EUROPEAN CENTRAL BANK

EUROSYSTEM

Economic Bulletin

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Economic, financial and monetary developments

Summary

At its meeting on 18 July 2024, the Governing Council decided to keep the three key ECB interest rates unchanged. The incoming information broadly supports the Governing Council's previous assessment of the medium-term inflation outlook. While some measures of underlying inflation ticked up in May owing to one-off factors, most measures were either stable or edged down in June. In line with expectations, the inflationary impact of high wage growth has been buffered by profits. Monetary policy is keeping financing conditions restrictive. At the same time, domestic price pressures are still high, services inflation is elevated and headline inflation is likely to remain above the target well into next year.

The Governing Council is determined to ensure that inflation returns to its 2% medium-term target in a timely manner. It will keep policy rates sufficiently restrictive for as long as necessary to achieve this aim. The Governing Council will continue to follow a data-dependent and meeting-by-meeting approach to determining the appropriate level and duration of restriction. In particular, its interest rate decisions will be based on its assessment of the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation and the strength of monetary policy transmission. The Governing Council is not pre-committing to a particular rate path.

Economic activity

The incoming information indicates that the euro area economy grew in the second quarter, but likely at a slower pace than in the first quarter. Services continue to lead the recovery, while industrial production and goods exports have been weak. Investment indicators point to muted growth in 2024, amid heightened uncertainty. Looking ahead, the recovery is expected to be supported by consumption, driven by the strengthening of real incomes resulting from lower inflation and higher nominal wages. Moreover, exports should pick up alongside a rise in global demand. Finally, monetary policy should exert less of a drag on demand over time.

The labour market remains resilient. The unemployment rate was unchanged, at 6.4% in May, remaining at its lowest level since the start of the euro. Employment, which grew by 0.3% in the first quarter, was supported by a further increase in the labour force, which expanded at the same rate. More jobs are likely to have been created in the second quarter, mainly in the services sector. Firms are gradually reducing their job postings, but from high levels.

National fiscal and structural policies should aim at making the economy more productive and competitive, which would help to raise potential growth and reduce price pressures in the medium term. An effective, speedy and full implementation of the Next Generation EU programme, progress towards capital markets union and the completion of banking union, and a strengthening of the Single Market are key factors that would help foster innovation and increase investment in the green and digital transitions. The Governing Council welcomes the European Commission's recent guidance calling for EU Member States to strengthen fiscal sustainability and the Eurogroup's statement on the fiscal stance for the euro area in 2025. 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.

Inflation

Annual inflation eased to 2.5% in June, from 2.6% in May. Food prices went up by 2.4% in June – which is 0.2 percentage points less than in May – while energy prices remained essentially flat. Both goods price inflation and services price inflation were unchanged in June, at 0.7% and 4.1%, respectively. While some measures of underlying inflation ticked up in May owing to one-off factors, most measures were either stable or edged down in June.

Domestic inflation remains high. Wages are still rising at an elevated rate, making up for the past period of high inflation. Higher nominal wages, alongside weak productivity, have added to unit labour cost growth, although it decelerated somewhat in the first quarter of this year. Owing to the staggered nature of wage adjustments and the large contribution of one-off payments, growth in labour costs will likely remain elevated over the near term. At the same time, recent data on compensation per employee have been in line with expectations and the latest survey indicators signal that wage growth will moderate over the course of next year. Moreover, profits contracted in the first quarter, helping to offset the inflationary effects of higher unit labour costs, and survey evidence suggests that profits should continue to be dampened in the near term.

Inflation is expected to fluctuate around current levels for the rest of the year, partly owing to energy-related base effects. It is then expected to decline towards the target over the second half of next year, owing to weaker growth in labour costs, the effects of the Governing Council's restrictive monetary policy and the fading impact of the past inflation surge. Measures of longer-term inflation expectations have remained broadly stable, with most standing at around 2%.

Risk assessment

The risks to economic growth are tilted to the downside. A weaker world economy or an escalation in trade tensions between major economies would 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 also be lower if the effects of monetary policy turn out stronger than expected. Growth could be higher if inflation comes down more quickly than expected and rising confidence and real incomes mean that spending increases by more than anticipated, or if the world economy grows more strongly than expected.

Inflation could turn out higher than anticipated if wages or profits increase by more than expected. Upside risks to inflation also stem from the heightened geopolitical tensions, which could push energy prices and freight costs higher in the near term and disrupt global trade. Moreover, extreme weather events, and the unfolding climate crisis more broadly, could drive up food prices. By 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

The policy rate cut in June has been transmitted smoothly to money market interest rates, while broader financial conditions have been somewhat volatile. Financing costs remain restrictive as the previous policy rate increases continue to work their way through the transmission chain. The average interest rate on new loans to firms edged down to 5.1% in May, while mortgage rates remained unchanged at 3.8%.

Credit standards for loans remain tight. According to the July 2024 bank lending survey, standards for lending to firms tightened slightly in the second quarter, while standards for mortgages eased moderately. Firms' demand for loans fell slightly, while households' demand for mortgages rose for the first time since early 2022.

Overall, credit dynamics remain weak. Bank lending to firms and households grew at an annual rate of 0.3% in May, only marginally up from the previous month. The annual growth in broad money – as measured by M3 – rose to 1.6% in May, from 1.3% in April.

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 4.25%, 4.50% and 3.75% 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 Eurosystem no longer reinvests all of the principal payments from maturing securities purchased under the pandemic emergency purchase programme (PEPP), reducing 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

The Governing Council decided at its meeting on 18 July 2024 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 will keep policy rates sufficiently restrictive for as long as necessary to achieve this aim. The Governing Council will continue to follow a data-dependent and meeting-by-meeting approach to determining the appropriate level and duration of restriction. In particular, the interest rate decisions will be based on the Governing Council's assessment of the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation and the strength of monetary policy transmission. The Governing Council is not pre-committing to a particular rate path.

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

1 External environment

Global economic activity and trade remained on a steady upward trajectory in the second quarter of 2024. Survey data indicate that the global economy is likely entering a period of restocking which should support trade in the period ahead. Inflation continues to moderate, yet pressures on services prices are persistent.

Global activity, excluding the euro area, is still on a steady upward trajectory. The June global composite output Purchasing Managers' Index (PMI) remained in expansionary territory (Chart 1). The headline index edged down from 54.0 in May to 53.2 in June, closer to its long-term average. This reflects a weakening of services activity at the same time as output in the manufacturing sector stayed unchanged. Services activity moderated across most key economies – including China in particular − while remaining in expansionary territory. The ECB's global growth nowcasting model confirms that the global expansion is ongoing. While this assessment is mainly underpinned by soft data, most hard data have also become more supportive. Overall, this suggests that global activity growth remained on a steady upward trajectory in the second quarter of 2024.

Chart 1

Global output PMI

(diffusion indices)
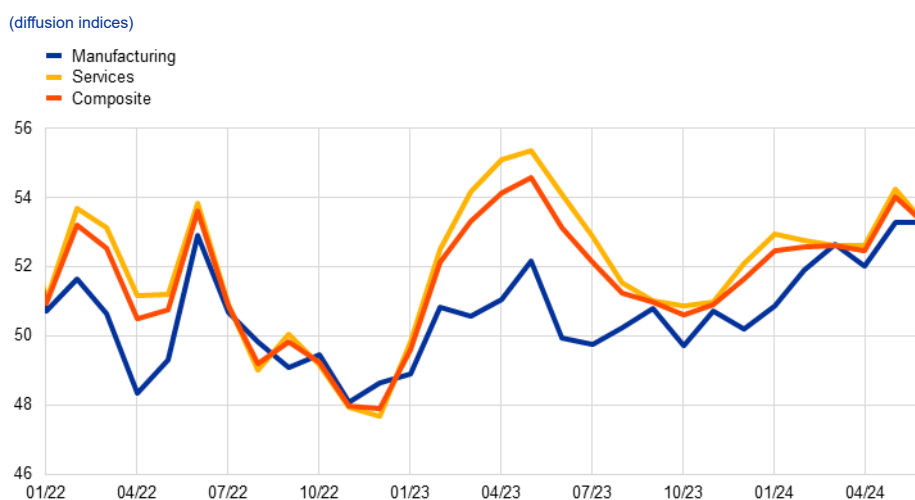
Sources: S&P Global Market Intelligence and ECB staff calculations.
Note: The latest observations are for June 2024.

Global trade rebounded at the start of the year and is expected to strengthen further, supported by the recent turn in the inventory cycle. The expected recovery from last year's weak trade figures was confirmed by hard data, with global import growth amounting to 0.6% quarter on quarter in the first quarter of the year. In the short term, stronger industrial production data point towards a further rebound in trade growth. The recent turn in the global inventory cycle has also boosted trade. In the second half of 2023 growth in inventories fell sharply and even turned negative, suggesting that rising demand was partly met by drawing down stocks. With new orders continuing to increase in 2024, survey data suggest that inventories are being

rebuilt. In fact, PMI readings of inventories at the global level have risen more quickly than measures of new orders. This suggests that the global economy may be entering a period of restocking, which could support trade going forward.[1]

Inflation across OECD economies continues to moderate, yet services price pressures are persistent. In May the annual headline rate of consumer price index (CPI) inflation across OECD countries (excluding Türkiye) declined marginally to 2.9%, compared with 3.0% in the previous month (Chart 2). Excluding food and energy prices, OECD core inflation continued to slow, to 3.2% in May, down 0.1 percentage points from April. Falling goods prices and slower increases for other services components are reducing inflationary pressures in advanced economies. However, inflation in labour-intensive activities such as restaurants and hotels, recreation, culture and health care remains elevated and is only moving sluggishly in the direction of average pre-pandemic rates. This suggests that in many countries, wage growth remains high amid tight labour markets. In addition, rent inflation is still elevated and often well above pre-pandemic levels. Looking ahead, headline CPI inflation is only expected to continue falling gradually.

Chart 2
OECD CPI inflation

(year-on-year percentage changes)
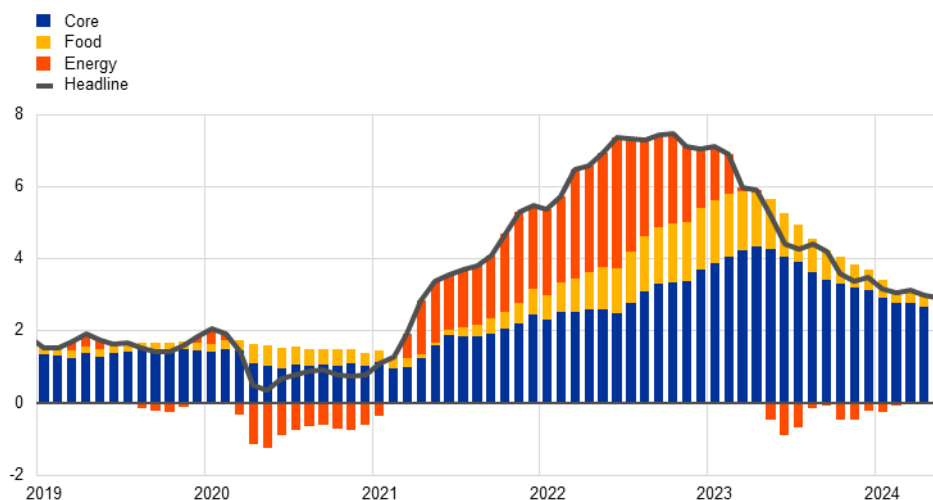
Sources: OECD and ECB staff calculations.
Notes: The OECD aggregate excludes Türkiye and is calculated using OECD CPI annual weights. The latest observations are for May 2024.

Since the last Governing Council meeting, Brent crude oil prices have increased by around 11% on the back of expectations of tighter supply and rising geopolitical concerns. Oil prices rebounded substantially after OPEC+ officials clarified that the phasing out of the voluntary cut in production announced at their June meeting would depend on prevailing market conditions, which signalled the possibility of tighter supply conditions than initially expected. Geopolitical tensions, including renewed fears of deepening conflict involving Hezbollah in

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[1]   Box 1 in this issue of the Economic Bulletin discusses, based on granular data at the product level, whether and how the euro area and the United States have modified their import sourcing strategies since 2016, the role played by geopolitical tensions and the potential impact on import prices.

Lebanon, Ukrainian drone strikes on Russian oil facilities and Houthi attacks on commercial shipping in the Red Sea, have added to concerns over potential supply disruptions and supported oil prices. European gas prices have declined by 5.5% despite supply outages in Norway adding to market volatility. Overall, volatility in the gas market seems to be stabilising at historical average levels, as Europe has managed to secure supplies from alternative sources and gas storage levels remain high. EU sanctions banning re-exports of Russian LNG through EU ports are expected to have a modest impact on the gas market as they do not affect EU imports directly and transhipped Russian volumes are relatively small. Metal prices have declined marginally, while food prices have declined by around 7%, driven by positive supply news for wheat crops and a continued moderation of cocoa prices.

In the United States, momentum in both activity and inflation has moderated. Real consumer spending was revised down for the first quarter of this year, and the latest monthly data suggest that consumption growth could be equally tepid in the second quarter. This represents a significant deceleration from the pace recorded in the second half of 2023. Moreover, 206,000 jobs were added in the non-farm sector in June, leading to a significant slowdown in the second quarter relative to the first quarter, confirming that the US labour market is cooling. Average hourly earnings growth has also fallen substantially from its peak in March 2022, but, at 3.9%, remains, as stated by Federal Reserve officials, incompatible with the 2% inflation target. Annual headline CPI inflation decreased to 3.0% in June, while core inflation fell marginally to 3.3%. Inflation momentum also weakened, notably in prices for non-rent services which had been a major driver of high inflation at the start of the year. At its June meeting, the Federal Open Market Committee maintained the target range for the federal funds rate at 5.25-5.5%. In its June economic projections, the Committee retained its outlook for a gradual deceleration in GDP growth but raised its headline and core inflation projections for 2024 and 2025 slightly, leaving its expectation of reaching its inflation target by the end of 2026 unchanged.

In China, economic growth is moderating as underlying weaknesses persist. Real GDP growth decelerated markedly to 0.7% quarter on quarter from 1.5% in the first quarter of 2024, as the real estate downturn has acted as a drag on consumer spending and the fiscal impulse from a late-2023 stimulus programme has faded. The release was somewhat below market consensus expectations. In year-on-year terms, GDP growth decreased to 4.7% from 5.3% in the first quarter. Moreover, monthly activity indicators for June showed a slump in retail sales and a further moderation in industrial production, both signalling a continued deceleration in the growth momentum at the end of the second quarter. Only exports have remained a growth driver, suggesting that the impact of proposed EU tariffs on Chinese exports will be limited. A new housing market support package marks a policy shift, although its impact on property-related activity cannot be observed yet. Looking ahead, the property market is expected to remain a drag on growth, with potential upside risk stemming from the new policy measures.

In the United Kingdom, growth picked up again while inflation fell to 2%. After stalling in April, economic activity increased by 0.4% month on month in May. Growth was particularly strong in services, although the industrial production and

construction sectors also expanded. Overall, consumers' resilience prevails in the face of persistently tight monetary conditions. UK headline CPI inflation declined to 2.0% in May. Energy prices are continuing to push inflation down, but as base effects unwind in the second half of the year, headline inflation is expected to increase again. Services inflation remained high and sticky. Contrary to expectations, momentum in services prices and wages has picked up again recently. In part, this likely reflects the increase in the national minimum wage in April, as well as the resilience in activity. The persistence in services inflation was one reason for the Bank of England to remain cautious at its June Monetary Policy Committee meeting and to hold its policy rate steady at 5.25%.

2 Economic activity

Real GDP rose by 0.3% quarter on quarter in the first quarter of 2024. This pick-up in growth, after five quarters of broadly stagnant activity, was led by services, while value added in industry contracted. The latest indicators, including from surveys, signal a continuation of the services-driven expansion in the second quarter. Given the weak industrial production data up to May, it is likely that the manufacturing sector continued to exert a drag on growth. Survey data suggest that production in industry remains fragile, as it is more exposed to the still tight monetary policy and global uncertainty. Overall, the euro area economy is expected to continue to recover over the course of this year mainly supported by consumption, driven by the strengthening of real incomes, resulting from lower inflation and higher nominal wages. Moreover, exports are anticipated to benefit from the improvement in global demand in the coming quarters, although external competitiveness challenges pose a potential downside risk. Finally, monetary policy should exert less of a drag on demand over time.

Real GDP grew by 0.3% quarter on quarter in the first quarter of 2024. Net trade contributed positively to growth, while domestic demand and changes in inventories made a negative contribution (Chart 3). Excluding the sharp fall in Irish non-construction investment, the contribution from domestic demand is estimated to have been slightly positive. The recovery in economic activity was driven by valued added in services.

Economic activity has continued to expand at a similar pace in the second quarter.[2] Incoming data suggest that real GDP growth likely continued to be services-driven in the second quarter. Industrial production contracted markedly in May, with levels in the first two months of the second quarter unchanged compared to the first quarter. The composite output Purchasing Managers' Index (PMI) stood at 51.6 in the second quarter, up from 49.2 in the first quarter, thus indicating positive growth and continuing the upward movement started in late 2023. Across sectors, the PMI for manufacturing output remained in contractionary territory in the second quarter and data for June showed that the gains made in April and May have been wiped out. The PMIs for total new orders and new export orders were similarly weak and, given their more forward-looking content, this also points to weakness in the manufacturing sector in the third quarter (Chart 4, panel a). By contrast, the PMI for services output remained in expansionary territory in the second quarter, despite softening modestly in June (Chart 4, panel b). Moreover, services production was 0.7% above its first-quarter level in April.

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[2]   According to the flash estimate released by Eurostat on 30 July, euro area real GDP increased by 0.3% in the second quarter of the year. This estimate was not available at the time of the July Governing Council meeting.

Chart 3

Euro area real GDP and its components

(quarter-on-quarter percentage changes; percentage point contributions)
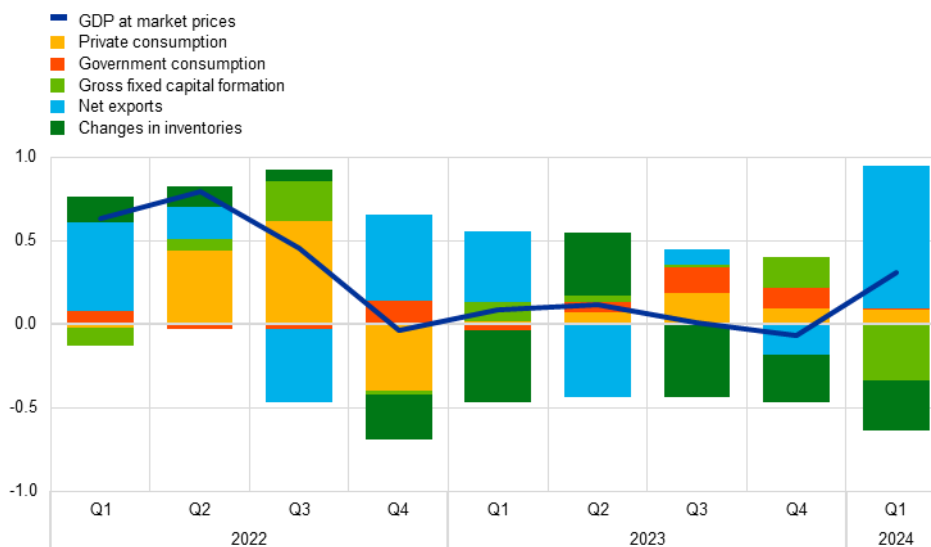
Sources: Eurostat and ECB calculations.
Note: The latest observations are for the first quarter of 2024.

Forward-looking survey data point to continued robust services in the third quarter of 2024. The European Commission's business and consumer survey results for June suggest that expected demand for contact-intensive services for the next three months remains robust, particularly in travel services. The main findings from the ECB's recent contacts with non-financial companies confirm this picture, with contacts reporting a strong tourist season and increasing signs of a modest consumption-led recovery (see Box 4). At the same time, there are mixed signals about whether the weakness in the manufacturing sector has bottomed out. Confidence in the industry sector remained stable overall in June as firms' three-month-ahead production expectations and assessments of order books were largely unchanged. Nevertheless, the European Commission's business survey indicates that more firms are reporting above-normal stocks of finished products, suggesting that demand for goods remains weak. At the same time, the ECB's assessment of the main findings from its recent contacts with non-financial companies points to a bottoming out of aggregate manufacturing activity (see Box 4). Looking ahead, trade tensions and geopolitical uncertainty will continue to pose headwinds for the manufacturing sector. However, positive factors supporting the recovery in economic activity persist. These include the continued strengthening of real incomes amid lower inflation and a favourable labour market, the increasing momentum of the services sector and the gradually fading drag of monetary policy on demand expected over time.

Chart 4

PMI indicators across sectors of the economy

a) Manufacturing

(diffusion indices)

b) Services

(diffusion indices)
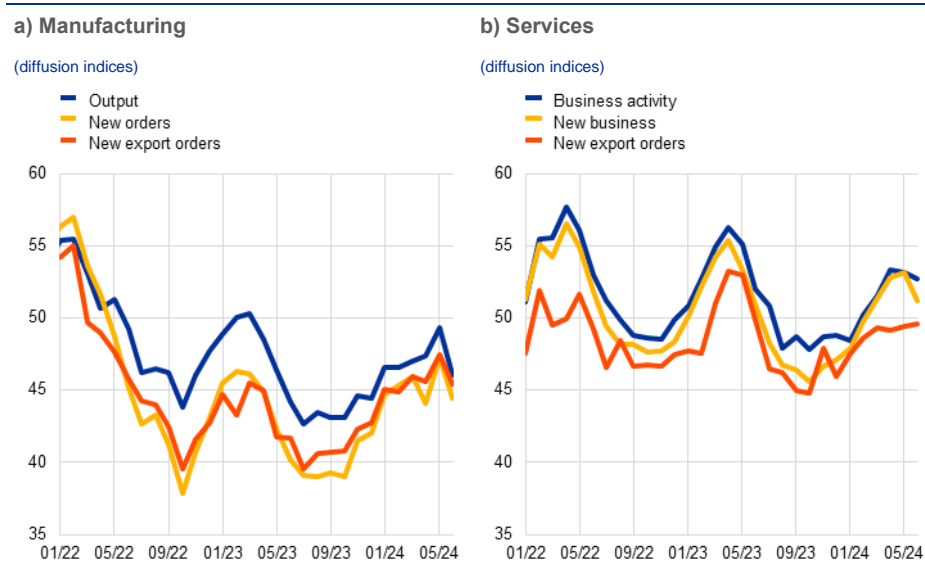
Source: S&P Global Market Intelligence.
Note: The latest observations are for June 2024.

Employment continues to increase, supported by a growing labour force.
Employment and total hours worked rose by 0.3% quarter on quarter in the first
quarter of 2024 (Chart 5). Labour productivity remained unchanged as employment
and hours worked increased at the same rate as GDP.[3] The implicit labour force,
inferred from the unemployment rate and the number of unemployed, increased by
0.5% up to May this year and has been an important source of employment growth.
The unemployment rate stood at 6.4% in May, unchanged from April, remaining at its
lowest level since the euro was introduced. Labour demand remains at high levels,
although the job vacancy rate fell slightly in the first quarter of 2024, to 2.8%, 0.1
percentage points lower than in the previous quarter.

**Short-term labour market indicators point to ongoing employment growth in
the second quarter of 2024.** The monthly composite PMI employment indicator
declined from 52.1 in May to 50.9 in June. The second-quarter average stands at
51.7, suggesting a further increase in employment (Chart 5). The positive
perceptions of employment growth have been driven by the services sector, as
construction and manufacturing remain in contractionary territory.

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3   For further analysis, see the box entitled "Recent country-specific and sectoral developments in labour
    productivity in the euro area" in this issue of the Economic Bulletin.

