.4
Q4	1.2	1.2	1.3	-0.6	0.4	1.8	1.3	2.7	0.7	1.2	1.2	1.5	1.1
Hours worked													
as a percentage of total hours worked													
2021	100.0	81.8	18.2	4.1	15.0	7.3	24.3	3.4	2.5	1.1	14.0	22.6	5.8
2022	100.0	81.9	18.1	3.9	14.6	7.3	25.2	3.5	2.4	1.1	14.1	22.0	5.9
2023	100.0	82.1	17.9	3.8	14.5	7.3	25.3	3.5	2.4	1.1	14.1	22.1	5.9
annual percentage changes													
2021	5.9	5.7	6.7	1.1	5.1	9.8	6.8	7.9	3.0	5.9	8.2	3.9	6.5
2022	3.4	3.5	3.0	-1.2	1.0	3.3	7.6	5.9	-0.2	4.6	4.0	0.6	5.7
2023	1.3	1.5	0.4	-1.5	0.6	1.2	1.6	3.0	0.6	1.1	1.6	1.5	1.4
2023 Q1	2.1	2.4	0.5	-0.6	1.7	1.7	3.0	4.6	1.0	1.8	2.3	1.5	2.5
Q2	1.6	1.8	0.8	-2.5	1.3	1.2	1.8	4.2	1.3	1.8	2.2	1.8	1.7
Q3	1.4	1.6	0.7	-1.2	0.6	1.4	1.8	1.9	1.0	1.1	1.6	1.8	1.5
Q4	1.3	1.4	0.6	-0.6	0.5	2.1	1.1	3.0	0.4	0.8	1.4	1.8	1.0
Hours worked per person employed													
annual percentage changes													
2021	4.4	4.1	6.3	0.9	5.1	6.4	6.4	3.2	2.3	5.4	5.1	1.7	5.6
2022	1.1	1.1	1.7	-0.5	-0.2	0.1	4.1	0.1	-0.2	1.8	1.0	-1.0	4.2
2023	-0.2	0.0	-0.7	-0.2	-0.3	-0.3	-0.3	-0.5	-0.4	-0.5	0.0	0.0	0.6
2023 Q1	0.4	0.6	-0.6	0.7	0.4	-0.1	0.7	-0.3	-0.1	-0.4	0.3	0.1	1.3
Q2	0.2	0.3	-0.2	-0.3	0.2	0.2	-0.1	0.2	0.3	-0.5	0.3	0.5	1.0
Q3	0.0	0.1	-0.2	-0.2	-0.2	-0.1	-0.2	-0.5	-0.1	0.3	0.2	0.3	1.1
Q4	0.0	0.2	-0.7	-0.1	0.1	0.3	-0.2	0.3	-0.3	-0.4	0.2	0.2	-0.1

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

2 Economic activity

2.4 Labour force, unemployment and job vacancies

(seasonally adjusted, unless otherwise indicated)

	Labour force, millions	Under-employment, % of labour force	Unemployment [1]												Job vacancy rate [3]
			Total		Long-term unemploy-ment, % of labour force [2]	By age				By gender					
						Adult		Youth		Male		Female			
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force		
	1	2	3	4	5	6	7	8	9	10	11	12	13		14
% of total in 2020			100.0			80.1		19.9		51.3		48.7			
2021	165.007	3.4	12.782	7.7	3.2	10.297	6.9	2.485	16.9	6.511	7.4	6.271	8.1		2.4
2022	167.790	3.1	11.339	6.8	2.7	9.079	6.0	2.259	14.6	5.685	6.4	5.654	7.2		3.1
2023	169.982	2.9	11.104	6.5	2.3	8.815	5.7	2.289	14.4	5.593	6.2	5.511	6.9		2.9
2023 Q1	169.398	3.0	11.141	6.6	2.5	8.922	5.8	2.219	14.0	5.600	6.2	5.541	7.0		3.1
Q2	169.835	2.9	11.036	6.5	2.3	8.765	5.7	2.272	14.3	5.547	6.2	5.489	6.9		3.0
Q3	169.974	2.9	11.136	6.6	2.3	8.829	5.7	2.307	14.5	5.622	6.2	5.515	6.9		2.9
Q4	170.720	2.9	11.102	6.5	2.3	8.743	5.7	2.358	14.8	5.602	6.2	5.500	6.9		2.7
2023 Sep.	-	-	11.143	6.5	-	8.796	5.7	2.346	14.7	5.624	6.2	5.518	6.9		-
Oct.	-	-	11.180	6.6	-	8.784	5.7	2.396	15.0	5.626	6.2	5.553	6.9		-
Nov.	-	-	11.129	6.5	-	8.808	5.7	2.321	14.6	5.637	6.2	5.492	6.9		-
Dec.	-	-	11.094	6.5	-	8.768	5.7	2.325	14.6	5.584	6.2	5.510	6.9		-
2024 Jan.	-	-	11.085	6.5	-	8.762	5.6	2.323	14.6	5.556	6.1	5.529	6.9		-
Feb.	-	-	11.102	6.5	-	8.783	5.7	2.319	14.6	5.532	6.1	5.569	6.9		-

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

2.5 Short-term business statistics

	Industrial production						Construc-tion production	Retail sales				Services produc-tion [1]	New passenger car regis-trations
	Total (excluding construction)		Main Industrial Groupings										
	Total	Manu-facturing	Inter-mediate goods	Capital goods	Consumer goods	Energy		Total	Food, beverages, tobacco	Non-food	Fuel		
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	88.7	32.4	33.2	22.5	11.9	100.0	100.0	38.1	54.4	7.5	100.0	100.0
annual percentage changes													
2021	8.8	9.7	9.6	9.4	8.0	0.7	5.4	5.3	1.0	8.3	9.0	8.0	-2.9
2022	2.1	2.8	-1.9	4.9	6.3	-2.9	2.9	0.9	-2.8	3.1	4.5	10.1	-4.3
2023	-2.3	-1.8	-5.3	2.2	-2.0	-5.6	1.5	-2.0	-2.7	-1.1	-1.8	2.9	14.5
2023 Q1	0.7	1.7	-5.5	7.6	5.1	-5.9	1.5	-3.0	-5.2	-1.4	2.3	5.0	18.3
Q2	-1.0	-0.1	-6.0	7.2	-1.8	-8.4	1.5	-2.2	-3.3	-1.2	-0.9	3.1	22.6
Q3	-4.9	-4.5	-5.2	-2.6	-3.6	-7.5	1.7	-2.3	-1.9	-1.6	-3.9	2.1	15.4
Q4	-4.0	-4.3	-4.4	-2.5	-7.0	-0.7	1.2	-0.8	-0.5	-0.1	-4.0	1.8	4.2
2023 Sep.	-6.9	-6.6	-4.8	-6.2	-6.2	-7.6	1.5	-3.4	-1.1	-4.1	.	1.4	12.2
Oct.	-6.3	-6.6	-4.3	-6.4	-8.3	-1.2	0.5	-1.2	-1.0	-0.3	.	2.1	7.8
Nov.	-5.3	-5.9	-5.4	-4.7	-7.3	0.8	0.0	-0.6	-0.5	0.3	.	1.4	5.3
Dec.	0.2	0.3	-3.4	4.8	-5.2	-1.6	2.8	-0.6	-0.1	-0.2	.	1.8	-0.3
2024 Jan.	-6.7	-7.7	-2.5	-12.1	-3.7	0.3	0.8	-0.9	-1.3	-0.7	.	4.5	7.1
Feb.	.	.	.	.	.	.	.	-0.7	-1.4	-0.1	.	.	5.1
month-on-month percentage changes (s.a.)													
2023 Sep.	-0.6	-0.2	0.0	0.2	-0.9	-1.6	0.2	0.0	0.6	-0.7	.	-0.2	-0.6
Oct.	-0.5	-0.4	-0.5	-0.9	-1.6	1.0	-0.7	0.3	-0.6	0.9	.	0.1	-2.3
Nov.	0.4	0.3	-0.7	0.5	1.2	2.3	-0.1	0.5	-0.1	0.4	.	-0.2	0.8
Dec.	1.6	5.9	-1.4	11.3	0.5	0.8	0.5	-0.6	-0.6	-0.9	.	-0.1	-1.1
2024 Jan.	-3.2	-6.8	2.6	-14.5	0.2	0.5	0.5	0.0	0.3	0.4	.	1.5	-0.9
Feb.	.	.	.	.	.	.	.	-0.5	-0.4	-0.2	.	.	0.9

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	-11.1	-12.5	-6.6	6.4	.	-	-	-	-
2021	111.2	9.6	80.9	-7.5	4.1	-1.5	8.5	87.1	-	-	-	-
2022	102.1	5.0	82.4	-21.9	5.2	-3.5	9.2	89.7	-	-	-	-
2023	96.4	-5.6	80.9	-17.4	-2.0	-4.0	6.7	90.3	45.0	45.8	51.2	49.7
2023 Q2	97.1	-4.9	81.4	-17.0	-0.5	-3.8	7.2	90.1	44.7	46.4	54.5	52.3
Q3	94.2	-9.0	80.7	-16.3	-4.7	-4.6	5.0	90.3	43.2	43.1	49.2	47.5
Q4	94.9	-9.0	79.9	-16.7	-4.2	-6.5	6.2	90.4	43.9	44.0	48.4	47.2
2024 Q1	96.0	-9.1	79.4	-15.5	-5.2	-6.0	6.9	89.9	46.4	46.7	50.0	49.2
2023 Oct.	93.9	-8.9	79.9	-17.9	-5.1	-7.1	5.2	90.4	43.1	43.1	47.8	46.5
Nov.	94.2	-9.2	.	-16.9	-4.1	-6.9	5.4	.	44.2	44.6	48.7	47.6
Dec.	96.5	-8.9	.	-15.1	-3.5	-5.4	8.1	.	44.4	44.4	48.8	47.6
2024 Jan.	96.1	-9.2	79.4	-16.1	-4.6	-5.6	8.4	89.9	46.6	46.6	48.4	47.9
Feb.	95.5	-9.4	.	-15.5	-5.5	-6.6	6.0	.	46.5	46.6	50.2	49.2
Mar.	96.3	-8.8	.	-14.9	-5.6	-5.7	6.3	.	46.1	47.1	51.5	50.3

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

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

	Households							Non-financial corporations					
	Saving rate (gross)	Debt ratio	Real gross disposable income	Financial investment	Non-financial investment (gross)	Net worth [2]	Housing wealth	Profit rate [3]	Saving rate (gross)	Debt ratio [4]	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted) [1]		Annual percentage changes					Percentage of gross value added		Percentage of GDP	Annual percentage changes		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021	17.5	95.1	2.0	3.7	19.1	8.7	8.8	35.8	8.2	76.1	5.5	9.8	3.5
2022	13.7	92.7	-0.2	2.5	12.8	2.1	7.9	35.7	5.2	71.7	3.1	9.1	1.9
2023	14.3	86.9	1.2	1.9	3.2	1.2	-1.9	34.3	5.3	67.6	1.4	2.7	0.6
2023 Q1	13.5	90.8	1.3	2.3	7.1	2.0	4.2	35.4	5.5	69.7	2.5	1.1	1.4
Q2	13.8	89.2	1.3	2.0	2.3	2.2	1.1	35.3	5.4	68.7	1.6	19.8	0.8
Q3	14.0	88.0	0.4	1.8	1.3	1.1	-0.7	35.0	5.3	67.8	1.4	-11.4	0.5
Q4	14.3	86.9	1.9	1.9	2.3	1.2	-1.9	34.3	5.3	67.6	1.4	5.3	0.6

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 Q1	1,379.6	1,351.7	27.9	735.6	690.5	321.7	300.2	279.7	283.8	42.5	77.2	36.7	33.8
Q2	1,401.7	1,342.2	59.5	725.2	667.1	327.2	294.0	305.1	295.0	44.3	86.1	25.8	22.9
Q3	1,414.6	1,339.8	74.8	722.9	645.1	329.1	295.4	320.3	313.1	42.4	86.2	29.1	18.5
Q4	1,384.2	1,311.9	72.3	710.3	645.0	328.0	295.0	299.6	284.8	46.3	87.2	61.6	40.6
2023 Aug.	471.9	447.8	24.1	241.6	214.4	109.3	98.4	107.0	106.5	14.1	28.5	8.1	5.6
Sep.	473.2	449.5	23.7	241.7	214.3	109.9	99.9	107.2	106.6	14.3	28.7	13.5	5.0
Oct.	457.1	440.1	17.0	230.1	217.8	109.7	98.4	102.7	94.5	14.6	29.5	10.7	9.6
Nov.	462.4	439.0	23.4	239.8	213.3	108.6	99.3	99.1	97.7	15.0	28.8	9.3	7.5
Dec.	464.7	432.8	31.9	240.4	213.8	109.8	97.3	97.8	92.6	16.8	29.0	41.6	23.5
2024 Jan.	478.2	438.9	39.4	247.9	201.2	112.4	107.5	103.9	106.7	14.0	23.5	4.6	7.3
12-month cumulated transactions													
2024 Jan.	5,601.0	5,332.3	268.7	2,899.9	2,610.5	1,311.2	1,194.2	1,214.8	1,192.1	175.0	335.5	145.6	108.0
12-month cumulated transactions as a percentage of GDP													
2024 Jan.	39.0	37.1	1.9	20.2	18.2	9.1	8.3	8.5	8.3	1.2	2.3	1.0	0.8

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 Q1	8.8	1.0	722.8	347.3	138.9	224.2	596.6	733.0	432.0	115.1	162.8	506.4	78.5
Q2	-1.7	-13.6	708.5	332.0	144.0	216.8	591.9	707.5	412.3	113.7	164.7	504.1	74.2
Q3	-5.3	-22.2	702.4	332.1	141.8	214.6	584.3	676.5	390.1	111.4	158.1	486.6	82.5
Q4	-5.1	-16.9	706.2	334.1	142.6	214.3	584.9	665.8	380.7	106.6	156.7	470.8	81.2
2023 Aug.	-3.7	-24.3	235.9	110.8	49.1	72.1	194.3	224.2	128.8	36.8	52.9	161.7	27.3
Sep.	-9.1	-23.9	233.7	111.9	46.3	71.1	195.2	223.7	129.9	36.7	51.4	160.2	28.6
Oct.	-1.8	-15.5	235.6	111.9	47.6	70.7	196.1	225.1	129.4	36.1	52.9	159.3	29.5
Nov.	-4.6	-16.5	236.6	111.5	48.5	71.6	195.6	221.0	126.9	35.0	51.7	156.1	26.7
Dec.	-8.9	-18.9	234.0	110.7	46.5	72.1	193.2	219.7	124.4	35.4	52.1	155.4	25.0
2024 Jan.	1.3	-16.1	239.0	.	.	.	195.0	210.9	.	.	.	147.3	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2023 Q1	0.8	-1.8	106.4	102.4	107.4	119.0	106.4	117.3	116.4	121.9	117.4	117.9	145.8
Q2	-2.8	-6.5	105.1	100.3	110.5	115.8	105.8	116.2	115.4	123.4	118.9	119.8	160.0
Q3	-3.9	-10.4	104.0	100.4	107.7	112.8	104.4	112.6	111.6	119.5	116.6	117.0	173.2
Q4	-4.1	-9.4	104.0	99.5	106.5	112.9	103.8	110.2	108.7	113.8	115.4	114.1	165.4
2023 July	-1.2	-5.3	103.1	99.9	105.9	112.7	103.4	115.4	114.7	121.9	118.7	119.1	169.9
Aug.	-1.7	-11.9	105.2	100.5	112.1	113.8	105.7	111.6	110.2	118.6	117.3	116.7	174.9
Sep.	-8.2	-13.6	103.8	100.8	105.2	111.9	104.1	110.8	110.0	118.2	113.8	115.2	174.9
Oct.	-0.5	-6.5	103.9	100.1	107.2	110.7	104.0	110.8	109.2	117.1	116.0	115.8	163.3
Nov.	-3.1	-9.3	104.4	99.2	107.4	113.5	104.6	109.7	107.8	110.5	114.8	112.7	163.8
Dec.	-8.9	-12.7	103.7	99.1	105.0	114.5	102.7	110.1	109.1	113.8	115.5	113.9	169.2

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 2021	100.0	100.0	68.7	58.2	41.8	100.0	16.7	5.1	26.9	9.5	41.8	86.7	13.3
2021	107.8	2.6	1.5	3.4	1.5	-	-	-	-	-	-	2.5	3.1
2022	116.8	8.4	3.9	11.9	3.5	-	-	-	-	-	-	8.5	7.8
2023	123.2	5.4	4.9	5.7	4.9	-	-	-	-	-	-	5.5	4.9
2023 Q2	123.2	6.2	5.5	6.8	5.2	0.6	1.8	0.9	0.6	-4.3	1.2	6.1	6.8
Q3	123.9	5.0	5.1	4.5	5.3	0.9	1.1	1.2	0.6	1.3	0.9	5.0	4.5
Q4	124.1	2.7	3.7	1.7	4.2	0.3	0.7	0.9	0.0	-1.1	0.7	3.0	1.3
2024 Q1	124.4	2.6	3.1	.	4.0	0.7	0.8	-0.2	0.3	0.3	1.1	.	.
2023 Oct.	124.5	2.9	4.2	1.7	4.6	0.1	0.2	0.3	0.0	-1.2	0.3	3.2	0.6
Nov.	123.8	2.4	3.6	1.3	4.0	-0.2	0.1	0.9	0.0	-2.2	0.0	2.5	1.5
Dec.	124.0	2.9	3.4	2.1	4.0	0.0	0.1	0.0	0.2	-1.6	0.3	3.1	1.7
2024 Jan.	123.6	2.8	3.3	1.8	4.0	0.4	0.5	0.3	0.1	1.2	0.4	3.0	1.9
Feb.	124.4	2.6	3.1	1.5	4.0	0.4	0.3	-1.0	0.1	1.5	0.5	2.6	2.5
Mar.	125.3	2.4	2.9	.	4.0	0.1	0.1	-0.3	0.0	-0.3	0.4	.	.

	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 2021	21.8	16.7	5.1	36.4	26.9	9.5	12.2	7.5	6.5	2.7	11.4	9.0
2021	1.5	1.5	1.6	4.5	1.5	13.0	1.4	1.2	2.1	0.3	1.5	1.6
2022	9.0	8.6	10.4	13.6	4.6	37.0	2.4	1.7	4.4	-0.2	6.1	2.1
2023	10.9	11.4	9.1	2.9	5.0	-2.0	3.6	2.7	5.2	0.2	6.9	4.0
2023 Q2	12.5	13.5	9.5	3.7	5.8	-1.8	3.7	2.7	6.1	0.4	7.5	4.1
Q3	9.8	10.3	7.9	1.7	4.6	-4.6	3.7	2.7	5.7	0.0	7.2	4.2
Q4	6.8	7.1	5.9	-1.1	2.9	-9.8	3.5	2.7	3.2	0.4	5.9	4.0
2024 Q1	4.1	4.4	2.8	.	1.6	-3.9	.	.	.	.	.	.
2023 Oct.	7.4	8.4	4.5	-1.4	3.5	-11.2	3.6	2.8	3.9	0.3	6.4	4.1
Nov.	6.9	7.1	6.3	-1.7	2.9	-11.5	3.5	2.7	2.5	0.2	5.9	4.0
Dec.	6.1	5.9	6.8	-0.1	2.5	-6.7	3.5	2.7	3.3	0.5	5.2	3.8
2024 Jan.	5.6	5.2	6.9	-0.3	2.0	-6.1	3.4	2.8	3.5	-0.3	5.4	3.8
Feb.	3.9	4.5	2.1	0.2	1.6	-3.7	3.4	2.8	3.3	0.0	5.2	3.9
Mar.	2.7	3.6	-0.4	.	1.1	-1.8	.	.	.	.	.	.

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 [3]	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	6.0	11.0	2.6	2.2	3.4	1.7	30.6	5.8	7.9	0.5
2022	133.4	33.4	17.2	14.2	19.9	7.2	12.2	16.5	7.0	82.0	12.0	7.1	0.6
2023	130.5	-2.2	1.8	3.4	-0.4	5.1	8.3	8.4	5.0	-13.3	6.7	-1.1	.
2023 Q1	136.4	11.1	9.0	9.8	8.8	7.1	14.1	17.5	7.8	11.9	10.7	0.4	-4.9
Q2	129.0	-0.7	0.6	3.7	-0.7	5.6	9.5	9.6	5.9	-11.3	7.5	-1.6	-9.9
Q3	128.1	-8.8	-0.5	1.0	-4.0	4.3	6.4	5.5	4.1	-25.1	4.8	-2.2	.
Q4	128.4	-8.7	-1.3	-0.4	-4.8	3.3	3.7	2.2	2.4	-23.2	4.3	-1.1	.
2023 Sep.	128.9	-10.4	0.0	0.5	-4.4	4.0	5.5	4.4	3.6	-27.4	-	-	-
Oct.	129.1	-8.3	-1.5	-0.2	-5.0	3.6	4.3	2.9	2.7	-22.3	-	-	-
Nov.	128.6	-8.0	-1.5	-0.4	-4.9	3.2	3.6	2.0	2.5	-22.0	-	-	-
Dec.	127.6	-9.6	-0.9	-0.5	-4.7	3.0	3.1	1.6	2.1	-25.3	-	-	-
2024 Jan.	126.5	-8.0	-2.0	-1.3	-5.4	2.2	1.8	0.2	1.0	-20.0	-	-	-
Feb.	125.2	-8.3	-1.5	-1.5	-5.3	2.0	1.3	-0.4	0.7	-21.1	-	-	-