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)

- Employment
- PMI assessment of employment
- Unemployment rate (right-hand scale)
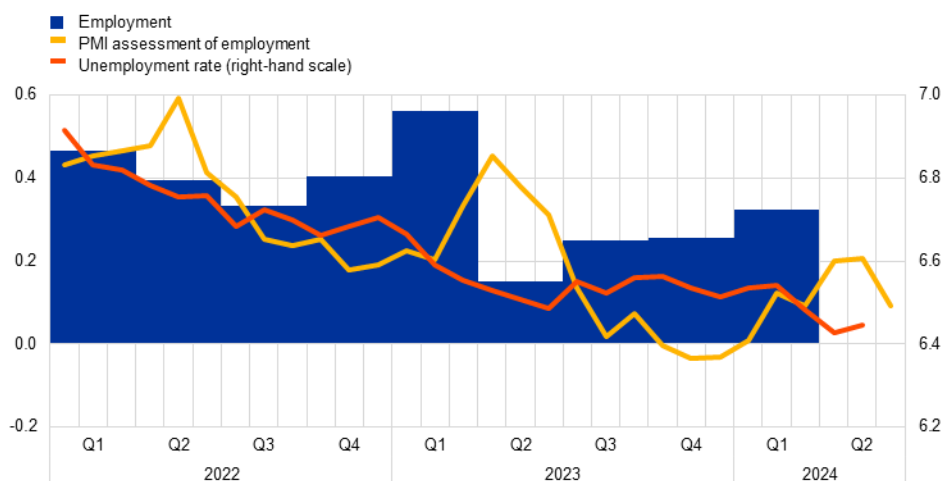
Sources: Eurostat, S&P Global Market Intelligence and ECB calculations.
Notes: The two lines indicate monthly developments, while the bars show quarterly data. The PMI is expressed in terms of the deviation from 50, then divided by 10. The latest observations are for the first quarter of 2024 for employment, June 2024 for the PMI assessment of employment and May 2024 for the unemployment rate.

Growth in private consumption remained modest at the start of 2024, but surveys suggest a strengthening of household spending dynamics. Private consumption grew by 0.2% in the first quarter, supported by a rebound in the consumption of goods, having shown very weak dynamics in 2023. Real disposable incomes increased in the first quarter of 2024, supported by the decline in inflation and robust nominal wage growth, amid a resilient labour market. The household saving ratio increased to 15.3% in the first quarter of 2024 (Chart 6, panel a), as the gains in income were made against a background of still elevated uncertainty and restrictive financing conditions, including tight standards for consumer credit. Incoming hard data for the second quarter show mixed signals about the momentum in goods consumption, with retail trade turnover increasing by 0.3%, but car registrations declining by 3.7% in April and May relative to their first-quarter levels. Surveys suggest that household spending growth will strengthen in the near term. The European Commission's consumer uncertainty indicator declined and the consumer confidence indicator improved in June. However, the latter is still below its pre-pandemic average, reflecting subdued expectations for the economy and households' own financial situations. Business expectations for demand in contact-intensive services over the next three months remain strong, while expected major purchases by consumers over the next 12 months have recovered to their pre-pandemic average (Chart 6, panel b). This evidence of an expected reduction in the divergence between consumer goods and services is supported by the results of the ECB's latest Consumer Expectations Survey, which indicate that the propensity to spend on major items over the next 12 months is rising, while expected demand for tourist services remains high.

Chart 6

Private consumption, income and savings; expectations for retail trade, contact-intensive services and major purchases

a) Consumption, income and savings

(index: Q4 2019 = 100; percent)

- Private consumption
- Income
- Saving ratio (right-hand scale)

b) Expectations

(standardised percentage balances)

- Contact-intensive services
- Major purchases
- Retail trade
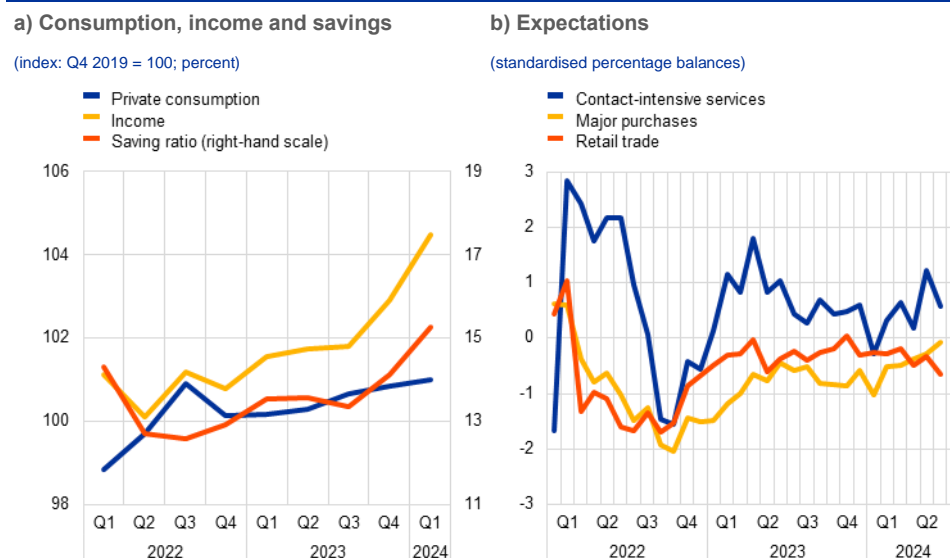
Sources: Eurostat, European Commission and ECB calculations.
Notes: In panel a), income refers to household real adjusted disposable income and the household saving ratio is as a percentage of this income. In panel b), business expectations for demand in contact-intensive services and retail trade expectations refer to the next three months, while consumer expectations for major purchases refer to the next 12 months; the first series is standardised for the period January 2005-19, owing to data availability, whereas the other two series are for the period 1999-2019; "contact-intensive services" include accommodation, travel and food services. The latest observations are for the first quarter of 2024 for private consumption and June 2024 for expectations for contact-intensive services, retail trade and major purchases.

Business investment saw a moderate rise in the first quarter of 2024, and short-term indicators and surveys point to muted dynamics over the rest of 2024 (Chart 7, panel a). Non-construction investment (excluding Irish intangibles) rose by 0.5% quarter on quarter in the first quarter of 2024, recovering around 25% of its fall in the fourth quarter of 2023. Across assets, investment both in machinery and equipment and in intangibles had contributed positively to business investment since the pandemic. By contrast, according to the ECB's recent contacts with non-financial companies, investment in transport equipment has been hampered by the continued uncertainty surrounding the green transition and the downsizing of energy-intensive industries (see Box 4). The PMIs for output and for new orders in the capital goods sector in the second quarter point to ongoing weakness in this category of business investment. The ECB's recent bank lending survey and the ECB's survey on the access to finance of enterprises in the euro area continued to report tight financing conditions in the second quarter. Feedback from the ECB's corporate contacts suggests that firms continue to invest in cost-saving measures, in a context of labour shortages and strong global competition. However, they expect investment to remain subdued this year amid still elevated uncertainty. Similarly, the European Commission's biannual investment survey suggests muted business investment growth in 2024 (see Box 3).

Chart 7

Real private investment dynamics and survey data

a) Business investment

(quarter-on-quarter percentage changes; diffusion indices)

b) Housing investment

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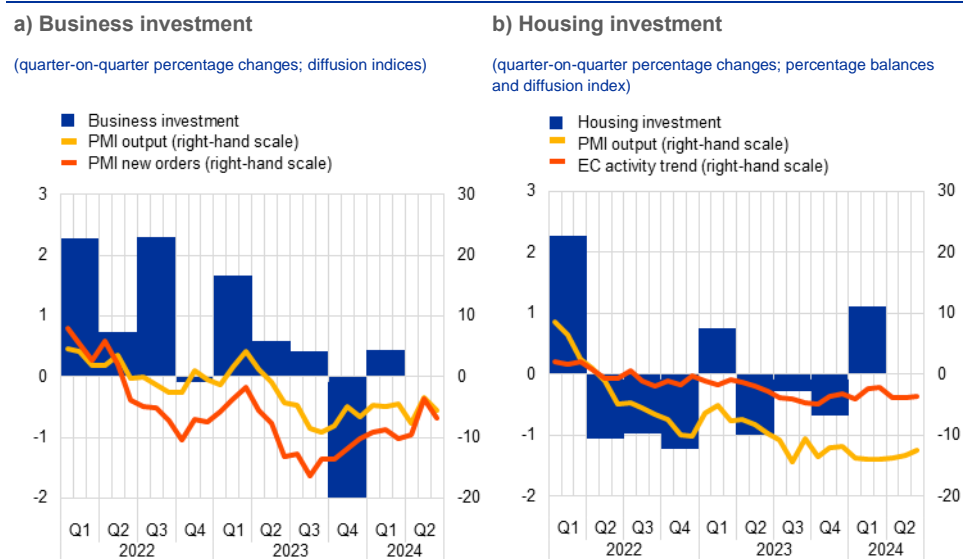
Sources: Eurostat, European Commission (EC), S&P Global Market Intelligence and ECB calculations.
Notes: Lines indicate monthly developments, while bars refer to quarterly data. The PMIs are expressed in terms of the deviation from 50. In panel a), business investment is measured by non-construction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

Housing investment bounced back in the first quarter of 2024, but hard and soft indicators suggest that it likely contracted in the second quarter (Chart 7, panel b). Housing investment rose by 1.1% quarter on quarter in the first quarter, mostly owing to the favourable one-off effects of the mild weather in Germany and generous fiscal incentives in Italy. However, residential building permits stabilised at historically low levels, suggesting that pressures from projects in the pipeline were limited. Moreover, building and specialised construction output dropped by 0.4% in April 2024 compared with its average level in the first quarter of 2024. In addition, survey-based activity measures, such as the PMI for residential construction output and the European Commission's indicator for building and specialised construction activity in the last three months, remained in contractionary territory up to June. The latter being mostly on account of a deterioration in demand. Overall, these developments suggest that housing investment is likely to have declined in the second quarter. Looking ahead, recent ECB surveys point to a moderation in the pace of decline. In the May Consumer Expectations Survey, household expectations for the housing market remained depressed, but more favourable than at the end of 2023, as reflected by the increased attractiveness of housing as a good investment. In the July Corporate Telephone Survey, construction companies reported ongoing depressed activity, but an expected recovery in the second half of 2024. In the July Bank Lending Survey, dynamics in credit standards and demand for housing loans are expected to improve.

Euro area exports stagnated in April 2024, despite the pick-up in foreign demand. Manufacturing export orders continued to contract sharply in June, while the services sector showed more resilience, with export orders remaining stable. The

stagnation in export growth is in line with a broader trend of declining euro area market shares, exacerbated by the supply bottlenecks and energy price shocks – with the euro area being more affected given its high level of integration in global value chains and the domestic nature of the gas shock. Meanwhile, import growth has shown signs of recovery, with a 0.9% increase in import volumes of extra-euro area goods in April in three-month-on-three-month terms, amid stronger domestic consumption. Shipping costs are on the rise again, particularly between China and Europe, as global demand strengthens and firms frontload Christmas orders earlier than usual, owing to Red Sea disruptions and longer transportation times (see Box 4). Despite ongoing geopolitical tensions, there has been no discernible trend indicating a shift away from China as a primary sourcing country (see Box 1).

In summary, following the positive start to the year, activity in the euro area economy is expected to continue to recover over the course of 2024, despite lingering uncertainty. Trade tensions and geopolitical uncertainty will continue to pose headwinds for the manufacturing sector, and therefore for investment. However, 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 over the coming quarters 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 stood at 2.5% in June 2024, down from 2.6% in May. Inflation excluding energy and food was 2.9% in June, unchanged from May but up from 2.7% in April. While some measures of underlying inflation ticked up in May owing to one-off factors, most measures were either stable or edged down in June. Domestic price pressures moderated in the first quarter of 2024, reflecting a stronger than expected decline in unit profits, while wage growth remained elevated. Measures of longer-term inflation expectations mostly stand at around 2%, while measures of shorter-term inflation expectations have decreased.

Euro area headline inflation, as measured in terms of the Harmonised Index of Consumer Prices (HICP), declined to 2.5% in June from 2.6% in May (Chart 8). The decrease was driven by lower inflation rates for food and energy. It followed an increase from 2.4% in April and confirmed earlier expectations that inflation would fluctuate around current levels, partly owing to energy-related base effects.

Chart 8

Headline inflation and its main components

(annual percentage changes; percentage point contributions)
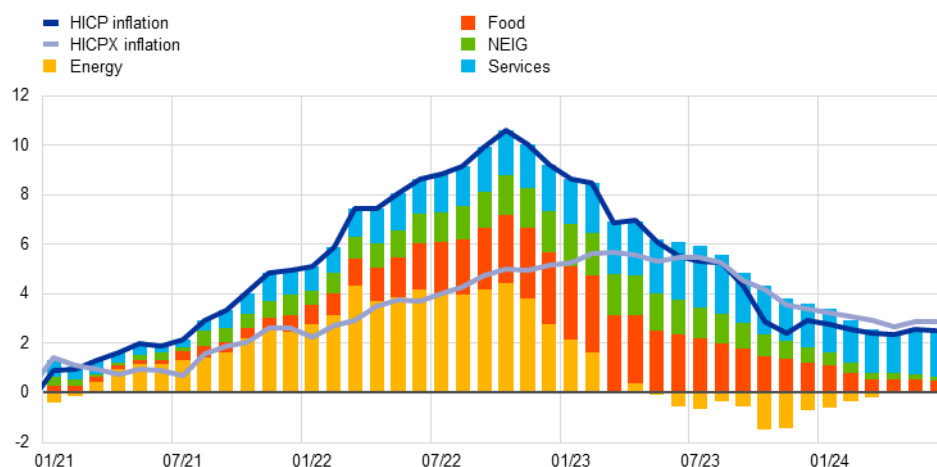
Sources: Eurostat and ECB calculations.
Notes: NEIG refers to non-energy industrial goods. The latest observations are for June 2024.

Energy inflation decreased from 0.3% in May to 0.2% in June, having turned positive in May after almost a year of negative rates. The main drivers of the decrease were transport and liquid fuel prices. These reflect the recent decline of oil prices and a sharp decline in refining margins for petrol. Electricity and gas prices increased, but continued to contribute negatively to energy inflation.

Food inflation weakened further, falling to 2.4% in June from 2.6% in May. The decline was mainly driven by unprocessed food inflation (1.3% in June after 1.8% in May). Processed food inflation decreased slightly in June (to 2.7%, after 2.8% in May). The decline in the annual rate of change of food inflation was related to a downward base effect associated with the strong price increase in the more volatile unprocessed food component one year ago.

HICP inflation excluding energy and food (HICPX) stood at 2.9% in June, unchanged from May and up from 2.7% in April (Chart 9). In terms of components, non-energy industrial goods inflation stood at 0.7% in May and June, down from 0.9% in April. This is close to the pre-pandemic long-term average of 0.6%, suggesting a possible end to the gradual fading of the impact of past upward shocks. Services inflation was also unchanged between May and June, at 4.1%, having increased from 3.7% in April. The relatively greater persistence in services inflation compared with goods inflation is in line with strong wage growth and the more prominent role that labour costs play in the production of services. Meanwhile, indicators of underlying inflation showed mixed developments in May and June. Most exclusion-based measures edged up in May but some, such as HICP excluding unprocessed food and energy and HICPXX (which refers to HICPX inflation excluding travel-related items, clothing and footwear), decreased again in June. By contrast, domestic inflation ticked up marginally to 4.5% in June from 4.4% in May, remaining elevated at the top of the range of underlying inflation indicators. The Supercore indicator decreased slightly further, while the Persistent and Common Component of Inflation (PCCI) remained at the bottom of the range, at 1.7% in June, unchanged from May.

Chart 9
Indicators of underlying inflation

(annual percentage changes)
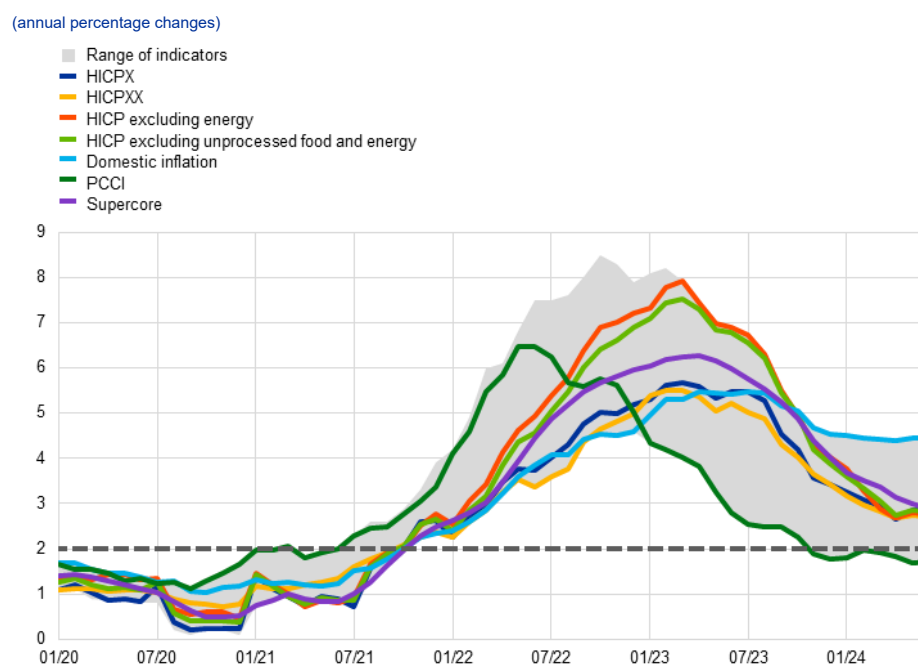
Source: Eurostat and ECB calculations.
Notes: The range of indicators of underlying inflation includes HICP excluding energy, HICP excluding unprocessed food and energy, HICPX, HICPXX, domestic inflation, 10% and 30% trimmed means, the PCCI, the Supercore indicator and a weighted median. The grey dashed line represents the ECB's inflation target of 2% over the medium term. The latest observations are for June 2024.

Most indicators of pipeline pressures for goods inflation remained subdued but show signs of bottoming out (Chart 10). At the early stages of the pricing chain, producer price inflation for domestic sales of intermediate goods was still negative but less so than in the previous month (-2.9% in May after -3.9% in April). At the later stages of the pricing chain, the annual growth rates of producer prices for

non-food consumer goods increased to 0.8% in May from 0.7% in April, while those in the consumer food segment increased to -0.4% from -0.9% over the same period. The gradual easing of pipeline pressures on industrial goods prices thus appears to have faded out. The annual growth rates of import prices for different goods categories have mostly remained negative but are moving upwards. The annual growth rate of import prices for energy increased substantially to 1.8% in May from -5.3% in April.

Chart 10

Indicators of pipeline pressures

(annual percentage changes)
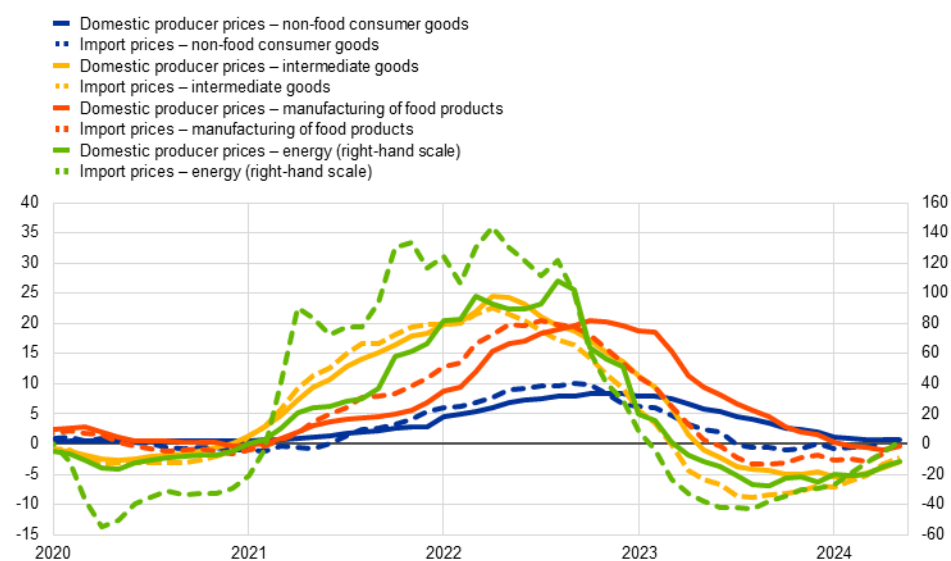
- Domestic producer prices – non-food consumer goods
- Import prices – non-food consumer goods
- Domestic producer prices – intermediate goods
- Import prices – intermediate goods
- Domestic producer prices – manufacturing of food products
- Import prices – manufacturing of food products
- Domestic producer prices – energy (right-hand scale)
- Import prices – energy (right-hand scale)

Sources: Eurostat and ECB calculations.
Note: The latest observations are for April 2024 for import prices for non-food consumer goods and import prices for manufacturing of food products and for May 2024 for the rest.

According to the data available at the time of the July Governing Council meeting, domestic cost pressures, as measured by growth in the GDP deflator, decreased to 3.6% in the first quarter of 2024 from 5.1% in the previous quarter, owing to smaller contributions from both labour costs and profits (Chart 11). After peaking at 6.5% in the first quarter of 2023, the annual growth rate of the GDP deflator eased further. The decline in the first quarter of 2024 was mainly driven by the decrease in unit profits growth, with the associated contribution dropping into negative territory, to -0.2 percentage points from 0.6 percentage points in the previous quarter. Similarly, the contribution of unit labour costs decreased further to 3.1 percentage points, from 3.3 percentage points in the previous quarter, masking a moderate increase in wage growth that was more than offset by rising productivity growth (-0.6% in the first quarter of 2024, up from -1.0% in the previous quarter). Overall, labour costs are still the main contributor to domestic price pressures.

Chart 11

Breakdown of the GDP deflator

(annual percentage changes; percentage point contributions)
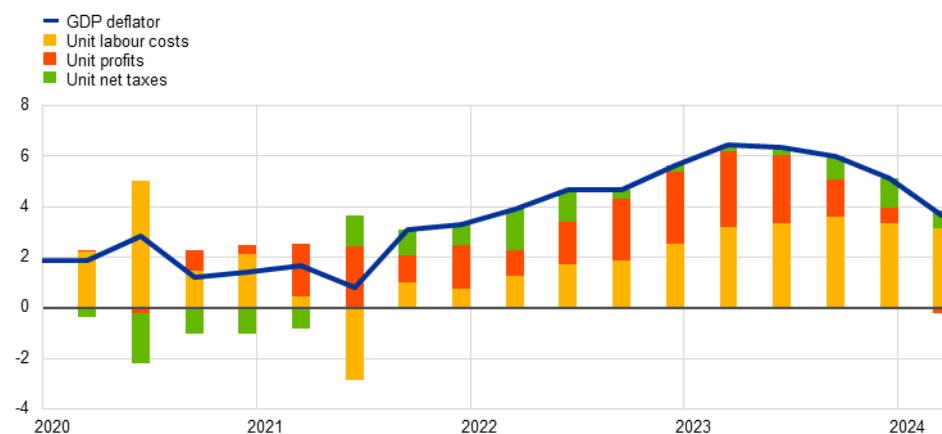
Sources: Eurostat and ECB calculations.
Notes: The latest observations are for the first quarter of 2024. Compensation per employee contributes positively to changes in unit labour costs and labour productivity contributes negatively.

Wage pressures increased in the first quarter of 2024, and while they are expected to decline gradually, this will be from elevated levels. Data for the first quarter of 2024 show an increase in the annual growth rate of negotiated wages to 4.7%, up from 4.5% in the fourth quarter of 2023. Actual wage growth, according to the data available at the cut-off date and as measured by compensation per employee and compensation per hour, increased in the first quarter of 2024 to 5.0% and 5.4% respectively, up from 4.9% and 4.7% in the fourth quarter of 2023. The difference between actual and negotiated wage growth suggests that wage drift is playing a significant role.[4] The forward-looking wage tracker – which measures the wage growth of non-expired contracts – is broadly in line with expectations that negotiated wage growth in 2024 will, on average, be higher than in 2023 but will ease in 2025.[5]

Survey-based indicators of longer-term inflation expectations and market-based measures of inflation compensation were broadly unchanged, with most standing at around 2.0% (Chart 12). In both the ECB Survey of Professional Forecasters (SPF) for the third quarter of 2024 and the June 2024 ECB Survey of Monetary Analysts (SMA), average and median longer-term inflation expectations (for 2028) remained unchanged at 2.0%. Market-based measures of inflation compensation (based on the HICP excluding tobacco) were broadly unchanged, 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

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[4] Wage drift refers to the difference between the growth rate of gross wages and salaries per employee and the growth rate of negotiated wages.

[5] 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 stabilise at 2.0% from early 2025 onwards. The one-year forward inflation-linked swap rate one year ahead declined slightly over the review period to stand at 2.1%. On the consumer side, the June 2024 ECB Consumer Expectations Survey (CES) reported that the median rate of perceived inflation over the previous 12 months declined noticeably in June to 4.5%, from 4.9% in May. Meanwhile, median expectations for headline inflation over the next year remained unchanged, at 2.8%, from May to June, compared with 2.9% in April. Inflation expectations for three years ahead declined to 2.3% in May and June, from 2.4% in April. Inflation expectations at the one-year and three-year horizons remained below the perceived past inflation rate, suggesting that further disinflation is expected.

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)

- HICP
- Fixings (17 July 2024)
- Market-based measures of inflation compensation (17 July 2024)
- Eurosystem staff macroeconomic projections (June 2024)
- Survey of Monetary Analysts (July 2024)
- Survey of Professional Forecasters (Q3 2024)
- Consensus Economics (July 2024)
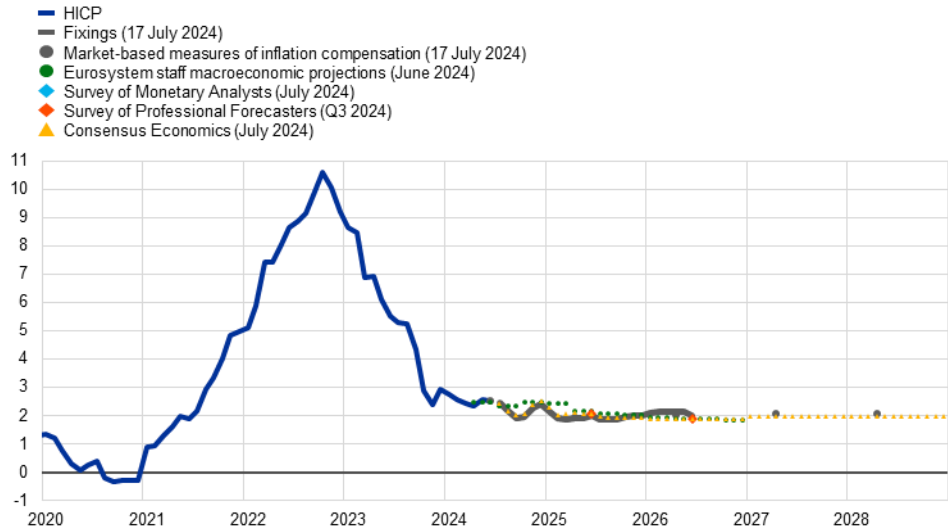
b) Headline inflation and ECB Consumer Expectations Survey

(annual percentage changes)

- HICP
- Perception of past inflation, median
- Inflation expectations one year ahead, median
- Inflation expectations three years ahead, median
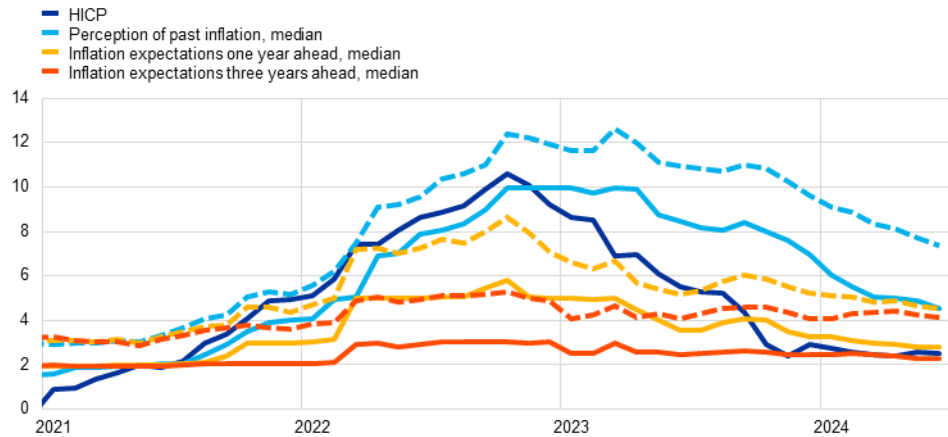
Sources: Eurostat, Refinitiv, Consensus Economics, CES, SPF, SMA, Eurosystem staff macroeconomic projections for the euro area, June 2024 and ECB calculations.
Notes: The market-based measures of inflation compensation series are based on the one-year spot inflation rate, the one-year forward rate one 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 17 July 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 third quarter of 2024 was conducted between 2 and 5 July 2024. The cut-off date for the Consensus Economics long-term forecasts was July 2024. For the CES, dashed lines represent the mean and solid lines the median. The cut-off date for data included in the Eurosystem staff macroeconomic projections was 15 May 2024. The latest observations are for June 2024.

4   Financial market developments

*Over the review period from 6 June to 17 July 2024, developments in euro area
financial markets reflected expectations for the path of inflation and the potential for
further monetary policy rate cuts in the coming months. In the weeks following the
Governing Council's decision to lower the key ECB policy rates by 25 basis points at
its June meeting, the euro area risk-free curve shifted down, with investors pricing in
a further 46 basis points of cumulative cuts by the end of 2024. The option-implied
volatility of policy rate expectations remained at elevated levels, although well below
the peaks seen in late 2022 and early 2023. Euro area sovereign bond market
movements were driven by national elections. Despite initial volatility, changes in
sovereign spreads had largely unwound by the end of the review period. Euro area
equity prices decreased for both financial and non-financial corporations, on the back
of somewhat less favourable risk sentiment in the euro area. Euro area corporate
bond spreads widened for high-yield corporations and were broadly stable for
investment-grade firms. In foreign exchange markets, the euro appreciated slightly
against the US dollar and in trade-weighted terms.*

**Euro area near-term risk-free rates have declined marginally since the June
Governing Council meeting.** The euro short-term rate (€STR) averaged 3.7% over
the review period, following the Governing Council's widely anticipated decision to
lower the key ECB interest rates by 25 basis points at its June meeting. Excess
liquidity decreased by around €131 billion between 6 June and 17 July to stand at
€3,071 billion. This mainly reflected repayments in June of the third series of
targeted longer-term refinancing operations (TLTRO III) and, to a lesser degree, 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,
declined by around 20 basis points for maturities of one year and 26 basis points for
maturities of two years, reflecting, overall, expectations of a more marked easing of
monetary policy. Despite the overall decline, financial markets were pricing in tighter
monetary policy in the early part of the review period. These movements were
reversed following softer data releases, in particular, a lower-than-expected June
inflation reading in the United States, and deteriorating risk sentiment in Europe
associated with political uncertainty in France. The option-implied volatility of short-
term forward rates increased slightly but remained well below the peaks recorded in
late 2022 and early 2023. At the end of the review period, markets had priced in
cumulative rate cuts of around 46 basis points by the end of 2024. Longer-term euro
area risk-free rates decreased during the review period. For example, the ten-year
nominal euro area risk-free rate stood at 2.5%, ending the review period with an
overall decrease of 12 basis points.

**Long-term sovereign bond yield spreads to risk-free rates widened very
slightly amid political uncertainty in France (Chart 13).** The ten-year GDP-
weighted euro area sovereign bond yield closed the review period at 3.0%, 10 basis
points lower than at the beginning of the review period, implying that the spread over
the ten-year euro area risk-free rate had remained almost unchanged, having
widened by only 2 basis points. This widening of the GDP-weighted spread was

largely driven by movements in the French sovereign spread to the OIS, which widened by 15 basis points in the review period following the announcement on 9 June of snap parliamentary elections. The rise in French sovereign spreads, which increased by as much as 22 basis points, initially spilled over to other euro area sovereigns, while the German sovereign spread declined on account of flight-to-quality flows. By the end of the review period, movements in other euro area sovereigns had broadly unwound, with the Italian sovereign spread standing 3 basis points lower, the German sovereign spread unchanged, and other sovereigns seeing similarly negligible movements. Abroad, the ten-year US Treasury yield declined by 13 basis points to 4.2%, while the ten-year UK sovereign bond yield decreased by 10 basis points to 4.1%.

Chart 13

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

(percentages per annum)
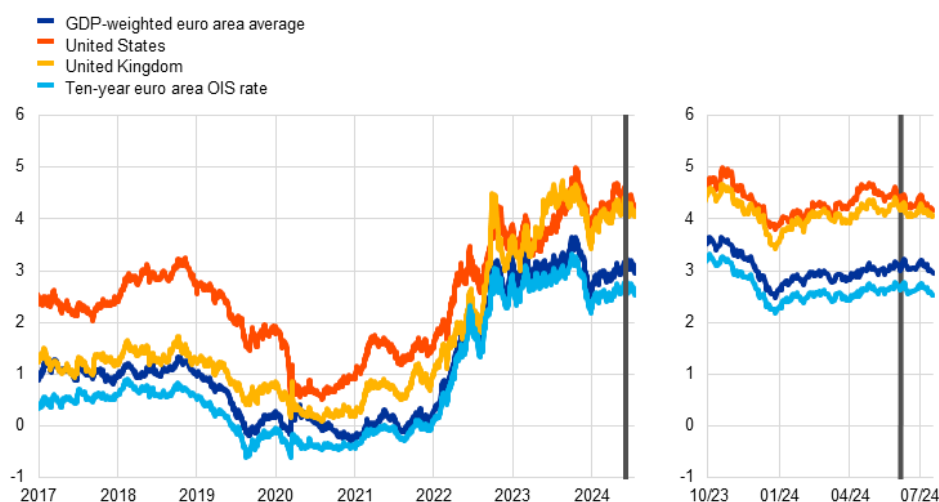
Sources: LSEG and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 6 June 2024. The latest observations are for 17 July 2024.

Euro area corporate bond spreads widened for high-yield corporations and were broadly stable for investment-grade firms. By the end of the review period, spreads for investment-grade firms had widened by only 1 basis point. By contrast, spreads of euro area firms in the high-yield segment had widened by 23 basis points amid higher risk aversion, driven by both financial and non-financial corporations.

Euro area equity prices declined for both financial and non-financial corporations, owing to worsening risk sentiment in the euro area. Over the review period, broad stock market indices in the euro area declined by 3.4%, in contrast with their US counterparts, which increased by 4.5%. In net terms, the equity prices of euro area non-financial corporations declined by 4.4%, while the equity prices of euro area banks and other financial corporations declined by 0.8% and 1.2% respectively, with French corporations being particularly affected. In the United States, equity prices increased across the board, up by 4.0% for non-financial corporations, 11.1% for banks and 7.5% for other financial corporations.

The euro exchange rate appreciated slightly against the US dollar (+0.6%) and in trade-weighted terms (+0.5%) (Chart 14). At the beginning of the review period, the US dollar strengthened in nominal terms, up to the levels of October 2023. This was supported by a still resilient labour market and the outcome of the Federal Open Market Committee meeting in June, which was perceived as (slightly) hawkish. At the same time, softer-than-expected consumer price index reports for May and June tempered the US dollar's performance, which depreciated by 0.6% overall by the end of the review period. 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 – appreciated slightly (+0.5%). The euro depreciated against the pound sterling (-1.4%), as expectations of a summer interest rate cut by the Bank of England weakened. In contrast, the euro appreciated against the Chinese renminbi (+0.8%), and further appreciated against the Swedish krona (+1.9%) and the Canadian dollar (+0.5%), with the latter appreciation supported by the Bank of Canada's rate cut in June. Finally, the euro appreciated against the Japanese yen (+0.9%). The Japanese yen stood at a 30-year low against the US dollar during the review period but appreciated sharply on 11 and 12 July, following what market participants suspected to be foreign exchange interventions.

Chart 14

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

(percentage changes)

Legend:
- Since 6 June 2024
- Since 17 July 2023
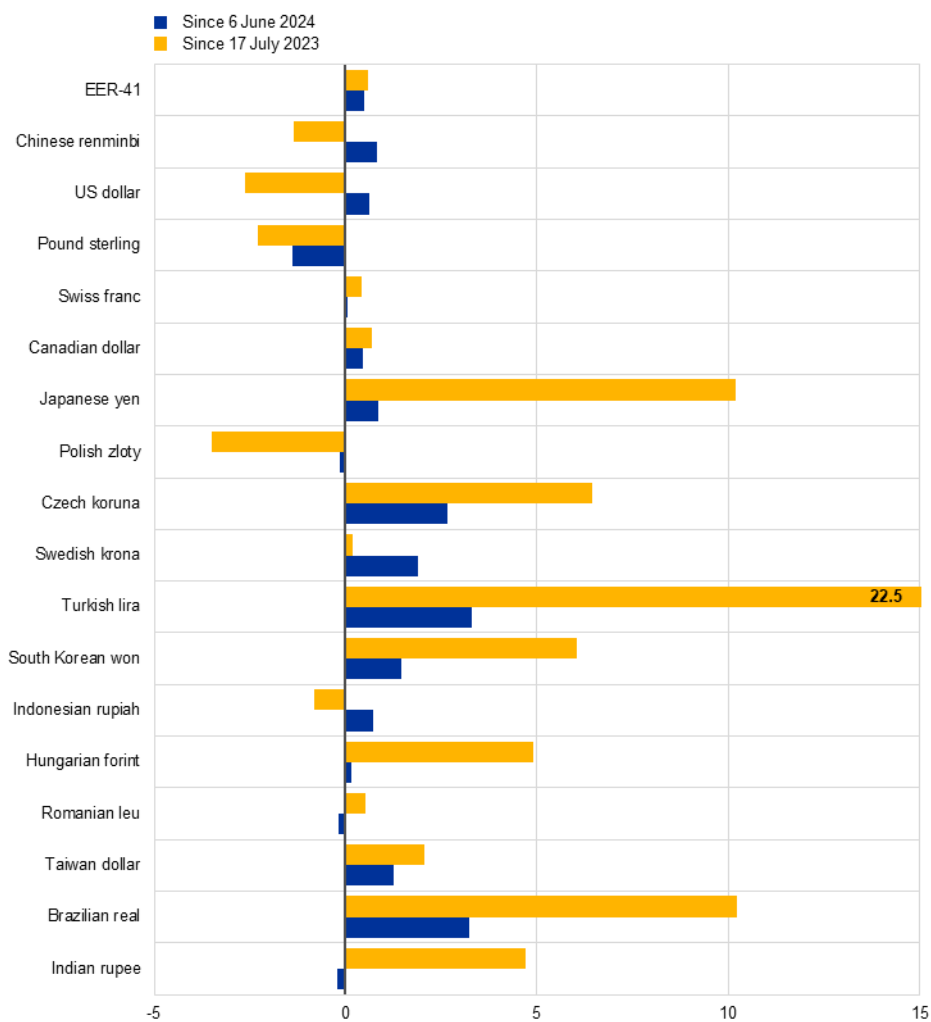
Source: ECB calculations.
Notes: EER-41 is the nominal effective exchange rate of the euro against the currencies of 41 of the euro area's most important trading partners. A positive (negative) change corresponds to an appreciation (depreciation) of the euro. All changes have been calculated using the foreign exchange rates prevailing on 17 July 2024.

5   Financing conditions and credit developments

In May 2024 composite euro area bank funding costs and bank lending rates remained at high levels. Growth rates for bank loans to firms and to households remained stable at levels close to zero, reflecting high lending rates, weak economic growth and tight credit standards. Over the period from 6 June to 17 July 2024, the cost to non-financial corporations (NFCs) of market-based debt declined, while the cost of equity financing increased. According to the July 2024 euro area bank lending survey, credit standards tightened slightly in the second quarter of this year, while standards for mortgages eased moderately. Firms' demand for loans fell slightly, while households' demand for mortgages rose for the first time since early 2022. According to the latest Survey on Access to Finance of Enterprises (SAFE), fewer euro area firms indicated a tightening of financing conditions in the second quarter compared with the first quarter. The annual growth rate of broad money (M3) continued its gradual recovery, supported by net foreign inflows.

Euro area bank funding costs remained high by historical standards. The composite funding cost of debt financing for euro area banks remained unchanged in May, standing at 2.07% (Chart 15, panel a). Bank bond yields remained broadly stable between May and July (Chart 15, panel b), despite an uptick of bank bond spreads owing to the increase in political uncertainty as to the outcome of the European and French elections. Aggregate deposit rates, which account for the largest share of bank funding costs, remained steady overall in May, although this masks considerable cross-country heterogeneity. Time deposit rates decreased marginally, while overnight deposit rates remained broadly unchanged, resulting in a slight narrowing of the large spread between the two. Rates on deposits redeemable at a period of notice of up to three months remained constant, while those with notice of more than three months increased marginally.

Central bank lending operations continued to decline smoothly, contributing to higher bank funding costs. Banks have made further repayments (both mandatory and voluntary) of funds borrowed under the targeted longer-term refinancing operations (TLTROs). On 26 June repayments of €64.5 billion were made on the third series of operations (TLTRO III). A total of €2.037 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 96% reduction in outstanding amounts.[6] Amid the winding-down of TLTROs and the decline in deposits, banks have increased their issuance of bonds, these being remunerated above deposit and policy rates.

Bank balance sheets have been robust overall, despite a weak economic environment and increased uncertainty. In the first quarter of 2024 banks continued to improve their capitalisation and maintained capital ratios well above Common Equity Tier 1 (CET1) requirements, ensuring a well-capitalised banking system capable of meeting the sustainable credit needs of the real economy. Bank profitability remained high in the first quarter, against a backdrop of still relatively low

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

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loan loss provisions and wide interest rate margins. However, loan-deposit margins on new business and outstanding amounts progressively declined up to May, falling from the peaks observed in mid-2023. Non-performing loans (NPLs) continued to gradually increase from the low levels seen in the first quarter of this year. The number of corporate insolvencies and the share of underperforming (i.e. Stage 2) loans, especially for small firms, has slightly risen, pointing to further increases in NPLs, worsening asset quality and higher provisioning costs for banks looking ahead.

Chart 15

Composite bank funding costs in selected euro area countries

(annual percentages)

- Euro area
- Germany
- France
- Italy
- Spain

a) Banks' composite cost of debt financing
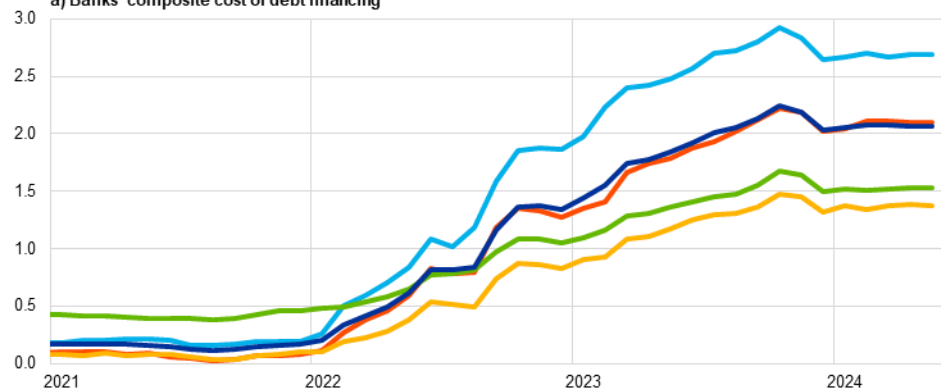
b) Bank bond yields
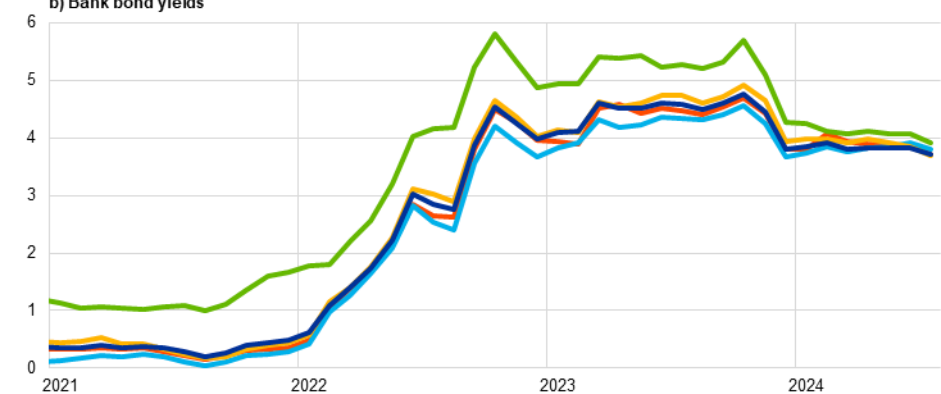
Sources: ECB, S&P Dow Jones Indices LLC and/or its affiliates, and ECB calculations.
Notes: Composite bank funding costs are a weighted average of the composite cost of deposits and unsecured market-based debt financing. The composite cost of deposits is calculated as an average of new business rates 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 May 2024 for the composite cost of debt financing for banks and for 17 July 2024 for bank bond yields.

Bank lending rates for firms and households remained at high levels. In May lending rates for firms decreased to 5.10%, down from 5.18% in the previous month and below the peak of 5.27% reached in October 2023 (Chart 16), amid heterogeneity across euro area countries and maturities. The decline in lending rates for firms in May was more pronounced for loans with short interest rate fixation

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periods (up to one year), while rates with longer fixation periods of over one year saw a slight increase. The spread between interest rates on small and large loans to euro area firms is still narrow but increased by 0.43 percentage points in May, as compared with April when it hit its lowest level since the pandemic, and reflects lower rates on large loans and higher rates on small loans. Lending rates on new loans to households for house purchase saw no change for the third month in a row, standing at 3.80% in May, which is still a high level historically but below the peak of 4.02% seen in November 2023 (Chart 16). Interest rates on new loans to households for consumption edged up in May, showing signs of stabilisation at high levels amid some volatility, while rates for loans to sole proprietors remained stable.

Chart 16

Composite bank lending rates for NFCs and households in selected countries

(annual percentages)

- Euro area
- Germany
- France
- Italy
- Spain

a) Rates on loans to NFCs
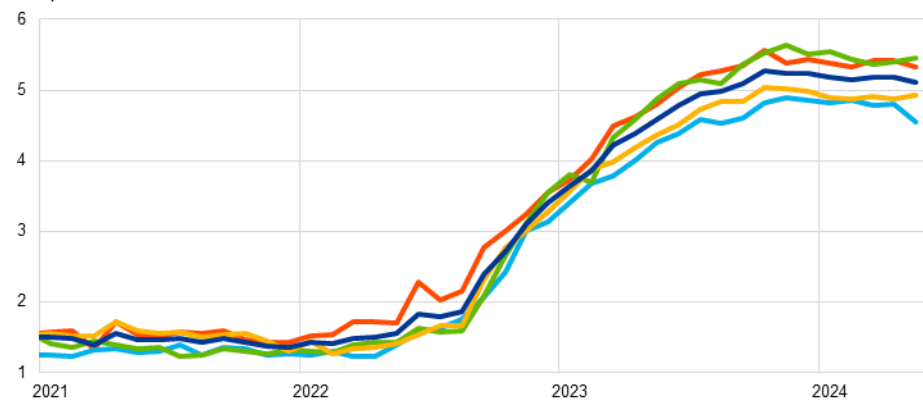
b) Rates on loans to households for house purchase
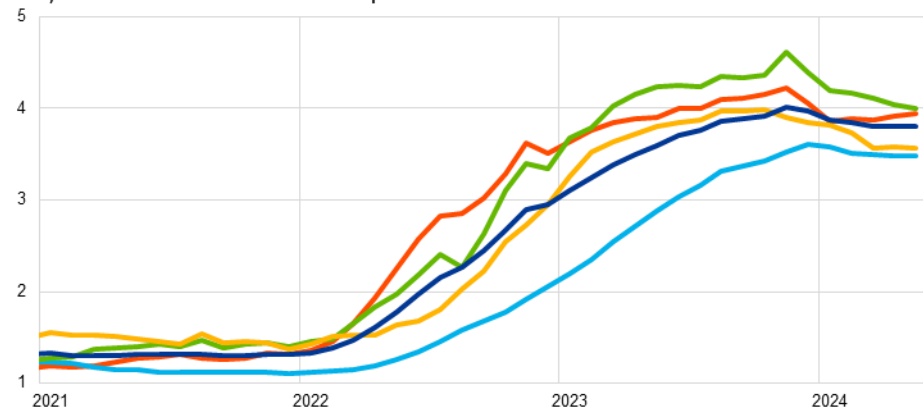
Sources: ECB and ECB calculations.
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The latest observations are for May 2024.

Over the period from 6 June to 17 July 2024, the cost to NFCs of market-based debt declined, while their cost of equity financing increased. Based on the available monthly data, the overall cost of financing for NFCs – i.e. the composite

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cost of bank borrowing, market-based debt and equity – remained at 6.2% in May, virtually unchanged from its level in April and lower than the multi-year high reached in October 2023 (Chart 17).[7] None of the cost components showed any significant change, other than the cost of bank loans, which saw a decline for short-term loans and a marginal increase for loans with a maturity of more than one year. Daily data from 6 June to 17 July 2024 confirm a fall in the cost of market-based debt, owing to a decline in the risk-free interest rate – as approximated by the ten-year overnight index swap rate – that was not offset by the marginal widening of spreads on bonds issued by NFCs, especially in the high yield segments. Notwithstanding the decline in the risk-free rate, the cost of equity financing increased over the same period, reflecting a significant increase in the equity risk premium.