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: 2015 = 100)	Total	Total	Private consumption	Government consumption	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
% of total										100.0	45.5	54.6	100.0	50.4	49.6
2021	109.7	2.2	2.9	2.2	1.8	3.9	5.9	7.9	59.8	29.5	21.4	37.1	29.0	22.0	37.0
2022	114.9	4.7	6.9	6.8	4.3	8.0	12.5	17.6	95.0	18.3	28.8	9.6	19.4	27.7	10.9
2023	121.8	6.0	4.3	6.1	3.9	4.1	0.5	-2.9	76.4	-13.0	-11.6	-14.3	-13.8	-12.5	-15.3
2023 Q2	121.2	6.3	4.3	6.8	4.4	4.3	0.3	-3.7	71.6	-18.0	-16.1	-19.9	-18.4	-16.4	-20.8
Q3	122.0	5.9	3.2	5.8	4.0	3.1	-1.9	-7.0	79.8	-13.8	-14.5	-13.0	-14.9	-15.2	-14.5
Q4	123.7	5.3	3.8	3.8	3.0	2.7	-1.4	-4.5	78.5	-9.0	-9.3	-8.8	-10.1	-10.4	-9.6
2024 Q1	.	.	.	.	.	.	.	.	76.5	-3.3	2.1	-8.4	-3.7	0.6	-8.7
2023 Oct.	-	-	-	-	-	-	-	-	86.2	-12.2	-13.9	-10.4	-13.1	-14.3	-11.6
Nov.	-	-	-	-	-	-	-	-	76.9	-8.9	-9.6	-8.1	-10.0	-11.0	-8.8
Dec.	-	-	-	-	-	-	-	-	71.4	-5.8	-3.7	-7.9	-6.8	-5.5	-8.2
2024 Jan.	-	-	-	-	-	-	-	-	73.5	-5.3	-0.7	-9.6	-6.3	-3.2	-9.7
Feb.	-	-	-	-	-	-	-	-	77.5	-4.4	0.2	-8.9	-4.3	-0.1	-9.1
Mar.	-	-	-	-	-	-	-	-	78.6	0.0	6.9	-6.6	-0.5	5.2	-7.2

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

3 Prices and costs

3.4 Price-related opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balance)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 12 months	Input prices		Prices charged	
	Manu-facturing	Retail trade	Services	Construction		Manu-facturing	Services	Manu-facturing	Services
	1	2	3	4	5	6	7	8	9
1999-20	4.7	5.7	4.0	-3.4	28.9	-	-	-	-
2021	31.7	23.9	10.3	19.7	30.4	-	-	-	-
2022	48.5	52.9	27.4	42.4	71.6	-	-	-	-
2023	9.5	28.5	19.2	13.9	74.5	43.7	64.6	50.0	57.4
2023 Q2	7.1	29.9	18.0	12.4	76.9	41.6	64.3	49.2	58.0
Q3	3.5	22.1	15.3	6.5	73.3	39.1	62.0	45.7	55.5
Q4	3.7	18.8	17.6	9.8	69.5	42.8	62.0	47.5	54.8
2024 Q1	4.7	16.5	17.6	5.0	64.5	44.9	62.3	48.2	56.0
2023 Oct.	4.0	19.7	15.9	8.2	72.6	42.5	62.0	46.4	54.1
Nov.	3.4	18.3	18.0	9.6	68.9	42.7	62.5	47.2	54.5
Dec.	3.6	18.4	18.9	11.6	66.9	43.1	61.6	48.9	55.6
2024 Jan.	4.6	18.5	20.1	9.9	66.1	42.8	62.6	48.6	56.3
Feb.	3.9	16.7	17.3	3.6	65.3	45.5	62.9	48.3	56.6
Mar.	5.6	14.1	15.2	1.4	62.1	46.5	61.5	47.7	55.1

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	100.9	0.9	1.1	0.4	0.9	0.9	1.3
2022	105.7	4.8	4.0	7.0	5.0	4.2	2.9
2023	110.4	4.5	4.4	4.9	5.0	3.3	4.5
2023 Q1	102.7	5.2	4.9	6.4	5.8	4.1	4.3
Q2	113.7	4.3	4.4	4.0	4.5	3.8	4.4
Q3	107.4	5.2	5.2	5.0	5.7	3.8	4.7
Q4	117.9	3.3	3.1	4.1	4.2	1.8	4.5

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: 2015 =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	110.1	-0.2	1.8	-3.7	5.6	-1.8	1.2	-1.5	5.0	1.1	0.9	-0.1
2022	113.8	3.3	6.7	3.5	6.2	1.9	3.0	2.7	4.9	3.2	3.5	-3.0
2023	120.8	6.2	3.8	8.4	5.5	7.3	4.4	5.0	4.4	6.4	4.3	2.3
2023 Q1	118.8	5.8	4.0	7.0	5.3	6.4	4.5	5.8	4.2	6.9	3.8	0.0
Q2	119.5	6.2	2.5	7.1	5.7	7.7	4.4	4.5	4.8	6.5	4.9	2.9
Q3	121.5	6.5	4.7	9.3	4.9	7.9	4.1	4.4	3.4	6.5	5.0	3.0
Q4	123.0	5.8	3.9	9.3	5.2	6.6	4.3	5.0	5.4	5.2	3.5	3.2
Compensation per employee												
2021	111.6	4.2	2.7	4.7	5.2	5.5	5.8	3.3	6.6	4.7	2.3	3.3
2022	116.6	4.5	5.0	3.6	4.0	6.2	3.3	3.3	3.9	5.2	3.8	7.1
2023	122.6	5.1	5.6	5.5	4.6	5.7	5.1	4.5	4.1	6.1	4.0	5.5
2023 Q1	120.9	5.4	6.1	5.7	4.3	6.7	4.9	5.2	3.7	6.9	3.9	5.4
Q2	121.6	5.3	5.9	5.2	5.0	5.9	5.3	4.4	3.7	6.2	4.7	5.5
Q3	123.3	5.1	5.5	5.8	4.7	5.1	5.3	4.2	3.7	6.2	4.3	5.8
Q4	124.4	4.6	4.7	5.4	4.6	5.1	5.0	4.2	5.2	5.1	3.2	5.2
Labour productivity per person employed												
2021	101.4	4.4	0.9	8.8	-0.3	7.5	4.5	4.9	1.5	3.6	1.3	3.4
2022	102.5	1.1	-1.6	0.0	-2.0	4.2	0.2	0.6	-1.0	1.9	0.3	10.4
2023	101.5	-1.0	1.7	-2.7	-0.9	-1.5	0.7	-0.5	-0.3	-0.3	-0.3	3.1
2023 Q1	101.8	-0.4	2.0	-1.2	-0.9	0.3	0.3	-0.6	-0.5	0.0	0.2	5.4
Q2	101.8	-0.8	3.4	-1.8	-0.7	-1.6	0.8	-0.1	-1.0	-0.3	-0.2	2.5
Q3	101.5	-1.2	0.8	-3.3	-0.2	-2.6	1.1	-0.2	0.3	-0.3	-0.7	2.7
Q4	101.2	-1.1	0.8	-3.6	-0.6	-1.4	0.7	-0.7	-0.2	-0.1	-0.3	1.9
Compensation per hour worked												
2021	114.1	0.1	0.5	-0.1	-0.5	-0.6	2.7	1.2	2.2	0.1	0.8	-1.5
2022	118.0	3.4	6.3	3.9	4.3	1.7	3.3	3.5	2.7	3.9	4.8	3.7
2023	124.0	5.1	5.3	5.8	4.8	5.8	5.4	4.9	4.6	6.0	3.9	4.7
2023 Q1	121.9	4.8	4.7	5.3	4.1	5.4	5.1	5.3	4.1	6.2	3.7	4.1
Q2	122.5	5.0	6.4	5.0	5.0	6.0	5.1	4.3	4.0	5.8	4.1	4.2
Q3	124.4	5.0	5.1	5.8	4.9	5.3	5.5	4.4	4.6	6.0	4.0	4.3
Q4	125.8	4.4	4.5	5.3	3.6	5.3	4.4	4.4	4.4	4.8	3.0	5.0
Hourly labour productivity												
2021	104.7	0.0	0.0	3.5	-6.3	1.0	1.3	2.5	-3.7	-1.5	-0.4	-2.1
2022	104.7	0.0	-1.2	0.2	-2.1	0.1	0.2	0.8	-2.7	0.9	1.3	6.0
2023	103.8	-0.8	1.9	-2.4	-0.6	-1.2	1.1	-0.1	0.1	-0.2	-0.3	2.5
2023 Q1	103.7	-0.7	1.4	-1.6	-0.8	-0.4	0.7	-0.5	-0.1	-0.3	0.1	4.0
Q2	103.6	-1.0	3.6	-1.9	-0.8	-1.5	0.6	-0.3	-0.6	-0.6	-0.7	1.6
Q3	103.5	-1.3	0.9	-3.1	-0.1	-2.4	1.7	-0.1	0.1	-0.5	-1.0	1.6
Q4	103.4	-1.2	0.9	-3.6	-0.9	-1.2	0.4	-0.4	0.2	-0.3	-0.6	2.0

Sources: Eurostat and ECB calculations.

4 Financial market developments

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

	Euro area [1]					United States	Japan
	Euro short-term rate (€STR)	1-month deposits (EURIBOR)	3-month deposits (EURIBOR)	6-month deposits (EURIBOR)	12-month deposity (EURIBOR)	Secured overnight financing rate (SOFR)	Tokyo overnight average rate (TONAR)
	1	2	3	4	5	6	7
2021	-0.57	-0.56	-0.55	-0.52	-0.49	0.04	-0.02
2022	-0.01	0.09	0.35	0.68	1.10	1.63	-0.03
2023	3.21	3.25	3.43	3.69	3.86	5.00	-0.04
2023 Oct.	3.90	3.86	3.97	4.11	4.16	5.31	-0.02
Nov.	3.90	3.84	3.97	4.06	4.02	5.32	-0.02
Dec.	3.90	3.86	3.93	3.92	3.67	5.33	-0.01
2024 Jan.	3.90	3.87	3.93	3.89	3.61	5.32	-0.01
Feb.	3.91	3.87	3.92	3.90	3.67	5.31	-0.01
Mar.	3.91	3.85	3.92	3.89	3.72	5.31	0.02

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

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1]					Euro area [1] [2]	United States	United Kingdom	Euro area [1] [2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2021	-0.73	-0.72	-0.68	-0.48	-0.19	0.53	1.12	0.45	-0.69	-0.58	-0.12	0.24
2022	1.71	2.46	2.57	2.45	2.56	0.09	-0.84	-0.24	2.85	2.48	2.47	2.76
2023	3.78	3.05	2.44	1.88	2.08	-0.96	-0.92	-1.20	2.25	1.54	1.76	2.64
2023 Oct.	3.82	3.39	2.99	2.68	2.82	-0.56	-0.53	-0.48	2.87	2.41	2.67	3.19
Nov.	3.78	3.26	2.81	2.41	2.53	-0.74	-0.83	-0.72	2.67	2.14	2.33	2.88
Dec.	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 Jan.	3.81	3.05	2.47	2.05	2.27	-0.79	-0.81	-1.03	2.26	1.67	2.06	2.76
Feb.	3.82	3.33	2.90	2.43	2.48	-0.85	-0.76	-0.46	2.79	2.24	2.20	2.79
Mar.	3.78	3.26	2.80	2.30	2.36	-0.90	-0.83	-0.55	2.68	2.09	2.07	2.70

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

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

	Dow Jones EURO STOXX Indices												United States	Japan
	Benchmark		Main industry indices											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2021	448.3	4,023.6	962.9	289.8	183.0	95.4	164.4	819.0	874.3	377.7	279.6	886.3	4,277.6	28,836.5
2022	414.6	3,757.0	937.3	253.4	171.3	110.0	160.6	731.7	748.4	353.4	283.2	825.8	4,098.5	27,257.8
2023	452.0	4,272.0	968.5	292.7	169.2	119.2	186.7	809.8	861.5	367.8	283.1	803.6	4,285.6	30,716.6
2023 Oct.	430.8	4,104.0	922.9	274.1	155.6	123.1	186.7	748.8	810.5	344.5	269.0	775.7	4,269.4	31,381.0
Nov.	448.0	4,275.0	963.3	282.6	162.0	123.3	192.5	790.5	885.3	368.0	279.3	742.2	4,460.1	32,960.3
Dec.	472.0	4,508.6	1,019.9	298.5	163.4	122.7	202.0	862.9	950.4	390.0	282.2	749.5	4,688.4	33,118.0
2024 Jan.	471.8	4,505.8	998.5	289.2	163.2	120.2	204.7	875.3	963.2	381.9	288.4	762.5	4,804.5	35,451.8
Feb.	489.4	4,758.9	989.4	315.9	165.3	119.0	207.3	916.0	1,085.4	353.4	283.8	747.9	5,012.0	37,785.2
Mar.	509.8	4,989.6	1,046.7	330.6	161.5	123.1	223.8	965.1	1,114.6	358.1	283.7	764.4	5,170.6	39,844.3

Source: LSEG.