Chart 17

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

(annual percentages)
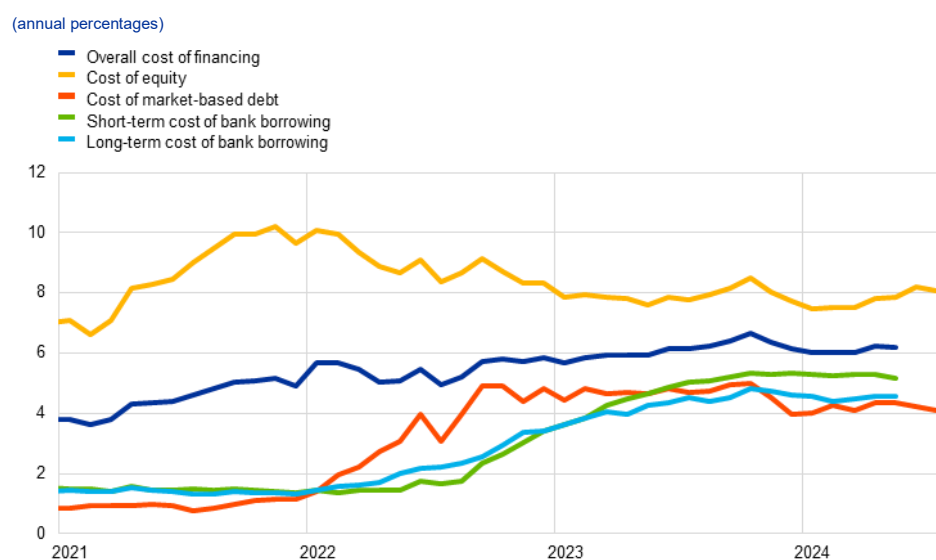
Sources: ECB, Eurostat, Dealogic, Merrill Lynch, Bloomberg, Thomson Reuters and ECB calculations.
Notes: The overall cost of financing for non-financial corporations (NFCs) is based on monthly data and is calculated as a weighted average of the cost of borrowing from banks (monthly average data), market-based debt and equity (end-of-month data), based on their respective outstanding amounts. The latest observations are for 17 July 2024 for the cost of market-based debt and the cost of equity (daily data), and for May 2024 for the overall cost of financing and the long and short-term cost of bank borrowing (monthly data).

In May 2024 the annual growth rates of bank lending to firms and to households remained stable at levels close to zero, reflecting high lending rates, weak economic growth and tight credit standards. Annual growth in loans to NFCs and to households stood at 0.3% in May, marginally up from the 0.2% seen in April for both sectors (Chart 18). These annual growth rates have fluctuated around these low levels since the beginning of 2024. The ongoing weakness in loan growth follows the subdued lending dynamics observed since the beginning of 2023, on the back of weak aggregate demand, tight credit standards and the dampening impact of monetary policy restriction as a result of higher lending rates. Mortgage loan growth remained muted, while consumer credit has been relatively resilient and other lending to households, which includes loans to sole proprietors, continued to

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[7] 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 May 2024.

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contract, albeit at a slowing pace. The ECB's Consumer Expectations Survey in May 2024 showed that a still large but declining net percentage of survey respondents reported 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)
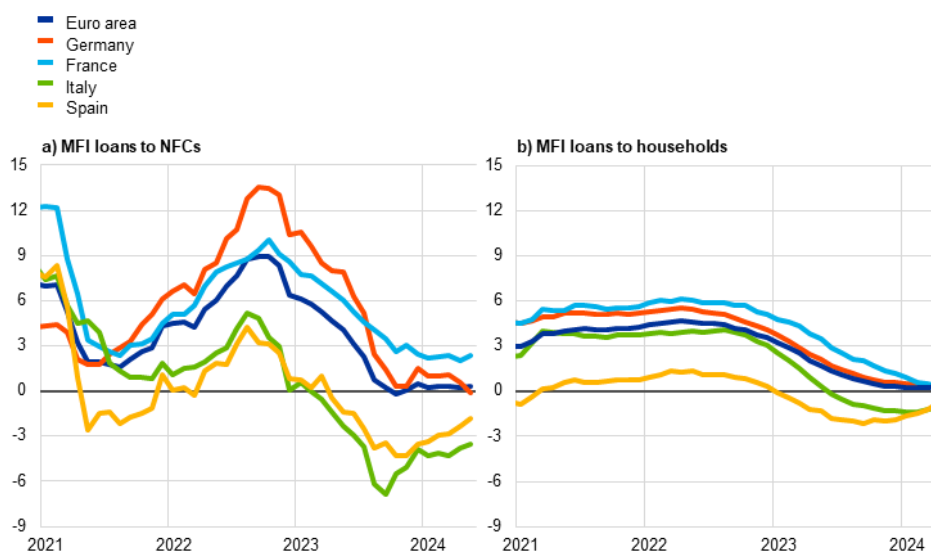
Sources: ECB and ECB calculations.
Notes: Loans from monetary financial institutions (MFIs) are adjusted for loan sales and securitisation; in the case of non-financial corporations (NFCs), loans are also adjusted for notional cash pooling. The latest observations are for May 2024.

According to the July 2024 euro area bank lending survey**, banks reported a small further tightening of their credit standards for loans to firms and a moderate further easing for loans to households for house purchase in the second quarter of 2024 (Chart 19).** The tightening of credit standards for firms, which was accompanied by a further increase in the share of rejected loan applications, adds to the substantial cumulative tightening seen since 2022. Bank risk tolerance was the main driver behind the net tightening, while bank risk perceptions were less relevant than during the rate hiking cycle. Net tightening in credit standards was reported in France and in Germany, while only Italian banks reported a net easing. Banks also reported an increase in rejection rates and a further tightening of credit standards for consumer credit, driven primarily by risk perceptions linked to the economic outlook and borrower credit worthiness. The easing reported for housing loans was driven by competitive pressures and coincided with a decrease in the share of rejected applications. Euro area banks expect a further moderate tightening for loans to firms and broadly unchanged credit standards for loans to households in the third quarter of 2024.

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Chart 19

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

(net percentages of banks reporting a tightening of credit standards or an increase in loan demand)
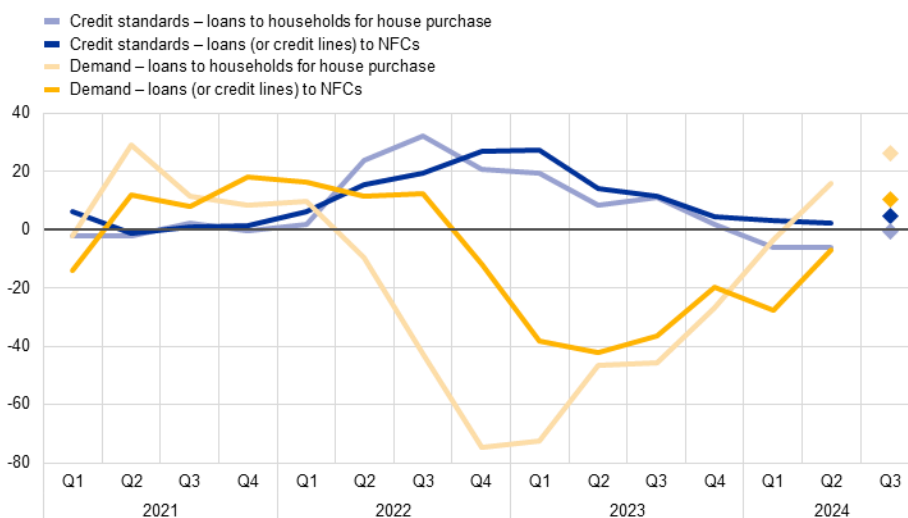
Source: Euro area bank lending survey.
Notes: For survey questions on credit standards, "net percentages" are defined as the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably". For survey questions on demand for loans, "net percentages" are defined as the difference between the sum of the percentages of banks responding "increased considerably" and "increased somewhat" and the sum of the percentages of banks responding "decreased somewhat" and "decreased considerably". The diamonds denote expectations reported by banks in the current round. The latest observations are for the second quarter of 2024.

Banks reported a further decline in demand for loans by firms and an increase in demand for loans by households in the second quarter of 2024. The decline in firm loan demand, which was substantially smaller than in the previous quarter, was mainly driven by high interest rates and weak fixed investment, while there was also a small positive contribution from inventories and working capital. The demand for both housing loans and consumer credit increased for the first time since mid-2022, driven mainly by improved housing market prospects, consumer confidence and spending on durables. The increase in net demand for housing loans was weaker than banks had expected in the previous quarter, but stronger for consumer credit. For the third quarter of 2024, banks expect moderate growth in demand for loans to firms which, if it were to materialise, would be the first seen since the third quarter of 2022. Moreover, they expect a rise in demand for loans to households, that demand being substantially higher for housing loans than for consumer credit.

According to the banks surveyed, access to funding improved in most market segments but is expected to deteriorate across all segments over the third quarter of 2024. Bank access to funding improved for debt securities and – to a lesser extent – for money markets. Access to retail funding remained broadly unchanged overall but continued to deteriorate slightly for short-term funding. The deterioration in access to funding anticipated for the third quarter of 2024 was driven by French banks, potentially reflecting increased political uncertainty given that the survey was conducted after the French snap parliamentary elections were announced but before the first round of those elections took place.

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Perceived credit risks in bank loan portfolios had a moderate tightening impact on bank lending conditions in the first half of 2024, while credit standards for firms displayed some heterogeneity across economic sectors, tightening strongly in commercial real estate. Banks reported that NPL ratios and other indicators of credit quality had a net tightening effect on credit standards for loans to firms and for consumer credit in the first half of 2024, and had a broadly neutral impact on housing loans. As in the past, the main factors behind the contribution of NPL ratios to tightening lending conditions were the higher risk perceptions and lower risk tolerance of banks, as well as the greater pressure exerted by supervisory or regulatory requirements. Credit standards for firms tightened further in all economic sectors in the first half of 2024, ranging from a very small net tightening in services and manufacturing to a relatively large net tightening in commercial real estate. Banks also reported a net decrease in demand for loans and credit lines in most economic sectors, except in services. In the second half of 2024 euro area banks expect a net tightening in lending conditions, combined with a moderate net increase in loan demand in most economic sectors, except in construction and commercial real estate.

Climate risks and related policy measures continued to contribute to a tightening of lending conditions for brown firms. Euro area banks indicated that firms' climate-related risks and measures to cope with climate change continued to have a net tightening impact on lending policies for loans to brown firms (i.e. firms that contribute significantly to climate change and have not yet started, or have made little progress, with transition) over the past 12 months, although by less than expected. By contrast, the same factors had a further net easing impact for loans to green firms (i.e. firms that do not contribute or contribute little to climate change) and firms in transition (i.e. firms that contribute to climate change but are making considerable progress with transition). Physical risk was reported by banks as being the main driver of the tightening impact on their lending policy. Over the next twelve months, euro area banks expect a slightly stronger net tightening impact on credit standards for loans to brown firms, while a slightly stronger net easing impact is expected for green firms and firms in transition.

According to the SAFE**, fewer euro area firms indicated a tightening of financing conditions in the second quarter of 2024 compared with the first quarter.** The net percentages of firms reporting increases in interest rates on bank loans and in other financing costs, such as charges, fees and commissions, both declined, falling respectively to 31% (down from 43% in the previous quarter) and to 28% (after 37% previously). As in the first quarter of 2024, few firms reported obstacles to obtaining a bank loan.

Firms also signalled a small improvement in the availability and a slight reduction in the need for bank loans, resulting in a small decrease in their bank financing gap. The net percentage of firms reporting an improvement in the availability of bank loans was 2% in the second quarter of 2024, in contrast with a net 3% of firms that reported a deterioration in the previous quarter (Chart 20). This change is mainly attributable to large firms given that, on average, small and medium-sized enterprises (SMEs) reported no changes. In the second quarter a net

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1% of firms reported lower bank loan needs (stable from the previous quarter) across all firm sizes. Consequently, the change in the financing gap – the estimated difference between the change in the need for bank loans and the change in bank loan availability – was negative for a net 1% of firms, down from 2% of firms for which it was positive in the previous quarter. However, across firm sizes, the change in the financing gap was negative for a net 2% of large firms, while remaining stable for SMEs. Looking ahead, firms expect a further improvement in the availability of external financing over the next three months, with larger firms being more optimistic than SMEs.

Chart 20

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

(net percentages of respondents)
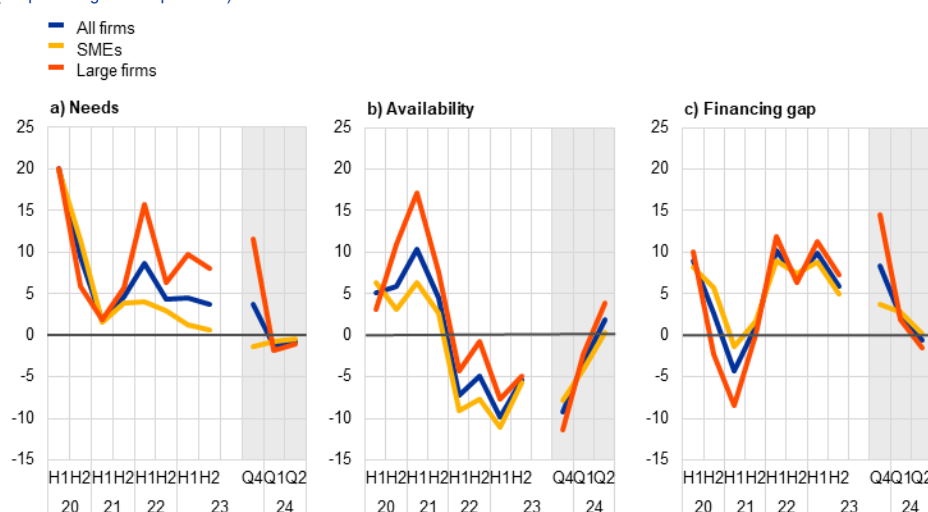
Sources: SAFE and ECB calculations.
Notes: SMEs stands for small and medium-sized enterprises. The figures are based on firms for which the instrument in question is relevant (i.e. they have used it or considered using it). Respondents replying "not applicable" or "don't know" are excluded. Net percentages are the difference between the percentage of firms reporting an increase for a given factor and the percentage reporting a decrease. The figures refer to rounds 23 to 31 of the SAFE (April-September 2020 to April-June 2024). On the x-axis, H1 stands for the reference period running from quarter 2 to quarter 3 and H2 for the reference period running from quarter 4 to quarter 1 of the next year. The grey shaded charts reflect responses to the same question but on a quarterly basis. The financing gap indicator combines both financing needs and the availability of bank loans at firm level. The indicator of the perceived change in the financing gap takes a value of 1 (-1) if the need increases (decreases) and availability decreases (increases). If firms perceive only a one-sided increase (decrease) in the financing gap, the variable is assigned a value of 0.5 (-0.5). A positive value for the indicator points to a widening of the financing gap. Values are multiplied by 100 to obtain weighted net balances in percentages.

Firms and households recorded a further increase in time deposit volumes in May 2024, although the reallocation from overnight deposits has been gradually slowing. Overnight deposit volumes contracted at a slowing pace in May, the annual growth rate rising to -5.6%, up from -6.8% in April (Chart 21). The ongoing preference among firms and households for holding time deposits and marketable instruments continues to be explained by the still substantially higher remuneration of these instruments compared with overnight deposits. While deposit flows are still significantly more tilted towards time deposits than in the past, this reallocation is losing steam, with the spread between the returns on both instruments stabilising. Firms' deposit allocation is moving closer to a level that is more consistent with historical patterns, and three consecutive positive, albeit contained, monthly inflows into overnight deposits were recorded between March and May. At the same time, deposit inflows from firms and households were partly offset by

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outflows from money market funds, amid the decline in short-term interest rates seen in May.

Chart 21

M3, M1 and overnight deposits

(annual percentage changes, adjusted for seasonal and calendar effects)
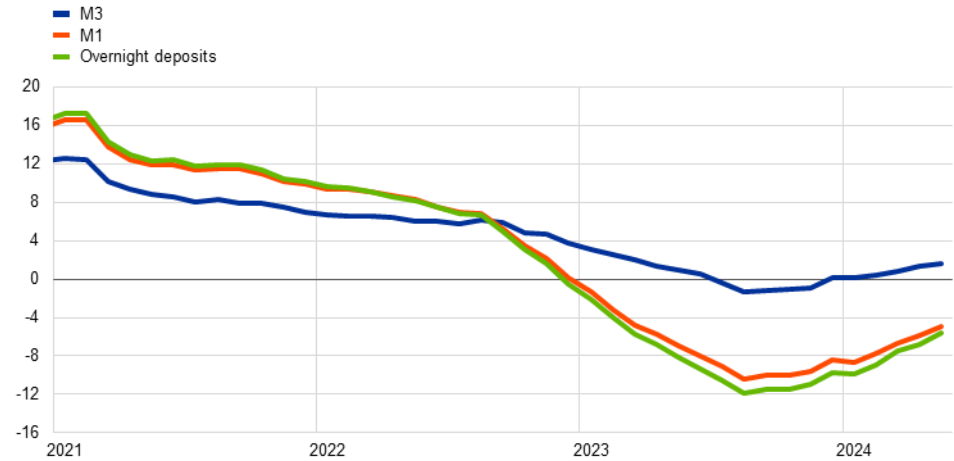
Source: ECB.
Note: The latest observations are for May 2024.

The annual growth rate of broad money (M3) in the euro area continued its gradual recovery in May 2024, supported by net foreign inflows. Money growth has been gradually increasing since the beginning of 2024. In May M3 growth increased to 1.6%, up from 1.3% in April (Chart 21). Annual growth of narrow money (M1) – which comprises the most liquid assets of M3 – stayed in negative territory but continued to increase to -4.9% in May, compared with -5.9% in April. Foreign inflows remained the only consistent positive driver of money growth, amid stagnant lending to households and firms, the continuing contraction of the Eurosystem balance sheet and the issuance of bank bonds in a context of ongoing repayments of TLTRO funds.

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Boxes

1 Geopolitics and trade in the euro area and the United States: a de-risking of import supplies?

Prepared by Ivelina Ilkova, Laura Lebastard and Roberta Serafini

In recent years, a series of adverse shocks has highlighted vulnerabilities related to the sourcing of imported goods. In response, some firms in both the euro area and the United States have changed (or are planning to change) their sourcing strategies to improve supply-chain resilience.[1] Based on detailed product-level data, this box analyses the extent to which and how the euro area and the United States have modified their sourcing strategies since 2016 – when geopolitical considerations began to play a stronger role in trade relations and de-risking concerns arose[2] – and the potential impact on import prices. It focuses on two different, but not mutually exclusive, sourcing strategies aimed at fostering supply-chain resilience and addressing national security concerns: diversification (increasing the number of supplier countries) and rebalancing (reducing the market share of the main supplier country).[3]

Over the past decade, the euro area has progressively diversified import sources, although there is no sign that this process has accelerated compared with the past. Since 2016 the euro area has gradually increased the number of sourcing countries per product, including for goods of strategic importance,[4] with a slight acceleration observed since the pandemic (Chart A, panel a). This appears, however, to be the continuation of a process that had been ongoing in the euro area since the beginning of the century. By contrast, diversification has been less evident in the United States.

Diversification has, however, increasingly had a geopolitical dimension, with both the euro area and the United States diversifying imports of products sourced relatively more from geopolitically distant countries. We assessed the

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1 See EIB Investment Survey – European Union Overview, European Investment Bank, 2023, and the box entitled "Global production and supply chain risks: insights from a survey of leading companies", *Economic Bulletin*, Issue 7, European Central Bank, 2023.

2 In 2016 significant trade tensions emerged between the United States and China, marking the start of major US trade shifts. While that year might not hold the same significance for the euro area, which saw more impactful changes after 2019, starting the analysis in 2016 ensures a common period of comparison. This approach helps to capture key events that affected the United States and the euro area and provides a clearer understanding of how trade patterns evolved differently in the two regions. The results hold true if the analysis for the euro area starts in 2019 instead of 2016.

3 While not being the focus of this analysis, export strategies may also change in response to geopolitical tensions, in terms of relative reliance on a geopolitically distant customer base.

4 Strategic goods are defined as specified in the list in "Strategic dependencies and capacities", *Commission Staff Working Document*, No 352, European Commission, 2021. The European Commission identified strategic dependencies related to specific imported inputs based on three indicators: concentration, measured based on the Herfindahl-Hirschman Index and the market shares of the extra-EU supplying countries; demand importance, calculated as the share of extra-EU imports in total EU imports; and substitutability, calculated as the ratio of extra-EU imports to total EU exports. For the United States, we constructed a similar set of products, adapting the European Commission methodology to the US data.

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extent to which this diversification has a geopolitical dimension by classifying supplier countries as geopolitically close (for example, the G7 countries, EU Member States, Australia, South Korea and Türkiye) and geopolitically distant (for example, China, Russia, Iran, North Korea and Syria).[5] Chart A, panel b), presents the results of an event study estimating whether, for a given imported product, having a geopolitically distant country as the main supplier affected the overall number of supplier countries compared with products mainly sourced from a geopolitically close country.[6] The results suggest that diversification of import sources since 2016 has been significantly stronger for products imported relatively more from geopolitically distant countries, with its level rising in both regions under review, particularly after 2021.

Chart A

Diversification of sourcing countries for the euro area and the United States

a) Number of sourcing countries per product

(averages and medians)

b) Diversification when the main supplier country is geopolitically distant

(differences in the number of sourcing countries compared with goods sourced from geopolitically close countries)
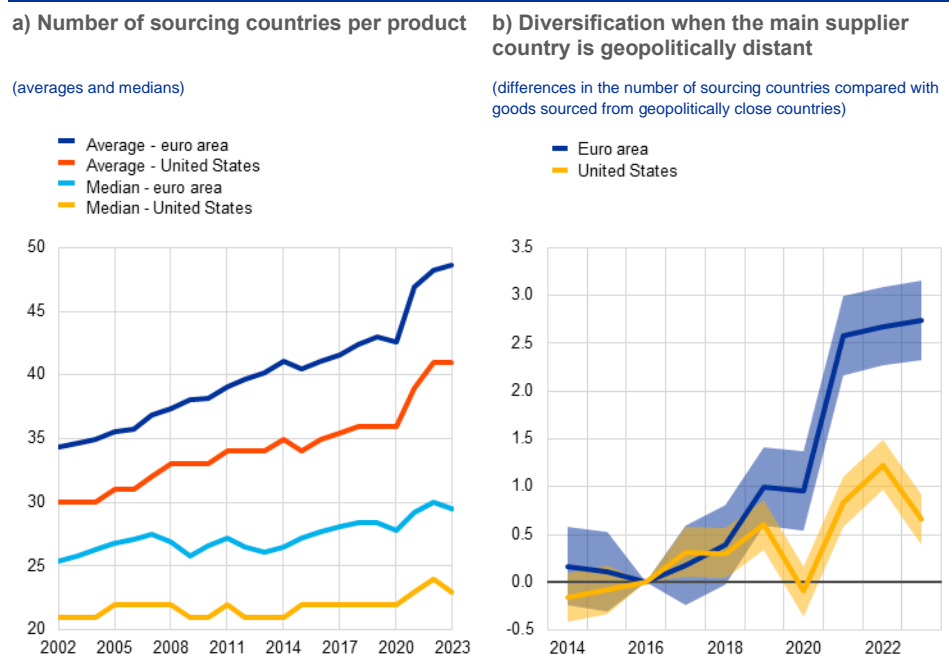
Sources: Trade Data Monitor and ECB calculations.
Notes: Product is defined at the most detailed product characteristics level enabling cross-countries comparison (six-digit level of the World Customs Organization Harmonized System classification). Panel b) shows the results of an event study comparing the number of sourcing countries for a given product when the main sourcing country is a geopolitically distant country rather than a geopolitically close country. The data used for the euro area regression exclude intra-euro area trade. The reference year is 2016. The shaded areas indicate the 95% confidence intervals.

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[5] Geopolitically close and distant countries are defined according to their vote in the United Nations on sanctions against Russia – UN General Assembly Resolution ES-11/3. Abstaining countries are considered neutral and assigned to the geopolitically close group. The approach of identifying countries' geopolitical similarities based on how they have voted in the United Nations is in line with Campos et al., "Geopolitical fragmentation and trade", *Journal of Comparative Economics*, Vol. 51, No 4, 2023, pp. 1289-1315, and the box entitled "Friend-shoring global value chains: a model-based assessment", *Economic Bulletin*, Issue 2, European Central Bank, 2023.

[6] This is estimated separately for the euro area and the United States applying the following formula: $number\ country\ suppliers_{it} = \sum_{k=-2}^{7} \beta_k\ time\ dummy_{kt} \times geopol\_distant\ dummy_i + FE_i + FE_t + \varepsilon_{it}$, where the dependent variable is the number of sourcing countries for the six-digit level of the World Customs Organization Harmonized System classification product *i* at time *t*, and *k* is the number of years relative to 2016. The treatment group is the set of products whose main supplier was a geopolitically distant economy in 2014-16, whereas the control group is the set of products whose main sourcing country was a geopolitically close economy in 2014-16. The formula allows for product and time-specific fixed effects.

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While some diversification of import sources has been under way for a number of years, evidence of a shift in the reliance of the euro area and the United States on geopolitically distant countries is more mixed. Aggregate data indicate that China's market share in euro area imports has risen by 3 percentage points since 2016, whereas it has declined by 11 percentage points in US imports. Since 2022 the euro area has had greater exposure to China compared with the United States. In the case of Russia, both the euro area and the United States have decreased their import market shares, in line with the sanctions imposed and the related embargoes. However, sourcing from China and Russia apart, evidence of rebalancing is more limited: aggregate import shares from geopolitically distant countries have remained stable for both the euro area and the United States, with neither region significantly shifting their imports away from these countries.

Evidence at the product level underlines that rebalancing away from a main supplier nation is limited. Focusing on strategic goods, we compared import developments for products mostly sourced from a geopolitically distant country and for those mostly sourced from a geopolitically close country. The results of an event study point to limited evidence of a substantial rebalancing by the euro area or the United States away from geopolitically distant countries (Chart B).[7]

Chart B

Change in the importance of a main sourcing country for strategically important goods when it is a geopolitically distant country for the euro area and the United States

(percentage differences compared with the import level of goods sourced from geopolitically close countries)
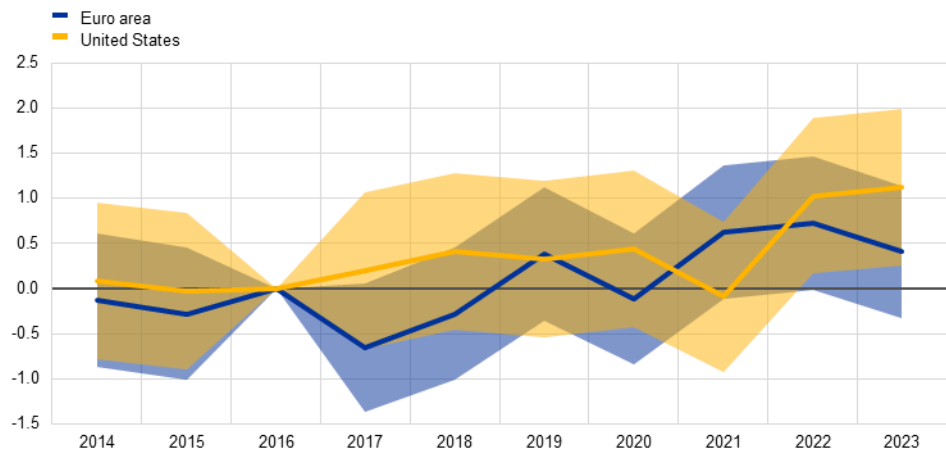
Sources: Trade Data Monitor and ECB calculations.
Notes: The chart shows the results of an event study comparing the levels of imports of strategically important goods from countries that are geopolitically close and geopolitically distant . The database includes import volumes data for strategically important goods from all trading partners at the six-digit level of the World Customs Organization Harmonized System (HS) classification. Data for goods falling under Chapter 27 of the HS classification (mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes) were excluded. The data used for the euro area regression exclude intra-euro area trade. The reference year is 2016. The shaded areas indicate the 95% confidence intervals.

The implications for import prices differ depending on which sourcing strategy dominates. For the same product, suppliers from new sourcing countries tend to be

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[7]   The chart shows the estimated β_k of the mirror regression of Chart A, panel b): $\ln imports_{ijt} = \sum_{k=-2}^{7} \beta_k \, time \, dummy_{kt} \times geopol\_distant \, dummy_j + FE_{ij} + FE_t + \varepsilon_{ijt}$, where the dependent variable is the natural logarithm of imports from the main sourcing country j to the euro area of product i at time t.

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more expensive than existing suppliers (Chart C, panel a). However, the impact on aggregate import prices is small: on average over the period 2016-23, the flow of products from new countries accounted for a small share of total imports (0.2-0.3%), suggesting only a limited impact on aggregate prices.

For those products for which either the euro area or the United States has changed its main supplier country, rebalancing seems to be aimed mostly at reducing costs, rather than enhancing supply-chain resilience or addressing national security concerns. Rebalancing away from the main supplier country has primarily shifted imports towards cheaper sourcing countries, both for the euro area and the United States. On average, since 2016 the euro area and the United States have tended to rebalance imports towards cheaper sources, although there is some evidence of a change after Russia's invasion of Ukraine in 2022, when both shifted towards relatively more expensive sourcing countries (Chart C, panel b). Indeed, shifting imports from a main geopolitically distant supplier towards a geopolitically close supplier is associated with a median price increase of 30% and 40% in the euro area and the United States respectively. Shifting within a group of geopolitically close countries has a broadly neutral impact on import prices.

Chart C

Import price implications of euro area and US de-risking strategies

a) Between new and pre-existing product-country flows

(percentage differences, median of HS6 products)
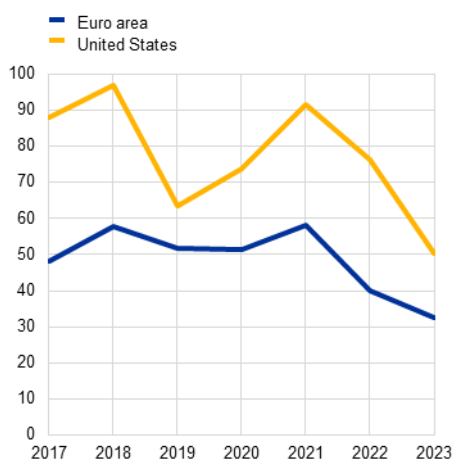
b) Between sourcing countries whose import shares increased and those that did not

(percentage differences, median of HS6 products)
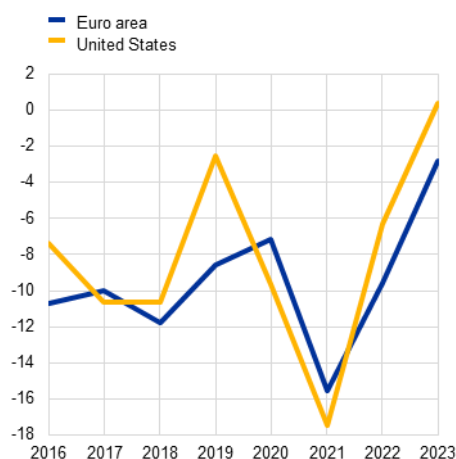
Source: Trade Data Monitor.
Notes: Panel a) shows the difference in price between a product from new sourcing countries (i.e. a product not imported from the sourcing country in the previous year) and the same product from pre-existing sourcing countries (i.e. a product already imported from the sourcing country in the previous year). To avoid bias resulting from occasional importers, only product-countries still being imported from in the subsequent year (except for 2023) are included. Panel b) shows the difference in price between a product from sourcing countries for which the market share has increased (in comparison with the previous year) and the same product from sourcing countries for which the market share has decreased or stagnated. HS6 stands for the six-digit level of the World Customs Organization Harmonized System classification.

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2 Recent country-specific and sectoral developments in labour productivity in the euro area

Prepared by António Dias da Silva, Antonella Fabrizio and Matthias Mohr

A combination of various adverse shocks has contributed to productivity growth being suppressed in the euro area over the last four years. The pandemic, along with disruptions in global supply chains and the energy price increases from 2021, which were aggravated by the Russian war in Ukraine, have all contributed to the slowdown in productivity growth. These factors have exerted a particularly significant impact on the industry, wholesale and retail trade, and construction sectors. As a result, productivity dynamics have been weaker than in the past, with average productivity per person employed declining by 0.2% on average per year since the fourth quarter of 2019 compared with average growth of 0.8% per year before the pandemic. The average growth rate of productivity per hour since the fourth quarter of 2019 amounted to 0.2% per year, compared with average growth of 1.2% per year before the pandemic. In the first quarter of 2024 productivity per person employed was 0.7% lower than in the fourth quarter of 2019 and productivity per hour worked was higher by just 0.7% (Chart A).

While the productivity slowdown reflects cyclical factors, structural factors may also have played a role.[1] Productivity is inherently procyclical, rising in booms and falling in recessions. In the euro area, labour market institutions and social preferences give prominence to employment protection over flexibility, as reflected by the job retention schemes put in place during the pandemic, for instance.[2] However, it is not yet possible to assess whether the extensive usage of job retention schemes and the impacts of the rise in energy prices from 2021 will only have a cyclical effect or whether they will add to existing structural weaknesses.[3]

Among the five largest euro area economies, France and Spain stand out as recording the largest decline and the largest increase in productivity per hour worked respectively. In France, labour input, in terms of both hours worked and persons employed, increased about twice as fast as GDP, in part driven by an increase in the number of apprenticeship contracts offered. As new apprentices are on average less productive than experienced workers, this may have contributed to the sharp short-term decline observed in productivity (Chart A). Spain recorded robust growth in labour productivity per hour, in part related to a sharp decline in average hours worked, as productivity growth per person employed was negative. Growth in labour productivity per person employed was negative in all five of the largest economies, except for Italy which recorded a strong increase in average

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[1] See Arce, O. and Sondermann, D., "Low for long? Reasons for the recent decline in productivity", *The ECB Blog*, ECB, 6 May 2024.

[2] The share of firms hoarding labour was significantly elevated during the pandemic and the post-pandemic period. See the box entitled "Higher profit margins have helped firms hoard labour", *Economic Bulletin*, Issue 4, ECB, 2024.

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

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hours worked. Sectoral differences are key to explaining these developments. For example, the construction sector supported productivity growth in Italy, whereas its effect was negative in the other four largest economies.[4] The public sector made a negative contribution to productivity per person in all five countries.

Chart A

Labour productivity growth by country

(cumulative percentage changes Q4 2019-Q1 2024)

- Real GDP
- Total hours worked (inverted scale)
- Employment (inverted scale)
- Productivity per hour
- Productivity per person
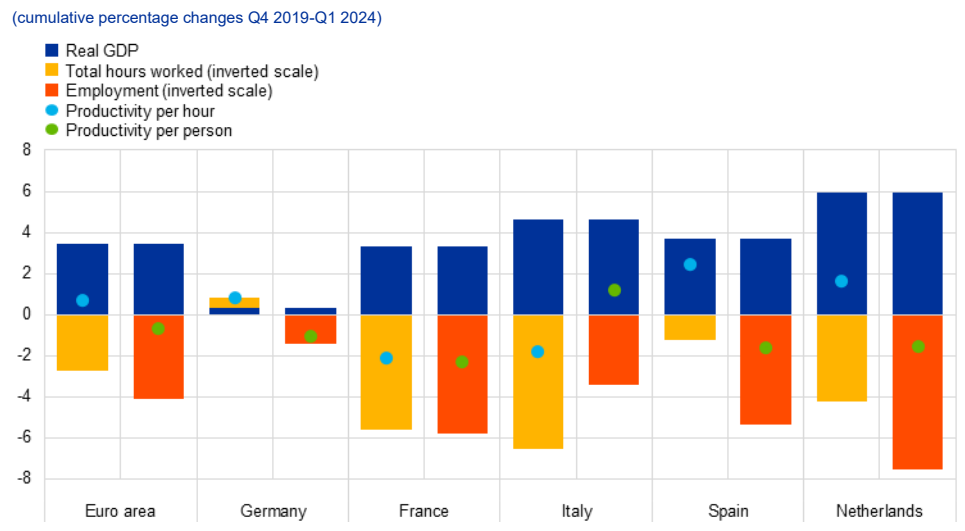
Sources: Eurostat and ECB calculations.

At the euro area level, the slowdown in productivity growth has been broad-based, albeit with differences across sectors.[5] The construction sector stands out as showing the largest cumulative fall in productivity in the period between the fourth quarter of 2019 and the first quarter of 2024, driven by a decrease in gross value added and a large increase in employment and hours worked (Chart B). These two factors together contributed to a decline of about 8% in labour productivity in this sector. In larger sectors, such as trade and transport and the public sector, productivity per person declined, while productivity per hour broadly stagnated.[6] Information and communication technology services recorded a substantial increase in productivity, driven by strong growth in gross value added. However, compared with the change in the four years preceding the pandemic (to use a similar time frame), this sector recorded the most significant deceleration in productivity growth, second only to construction. For some sectors, the four-year period comprises two distinct phases. The manufacturing sector, for example, showed cumulative growth of 3.7% in productivity per person and 5% in productivity per hour worked up to mid-2022. However, the energy price shock helped cause productivity growth to turn negative, which meant that compared with the period before the pandemic, cumulative growth became negative when measured per person and increased by

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[4] The construction sector benefited from a tax support scheme introduced in 2020 to mitigate the economic impact of the pandemic on households and businesses. The scheme allowed homeowners to deduct up to 110% of the cost of renovating their homes from their taxes under certain conditions.

[5] For the sectoral analysis, we use gross value added divided by employment or hours worked, which gives slightly different figures than when GDP is used as a numerator; this can be seen in Charts A and B.

[6] Productivity figures for non-market activities are mainly affected by labour costs. However, the stronger increase in employment creation in relation to gross value added weighed on productivity.

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only 1% when measured per hour worked. Contact-intensive service sectors recorded a 0.3% rise in productivity per person and a 0.7% gain in productivity per hour worked from the fourth quarter of 2019 to the second quarter of 2022. This was followed by a 1.5% drop in productivity per person and a 0.5% decline in productivity per hour worked from the third quarter of 2022 to the first quarter of 2024.

Chart B

Labour productivity growth by sector

(cumulative percentage changes Q4 2019-Q1 2024)
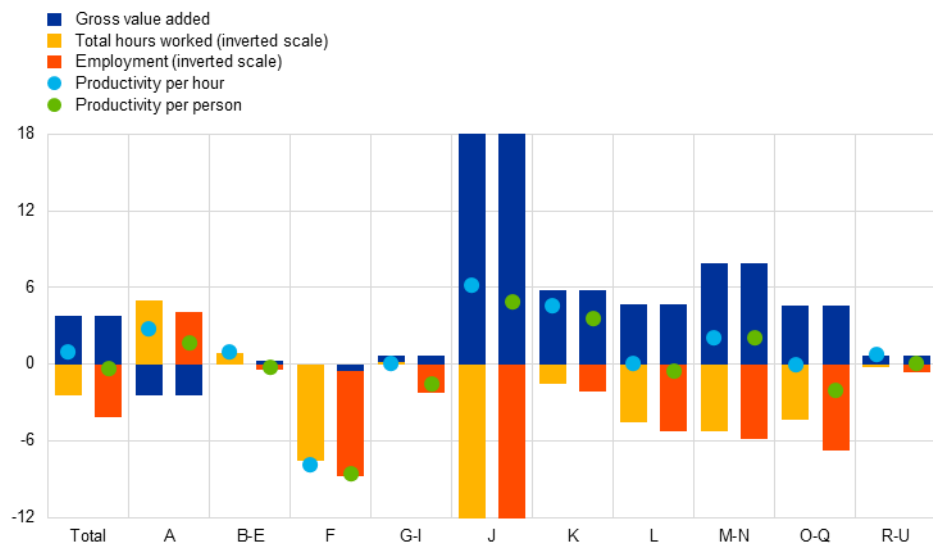
Sources: Eurostat and ECB calculations.
Notes: The NACE Rev. 2 codes on the x-axis refer to the following economic sectors: Total: Total economy; A: Agriculture, forestry and fishing; B-E: Industry; F: Construction; G-I: Trade, transportation and accommodation; J: Information and communication; K: Financial and insurance activities; L: Real estate activities; M-N: Professional, scientific, technical, administrative and support service activities; O-Q: Public service activities; R-U: Arts, entertainment, recreation and other service activities. Data for the Information and communication sector (J) are off scale. The actual values are 23.1% for gross value added, 15.8% for total hours worked and 17.3% for employment.

The weak growth in productivity is the result of declines within sectors rather than a reallocation of labour across sectors. The reallocation of labour from low to high-productivity sectors has had a positive impact on the cumulative change in productivity since the first quarter of 2020. Without this positive effect, labour productivity per hour worked (Chart C, panel a) and per person employed (Chart C, panel b) would have been even lower. However, this positive reallocation effect was outweighed by the negative impact of the pandemic and fell back to close to zero thereafter. Up to the first quarter of 2021, the share of less productive contact-intensive services sectors declined, while the share of high-productivity sectors such as industry, information and communication technology and professional services increased and remained at a higher level during the recovery. Looking at year-on-year changes, the reallocation effect reversed from mid-2021 to mid-2022, reflecting reopening dynamics, and was close to neutral after that. Thus, the pandemic did not induce a substantial structural change in the sectoral composition of the economy: compared with 2019 sector shares have remained broadly stable in terms of both total hours worked and value added.

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Chart C

Shift-share analysis of productivity developments

(year-on-year and cumulative percentage changes Q1 2020-Q1 2024)

- **Within** (blue)
- **Between** (yellow)
- **Total** (orange dot)
- **Residual** (green)

a) Per hour

b) Per person
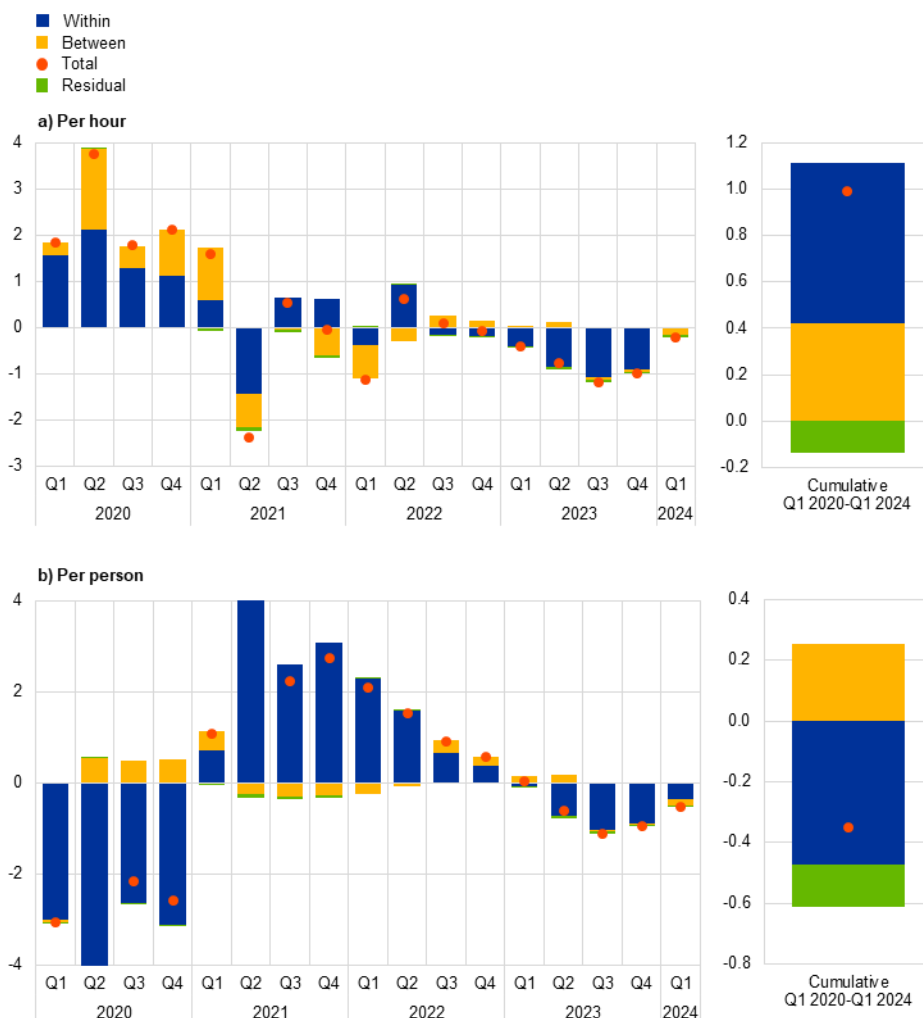
Sources: Eurostat and ECB calculations.
Notes: In panel b), data for the second quarter of 2020 and the second quarter of 2021 are off scale. For the second quarter of 2020 the "within" component was -11.9% and the total change was -11.3%. For the second quarter of 2021 the "within" component was 12.2% and the total change was 11.7%. The calculation follows the shift-share analysis in Denis, C., McMorrow, K. and Röger, W., "An analysis of EU and US productivity developments (a total economy and industry level perspective)", *European Economy – Economic Papers*, No 208, European Commission, July 2004, p. 78.

Overall, the slowdown in productivity is largely the result of adverse shocks affecting GDP growth. The pandemic and the energy price shock have weighed on euro area GDP, which has resulted in a broad-based decline in productivity, given its procyclical nature. Higher profit margins, coupled with lower real wages, strong growth in the labour force and lower average hours worked have all helped support employment growth, while raising procyclicality.[7] As some of these factors unwind, with weakening profits and rising real wages, further improvements in the labour market will become increasingly more difficult to achieve if they are not supported by stronger productivity growth.

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[7] See Arce, O. and Sondermann, D., op. cit.

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3 What do recent surveys reveal about euro area business investment in 2024?

Prepared by Valerie Jarvis and Barbara Schirato

This box assesses the outlook for euro area business investment in 2024 according to recent surveys conducted by the European Commission and the European Investment Bank. Euro area business investment decelerated considerably in 2023 in the wake of the pandemic, the 2022-23 energy crisis and the subsequent tightening of financing conditions in succession. After contracting sharply in the final quarter of 2023, investment ticked up modestly in the first quarter of 2024. The June 2024 Eurosystem staff macroeconomic projections for the euro area point to subdued annual investment growth in 2024, which is broadly in line with the results of the surveys.

The latest Investment Survey from the European Commission suggests muted business investment growth for 2024. The biannual Investment Survey carried out by the European Commission asks firms qualitatively about investment plans for the year and typically tracks annual business investment growth reasonably well. The March/April 2024 reading suggests that, by historical standards (crisis periods aside), investment intentions for 2024 are particularly low in manufacturing, with the balance indicators corresponding to levels normally associated with a stagnation in euro area business investment (Chart A).[1] This sombre outlook was also suggested by S&P's March 2024 Business Outlook Survey, while the Commission's late-2023 survey had previously revealed a marked rise in the share of investment allocated to replacement and rationalisation in recent years.[2,3] At the same time, the share of business investment dedicated to expanding capacity fell to just 20% in manufacturing in 2023 – a historical low and a decline of around 10 percentage points compared with pre-pandemic averages – with a further slight decline expected for 2024 (Chart B). Shares are similar in services, but no historical comparison is possible, as the services sector survey was only launched in 2021.

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[1]   See "European Economic Forecast (Spring 2024)", *Institutional Paper*, No 286, European Commission, pp. 31-32.

[2]   See "S&P Global Business Outlook", *News Release*, S&P, 12 March 2024, which notes that investment plans are likely to remain subdued over the coming 12 months.

[3]   The Commission's late-2023 Investment Survey revealed that in manufacturing, replacement expenditure rose to 36% of total investment in 2023 (and expected in 2024), from typically around 30% in the 20 years before the pandemic, with rationalisation (designed to streamline production) accounting for a further 25% of total investment (as in 1999, having previously trended down over the course of Economic and Monetary Union).

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Chart A

Business investment intentions and non-construction investment

(left-hand scale: balance indicators; right-hand scale: annual percentages changes)

- Manufacturing (right-hand scale)
- Services (right-hand scale)
- Non-construction investment (excluding Irish intangibles)
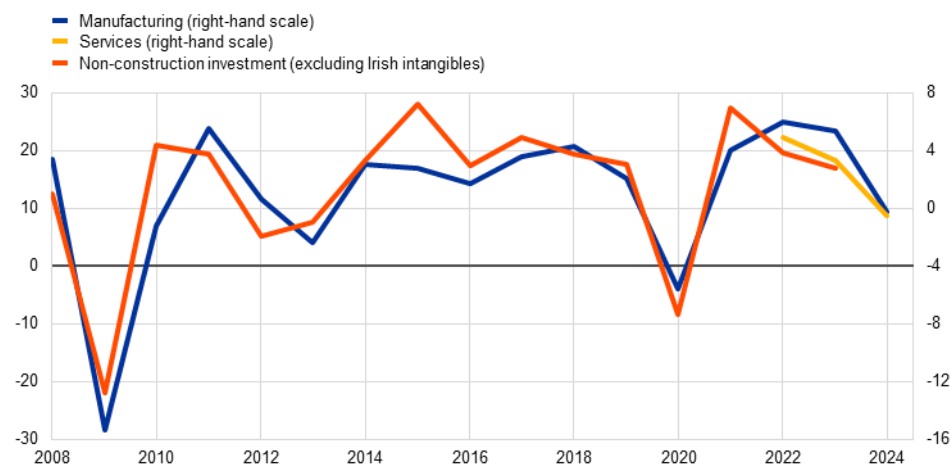
Sources: European Commission, Eurostat and ECB staff calculations.
Notes: Investment intentions using observations from the spring of each year. Non-construction investment excludes Irish intangibles.
The latest observations reflect March/April 2024 investment intentions for 2024 and non-construction investment to 2023.