4 Financial market developments

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

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

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase					
			With an agreed maturity of:				By initial period of rate fixation		APRC [3)]		By initial period of rate fixation				APRC [3)]	Composite cost-of-borrowing indicator
	Overnight	Redeemable at notice of up to 3 months	Up tp 2 years	Over 2 years			Floating rate and up to 1 year	Over 1 year			Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2023 Mar.	0.14	1.20	2.11	2.26	6.72	16.15	7.61	7.23	7.90	4.70	3.93	3.78	3.56	3.14	3.72	3.38
Apr.	0.17	1.25	2.29	2.42	6.98	16.30	8.03	7.43	8.11	4.91	4.16	3.86	3.61	3.19	3.81	3.49
May	0.21	1.30	2.47	2.48	7.15	16.35	8.13	7.60	8.31	5.08	4.28	3.99	3.65	3.31	3.93	3.59
June	0.23	1.37	2.71	2.59	7.29	16.35	7.02	7.49	7.99	5.11	4.42	4.07	3.72	3.41	4.05	3.71
July	0.27	1.42	2.83	2.86	7.50	16.41	8.38	7.73	8.41	5.23	4.58	4.14	3.72	3.46	4.09	3.76
Aug.	0.31	1.50	3.04	3.11	7.60	16.47	8.73	7.83	8.49	5.36	4.71	4.22	3.79	3.51	4.16	3.86
Sep.	0.33	1.54	3.08	3.12	7.78	16.55	8.47	7.83	8.55	5.40	4.75	4.25	3.86	3.57	4.25	3.89
Oct.	0.35	1.59	3.27	3.31	7.98	16.55	8.24	7.87	8.54	5.58	4.84	4.29	3.78	3.61	4.27	3.92
Nov.	0.36	1.62	3.32	3.41	7.98	16.66	7.27	7.91	8.54	5.56	4.91	4.32	3.90	3.70	4.35	4.02
Dec.	0.37	1.65	3.28	3.46	8.04	16.78	7.54	7.72	8.43	5.38	4.90	4.24	3.81	3.63	4.33	3.97
2024 Jan.	0.39	1.68	3.20	3.15	8.14	16.76	7.98	8.02	8.73	5.37	4.86	4.10	3.67	3.52	4.15	3.88
Feb.	0.38	1.71	3.17	3.07	8.19	16.80	7.67	7.94	8.63	5.34	4.83	4.01	3.64	3.49	4.11	3.84

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 Mar.	0.41	2.57	2.95	4.11	4.70	4.83	4.88	4.33	4.48	3.84	4.08	4.32	3.88	4.22
Apr.	0.45	2.80	3.11	4.39	4.87	4.74	4.96	4.60	4.59	3.98	4.32	4.37	3.68	4.39
May	0.49	2.96	3.13	4.56	5.05	5.07	5.16	4.76	4.84	4.01	4.47	4.58	4.01	4.58
June	0.55	3.20	3.10	4.78	5.24	5.43	5.26	4.95	4.99	4.14	4.71	4.88	4.10	4.78
July	0.61	3.31	3.58	4.88	5.52	5.52	5.43	5.13	5.02	4.30	4.86	5.01	4.32	4.94
Aug.	0.66	3.42	3.53	5.02	5.47	5.65	5.55	5.24	5.16	4.38	5.00	4.89	4.01	4.99
Sep.	0.75	3.59	3.79	5.19	5.58	5.72	5.64	5.40	5.22	4.40	5.04	4.99	4.20	5.09
Oct.	0.80	3.70	3.81	5.31	5.66	5.87	5.73	5.49	5.29	4.52	5.23	5.08	4.54	5.27
Nov.	0.83	3.71	3.92	5.33	5.71	5.91	5.79	5.50	5.30	4.55	5.12	5.17	4.40	5.23
Dec.	0.84	3.71	4.08	5.38	5.48	5.72	5.68	5.41	5.10	4.51	5.25	5.09	4.37	5.23
2024 Jan.	0.89	3.69	3.34	5.37	5.29	5.69	5.65	5.45	5.23	4.44	5.15	5.00	4.18	5.18
Feb.	0.90	3.63	3.49	5.40	5.44	5.72	5.61	5.46	5.14	4.38	5.04	4.85	3.97	5.12

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

4 Financial market developments

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

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

	Outstanding amounts							Gross issues [1]						
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Non-MFI corporations			General government	
			Financial corporations other than MFIs		Non-financial corporations	Total	of which central government			Financial corporations other than MFIs		Non-financial corporations	Total	of which central government
			Total	FVCs						Total	FVCs			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Short-term														
2021	1,407.9	427.8	126.7	50.1	88.8	764.7	674.9	387.3	138.6	79.1	26.3	32.1	137.6	104.8
2022	1,374.4	467.6	145.2	51.9	94.6	667.0	621.7	480.5	182.6	116.0	48.2	48.1	133.9	97.1
2023	1,508.2	587.7	133.3	51.1	85.9	701.3	659.1	499.3	211.2	111.7	38.0	48.8	127.6	103.9
2023 Sep.	1,533.1	590.9	139.0	50.7	91.9	711.3	676.2	522.3	213.9	117.1	42.5	46.8	144.5	126.5
Oct.	1,520.3	576.3	139.9	49.5	95.0	709.2	671.7	486.9	197.8	116.3	37.5	51.2	121.6	92.2
Nov.	1,533.2	589.7	136.4	48.3	95.6	711.5	667.8	482.2	187.5	120.8	40.9	45.0	129.0	100.2
Dec.	1,508.2	587.7	133.3	51.1	85.9	701.3	659.1	330.0	144.5	79.7	36.1	32.2	73.6	60.7
2024 Jan.	1,519.3	602.4	143.1	50.9	90.3	683.4	642.7	539.0	215.9	127.5	43.1	47.7	148.0	121.6
Feb.	1,490.1	593.4	133.8	45.7	90.0	672.9	636.8	435.2	179.3	104.9	34.3	37.1	114.0	94.5
Long-term														
2021	19,928.2	4,184.3	3,377.4	1,343.8	1,597.5	10,769.0	9,948.0	316.2	68.0	83.6	33.7	22.9	141.7	128.2
2022	17,901.8	3,973.1	3,260.9	1,341.5	1,390.8	9,277.0	8,565.2	298.9	78.4	73.5	29.6	16.4	130.6	121.2
2023	19,553.9	4,494.7	3,450.4	1,357.0	1,498.0	10,110.7	9,370.5	325.6	95.6	70.7	25.1	20.5	138.8	130.3
2023 Sep.	18,662.7	4,294.7	3,394.0	1,366.0	1,423.7	9,550.3	8,836.6	350.1	91.1	91.9	21.6	29.3	137.9	127.9
Oct.	18,704.6	4,339.6	3,395.2	1,368.2	1,424.6	9,545.3	8,832.9	335.8	91.7	69.5	22.6	15.0	159.7	153.4
Nov.	19,074.4	4,409.8	3,409.8	1,354.9	1,458.9	9,795.9	9,074.7	303.3	84.0	87.6	34.9	25.7	106.0	101.1
Dec.	19,553.9	4,494.7	3,450.4	1,357.0	1,498.0	10,110.7	9,370.5	214.6	69.1	59.4	18.2	16.4	69.6	68.0
2024 Jan.	19,662.3	4,578.3	3,482.5	1,362.4	1,498.9	10,102.6	9,354.9	477.6	171.1	90.6	30.5	22.9	193.0	172.3
Feb.	19,629.1	4,580.1	3,481.1	1,357.8	1,498.5	10,069.4	9,316.1	360.8	98.9	63.0	10.2	17.4	181.4	163.1

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

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

(EUR billions and percentage changes; market values)

	Debt securities							Listed shares			
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations
			Financial corporations other than MFIs		Non-financial corporations	Total	of which central government				
			Total	FVCs							
	1	2	3	4	5	6	7	8	9	10	11
Outstanding amount											
2021	21,336.2	4,612.1	3,504.1	1,393.9	1,686.3	11,533.7	10,622.9	10,366.6	600.3	1,703.4	8,062.0
2022	19,276.2	4,440.7	3,406.1	1,393.4	1,485.4	9,944.0	9,186.9	8,711.5	525.2	1,502.6	6,683.1
2023	21,062.1	5,082.5	3,583.8	1,408.1	1,583.9	10,812.0	10,029.6	9,697.5	621.8	1,655.7	7,419.5
2023 Sep.	20,195.8	4,885.6	3,533.0	1,416.7	1,515.6	10,261.6	9,512.8	9,159.0	576.3	1,598.3	6,984.0
Oct.	20,224.9	4,915.9	3,535.0	1,417.7	1,519.5	10,254.5	9,504.6	8,780.2	558.8	1,543.5	6,677.4
Nov.	20,607.6	4,999.5	3,546.2	1,403.2	1,554.4	10,507.4	9,742.4	9,397.5	611.5	1,646.7	7,138.9
Dec.	21,062.1	5,082.5	3,583.8	1,408.1	1,583.9	10,812.0	10,029.6	9,697.5	621.8	1,655.7	7,419.5
2024 Jan.	21,181.6	5,180.8	3,625.6	1,413.2	1,589.2	10,786.0	9,997.6	9,845.8	641.1	1,687.6	7,516.6
Feb.	21,119.2	5,173.5	3,614.9	1,403.4	1,588.5	10,742.3	9,952.9	10,170.0	652.5	1,769.5	7,747.7
Growth rate [1]											
2023 July	6.0	12.0	3.9	2.0	1.8	4.7	5.3	-1.0	-2.1	0.5	-1.2
Aug.	5.9	12.1	3.7	1.6	1.1	4.6	5.3	-1.0	-2.0	0.6	-1.2
Sep.	6.3	11.0	4.8	3.8	1.6	5.5	6.2	-0.9	-3.1	0.5	-1.0
Oct.	6.0	10.5	4.8	3.8	2.2	5.0	5.5	-1.3	-3.0	0.4	-1.5
Nov.	5.4	9.9	3.6	1.4	2.2	4.5	4.9	-1.2	-3.3	0.5	-1.4
Dec.	5.7	11.3	3.4	0.9	1.9	4.6	5.0	-1.3	-3.1	0.5	-1.6
2024 Jan.	5.8	10.3	4.6	2.1	1.9	4.7	5.1	-1.4	-3.0	0.4	-1.7
Feb.	5.5	9.8	4.6	1.4	1.7	4.4	4.8	-1.4	-3.0	0.1	-1.5