Chart B

Purpose of investment by sector

(percentages of respondents)

- Manufacturing
- Services
- Pre-pandemic average in manufacturing
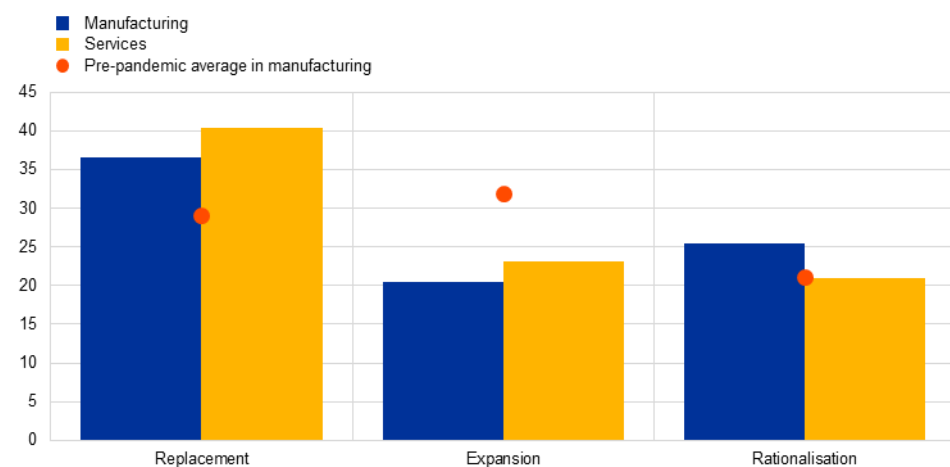
Sources: European Commission and ECB staff calculations.
Notes: Averages are available only for manufacturing (services survey only launched in 2021). The latest observations are for 2023
(taken from the Commission's October/November 2023 Investment Survey).

The euro area aggregate masks considerable cross-country and cross-sector variation. The Commission's euro area averages obscure considerable variation across countries, with investment intentions typically more positive – and revised up since late 2023 – in southern euro area economies, as well as in some newer member countries of the euro area. While recent adverse economic shocks had a less negative impact in countries with a larger services sector, newly disbursed Next Generation EU funds may also already be playing a stronger role in investment in

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southern euro area economies (Chart C, panel a).[4] Cross-sector variation is also considerable across both manufacturing and services, albeit with manufacturing sectors typically exhibiting downward revisions in investment intentions for 2024 since the late-2023 survey, while the pattern remains more mixed in services (Chart C, panel b).

Chart C

Cross-country and cross-sector variation in investment intentions

(balance indicators)

■ Manufacturing
■ Services

a) Cross-country variation
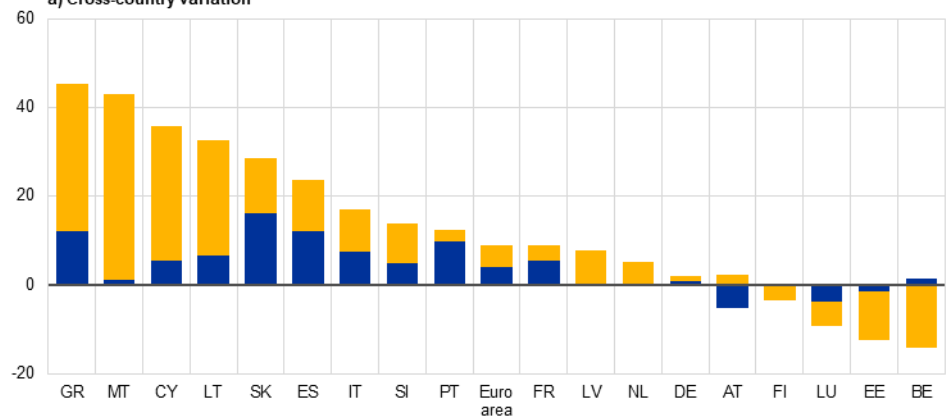
b) Cross-sectoral variation

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4   The recent shocks are likely to have had differing impacts across the countries and sectors. For instance, the pandemic hit (particularly consumer-facing) services hard, while the energy shock and growing geopolitical risks since the start of the decade are likely to have had more of an adverse impact on manufacturing.

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Investment intentions for 2024 are higher in sectors with stronger output expectations and lower in more energy-intensive sectors. Investment intentions tend to be higher in sectors with stronger output expectations (as reflected in the strength of new orders, higher rates of capacity utilisation and higher space and equipment needs at the individual sectoral level). In this context, services typically face markedly brighter prospects than manufacturing, with the exception of the pharmaceutical sector (Chart D, panel a). In the aftermath of the 2022-23 energy crisis, energy intensity is likely to continue to influence investment decisions for some time. This is also suggested by the European Investment Bank's latest Investment Report (EIBIS 2023), where energy costs topped the list of European long-term barriers to investment.[5] Chart D, panel b) shows a negative correlation between sectoral investment intentions and energy intensity – a co-movement that has become notably stronger since the onset of the energy crisis in 2022. While the recent crisis is likely to continue to require additional investment to reduce energy dependence in many sectors, it seems that longer-term viability considerations are increasingly holding back investment in those sectors where energy costs exceed around 10% of total costs.

Chart D

Investment intentions by output expectations and energy intensity

a) By output expectations

(z-scores; balance indicators)

b) By energy intensity

(percentage share of energy in total costs; balance indicators)
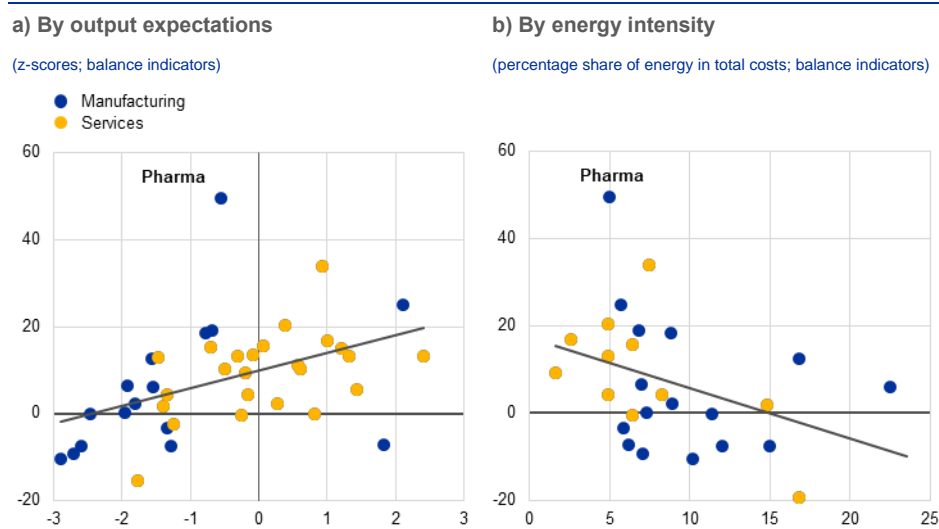
Sources: European Commission, OECD and ECB staff calculations.
Notes: Panel a): Euro area investment intentions for 2024 relative to 2023; output expectations as four-quarter average of new orders in manufacturing and expected demand in next three months in services, all relative to their pre-pandemic averages and standard deviations. Regression lines in both charts relate to all sectors. Panel b): Energy intensity computed using OECD (TiVa) input-output matrices (see the box entitled "Natural gas dependence and risks to euro area activity", *Economic Bulletin*, Issue 1, ECB, 2022). The latest observations are taken from the Commission's March/April 2024 Investment Survey, for the second quarter of 2024 for output expectations and from 2021 data for energy intensities.

In the face of the series of shocks seen since the start of the decade, some business investment is increasingly being directed towards transitioning to a greener, more energy-efficient economy, although further investment will be needed to meet EU targets ahead. EIBIS 2023 reports a notable increase in the share of European firms investing in energy efficiency in recent years and a strong rise in the use of digital technologies across Europe since the pandemic (albeit still

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5   See "Investment Report 2023/2024: Transforming for competitiveness", European Investment Bank, 2024.

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with notable deficits with the United States in the shares of firms using AI and Big Data and in patenting activity related to advanced technologies).[6] Meanwhile, the Commission's latest stock-take suggests much higher rates of investment will be required – amounting to at least an additional 1.5% of EU GDP to be invested annually compared with the decade from 2011 to 2020 – to meet the EU's longer-term carbon neutrality targets.[7] Ongoing needs in these areas provide further scope for increased business investment ahead.

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[6] The EIB notes a marked rise in the share of EU firms investing in energy efficiency (to 51% in 2023 after 37% in 2021) and a significant increase (to 70%) in the share of firms reporting using "at least one advanced digital technology" over the same period (ibid., p. 6). However, the same report also notes that while EU firms continue to play a leading role globally in the adoption of green technologies, bolstered in part by public funds, a significant deficit remains with the United States in terms of the shares of firms using AI and Big Data, and with China and the United States already issuing twice the number of patents for digital technologies each year (ibid, p. 11).

[7] See "Securing our future − Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society", European Commission, 2024, p. 29; the box entitled "Massive investment needs to meet EU green and digital targets", *Financial Integration and Structure in the euro area*, ECB, 2024; and Elderson, F., "'Know thyself' – avoiding policy mistakes in light of the prevailing climate science", keynote speech at the Delphi Economic Forum IX, 2024, on the risk that still further resources may be required, given the current rate of global warming.

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

Prepared by Catherine Elding, Richard Morris and Moreno Roma

This box summarises the findings of recent contacts between ECB staff and representatives of 62 leading non-financial companies operating in the euro area. The exchanges took place between 17 and 26 June 2024.[1]

Contacts reported a gradual pick-up in activity in the second quarter of the year, amid increasing signs of a modest, consumption-led recovery (Chart A and Chart B, panel a). Growth was still led by services, but manufacturing activity was bottoming out and construction was showing first signs of stabilisation. The investment outlook remained subdued, however, with uncertainty remaining high. Growth in the euro area still lagged that in the United States and Asia, but contacts also pointed to weaker than expected growth in China and its consequences for global prices and competition. Within the euro area, growth in southern Europe continued to outpace that in northern Europe.

Chart A

Summary of views on activity, employment, prices and costs

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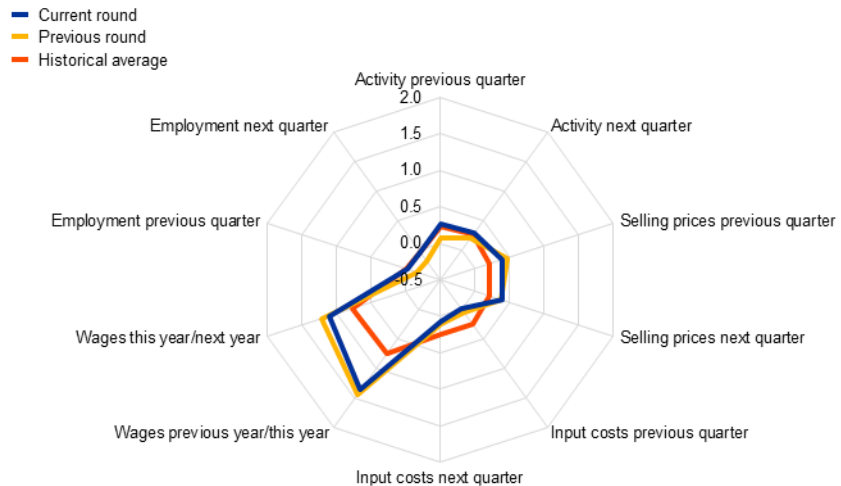
Source: ECB.
Notes: The scores reflect the average of scores given by ECB staff in their assessment of what contacts said about quarter-on-quarter developments in activity (sales, production and orders), input costs (material, energy, transport, etc.) and selling prices, and about year-on-year wage developments.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

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[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.

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Chart B

Evolution of views on developments in and the outlook for activity and prices

(averages of ECB staff scores)
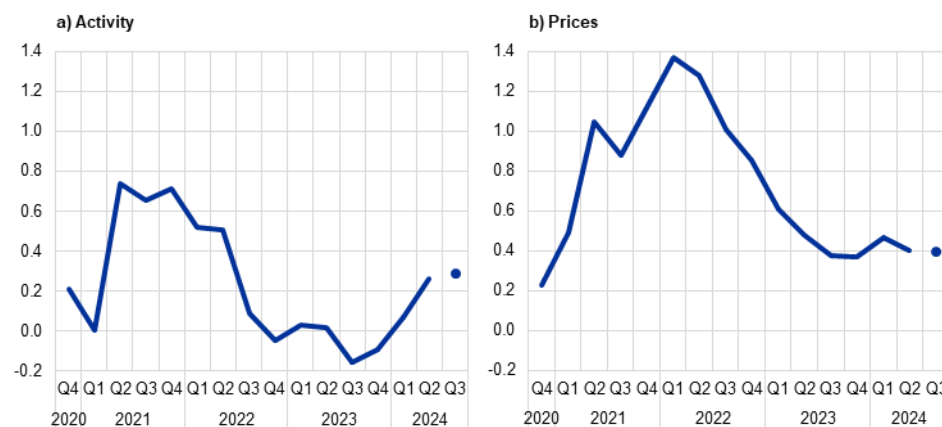
a) Activity

b) Prices

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 dot refers to expectations for the next quarter.

Contacts were slowly becoming more confident that a consumption-led recovery was taking shape, albeit an uneven and modest one. Most retailers described activity – including, notably, sales of clothes and consumer electronics – as stable or growing. Sales of household appliances were still contracting or only starting to bottom out at a low level, but contacts increasingly attributed this to ongoing weakness in residential construction activity. Contacts in the intermediate goods sector mostly reported stable or modestly growing activity, which they increasingly interpreted as reflecting an improvement in consumption dynamics and not just an end to the protracted destocking cycle which had characterised much of last year. Consumer services activity continued to grow steadily, although growth in travel and tourism was limited by supply constraints and increased price-sensitivity among consumers.

The outlook for investment remained subdued. Contacts from firms producing capital goods pointed to still falling demand. They noted in particular that investment was held back by continued uncertainty surrounding the green transition. This was typified by the automotive sector, where growth in sales of electric vehicles had moderated following the removal of most government subsidies, resulting in less investment in the related supply chain. The downsizing of energy-intensive industries also weighed on investment demand. Construction activity was said to be either contracting or reaching a trough, and still affected by the combined effect of higher interest rates and higher input costs. There were, however, more encouraging signals from the real estate sector, where transactions in the secondary housing market were starting to recover. Meanwhile, investment in digital infrastructure and services (including data centres, 5G network technology, artificial intelligence, cloud computing and cybersecurity) continued to grow strongly and remained an important driver of growth in business services activity.

Overall business sentiment was still relatively mixed, against a backdrop of continued uncertainty. In addition to citing regulatory uncertainty, as well as a

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burden of extra paperwork, related to the green transition, contacts expressed growing concerns about EU-China trade relations and about the political situation following the European Parliament elections. This offset to some extent the support that the recovery of real wages and the easing of monetary policy were expected to provide to growth.

Contacts reported a broadly stable employment outlook, which represents a slight improvement compared with recent survey rounds. Most notable in this regard was the feedback from employment agencies, where contacts reported placement activity starting to bottom out or rise again after several quarters of mostly declining business. While contacts in the services sectors generally described a stable or improving employment outlook, the trend in manufacturing was, on average, still slightly negative. Many contacts emphasised efforts to raise productivity through investment in digitalisation and/or artificial intelligence, in response either to wage growth or to labour and skills shortages.

Contacts reported moderate price growth overall and expected this to continue in the following quarter, with price growth still stronger in services than in industry (Chart A and Chart B, panel b). Price growth remained strongest in the business and consumer services sectors, driven by wages and growing demand. In the transport services sector, the rerouting of ships away from the Red Sea area was fuelling an increase in freight rates as capacity was effectively reduced and customers brought forward their orders to compensate for longer delivery times (which also increased inventory costs). In the case of travel and tourism services, by contrast, contacts said that consumers were becoming more price-sensitive; this had already resulted in some downward pressure on air fares and was limiting the scope for further increases in hotel prices. Contacts in the retail sector, where competition was strong and customers remained price-sensitive, tended to report stable or slightly decreasing prices, along with pressure on margins. In manufacturing, the vast majority of contacts described broadly stable or modestly increasing prices. In some intermediate goods industries, such as chemicals and packaging, prices had stabilised or were starting to increase, having previously fallen to very low levels. By contrast, motor vehicle prices were subject to increased downward pressure. Contacts in the manufacturing sector reported relatively stable costs for materials and energy, which in most cases also implied fairly stable margins. One factor helping to moderate prices and costs in the manufacturing sector was weak domestic demand in China, which helped to keep a lid on global commodity prices and increased import competition.

Contacts expected wage growth to continue its gradual moderation next year, while still compensating to some extent for past inflation (Chart C). On the basis of a simple average of the quantitative indications provided, contacts assessed wage growth as slowing from 5.4% in 2023 to 4.3% in 2024 and expected a further decline to 3.5% in 2025. While the fall in headline inflation led many to anticipate that wage growth next year would be more in line with historical norms, others said that unions continued to seek high wage increases to compensate for past inflation. In this context, the anticipated wage growth for 2025 also depended on the timing and size of wage increases that had already been agreed.

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Chart C

Quantitative assessment of wage growth

(percentages)
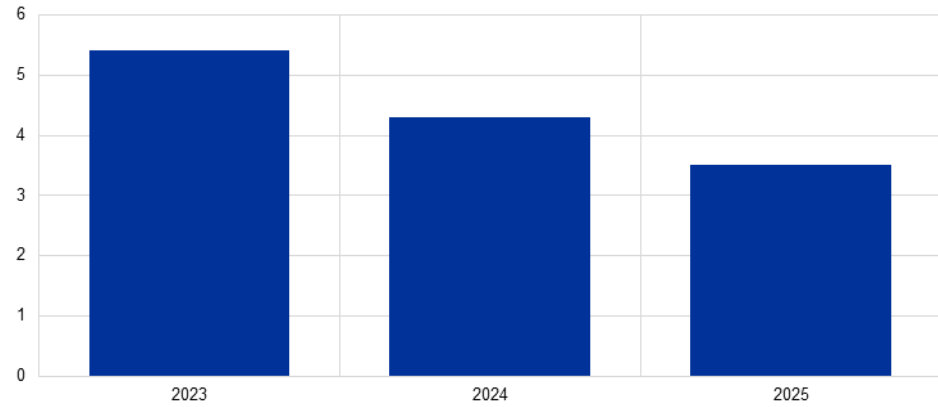
Source: ECB.
Notes: Averages of contacts' perceptions of wage growth in their sector in 2023 and 2024 and of their expectations for 2025. The averages for 2023 and 2024 are based on indications provided by 57 respondents and the average for 2025 is based on indications provided by 47 respondents.

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5   The dynamics of inflation differentials in the euro area

Prepared by Anastasia Allayioti and Anna Beschin

The surge in euro area inflation in 2021 and 2022 came with a sizeable increase in inflation dispersion across countries. Persistent inflation divergences across euro area countries can have implications for the transmission of the single monetary policy. The ECB therefore monitors developments in, as well as the nature of, inflation differentials. This box explores this issue with a focus on the recent inflation surge.

Most of the dispersion in headline inflation rates following the pandemic and Russia's invasion of Ukraine has unwound. Following the low and even negative inflation rates recorded during the pandemic, inflation started to rebound in 2021 and differentials across euro area countries began to increase (Chart A).[1] By the end of 2022 differentials had risen to historical highs, exceeding the peaks observed during the 2007-2008 global financial crisis. When headline inflation peaked at 10.6% in October 2022, inflation rates ranged from 7.1% in France to 22.5% in Estonia. Much of the dispersion measured in terms of standard deviations was accounted for by smaller euro area countries and, in particular, the Baltic States. Scaling the standard deviation outcomes with the relative weights of the countries in the Harmonised Index of Consumer Prices (HICP) (see the red line in Chart A, panel b) reduces the measured dispersion but also highlights how historically exceptional these recent shifts were. Developments between the end of 2022 and June 2024 imply a strong and almost symmetric reversal of dispersion, although some recent fluctuation has taken it slightly above pre-pandemic levels. The overall strong reversal implies that this dispersion pattern is temporary rather than persistent in nature. Moreover, the reversal shows that the sharpest declines in inflation rates were recorded in those countries that had previously seen the strongest surges.

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[1]   Cross-country differentials for the years under examination are calculated on the basis of the euro area's composition at a particular point in time.

Chart A

Headline inflation differentials

a) HICP inflation range

(annual percentage changes)

- Euro area HICP inflation
- Median
- Minimum-maximum range
- Interquartile range
- 10th-90th percentile range
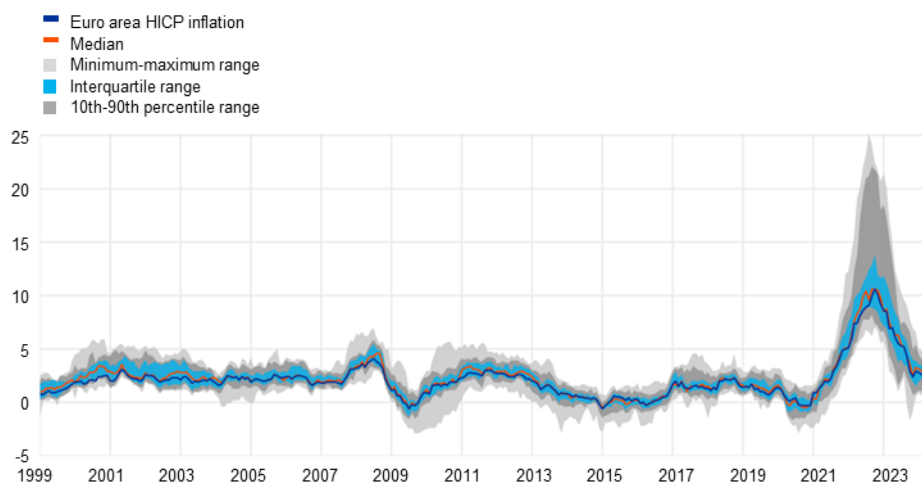
b) HICP standard deviations

(standard deviations)
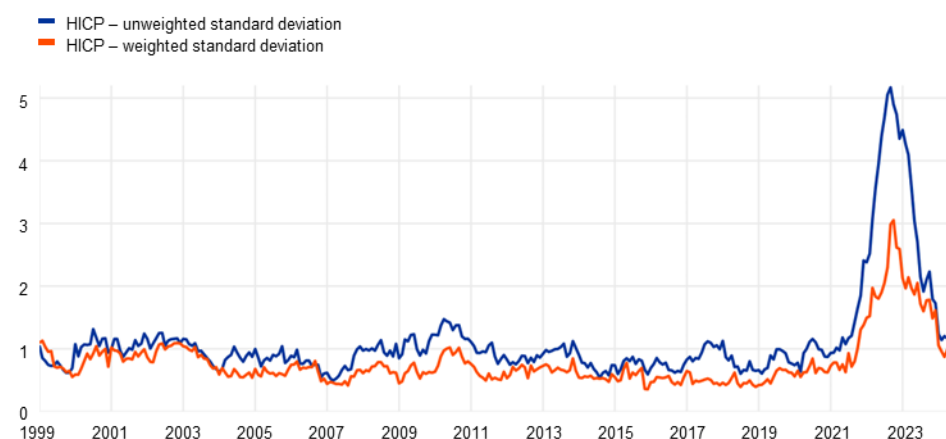
- HICP – unweighted standard deviation
- HICP – weighted standard deviation

Sources: Eurostat and ECB staff calculations.
Notes: The latest observations are for June 2024. In panel b), the weighted standard deviation is computed by considering the country weights (household final monetary consumption expenditure) within the euro area.