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
2021	99.6	93.7	93.6	89.4	68.1	87.5	120.5	94.3
2022	95.3	90.8	93.6	84.3	63.1	82.9	116.1	90.9
2023	98.1	94.0	98.1	88.3	65.2	86.5	121.8	94.7
2023 Q2	98.2	93.9	98.1	88.2	64.3	85.9	121.4	94.6
Q3	98.9	94.9	99.0	89.0	65.5	87.4	123.5	95.9
Q4	98.3	94.2	98.2	89.0	65.5	87.2	123.0	95.1
2024 Q1	98.4	94.5	98.2	.	.	.	123.7	95.3
2023 Oct.	98.0	94.1	98.1	-	-	-	122.5	95.0
Nov.	98.7	94.6	98.5	-	-	-	123.4	95.3
Dec.	98.2	93.9	98.0	-	-	-	123.2	94.9
2024 Jan.	98.4	94.3	98.3	-	-	-	123.6	95.2
Feb.	98.1	94.2	97.9	-	-	-	123.3	95.0
Mar.	98.8	94.9	98.5	-	-	-	124.2	95.6
Percentage change versus previous month								
2024 Mar.	0.6	0.7	0.6	-	-	-	0.7	0.7
Percentage change versus previous year								
2024 Mar.	1.6	1.8	1.3	-	-	-	3.8	2.1

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

4.9 Bilateral exchange rates

(period averages; units of national currency per euro)

	Chinese renminbi	Croatian kuna	Czech koruna	Danish krone	Hungarian forint	Japanese yen	Polish zloty	Pound sterling	Romanian leu	Swedish krona	Swiss franc	US Dollar
	1	2	3	4	5	6	7	8	9	10	11	12
2021	7.628	7.528	25.640	7.437	358.516	129.877	4.565	0.860	4.9215	10.146	1.081	1.183
2022	7.079	7.535	24.566	7.440	391.286	138.027	4.686	0.853	4.9313	10.630	1.005	1.053
2023	7.660	.	24.004	7.451	381.853	151.990	4.542	0.870	4.9467	11.479	0.972	1.081
2023 Q2	7.644	.	23.585	7.450	372.604	149.723	4.537	0.869	4.9488	11.469	0.978	1.089
Q3	7.886	.	24.126	7.453	383.551	157.254	4.499	0.860	4.9490	11.764	0.962	1.088
Q4	7.771	.	24.517	7.458	382.125	159.118	4.420	0.867	4.9697	11.478	0.955	1.075
2024 Q1	7.805	.	25.071	7.456	388.182	161.150	4.333	0.856	4.9735	11.279	0.949	1.086
2023 Oct.	7.720	.	24.584	7.460	385.333	158.038	4.512	0.868	4.9682	11.647	0.955	1.056
Nov.	7.809	.	24.485	7.458	379.195	161.844	4.402	0.870	4.9703	11.547	0.963	1.081
Dec.	7.787	.	24.478	7.456	381.803	157.213	4.334	0.862	4.9707	11.203	0.944	1.090
2024 Jan.	7.820	.	24.716	7.457	382.042	159.458	4.365	0.859	4.9749	11.283	0.937	1.091
Feb.	7.765	.	25.232	7.455	388.039	161.377	4.326	0.855	4.9746	11.250	0.946	1.079
Mar.	7.830	.	25.292	7.457	395.087	162.773	4.307	0.855	4.9708	11.305	0.966	1.087
Percentage change versus previous month												
2024 Mar.	0.8	0.0	0.2	0.0	1.8	0.9	-0.4	0.1	-0.1	0.5	2.0	0.7
Percentage change versus previous year												
2024 Mar.	6.1	.	6.8	0.1	2.6	13.8	-8.2	-3.0	0.9	0.7	-2.5	1.6

Source: ECB.

4 Financial market developments

4.10 Euro area balance of payments, financial account

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

	Total [1]			Direct investment		Portfolio investment		Net financial derivatives	Other investment		Reserve assets	Memo: Gross external debt
	Assets	Liabilities	Net	Assets	Liabilities	Assets	Liabilities		Assets	Liabilities		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts (international investment position)												
2023 Q1	31,760.6	31,487.6	273.0	12,342.4	10,109.1	11,351.7	13,390.3	35.4	6,897.7	7,988.2	1,133.5	16,096.9
Q2	31,906.0	31,584.7	321.3	12,230.2	9,984.7	11,737.5	13,698.8	13.5	6,819.1	7,901.2	1,105.7	16,069.4
Q3	32,083.3	31,600.0	483.3	12,334.0	10,074.6	11,785.9	13,705.3	-9.6	6,859.0	7,820.1	1,114.1	16,078.3
Q4	32,017.5	31,432.1	585.3	11,957.1	9,642.3	12,219.9	14,267.5	8.3	6,683.8	7,522.3	1,148.3	15,749.5
Outstanding amounts as percentage of GDP												
2023 Q4	222.8	218.7	4.1	83.2	67.1	85.0	99.3	0.1	46.5	52.3	8.0	109.6
Transactions												
2023 Q1	406.6	373.2	33.4	52.8	18.4	64.9	162.2	5.5	301.9	192.6	-18.5	-
Q2	12.9	-27.2	40.1	-104.3	-97.0	213.7	131.6	-5.0	-93.4	-61.8	1.9	-
Q3	122.2	26.8	95.4	8.3	-0.5	96.5	114.6	-2.7	22.2	-87.3	-2.2	-
Q4	-326.7	-424.5	97.8	-321.5	-311.6	41.9	93.1	23.6	-77.1	-206.0	6.4	-
2023 Aug.	103.3	91.3	12.0	17.2	9.3	35.4	43.2	3.3	46.1	38.8	1.3	-
Sep.	-124.6	-168.2	43.7	-10.9	-35.3	6.7	66.6	2.7	-119.1	-199.5	-3.9	-
Oct.	-38.2	-71.8	33.6	-119.8	-121.4	0.7	8.7	17.3	60.1	40.8	3.5	-
Nov.	10.0	-27.9	38.0	-54.6	-57.0	79.0	33.9	1.3	-17.0	-4.9	1.4	-
Dec.	-298.5	-324.7	26.2	-147.0	-133.2	-37.7	50.5	5.0	-120.3	-242.0	1.5	-
2024 Jan.	171.8	177.4	-5.6	-4.4	-9.2	56.0	127.7	10.4	108.9	58.9	0.8	-
12-month cumulated transactions												
2024 Jan.	189.8	-54.9	244.7	-377.8	-417.1	416.0	603.9	35.2	119.3	-241.7	-2.9	-
12-month cumulated transactions as percentage of GDP												
2024 Jan.	1.3	-0.4	1.7	-2.6	-2.9	2.9	4.2	0.2	0.8	-1.7	0.0	-

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

5 Financing conditions and credit developments

5.1 Monetary aggregates [1)]

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

	M3											
	M2							M3-M2				Total
	M1			M2-M1			Total					
	Currency in circulation	Overnight deposits	Total	Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months	Total		Repos	Money market fund shares	Debt securities with a maturity of up to 2 years	Total	
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2021	1,470.4	9,822.6	11,292.9	918.8	2,504.9	3,423.7	14,716.7	118.7	644.1	25.3	788.1	15,504.8
2022	1,539.5	9,763.0	11,302.6	1,382.1	2,563.9	3,946.1	15,248.7	124.2	646.1	49.5	819.8	16,068.4
2023	1,536.5	8,834.3	10,370.9	2,309.8	2,458.5	4,768.3	15,139.2	186.8	739.0	72.1	997.9	16,137.1
2023 Q1	1,542.2	9,456.6	10,998.8	1,633.7	2,548.0	4,181.7	15,180.5	102.5	676.6	91.5	870.7	16,051.1
Q2	1,535.3	9,179.2	10,714.5	1,865.1	2,517.8	4,382.9	15,097.4	114.1	695.9	83.7	893.7	15,991.1
Q3	1,535.7	8,985.8	10,521.5	2,085.9	2,465.8	4,551.6	15,073.2	131.0	714.4	75.7	921.2	15,994.3
Q4 (p)	1,536.5	8,834.3	10,370.9	2,309.8	2,458.5	4,768.3	15,139.2	186.8	739.0	72.1	997.9	16,137.1
2023 Sep.	1,535.7	8,985.8	10,521.5	2,085.9	2,465.8	4,551.6	15,073.2	131.0	714.4	75.7	921.2	15,994.3
Oct.	1,536.1	8,869.0	10,405.1	2,169.7	2,453.3	4,622.9	15,028.0	144.3	711.2	87.8	943.2	15,971.3
Nov.	1,534.0	8,835.1	10,369.1	2,232.6	2,446.9	4,679.5	15,048.7	161.4	719.2	73.7	954.3	16,003.0
Dec.	1,536.5	8,834.3	10,370.9	2,309.8	2,458.5	4,768.3	15,139.2	186.8	739.0	72.1	997.9	16,137.1
2024 Jan.	1,533.1	8,729.2	10,262.4	2,360.9	2,447.6	4,808.5	15,070.8	183.2	749.6	87.3	1,020.1	16,090.9
Feb. (p)	1,533.2	8,715.4	10,248.6	2,423.8	2,433.6	4,857.4	15,105.9	178.5	764.2	69.5	1,012.2	16,118.1
Transactions												
2021	107.7	908.1	1,015.8	-121.0	65.7	-55.3	960.5	12.3	20.3	13.2	45.8	1,006.3
2022	69.2	-47.4	21.9	429.5	54.9	484.4	506.3	3.9	2.4	76.6	82.8	589.1
2023	-4.4	-954.2	-958.7	925.6	-100.0	825.5	-133.1	40.9	93.4	25.1	159.3	26.2
2023 Q1	1.3	-346.2	-344.9	246.0	-10.9	235.1	-109.9	-22.1	30.4	43.7	52.0	-57.8
Q2	-6.9	-275.8	-282.7	226.6	-30.2	196.4	-86.3	11.6	19.2	-5.5	25.3	-60.9
Q3	0.3	-202.7	-202.4	224.0	-52.1	171.9	-30.5	16.4	18.2	-8.8	25.8	-4.6
Q4 (p)	0.8	-129.5	-128.6	228.9	-6.8	222.2	93.5	35.0	25.6	-4.4	56.1	149.6
2023 Sep.	1.6	-28.5	-26.9	89.5	-19.4	70.1	43.2	8.7	14.8	-7.9	15.6	58.8
Oct.	0.4	-114.6	-114.2	84.3	-12.3	72.0	-42.3	13.3	-3.3	10.8	20.8	-21.5
Nov.	-2.0	-27.4	-29.4	66.4	-6.2	60.2	30.8	17.8	8.0	-14.3	11.5	42.2
Dec.	2.5	12.6	15.0	78.3	11.7	90.0	105.0	3.8	20.9	-0.9	23.8	128.8
2024 Jan.	-2.8	-110.6	-113.4	47.1	-11.1	36.0	-77.4	-1.2	10.4	20.9	30.1	-47.3
Feb. (p)	0.1	-14.4	-14.3	65.2	-13.4	51.8	37.5	-4.7	14.4	-16.9	-7.2	30.4
Growth rates												
2021	7.9	10.2	9.9	-11.7	2.7	-1.6	7.0	12.1	3.3	158.5	6.2	6.9
2022	4.7	-0.5	0.2	45.8	2.2	14.1	3.4	3.1	0.4	457.8	11.1	3.8
2023	-0.3	-9.7	-8.5	66.7	-3.9	20.9	-0.9	32.9	14.4	47.5	19.5	0.2
2023 Q1	1.4	-5.7	-4.7	69.3	1.3	20.0	1.0	-17.6	15.2	538.5	23.8	2.0
Q2	0.4	-9.3	-8.0	85.8	-0.4	24.0	-0.6	-2.7	14.4	325.1	22.3	0.5
Q3	-0.2	-11.4	-9.9	76.4	-3.3	21.9	-2.2	10.3	18.4	64.9	19.9	-1.2
Q4 (p)	-0.3	-9.7	-8.5	66.7	-3.9	20.9	-0.9	32.9	14.4	47.5	19.5	0.2
2023 Sep.	-0.2	-11.4	-9.9	76.4	-3.3	21.9	-2.2	10.3	18.4	64.9	19.9	-1.2
Oct.	-0.4	-11.5	-10.0	73.0	-3.9	21.4	-2.2	15.9	14.4	254.6	22.5	-1.0
Nov.	-0.5	-10.9	-9.5	68.8	-4.1	20.8	-1.9	18.2	13.0	93.6	17.8	-0.9
Dec.	-0.3	-9.7	-8.5	66.7	-3.9	20.9	-0.9	32.9	14.4	47.5	19.5	0.2
2024 Jan.	-0.5	-9.9	-8.6	62.2	-4.3	19.8	-1.1	25.1	17.5	71.9	22.4	0.1
Feb. (p)	-0.4	-8.9	-7.7	58.0	-4.7	18.8	-0.6	29.5	17.1	-0.5	17.6	0.4