Energy and food prices played a significant role in this recent dispersion of headline inflation rates. The pandemic and the war in Ukraine gave rise to a unique combination of common shocks affecting euro area countries. Inflation surged owing to supply bottlenecks, post-pandemic reopening effects and large increases in energy and food commodity prices. While the types of shock were common to all euro area countries, the subsequent dispersion in national headline inflation rates implies varying degrees of exposure to and different economic impacts stemming from those shocks. The dispersion is driven by differences in economic structures, adjustment mechanisms and policy responses. For instance, countries that have a higher share of energy and food in the HICP basket are, in principle, more strongly affected by a common shock in the underlying commodity prices. Differences in energy and food inflation therefore account for most of the headline

inflation dispersion (Chart B, panel a). In the case of energy inflation, this was partly due to differences in countries' energy mixes (for example in fuels, gas and electricity, which contribute the most to HICP energy), contract and consumption patterns, regulatory approaches and government support measures.[2] The dispersion of energy inflation rates around the inflation peak is higher when calculated on the basis of the HICP energy at constant tax rates (Chart B, panel b), indicating a moderating impact of government measures.[3] Dispersion in food inflation peaked later than dispersion in energy inflation, but has since declined substantially, also reflecting, as in the case of energy, the downward trend in global commodities prices since mid-2022.

Chart B
Dispersion of headline inflation and its components across euro area countries
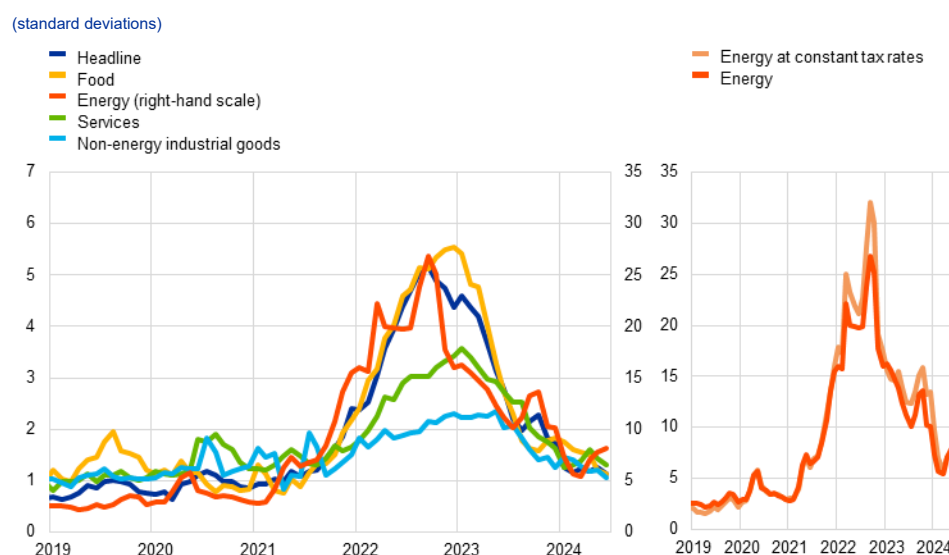
(standard deviations)

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

The dispersion of the subcomponents of core inflation (goods and services) has also been sizeable across countries (Chart B, panel a). Different speeds of reopening and different exposures to supply disruptions following the pandemic are likely to have been behind these divergences. Heterogeneous indirect effects from high energy costs may have been another factor. Dispersion in non-energy industrial goods inflation has been consistently the lowest among all HICP subcomponents since mid-2021. This may be because this subcomponent reflects the prices of internationally traded goods such that the determinants of the dispersion are more homogeneous across countries. By comparison, dispersion in services inflation was visibly higher. It is likely that this reflects differing developments in many services

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[2]   The introduction and eventual withdrawal of energy and inflation compensatory fiscal measures has not been homogeneous across countries. Most recently, changes across the largest five euro area countries have included the expiry of VAT reductions on different energy components (Germany, Spain and Italy), the reversal of reductions in excise taxes and system charges (Spain, Italy and the Netherlands), the expiry of a cap on regulated gas price increases (Spain) and a decrease in the support measures for the electricity price shield (France).

[3]   The impact of indirect taxes likely understates the overall impact of government measures on differentials in energy inflation, as some measures took the form of subsidies to households or regulated prices (and also price caps).

items, such as travel, rent and some administered prices, owing, for example, to heterogeneous indirect effects from energy or food prices, and different weights across countries. By June 2024 dispersion had fallen back to pre-pandemic levels for both non-energy industrial goods inflation and services inflation. While for goods this implies more alignment around historical average levels of inflation, in the case of services it means alignment around a still elevated level. A reduction in the dispersion would therefore be compatible with the notion that, across countries, common factors are driving the persistence of services inflation.

Elevated inflation differentials during the surge in inflation did not by and large result in substantial changes in the overall relative price levels between countries. While the surge in inflation and its unwinding in recent years have not had a lasting impact on inflation differentials, this does not rule out more persistent implications for relative national price levels and living costs and, ultimately, for the relative competitiveness of some countries vis-à-vis their euro area peers. An important indicator for this type of assessment is the price level index (PLI) published by Eurostat.[4] Focusing on the years since 2020 and the large swings in inflation recorded, it appears that the surge in inflation has not led to substantial changes in relative price levels for most countries (Chart C). However, considerable increases are observed for some of the smaller countries, such as the Baltic States between 2021 and 2023, when the cost of living saw an upward adjustment relative to the euro area-wide price level. This upward adjustment edged up somewhat further in 2023, although inflation dispersion was already decreasing. Upward adjustments, albeit of smaller scale, are also observed for the other central and eastern European (CEE) countries, Croatia, Slovenia and Slovakia.[5] Among the larger euro area countries, inflation developments hardly had any impact on the relative price level, which rose slightly in the case of Germany and the Netherlands but declined somewhat for Spain, France and Italy. In many countries, energy and food had the opposite effect on the movement of the overall relative price level between 2021 and 2023, but for the Baltic States both components operated in the same upside direction (Chart D). In the case of France, energy and food both contributed to a decline in the relative overall price level compared with that of the euro area.

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4   PLIs are published with a lag. The latest available data are those for 2023, published in June 2024. For euro area countries (which share a common exchange rate), PLIs measure the difference in price levels between countries for the same (basket of) goods or services. The average is indexed to 100: if the PLI is higher than 100, the country concerned is relatively expensive compared with the euro area, but if the value of the index is below 100 the country is relatively cheap. For methodological information, see the web page on purchasing power parities on Eurostat's website.

5   This considerable relative adjustment of price levels for the Baltic States and some other CEE countries is also visible in HICP data. Compared with 2019, their indices of headline HICP in 2023 were approximately 5-15% higher than the euro area aggregate index. On balance, data for the first half of 2024 broadly confirm the relative adjustment observed by 2023.

Chart C

Comparative price levels across the euro area

Household total consumption expenditure

(price level index; euro area = 100)
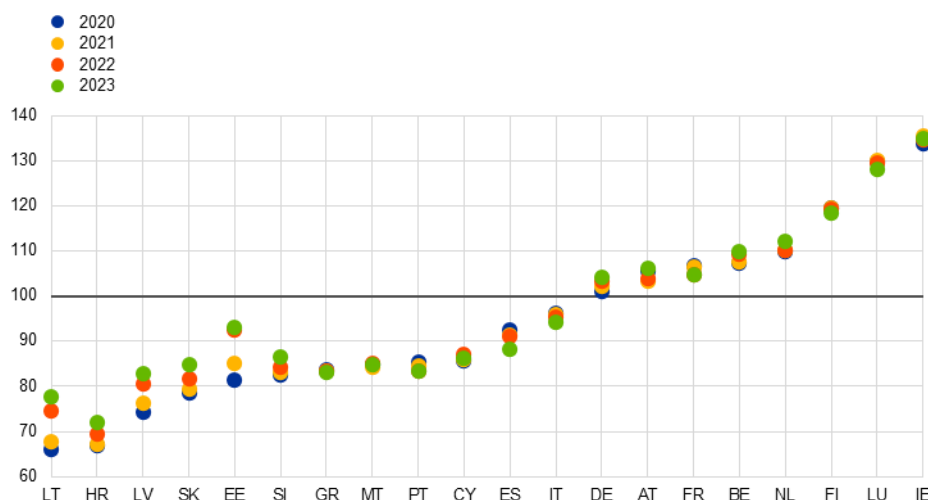
- 2020
- 2021
- 2022
- 2023

Source: Eurostat.
Note: Countries have been sorted in ascending order on the basis of their 2020 PLI.

Chart D

Changes in comparative price levels between 2021 and 2023 across the euro area

(point changes in price level index)

- Household final consumption expenditure
- Energy
- Food
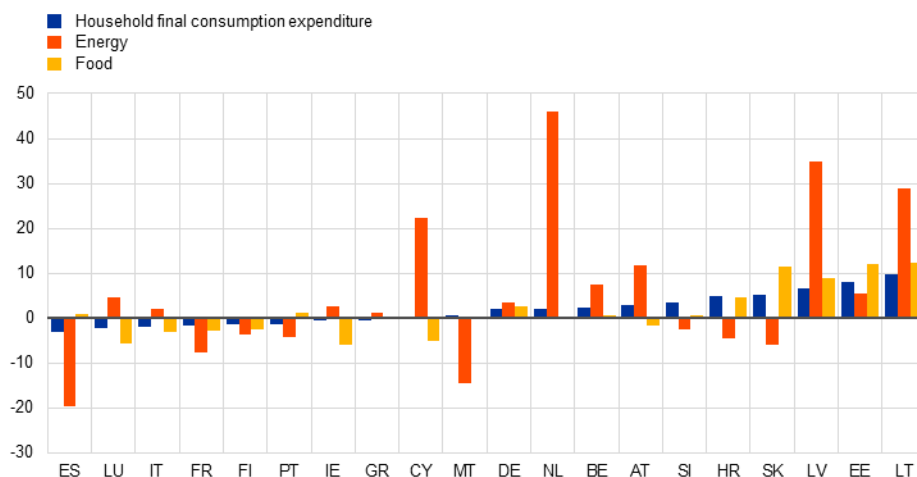
Sources: Eurostat and ECB staff calculations.

Summing up, euro area inflation differentials rose sharply in the aftermath of the pandemic and the energy crisis but have since largely returned to pre-pandemic levels. Cross-country differences in energy and food inflation were the main drivers of both the increase in and the recent reversal of overall inflation dispersion, reflecting the fact that the initial commodity price shock has, to a large extent, been absorbed. At the same time, it appears that the temporarily high dispersion of inflation across countries will, for some of the smaller euro area countries, have more persistent implications in terms of an upward adjustment in their relative price levels.

6 Selling price expectations for services: what do they tell us about consumer price pressures?

Prepared by Elena Bobeica, Joan Paredes, Théodore Renault and Flavie Rousseau

Recent surveys of selling price expectations of firms point to price dynamics that have substantially moderated after the recent large inflationary shock, albeit with a more sluggish adjustment for services than for goods (Chart A). Firms play a crucial role in the price formation process, so their expectations about selling prices can be important indicators of consumer price dynamics.[1] This box focuses on the information content of selling price expectations of the euro area services sector compiled by the European Commission, which comprises selling price expectations of firms in both business-to-consumer and business-to business domains.[2] Expectations for selling prices in services currently point to price dynamics that have significantly come down compared with those during the inflation spike, but their easing has been less complete than that of the corresponding expectations in manufacturing.

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[1] For the euro area there are three key sources of information on firms' selling price expectations: (i) the European Commission (DG ECFIN) business and consumer surveys (BCS); (ii) the survey on the access to finance of enterprises (SAFE); and (iii) information collected in the context of the ECB's quarterly dialogue with non-financial companies.

[2] The data cover services linked to transportation, accommodation and food, information and communication, and real estate, as well as financial, professional, administrative and miscellaneous services. The question asked by the European Commission on selling price expectations is qualitative and reads: "How do you expect your selling prices to change over the next 3 months? They will increase, remain unchanged or decrease".

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Chart A

Recent developments in three-month ahead selling price expectations in the euro area and HICP sectoral inflation

a) Services

(left-hand scale: annual percentage changes; right-hand scale: response balances)

- HICP services
- Services expectations

b) Manufacturing

(left-hand scale: annual percentage changes; right-hand scale: response balances)

- HICP NEIG
- Manufacturing expectations
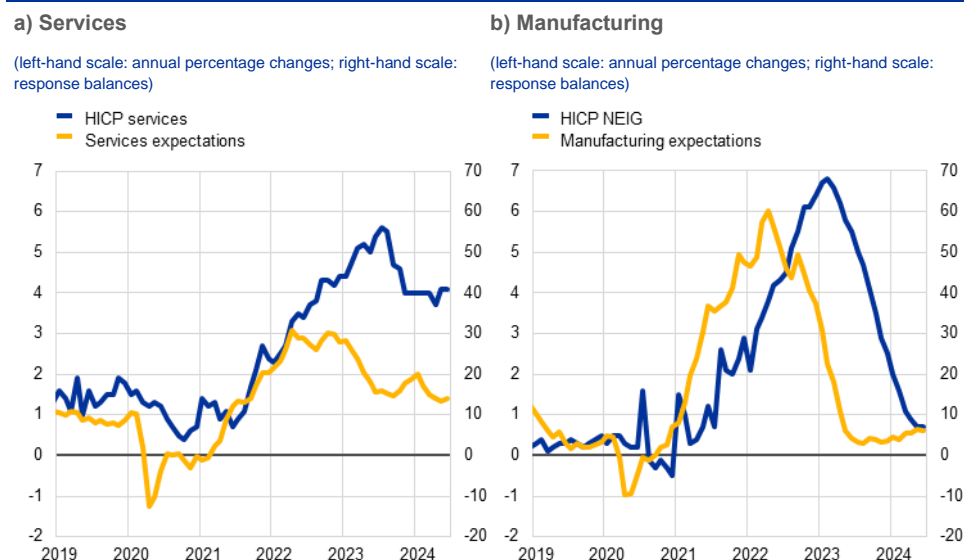
Sources: European Commission (DG-ECFIN) and Eurostat.
Notes: The latest observations are for June 2024.

Services selling price expectations are worth monitoring for early signs of turning points in consumer services inflation. When it comes to more visible swings, turning points in European Commission selling price expectations for services tend to occur earlier than those in HICP services (Chart B). In the case of the most recent peak, this lead amounted to ten months. This reflects the fact that these survey measures tend to quickly capture the impact of supply-side shocks and their subsequent dissipation, as they are forward-looking and reflect pricing practices earlier in the pricing chain.[3]

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[3] Producer prices in services could be an additional information source of inflationary pressures earlier in the pricing chain, but they are available only at a quarterly frequency, starting from the first quarter of 2021, and are published with a lag. This implies that an analysis of pipeline pressures from producer to consumer prices has less relevance in the case of services and suggests that it is worth looking at the direct link between selling price expectations and consumer prices.

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Chart B

Turning points in HICP services and European Commission selling price expectations

(left-hand scale: annual percentage changes; right-hand scale: balances of responses)
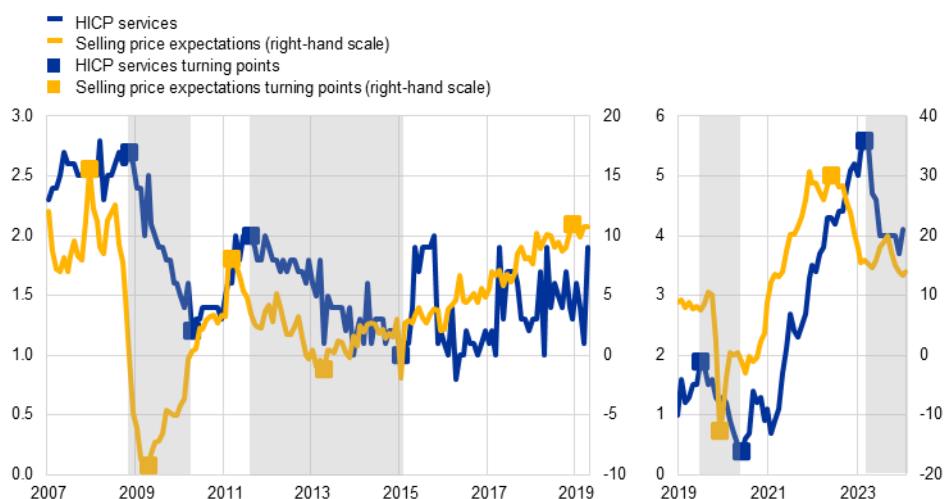
Sources: European Commission (DG-ECFIN), Eurostat and ECB calculations.
Notes: Shaded areas show downturns for services inflation. The turning points are identified using a modified Bry and Boschan algorithm (see Bry, G. and Boschan, C., "Programmed Selection of Cyclical Turning Points", in Bry, G. and Boschan, C. (eds.), *Cyclical Analysis of Time Series: Selected Procedures and Computer Programs*, National Bureau of Economic Research, 1971, pp. 7-63). The latest observations are for June 2024.

Leading indicator properties of selling price expectations in services were particularly evident during the recent inflation surge. In a simple forecasting exercise, Chart C compares actual HICP services inflation for the euro area with real-time three-month ahead forecasts based on a standard bi-variate Bayesian vector autoregression (BVAR) model including services inflation and the European Commission selling price expectations for services. Up to the start of the inflation spike, the BVAR forecasts are very similar to those of a naïve autoregressive (AR) process of HICP services inflation, but they are closer to actual data thereafter. The same applies across services sectors, as illustrated by the box plots in Chart C which show the relative root mean squared errors (RMSEs) of three-month ahead forecasts based on the bi-variate sectoral BVAR with HICP data and selling price expectations relative to those based on a naïve autoregressive (AR) process. Covering 16 subsectors of services, as well as total services (red dots), the charts suggest that – when adding post-pandemic observations – expectations exhibited clearer leading properties. RMSEs are more markedly below one, especially for total services, indicating that expectations add forecasting power relative to the naïve benchmark.

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Chart C

Forecasting properties of selling price expectations for total services inflation and across sectors

a) Total services inflation

(annual percentage changes)

b) RMSE for total services and subsectors

(RMSE ratio BVAR/AR)
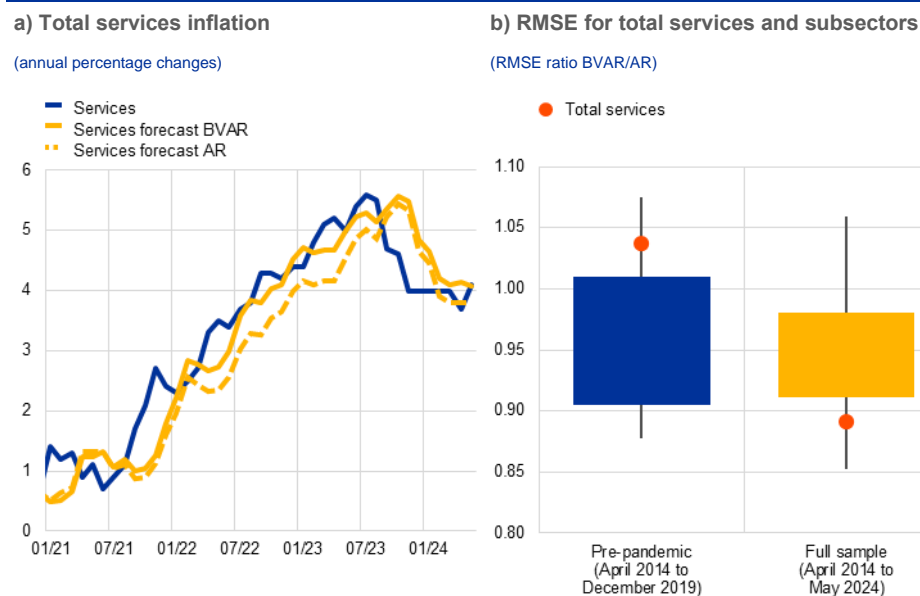
Sources: European Commission (DG-ECFIN), Eurostat and ECB calculations.
Notes: The out-of-sample forecasts were produced recursively (expanding window) using the BEAR toolbox considering 12 lags and standard priors. For the services sector, the sample period spans from January 1992 to May 2024. However, for the sub-sectors, the sample periods vary, depending on data availability. The evaluation sample of the three-month ahead forecasts is the same for all and starts in April 2014 due to data availability. The RMSE is calculated for two distinct periods: the pre-pandemic period from April 2014 to December 2019 and the full sample period from April 2014 to May 2024. The European Commission's granular data, classified according to NACE, were matched with HICP COICOP data, yielding 16 matched sectors with sufficiently long historical data. The relative RMSE is expressed relative to an AR benchmark; a number lower than 1 shows that the BVAR including expectations is superior to an AR process.

The predictive power of European Commission selling price expectations for total HICP services inflation appears to be highly non-linear, according to a machine learning model. A quantile regression forest (QRF) model can capture a general non-linear relationship between euro area HICP services inflation and a large set of determinants.[4] The contribution of selling price expectations towards explaining the three-month-ahead annual inflation rate for total services was limited before the pandemic but increased in a non-linear way afterwards (Chart D, panel a). In fact, the QRF model exhibits a threshold effect for selling price expectations, i.e. a level from which their contribution towards explaining services inflation jumps suddenly. This non-linearity might be related to this survey variable being indicative of the frequency of price adjustments (given the specific phrasing of the underlying questions), which increased and became highly relevant during the high inflation episode. Before the inflation surge this indicator was, on average, ranked 13th in explaining future inflation, while it currently ranks fifth (Chart D, panel b).

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[4] QRF estimates and dataset follow Lenza, M., Moutachaker, I. and Paredes, J., "Density Forecasts of Inflation: A Quantile Regression Forest Approach", *Working Paper Series*, No 2830, ECB, 2023. European Commission services selling price expectations were added to the original dataset.

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Chart D

Contribution of European Commission services selling price expectations towards explaining services inflation

a) Contribution of selling price expectations to annual services inflation three months ahead

(x-axis: services selling price expectations, balances of responses; y-axis: percentage point deviations of services inflation contribution from mean)
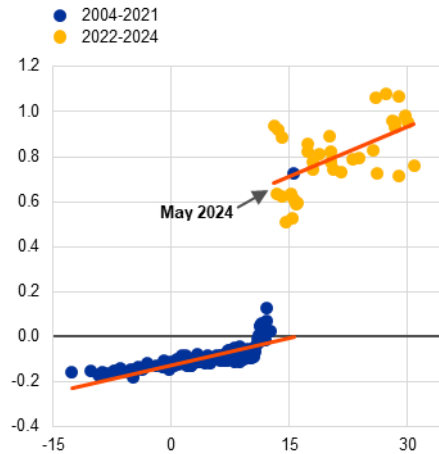
b) Ranking of selling price expectations in explaining annual services inflation three months ahead (out of 60 variables)

(ranking)
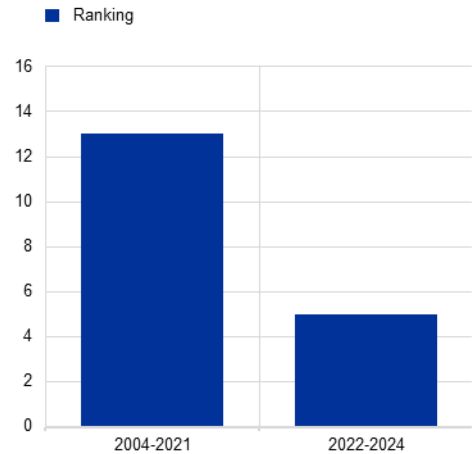
Sources: European Commission (DG-ECFIN), ECB and ECB calculations
Note: "2004-2021" is from 2004 to September 2021; "2022-2024" is from October 2021 to May 2024.

Overall, selling price expectations for services do hold some predictive power for HICP services, which is more visible around turning points and when inflation is high. Data on selling price expectations for services can be used to gauge inflationary pressures earlier in the pricing chain, given the data limitations on producer prices for services. Such survey data can be indicative at times of major turning points and may exhibit non-linearities. During the recent inflation surge, selling price expectations helped forecast HICP services inflation, but this non-linearity in predictive power is likely diminishing as inflation normalises.

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7 The return on capital and its determinants in recent times

Prepared by John Hutchinson and Arthur Saint Guilhem

Since the peak of real interest rates in the 1980s, the divergence between the returns on capital for production and on safe assets has increased. Understanding this trend is of interest, given the potential implications for investment. The return on capital for productive purposes is an important investment metric. Given that the risk-free rate serves as an opportunity cost for investing in productive capital, a persistent wedge may suggest that investors are hesitant to allocate resources to projects perceived as riskier, thereby leading to inefficient capital allocation and underinvestment. Such a situation poses risks to the substantial investment needed to advance the green transition. This box examines what might account for this wedge, finding that a higher risk premium is the main factor, but rising economic rents also play a role.

Estimating the return on capital involves various assumptions, particularly concerning financial assets and the role of the housing sector in the capital stock. Additional considerations relate to calculating capital income and whether the total economy should be included or just the productive sectors. As a result, different approaches can be taken.