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

5 Financing conditions and credit developments

5.2 Deposits in M3 [1)]

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

	Non-financial corporations [2)]					Households [3)]							
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Financial corporations other than MFIs and ICPFs [2)]	Insurance corporations and pension funds	Other general government [4)]
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2021	3,228.3	2,802.7	289.7	128.4	7.4	8,087.9	5,380.8	374.1	2,332.3	0.7	1,272.8	229.0	546.9
2022	3,360.4	2,721.4	497.6	135.0	6.4	8,373.7	5,536.8	444.9	2,391.1	0.9	1,302.1	236.3	560.8
2023	3,335.1	2,423.9	767.6	131.6	12.1	8,425.6	5,111.6	1,021.7	2,290.9	1.4	1,252.2	234.8	541.7
2023 Q1	3,332.6	2,595.7	595.6	132.6	8.6	8,377.5	5,433.3	566.2	2,377.1	0.9	1,227.4	230.5	572.9
Q2	3,333.1	2,502.4	687.7	132.0	11.0	8,364.2	5,311.8	701.6	2,349.9	0.8	1,185.0	229.1	564.9
Q3	3,322.6	2,438.8	737.1	131.9	14.8	8,351.5	5,206.0	847.5	2,297.1	0.8	1,216.1	212.6	565.7
Q4 (p)	3,335.1	2,423.9	767.6	131.6	12.1	8,425.6	5,111.6	1,021.7	2,290.9	1.4	1,252.2	234.8	541.7
2023 Sep.	3,322.6	2,438.8	737.1	131.9	14.8	8,351.5	5,206.0	847.5	2,297.1	0.8	1,216.1	212.6	565.7
Oct.	3,326.5	2,413.8	768.5	131.4	12.9	8,346.7	5,150.1	909.6	2,286.3	0.7	1,205.6	210.4	547.0
Nov.	3,326.0	2,405.1	772.6	132.0	16.4	8,365.1	5,115.5	969.9	2,278.8	0.8	1,225.4	223.3	536.3
Dec.	3,335.1	2,423.9	767.6	131.6	12.1	8,425.6	5,111.6	1,021.7	2,290.9	1.4	1,252.2	234.8	541.7
2024 Jan.	3,325.6	2,383.2	802.9	128.4	11.1	8,439.1	5,080.6	1,073.5	2,283.8	1.1	1,211.5	221.9	522.9
Feb. (p)	3,317.0	2,367.4	810.2	127.9	11.5	8,449.0	5,062.0	1,114.1	2,271.9	1.0	1,216.6	223.4	545.2
Transactions													
2021	248.2	272.8	-21.3	-6.9	3.6	422.2	411.3	-65.0	76.1	-0.2	159.0	-10.4	46.0
2022	121.9	-89.2	206.5	5.9	-1.4	296.5	167.9	75.2	53.3	0.1	0.8	7.7	14.0
2023	-29.2	-303.0	269.3	-1.4	5.9	22.8	-458.0	575.4	-95.1	0.6	-55.4	-0.1	-25.9
2023 Q1	-37.3	-136.6	97.7	-0.7	2.3	-25.3	-132.2	115.9	-9.1	0.1	-74.3	-4.6	8.2
Q2	0.9	-91.8	90.9	-0.6	2.4	-13.2	-121.2	135.2	-27.1	-0.1	-43.5	-1.2	-10.7
Q3	-13.8	-65.7	48.3	-0.1	3.7	-14.8	-111.2	149.3	-52.9	0.0	30.9	-17.3	0.6
Q4 (p)	21.0	-8.8	32.4	-0.1	-2.5	76.2	-93.4	174.9	-6.0	0.6	31.5	23.0	-24.1
2023 Sep.	4.1	-15.8	16.2	-0.2	3.9	-9.8	-32.7	42.5	-19.6	0.0	56.5	-5.5	5.0
Oct.	5.7	-23.6	31.6	-0.4	-1.9	-4.5	-55.7	62.1	-10.8	-0.1	-9.8	-2.0	-18.7
Nov.	4.0	-5.9	5.5	0.7	3.7	19.7	-34.0	60.9	-7.4	0.1	24.3	13.4	-10.8
Dec.	11.3	20.7	-4.7	-0.4	-4.2	61.0	-3.8	51.9	12.2	0.6	17.0	11.6	5.4
2024 Jan.	-10.8	-42.1	34.4	-3.3	0.1	10.6	-31.9	50.0	-7.2	-0.3	-43.6	-13.2	-18.8
Feb. (p)	-8.3	-16.3	7.5	0.1	0.4	9.6	-18.6	40.3	-12.0	-0.1	7.9	1.3	22.3
Growth rates													
2021	8.4	10.8	-6.9	-5.0	103.4	5.5	8.3	-14.8	3.4	-18.4	14.1	-4.3	9.3
2022	3.8	-3.2	70.1	4.6	-16.4	3.7	3.1	20.3	2.3	19.9	0.4	3.4	2.6
2023	-0.9	-11.1	54.0	-1.1	91.8	0.3	-8.2	128.2	-4.0	67.4	-4.1	0.0	-4.6
2023 Q1	1.2	-9.4	105.8	3.1	-18.7	2.0	-1.3	57.0	1.3	-10.8	-8.4	0.3	3.1
Q2	0.7	-12.7	125.2	2.1	10.4	1.1	-4.4	97.4	-0.3	20.9	-14.2	0.5	-2.3
Q3	-1.2	-14.0	90.6	0.2	83.5	-0.3	-7.4	127.8	-3.4	-14.5	-16.4	-12.3	1.8
Q4 (p)	-0.9	-11.1	54.0	-1.1	91.8	0.3	-8.2	128.2	-4.0	67.4	-4.1	0.0	-4.6
2023 Sep.	-1.2	-14.0	90.6	0.2	83.5	-0.3	-7.4	127.8	-3.4	-14.5	-16.4	-12.3	1.8
Oct.	-2.0	-14.2	73.0	0.7	45.8	-0.5	-8.3	134.5	-4.0	-28.7	-10.7	-16.0	-2.9
Nov.	-1.8	-13.0	59.3	1.0	102.4	-0.3	-8.5	132.7	-4.4	-18.6	-8.5	-8.9	-5.1
Dec.	-0.9	-11.1	54.0	-1.1	91.8	0.3	-8.2	128.2	-4.0	67.4	-4.1	0.0	-4.6
2024 Jan.	-1.1	-11.3	49.7	-3.2	57.8	0.3	-8.3	121.5	-4.3	39.2	-5.3	-4.8	-7.3
Feb. (p)	-1.1	-10.5	42.4	-3.1	45.7	0.6	-7.9	114.1	-4.7	28.9	-1.7	-1.2	-5.4

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

5 Financing conditions and credit developments

5.3 Credit to euro area residents [1)]

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

	Credit to general government			Credit to other euro area residents								
	Total	Loans	Debt securities	Total	Loans						Debt securities	Equity and non-money market fund investment fund shares
					Total		To non-financial corporations [3)]	To households [4)]	To financial coprorations other than MFIs and ICPFs [3)]	To insurance corporations and pension funds		
					Total	Adjusted loans [2)]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2021	6,531.5	994.3	5,535.3	14,805.8	12,340.5	12,722.7	4,864.8	6,372.6	941.9	161.1	1,577.2	888.1
2022	6,361.8	1,004.7	5,332.0	15,390.4	12,990.1	13,178.0	5,129.8	6,632.2	1,080.6	147.6	1,564.3	836.0
2023	6,315.4	994.7	5,295.4	15,492.2	13,035.8	13,255.5	5,126.8	6,647.3	1,122.8	139.0	1,559.0	897.4
2023 Q1	6,353.2	995.3	5,333.0	15,426.4	13,019.5	13,208.4	5,135.1	6,665.6	1,077.4	141.4	1,557.0	849.9
Q2	6,275.3	986.6	5,263.3	15,426.3	12,982.0	13,203.4	5,127.0	6,634.3	1,078.3	142.5	1,575.0	869.3
Q3	6,212.1	989.2	5,197.9	15,429.0	12,977.5	13,186.4	5,114.6	6,633.5	1,092.3	137.2	1,576.9	874.6
Q4	6,315.4	994.7	5,295.4	15,492.2	13,035.8	13,255.5	5,126.8	6,647.3	1,122.8	139.0	1,559.0	897.4
2023 Sep.	6,212.1	989.2	5,197.9	15,429.0	12,977.5	13,186.4	5,114.6	6,633.5	1,092.3	137.2	1,576.9	874.6
Oct.	6,197.1	987.3	5,184.7	15,452.2	13,008.9	13,217.2	5,112.9	6,641.8	1,119.1	135.1	1,563.0	880.3
Nov.	6,226.6	986.0	5,215.4	15,471.8	13,033.9	13,235.5	5,118.2	6,652.6	1,129.0	134.1	1,560.0	877.9
Dec.	6,315.4	994.7	5,295.4	15,492.2	13,035.8	13,255.5	5,126.8	6,647.3	1,122.8	139.0	1,559.0	897.4
2024 Jan.	6,250.1	984.4	5,240.2	15,498.2	13,004.4	13,240.5	5,110.4	6,633.5	1,126.4	134.1	1,584.1	909.7
Feb.	6,210.1	982.7	5,201.9	15,529.2	13,029.5	13,263.9	5,114.0	6,638.5	1,140.9	136.1	1,582.2	917.4
Transactions												
2021	663.0	-0.9	673.6	563.0	475.8	509.2	176.9	261.7	47.4	-10.1	78.0	9.2
2022	176.0	9.5	165.7	635.6	624.1	680.7	269.5	242.0	126.0	-13.4	17.9	-6.4
2023	-160.8	-16.8	-144.2	54.2	23.8	71.8	-5.2	6.5	30.6	-8.1	-15.4	45.7
2023 Q1	-73.1	-17.6	-55.3	1.2	3.9	8.2	-1.6	14.8	-3.4	-5.9	-11.2	8.5
Q2	-75.1	-8.6	-66.9	0.5	-32.2	-0.1	-5.1	-28.6	0.6	1.0	17.5	15.2
Q3	-18.2	1.6	-19.5	8.3	0.4	-11.2	-8.6	1.8	12.5	-5.3	2.1	5.8
Q4	5.6	7.8	-2.5	44.2	51.7	74.9	10.1	18.5	20.9	2.2	-23.8	16.3
2023 Sep.	1.0	1.6	-0.6	16.2	13.0	7.6	-5.3	2.2	10.2	6.0	4.2	-1.0
Oct.	-16.4	0.9	-17.4	32.4	37.1	34.8	2.6	10.0	26.3	-1.8	-12.8	8.2
Nov.	-14.2	-2.1	-12.2	4.9	19.3	26.3	-3.9	11.5	12.5	-0.8	-6.9	-7.5
Dec.	36.3	9.0	27.2	6.9	-4.6	13.9	11.4	-3.0	-17.9	4.9	-4.1	15.7
2024 Jan.	-43.2	-8.1	-35.2	7.5	-27.6	-11.4	-14.0	-13.1	4.4	-4.9	26.9	8.3
Feb.	-22.5	-2.0	-20.5	37.5	33.8	33.9	5.9	4.9	21.0	2.0	-1.0	4.7
Growth rates												
2021	11.3	-0.1	13.8	3.9	4.0	4.2	3.8	4.3	5.2	-4.6	5.2	1.0
2022	2.7	1.0	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	-5.4	-1.0	5.4
2023 Q1	-0.1	-1.5	0.1	2.9	3.5	3.9	4.5	2.9	5.0	-9.7	-1.3	2.0
Q2	-2.5	-2.3	-2.5	1.5	1.4	2.0	2.5	1.1	0.6	-12.2	1.0	4.4
Q3	-2.1	-2.1	-2.1	0.2	-0.3	0.3	-0.4	0.2	-0.6	-13.9	1.6	5.0
Q4	-2.5	-1.7	-2.7	0.4	0.2	0.5	-0.1	0.1	2.8	-5.4	-1.0	5.4
2023 Sep.	-2.1	-2.1	-2.1	0.2	-0.3	0.3	-0.4	0.2	-0.6	-13.9	1.6	5.0
Oct.	-2.6	-1.8	-2.7	0.4	0.0	0.4	-0.9	0.2	4.7	-14.2	1.3	5.0
Nov.	-2.8	-1.7	-3.1	0.2	0.0	0.4	-0.7	0.2	3.4	-10.5	-0.2	3.9
Dec.	-2.5	-1.7	-2.7	0.4	0.2	0.5	-0.1	0.1	2.8	-5.4	-1.0	5.4
2024 Jan.	-2.4	-1.0	-2.7	0.4	-0.1	0.4	-0.5	-0.1	2.9	-8.7	1.3	6.4
Feb.	-2.8	-1.2	-3.1	0.7	0.2	0.7	-0.3	-0.1	5.9	-7.6	1.6	6.2

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

5 Financing conditions and credit developments

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

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

	Non-financial corporations [2)]					Households [3)]				
	Total		Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total		Loans for consumption	Loans for house purchase	Other loans
	Total	Adjusted loans [4)]				Total	Adjusted loans [4)]			
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2021	4,864.8	4,995.5	889.0	1,005.2	2,970.7	6,372.6	6,637.5	698.3	4,970.8	703.5
2022	5,129.8	5,130.8	967.2	1,077.6	3,085.0	6,632.2	6,832.8	717.3	5,214.6	700.2
2023	5,126.8	5,143.5	913.9	1,091.2	3,121.7	6,647.3	6,864.5	733.5	5,227.8	685.9
2023 Q1	5,135.1	5,140.9	940.7	1,091.8	3,102.6	6,665.6	6,868.6	723.7	5,236.0	705.9
Q2	5,127.0	5,137.8	924.3	1,088.2	3,114.6	6,634.3	6,867.7	726.0	5,207.9	700.3
Q3	5,114.6	5,123.2	902.8	1,085.4	3,126.5	6,633.5	6,864.9	731.6	5,210.5	691.4
Q4	5,126.8	5,143.5	913.9	1,091.2	3,121.7	6,647.3	6,864.5	733.5	5,227.8	685.9
2023 Sep.	5,114.6	5,123.2	902.8	1,085.4	3,126.5	6,633.5	6,864.9	731.6	5,210.5	691.4
Oct.	5,112.9	5,121.1	897.4	1,087.7	3,127.8	6,641.8	6,864.1	731.1	5,222.8	688.0
Nov.	5,118.2	5,129.6	902.1	1,087.5	3,128.6	6,652.6	6,866.7	732.1	5,231.6	688.9
Dec.	5,126.8	5,143.5	913.9	1,091.2	3,121.7	6,647.3	6,864.5	733.5	5,227.8	685.9
2024 Jan.	5,110.4	5,127.9	894.4	1,093.1	3,123.0	6,633.5	6,868.1	734.6	5,214.8	684.0
Feb.	5,114.0	5,131.1	893.8	1,090.6	3,129.6	6,638.5	6,872.1	736.6	5,220.1	681.7
Transactions										
2021	176.9	208.3	-1.6	2.3	176.1	261.7	267.3	10.7	254.9	-3.9
2022	269.5	309.3	78.6	77.4	113.5	242.0	250.3	22.7	218.5	0.8
2023	-5.2	25.5	-44.5	10.5	28.7	6.5	24.4	18.9	8.6	-21.1
2023 Q1	-1.6	5.1	-24.1	11.4	11.1	14.8	18.7	4.6	15.0	-4.7
Q2	-5.1	0.0	-15.0	-2.9	12.9	-28.6	1.1	3.9	-27.6	-4.9
Q3	-8.6	-10.4	-21.8	-3.3	16.5	1.8	0.3	6.7	2.8	-7.6
Q4	10.1	30.8	16.5	5.4	-11.7	18.5	4.3	3.8	18.5	-3.8
2023 Sep.	-5.3	5.6	0.2	-0.6	-4.8	2.2	1.9	2.6	1.8	-2.2
Oct.	2.6	1.1	-4.1	3.1	3.6	10.0	0.5	0.3	12.3	-2.6
Nov.	-3.9	12.9	7.6	-2.4	-9.1	11.5	3.7	1.5	9.4	0.7
Dec.	11.4	16.8	13.1	4.6	-6.2	-3.0	0.1	2.0	-3.2	-1.9
2024 Jan.	-14.0	-12.8	-18.2	1.1	3.0	-13.1	3.6	1.0	-12.4	-1.7
Feb.	5.9	6.2	1.0	-1.8	6.7	4.9	4.1	2.5	4.4	-2.1
Growth rates										
2021	3.8	4.3	-0.2	0.2	6.3	4.3	4.2	1.5	5.4	-0.6
2022	5.5	6.4	8.8	7.7	3.8	3.8	3.8	3.3	4.4	0.1
2023	-0.1	0.5	-4.6	1.0	0.9	0.1	0.4	2.6	0.2	-3.0
2023 Q1	4.5	5.3	4.0	9.1	3.1	2.9	2.9	3.1	3.3	-0.8
Q2	2.5	3.1	-1.9	6.3	2.5	1.1	1.7	2.5	1.2	-1.7
Q3	-0.4	0.2	-9.0	2.2	1.4	0.2	0.8	2.8	0.2	-2.5
Q4	-0.1	0.5	-4.6	1.0	0.9	0.1	0.4	2.6	0.2	-3.0
2023 Sep.	-0.4	0.2	-9.0	2.2	1.4	0.2	0.8	2.8	0.2	-2.5
Oct.	-0.9	-0.2	-9.6	1.6	1.1	0.2	0.6	2.6	0.3	-2.9
Nov.	-0.7	0.0	-7.9	1.4	0.9	0.2	0.5	2.6	0.3	-2.9
Dec.	-0.1	0.5	-4.6	1.0	0.9	0.1	0.4	2.6	0.2	-3.0
2024 Jan.	-0.5	0.2	-5.7	0.8	0.7	-0.1	0.3	2.7	-0.1	-3.1
Feb.	-0.3	0.4	-4.5	0.1	0.8	-0.1	0.3	2.8	-0.1	-3.1

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

5 Financing conditions and credit developments

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

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

	MFI liabilities						MFI assets			
		Longer-term financial liabilities vis-à-vis other euro area residents						Other		
	Central government holdings [2)]	Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves	Net external assets	Total	Repos with central counter-parties [3)]	Reverse repos to central counter-parties [3)]
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2021	736.9	6,886.2	1,838.9	37.1	1,999.2	3,010.9	1,377.6	413.1	128.5	136.8
2022	649.6	6,753.3	1,783.1	45.9	2,121.8	2,802.4	1,333.4	385.7	137.2	147.2
2023	461.3	7,338.4	1,826.4	90.5	2,424.1	2,997.4	1,860.7	268.5	155.0	152.6
2023 Q1	573.9	6,912.1	1,792.0	55.5	2,168.4	2,896.2	1,424.1	333.5	152.2	165.8
Q2	485.0	6,984.3	1,806.8	61.5	2,229.8	2,886.2	1,461.1	297.7	169.0	172.6
Q3	456.0	7,143.8	1,824.6	72.9	2,367.0	2,879.3	1,633.4	319.6	153.8	163.3
Q4 (p)	461.3	7,338.4	1,826.4	90.5	2,424.1	2,997.4	1,860.7	268.5	155.0	152.6
2023 Sep.	456.0	7,143.8	1,824.6	72.9	2,367.0	2,879.3	1,633.4	319.6	153.8	163.3
Oct.	440.0	7,225.5	1,819.7	77.7	2,415.4	2,912.8	1,735.8	251.7	163.1	151.4
Nov.	407.6	7,273.7	1,827.9	83.7	2,414.7	2,947.5	1,794.2	191.7	170.4	162.0
Dec.	461.3	7,338.4	1,826.4	90.5	2,424.1	2,997.4	1,860.7	268.5	155.0	152.6
2024 Jan.	457.2	7,375.4	1,829.9	97.0	2,448.1	3,000.4	1,961.0	214.2	165.7	159.7
Feb. (p)	438.7	7,367.0	1,828.0	101.7	2,464.9	2,972.4	1,936.0	248.6	165.4	173.4
Transactions										
2021	26.3	-38.0	-74.9	-5.0	-39.5	81.4	-111.2	-120.3	-8.3	-4.3
2022	-83.4	38.8	-89.0	-4.4	15.3	117.0	-69.4	-197.7	10.4	18.0
2023	-194.6	334.1	24.7	40.1	227.1	42.2	460.8	-188.5	19.7	9.0
2023 Q1	-82.1	79.8	5.4	5.0	58.3	11.2	62.5	-50.6	14.9	18.9
Q2	-88.7	96.7	13.8	6.1	61.8	14.9	90.2	-68.7	16.8	6.7
Q3	-29.1	98.1	16.9	11.4	44.9	24.9	130.5	-56.2	-13.3	-6.0
Q4 (p)	5.3	59.5	-11.3	17.6	62.0	-8.8	177.6	-13.1	1.2	-10.7
2023 Sep.	16.4	37.8	15.9	4.9	10.5	6.6	58.8	37.1	-10.5	4.8
Oct.	-16.0	34.0	-4.4	4.8	25.6	8.0	60.8	-80.2	9.3	-12.0
Nov.	-32.5	15.6	-4.9	6.0	15.9	-1.5	62.7	-28.0	7.3	10.7
Dec.	53.8	10.0	-2.0	6.8	20.5	-15.3	54.2	95.2	-15.4	-9.4
2024 Jan.	-3.7	61.4	2.7	6.4	37.0	15.2	103.0	-57.0	10.7	7.0
Feb. (p)	-18.5	14.9	1.7	4.7	14.9	-6.5	-17.1	28.8	2.3	13.7
Growth rates										
2021	3.7	-0.5	-3.9	-11.9	-2.0	2.7	-	-	-6.0	-3.0
2022	-11.4	0.6	-4.8	-13.0	0.6	4.1	-	-	7.8	12.7
2023	-29.8	4.9	1.4	80.2	10.6	1.5	-	-	14.3	6.0
2023 Q1	-22.6	2.3	-3.3	-0.5	4.9	4.0	-	-	-4.3	1.4
Q2	-37.6	3.5	-2.2	25.1	8.7	3.0	-	-	1.8	10.3
Q3	-30.3	4.9	1.4	48.8	10.4	2.4	-	-	5.6	14.2
Q4 (p)	-29.8	4.9	1.4	80.2	10.6	1.5	-	-	14.3	6.0
2023 Sep.	-30.3	4.9	1.4	48.8	10.4	2.4	-	-	5.6	14.2
Oct.	-34.5	5.6	1.7	57.8	11.1	3.0	-	-	14.8	-0.5
Nov.	-40.3	5.3	1.3	68.5	10.3	2.9	-	-	7.4	-2.7
Dec.	-29.8	4.9	1.4	80.2	10.6	1.5	-	-	14.3	6.0
2024 Jan.	-20.3	5.2	1.6	85.3	10.3	2.1	-	-	8.4	4.2
Feb. (p)	-21.5	5.1	1.7	88.7	10.5	1.5	-	-	10.0	11.0

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
2019	-0.6	-1.0	0.1	0.1	0.3	1.0
2020	-7.1	-5.8	-0.4	0.0	-0.9	-5.5
2021	-5.2	-5.2	0.0	0.1	0.0	-3.8
2022	-3.6	-3.9	0.0	0.0	0.3	-1.9
2022 Q4	-3.6	.	.	.	.	-1.9
2023 Q1	-3.7	.	.	.	.	-2.0
Q2	-3.8	.	.	.	.	-2.1
Q3	-3.5	.	.	.	.	-1.7

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
2019	46.3	45.8	12.9	13.1	15.0	0.5	46.9	43.2	9.9	5.4	1.6	22.4	3.8
2020	46.4	45.9	12.9	12.7	15.5	0.5	53.5	48.9	10.6	5.9	1.5	25.3	4.6
2021	47.0	46.2	13.2	13.1	15.1	0.8	52.2	47.2	10.2	5.9	1.5	23.9	5.0
2022	46.9	46.1	13.5	12.9	14.8	0.8	50.5	45.4	9.9	5.9	1.7	22.8	5.1
2022 Q4	46.9	46.1	13.5	12.9	14.8	0.8	50.5	45.4	9.9	5.9	1.7	22.8	5.1
2023 Q1	46.6	45.8	13.4	12.8	14.8	0.8	50.3	45.2	9.8	5.8	1.7	22.7	5.1
Q2	46.4	45.6	13.4	12.7	14.8	0.8	50.2	45.1	9.8	5.8	1.7	22.7	5.1
Q3	46.4	45.6	13.4	12.6	14.8	0.8	49.8	44.8	9.8	5.8	1.7	22.6	5.0

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
2019	84.1	3.0	13.2	67.8	45.8	30.8	38.3	7.7	76.3	15.6	27.9	40.6	82.7	1.3
2020	97.2	3.2	14.5	79.5	54.6	39.1	42.5	11.1	86.0	18.9	30.9	47.3	95.5	1.7
2021	94.7	3.0	13.8	77.9	55.2	41.3	39.5	9.8	84.9	17.5	30.1	47.1	93.3	1.4
2022	90.9	2.7	13.2	75.0	53.4	40.2	37.5	8.8	82.1	16.3	28.9	45.7	90.0	0.9
2022 Q4	90.9	2.7	13.2	75.0	.	.	.	.	.	.	.	.	.	.
2023 Q1	90.7	2.5	12.8	75.3	.	.	.	.	.	.	.	.	.	.
Q2	90.3	2.5	12.5	75.3	.	.	.	.	.	.	.	.	.	.
Q3	89.9	2.5	12.2	75.1	.	.	.	.	.	.	.	.	.	.

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
2019	-2.0	-1.0	0.1	0.2	0.1	0.0	0.0	0.2	-0.1	0.0	-1.2	0.9
2020	13.1	5.5	2.2	2.5	2.0	0.4	-0.1	0.1	-0.3	0.0	5.3	9.6
2021	-2.4	3.8	-0.2	0.6	0.4	0.1	0.0	0.1	-0.1	-0.7	-6.0	5.1
2022	-3.8	1.9	-0.3	-0.2	-0.7	0.2	0.1	0.2	0.6	-0.6	-5.4	2.7
2022 Q4	-3.8	1.9	-0.3	-0.2	-0.7	0.2	0.1	0.2	0.6	-0.6	-5.4	2.7
2023 Q1	-3.8	2.0	-0.7	-0.7	-1.1	0.1	0.1	0.1	0.7	-0.7	-5.1	2.3
Q2	-3.2	2.1	-0.7	-1.0	-1.4	0.1	0.2	0.1	0.7	-0.4	-4.5	2.4
Q3	-2.3	1.7	0.0	-0.5	-0.7	-0.2	0.2	0.1	0.6	-0.1	-4.1	2.8

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

6.5 Government debt securities [1)]

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

	Debt service due within 1 year [2)]					Average residual maturity in years [3)]	Average nominal yields [4)]						
	Total	Principal		Interest			Outstanding amounts					Transactions	
										Fixed rate			
		Total	Maturities of up to 3 months	Total	Maturities of up to 3 months		Total	Floating rate	Zero coupon	Total	Maturities of up to 1 year	Issuance	Redemption
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021	14.0	12.7	4.2	1.2	0.3	7.9	1.6	1.1	-0.4	1.9	1.9	-0.1	0.5
2022	13.0	11.9	4.2	1.2	0.3	8.0	1.6	1.2	0.4	1.9	2.0	1.1	0.5
2023	13.9	12.5	4.5	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2023 Q1	13.5	12.3	4.2	1.2	0.3	8.1	1.8	1.2	1.0	1.9	2.0	2.1	0.7
Q2	13.6	12.3	3.6	1.3	0.3	8.1	1.9	1.3	1.5	1.9	2.0	2.8	1.1
Q3	13.7	12.4	3.8	1.3	0.3	8.1	1.9	1.1	1.8	2.0	1.7	3.3	1.5
Q4	13.9	12.5	4.5	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2023 Sep.	13.7	12.4	3.8	1.3	0.3	8.1	1.9	1.1	1.8	2.0	1.7	3.3	1.5
Oct.	13.4	12.0	3.5	1.4	0.3	8.2	2.0	1.1	2.0	2.0	1.7	3.5	1.7
Nov.	13.6	12.2	3.8	1.4	0.4	8.2	2.0	1.2	2.0	2.0	1.7	3.6	1.8
Dec.	13.9	12.5	4.5	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2024 Jan.	13.4	12.0	4.2	1.4	0.4	8.2	2.0	1.2	2.0	2.0	1.4	3.6	2.1
Feb.	13.3	11.9	4.5	1.4	0.4	8.2	2.0	1.2	2.1	2.0	1.4	3.6	2.3

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 (+)									
2019	-2.0	1.5	0.1	0.5	0.9	-3.1	-3.1	0.2	-1.5	0.9
2020	-8.9	-4.3	-5.4	-5.0	-9.7	-10.1	-9.0	-7.3	-9.6	-5.7
2021	-5.4	-3.6	-2.5	-1.5	-7.0	-6.7	-6.5	-2.5	-8.8	-1.9
2022	-3.5	-2.5	-1.0	1.7	-2.4	-4.7	-4.8	0.1	-8.0	2.4
2022 Q4	-3.5	-2.5	-1.0	1.7	-2.4	-4.7	-4.8	0.1	-8.0	2.4
2023 Q1	-3.9	-3.0	-1.3	2.0	-2.5	-4.4	-4.6	-0.2	-8.1	3.0
Q2	-4.0	-3.1	-1.7	2.2	-2.4	-4.6	-4.9	-0.4	-7.9	3.4
Q3	-4.1	-2.7	-2.2	1.9	-1.2	-4.4	-4.8	0.3	-6.8	3.2
	Government debt									
2019	97.6	59.6	8.5	57.1	180.6	98.2	97.4	70.9	134.2	93.0
2020	111.8	68.8	18.6	58.1	207.0	120.3	114.6	86.8	154.9	114.9
2021	108.0	69.0	17.8	54.4	195.0	116.8	112.9	78.1	147.1	99.3
2022	104.3	66.1	18.5	44.4	172.6	111.6	111.8	68.2	141.7	85.6
2022 Q4	104.3	66.1	18.5	44.4	172.6	111.6	111.8	68.2	141.7	85.6
2023 Q1	106.4	65.7	17.2	43.6	169.3	111.2	112.3	69.1	140.9	83.1
Q2	105.9	64.7	18.5	43.2	167.1	111.2	111.8	66.5	142.5	85.1
Q3	108.0	64.8	18.2	43.6	165.5	109.8	111.9	64.4	140.6	79.4

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	11	12	13	14	15	16	17	18	19	20
	Government deficit (-)/surplus (+)									
2019	-0.5	0.5	2.2	0.5	1.8	0.6	0.1	0.7	-1.2	-0.9
2020	-4.5	-6.5	-3.4	-9.6	-3.7	-8.0	-5.8	-7.6	-5.4	-5.6
2021	-7.2	-1.1	0.6	-7.5	-2.2	-5.8	-2.9	-4.6	-5.2	-2.8
2022	-4.6	-0.7	-0.3	-5.7	-0.1	-3.5	-0.3	-3.0	-2.0	-0.8
2022 Q4	-4.6	-0.7	-0.3	-5.6	-0.1	-3.5	-0.3	-3.0	-2.0	-0.5
2023 Q1	-4.4	-1.2	-0.6	-4.8	-0.1	-3.3	0.1	-3.2	-2.6	-0.4
Q2	-3.0	-1.2	-0.7	-4.2	-0.2	-3.6	0.0	-3.2	-3.4	-1.1
Q3	-3.3	-1.1	-0.4	-3.4	0.1	-3.5	0.5	-3.5	-4.7	-1.5
	Government debt									
2019	36.7	35.8	22.4	40.0	48.6	70.6	116.6	65.4	48.0	64.9
2020	42.2	46.2	24.6	52.2	54.7	83.0	134.9	79.6	58.9	74.7
2021	44.0	43.4	24.5	54.0	51.7	82.5	124.5	74.4	61.1	72.5
2022	41.0	38.1	24.7	52.3	50.1	78.4	112.4	72.3	57.8	73.3
2022 Q4	41.0	38.1	24.7	51.6	50.1	78.4	112.4	72.3	57.8	73.3
2023 Q1	43.0	38.1	28.3	51.5	48.3	80.2	112.3	72.0	58.0	73.3
Q2	39.5	38.1	28.2	49.6	46.9	78.5	110.0	70.4	59.6	74.5
Q3	41.4	37.4	25.7	49.3	45.9	78.2	107.5	71.4	58.6	73.8

Sources: Eurostat.

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

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