This box uses a comprehensive measure: the pre-tax real return on capital for the whole economy.[1] This measure is computed as net domestic income less total compensation divided by the net capital stock. Since the 1990s the measure has fluctuated within a relatively narrow range in both the euro area and the United States, with a slight upward trend observed in the United States.[2] The return on capital has also consistently been higher in the United States than in the euro area. The wedge is computed as the difference between the return on capital and the real risk-free rate, which for the purpose of this box is defined as the three-month EURIBOR (for the euro area) or the Treasury bills rate (for the United States) minus one-year-ahead inflation expectations.

The growing wedge between the return on capital and the risk-free rate peaked during the pandemic in both the euro area the United States, before narrowing during the recent rate tightening cycle. The relatively stable return on capital contrasts sharply with the long-term decline in the real return on safe assets. The wedge further increased significantly and reached its maximum during the recent inflation surge (Chart A). The subsequent monetary policy response and decline in

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[1] While the tax component is an economically relevant factor in firms' investment decisions, there is an absence of harmonised data on after-tax returns.

[2] There is some debate that the stock of intangible assets may be underestimated in the national accounts and that this could lead to the return on capital being overestimated. A back-of-the-envelope calculation, assuming a 50% underestimation of intangible assets, indicates that the impact on the return on capital would remain limited (at less than 1 percentage point). These findings echo those in Farhi, E. and Gourio, F., "Accounting for Macro-Finance Trends: Market Power, Intangibles, and Risk Premia", Brookings Papers on Economic Activity, Fall 2018, pp. 147-250.

inflation expectations have led to an increase in the real risk-free rate, thereby narrowing the wedge between it and the return on capital.

Chart A

Wedge between the return on capital and risk-free rates in the euro area and the United States

(percentages)

■ Real return on capital
■ Real risk-free rate
□ Wedge

a) Euro area
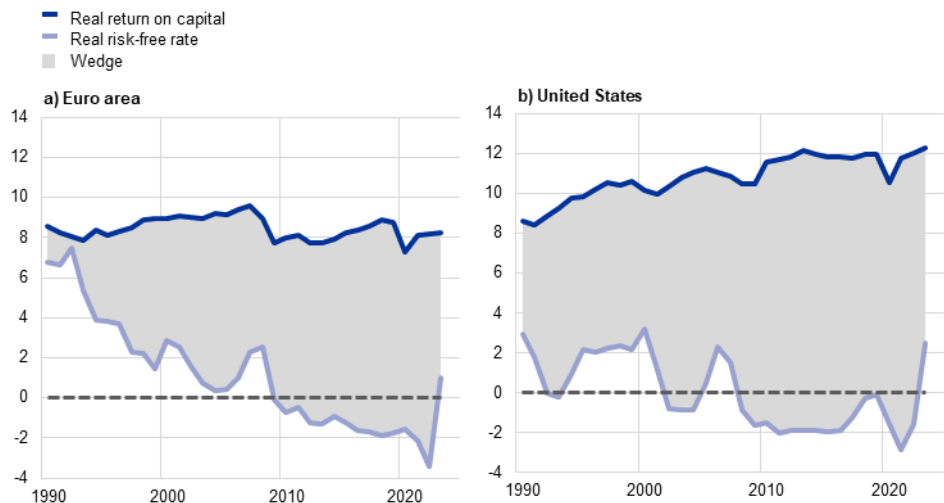
b) United States

Sources: AMECO database, Federal Reserve Economic Data (FRED) database, Area-Wide Model (AWM) database, Consensus Economics and ECB calculations.
Notes: Real return on capital is the pre-tax return in the euro area and the United States. Real rates are computed as the difference between the three-month EURIBOR or the Treasury bills rate and one-year-ahead inflation expectations. The latest data are for 2023.

To analyse the factors underlying this wedge in the euro area, we employ an accounting framework proposed by Caballero, Farhi and Gourinchas which links the evolution of the wedge to developments in four key economic variables: the labour share; the risk premium; the expected capital loss; and mark-ups.[3] The labour share can be observed and is taken as the adjusted wage share from the European Commission's AMECO database.[4] From the wage share and the output elasticity to capital, we can infer a measure of the average goods mark-up – a proxy for economic rents in this framework, which is inversely proportional to the labour share. The real average return on capital is defined as the ratio of real capital income to the stock of capital, net of depreciation. The capital risk premium is then estimated as the return on capital exceeding the risk-free interest rate, accounting for depreciation, rents and expected capital losses due to the price of investment declining over time. In this exercise we adopt a Cobb-Douglas production function instead of a constant elasticity of substitution (CES) production

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[3]   See Caballero, R.J., Farhi, E. and Gourinchas, P-O., "Rents, Technical Change, and Risk Premia: Accounting for Secular Trends in Interest Rates, Returns on Capital, Earning Yields, and Factor Shares", *American Economic Review*, Vol. 107(5), May 2017, pp, 614-620. To date only a small number of studies have examined the factors behind this wedge. See also Daly, K., "A Secular Increase in the Equity Risk Premium", *International Finance*, Vol. 19(2), Summer 2016, pp. 179-200; Hutchinson, J. and Saint Guilhem, A., "The wedge between the return on capital and risk-free rates", *Eco Notepad*, Banque de France, February 2019; and Marx, M., Mojon, B. and Velde, F.R., "Why have interest rates fallen far below the return on capital?", *Journal of Monetary Economics*, Vol. 124(S), November 2021, pp. 57-76.

[4]   The adjusted wage share is computed as total compensation (adjusted for total employment) over nominal GDP.

function. This approach implies that changes in the labour share are attributed to changes in mark-ups and that capital-augmenting technology does not play a role.[5]

Using data for the euro area and the United States, this framework is calibrated to match the observed wedge between the pre-tax return on capital and the risk-free rate between 1990 and 2023 (Chart B). Since around the mid-2000s, the wedge has increased in both jurisdictions. In the euro area, this increase can be attributed predominantly to the risk premium, especially since the pandemic, while the contribution from mark-ups, though significant throughout the various periods, has somewhat declined. The shift in the latter may reflect the impact of labour and product market reforms implemented in the euro area following the global financial crisis and the euro area sovereign debt crisis. In the United States, the rise was primarily due to the increase in the risk premium and, to a lesser extent, increased mark-ups. The wedge and the factors accounting for it using this framework are largely unchanged in the United States since the start of the pandemic. The observation that a considerable proportion of the wedge in the United States is due to mark-ups aligns with empirical studies indicating a rise in mark-ups over the last 30 years in the United States.[6]

Chart B

Decomposition of the wedge between the return on capital and risk-free rates

(percentage points)
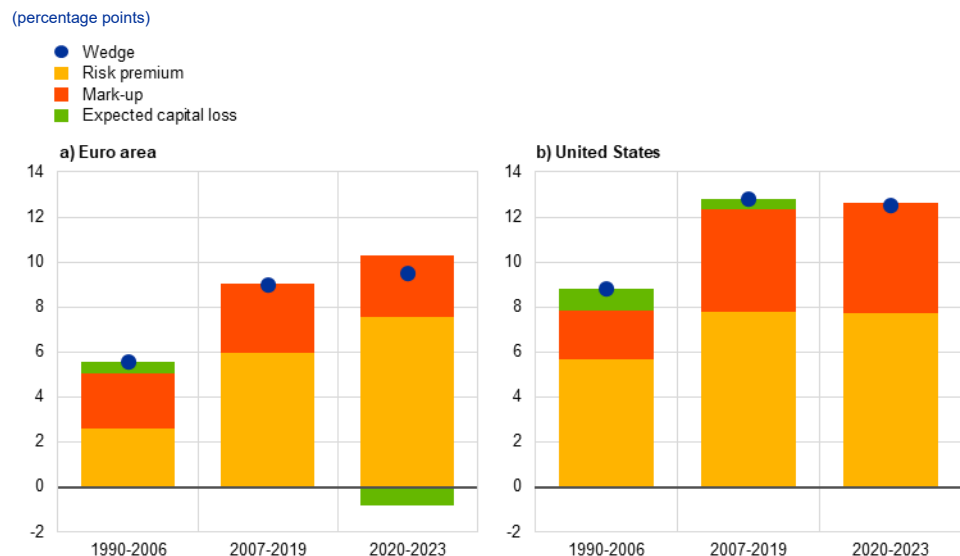
Sources: AMECO database, FRED database, AWM database, Consensus Economics and ECB calculations.

The rise in the risk premium in the euro area since the pandemic can be attributed to heightened uncertainty arising from the pandemic and geopolitical developments as well as to a longer-term trend of increased demand for safe assets and reduced supply, which has lowered the risk-free

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[5]   While not reported, a CES production function was also used as a comparison and the main results still held.

[6]   Studies show that the increase in mark-ups is driven by the upper tail of the mark-up distribution. See, for instance, De Loecker, J., Eeckhout, J. and Unger, G., "The Rise of Market Power and the Macroeconomic Implications", *The Quarterly Journal of Economics*, Vol. 135, Issue 2, May 2020, pp. 561-644.

rate while leaving returns on risky assets unaffected. Taking a longer-term perspective, the significant rise in the risk premium from around 2000 may reflect increased demand for safe assets, exacerbated by post-crisis regulatory changes and a general decline in the supply of safe assets. These factors have progressively reduced the net supply of safe assets, thereby pushing down the risk-free rate while leaving the return on risky assets unaffected.[7,8] Other factors, such as demographics and low productivity, have been identified as drivers of the secular decline in risk-free rates, but their effect on the wedge is somewhat unclear.

This persistent wedge can be viewed as an indicator of inefficiencies in capital allocation. Elevated returns on capital may deter firms from undertaking investment projects, particularly those that are younger and exhibit higher productivity, thereby impeding economic growth. Facilitating improved access to capital financing could mitigate this wedge, thereby fostering investment and advancing the green transition.

For the euro area, further financial integration, such as the completion of the capital markets union could help reduce the risk premium by reducing financial fragmentation, increasing portfolio diversification and enhancing market efficiency, thereby boosting lacklustre investment and supporting the green transition in the euro area. The investment needed for the euro area to meet its "Fit for 55" commitments are substantial. While some of these investment needs could be met through carbon taxes, significantly more investment will be required to achieve the necessary levels.[9]

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[7] See Caballero, R.J., Farhi, E. and Gourinchas, P.O., "Safe Asset Scarcity and Aggregate Demand", *American Economic Review*, Vol. 106(5), May 2016, pp. 513-518; and Ferreira, T.R.T. and Shousha, S., "Determinants of global neutral interest rates", *Journal of International Economics*, Vol. 145, November 2023.

[8] It should be noted that recent estimates of equilibrium real interest rates have slightly increased. See, for instance, the box entitled "Estimates of the natural interest rate for the euro area: an update", *Economic Bulletin*, Issue 1, ECB, 2024.

[9] For some quantitative estimations, see the article entitled "The macroeconomic implications of the transition to a low-carbon economy", *Economic Bulletin*, Issue 5, ECB, 2023.

8 Ageing cost projections – new evidence from the 2024 Ageing Report

Prepared by Edmund Moshammer and Joachim Schroth

This box analyses the projections produced over the last 15 years for costs in euro area countries related to the ageing population, using new evidence from the recently released 2024 Ageing Report. This report[1], which was published on 19 April 2024, is the latest in the series of reports prepared every three years by the Ageing Working Group of the Economic Policy Committee, which supports the work of the Council of the European Union. It provides projections of public spending related to the ageing population for EU Member States over the period 2022-70.[2] Its findings are a key input into long-term fiscal sustainability analyses produced by the European Commission and the ECB. The projections are also an important element in the implementation of the reformed EU fiscal framework. This framework came into effect at the end of April 2024 and puts greater emphasis on the need for governments to address risks to fiscal sustainability.

The 2024 Ageing Report projects ageing-related fiscal costs in the euro area, expressed as a share of GDP, to increase from 25.1% in 2022 to 26.5% in 2070. Developments in ageing costs differ across countries owing to their different starting positions, for example in terms of population structure and regulatory environments (Chart A).[3] Nine countries are estimated to see increases of over 4 percentage points, while six countries are projected to experience a decline in costs. The increase in total ageing costs for the euro area is seen to be mainly the result of increasing pension costs, and, to a lesser extent, healthcare costs and long-term care costs. Education costs are projected to decrease slightly in all countries. When comparing the intervals 2022-2045 and 2022-2070, the timing of increases in ageing costs is foreseen to be very different across countries. Generally, such long-term projections entail a large degree of uncertainty. By way of an illustration, in a risk scenario which assumes for health care and long-term care a higher demand elasticity and a cross-country convergence of costs and coverage, the report estimates that in the euro area ageing-related costs could increase by 4.0 percentage points by 2070, compared with a 1.4 percentage point increase estimated in the baseline projections.

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[1] See "2024 Ageing Report: Economic & Budgetary Projections for the EU Member States (2022-2070)", *European Economy – Institutional Papers*, No 279, European Commission, April 2024."

[2] For an analysis of the underlying demographic assumptions, see the box entitled "EUROPOP2023 demographic trends and their euro area economic implications", *Economic Bulletin*, Issue 3, ECB, 2023.

[3] For instance, 13 euro area countries have automatic adjustment mechanisms that affect pension benefits or that link retirement ages to life expectancy.

Chart A

Changes in total ageing costs and their components

(percentage points; 2022-2070)

- Pensions
- Health care
- Long-term care
- Education
- Total ageing costs 2022-45
- Total ageing costs 2022-70
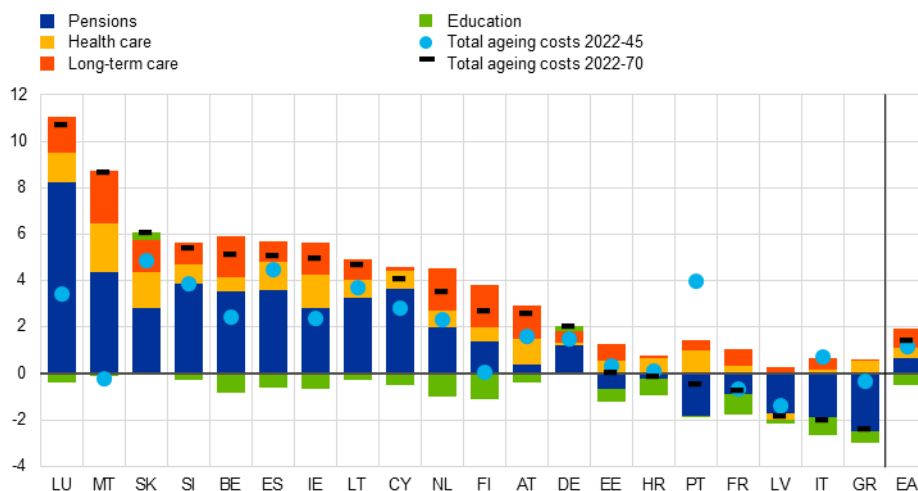
Sources: 2024 Ageing Report and ECB calculations.
Note: Total ageing costs are expressed as a share of GDP.

Compared with the previous projections published three years ago, euro area ageing-related costs are estimated to be 0.3 percentage points higher by 2070.
This reflects upward revisions to ageing-related fiscal costs in ten euro area countries and downward revisions in ten other countries. The largest upward revisions are for Spain where expenditure is estimated to be 7 percentage points higher by 2070, in part owing to a partial reversal of the 2011 and 2013 Spanish pension reforms, and for Cyprus where expenditure is seen to be 6 percentage points higher. Conversely, for Slovakia, expenditure in 2070 has been revised down by 4 percentage points and the projected cost increase from 2022 to 2070 has been revised down to 6 percentage points, following a pension reform in 2022.

Taking a longer-term perspective by looking at the Ageing Reports published since 2009, some notable patterns emerge (Chart B). A positive development evidenced in the latest report is that only two countries are assessed to see ageing-related public spending increase by more than 6 percentage points over the forecast horizon.[4] In the earlier reports, twelve countries crossed that threshold. However, most countries are still projected to see a significant increase in costs. Only seven countries show stable or declining trajectories with an increase in spending of less than 1 percentage point of GDP, while in the 2015 Ageing Report nine countries were in this group.

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[4]   This is due to changes in assumptions and structural policies implemented by EU Member States, but also to the fact that actual ageing-related costs have increased.

Chart B

Total ageing costs in 2023 and long-term costs across projections

(percentages of GDP)

- 2060 (Ageing Report 2009)
- 2060 (Ageing Report 2015)
- 2070 (Ageing Report 2021)
- 2070 (Ageing Report 2024)
- Ageing costs in 2023
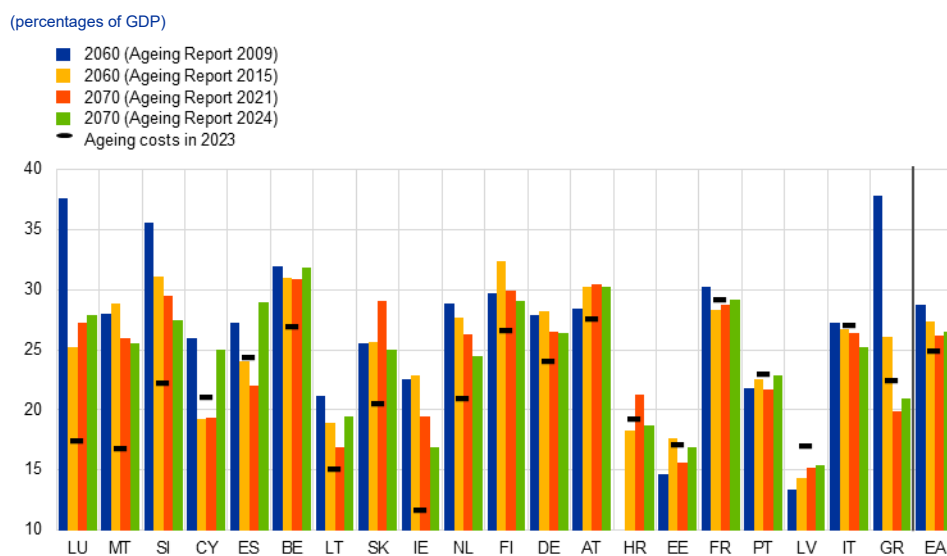
Sources: Ageing Reports published in 2009, 2015, 2021 and 2024, and ECB calculations.
Notes: The chart compares projections published in the current and some previous Ageing Reports. The 2009 and 2015 Ageing Reports refer to a horizon of 2060, while the 2021 and 2024 Ageing Reports refer to a horizon of 2070. For Croatia, data are only available starting from the 2015 Ageing Report. Countries are ordered by the level of the cost increase projected in the 2024 Ageing Report.

The latest Ageing Report shows that increased public spending on pensions owing to population ageing is expected to be mitigated through lower benefit ratios, later retirement and other structural labour market effects. Analysing pension spending in more depth, the dynamics can be broken down into four main components: the dependency ratio, the coverage ratio, the benefit ratio and labour market effects. The dependency ratio, i.e. the numbers of young people and elderly people in proportion to the working-age population, is estimated to drive up public spending on pensions in all countries, with expenditure rising by 6.2 percentage points on average by 2070 (Chart C). This effect is seen to be countered by contributions from the benefit ratio (-2.9 percentage points), the coverage ratio (-1.3 percentage points), and labour market effects (-1.1 percentage points). The benefit ratio measures the generosity of the pension system by looking at pension payments relative to wages and is driven by how quickly and to what extent benefits are adjusted in response to inflation and productivity gains. The largest cost savings from this component are projected for Greece and Portugal. The coverage ratio looks at the number of pensioners relative to the total number of people older than 65 and is driven by past reforms targeting the retirement age, such as access to early retirement or changes to the statutory retirement age. The largest cost reductions from this component are foreseen for Slovakia. Labour market effects are driven by changes affecting employment, working time and the labour force participation rate of older people. These effects are projected to decline owing to reforms encouraging longer working careers and an assumed increase in the employment rate. Their impact is greatest for Italy, where a higher employment rate and longer careers are seen to reduce public spending on pensions by 2.8 percentage points by 2070.

Chart C
Drivers of pension cost projections

(percentage points; 2022-70)
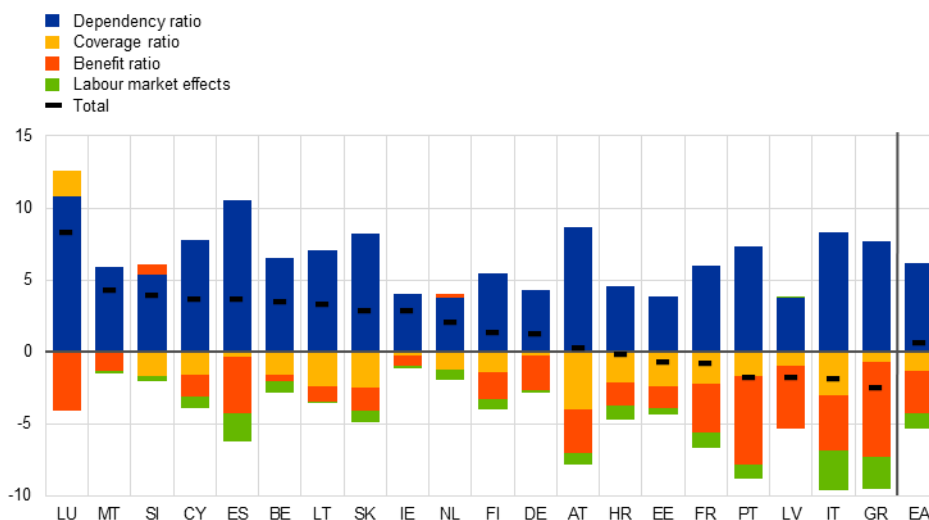
Sources: 2024 Ageing Report and ECB calculations.
Notes: The chart does not show a residual term that stems from the interaction of components and that drives down total pension costs (expressed as a percentage of GDP) by between -0.1 percentage points and -0.7 percentage points of GDP across countries. For Luxembourg, the coverage ratio and labour market effects are not meaningful since cross-border workers are not included in the labour force projections.

Population ageing is also projected to have a detrimental impact on public finances in the period to 2070 by lowering potential output growth. The 2024 Ageing Report projects euro area potential output growth to decrease from the average level of 1.4% estimated for this year and the last two years, to stand at 0.8% in the early 2030s, as labour input growth turns negative (Chart D). Compared with the 2021 Ageing Report, the 2022-24 level of potential output growth has been revised up based on upward surprises in net inward migration, labour force participation rates and employment rates, while potential output growth in the first half of the 2030s is unchanged, resulting in a sharper deceleration than was previously projected.[5] Over the long run, potential output growth is projected to be lower than the estimated current level and to gradually decrease to stand at 1.0% in 2070. This is lower than the previous projection of 1.4% and is due to revisions to all components. In particular, total factor productivity (TFP) growth in 2070 has been revised down by 0.2 percentage points to stand at 0.8%.[6] However, the level of uncertainty surrounding the projections is high, given the evolution of migratory flows and the fact that the implications of the digital and green transformations are hard to predict. Furthermore, the estimates do not capture all the effects that population ageing could have on potential output, such as through reduced aggregate productivity as a result of decreasing physical abilities, declining health, or reduced

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[5] The growth profile of potential output over the first ten years of the projection horizon is based on the Commonly Agreed Methodology of the Working Group on Output Gaps of the Economic Policy Committee.

[6] For revisions to TFP data, see "Prospects for long-term productivity growth", *Quarterly Report on the Euro Area, European Economy*, Institutional Paper No 201, European Commission, May 2023. Revisions to labour force data are mainly due to projected lower fertility rates. For revisions to capital deepening, resulting from TFP growth and cross-country convergence assumptions, see "2024 Ageing Report Underlying Assumptions and Projection Methodologies", Institutional Paper No 257, European Commission, November 2023.

innovation. Neither do the projections consider the impact that changes to the composition of public spending may have on potential output – for example if higher ageing-related expenditure leaves less resources for infrastructure investment.[7]

Chart D
Projections for potential output growth and contributions of components

(average annual percentage growth over five-year periods)

- ● Potential GDP growth
- ▬ Labour input: hours worked
- ▬ Total factor productivity
- ▬ Capital deepening (contribution to labour productivity)

Sources: 2024 Ageing Report and ECB staff calculations.
Notes: The data refer to average growth in the specified year and the following four years. Capital deepening refers to changes in the ratio of capital to labour. * For 2022, the data refer to average growth in the period 2022-24. ** For 2070, the data refer to annual growth in the year 2070.

Rising ageing costs are a key consideration in assessing long-term fiscal sustainability. Demographic shifts, leading to a greater proportion of elderly citizens and increased demand for pensions, health care, and long-term care services, will strain public finances. The evolution of ageing cost projections reveals that while progress has been made in some countries, the challenges ahead remain substantial. To address the economic and fiscal consequences of population ageing, there is a need for fiscal buffers, a more growth-friendly composition of public finances and structural reforms.[8] Furthermore, to limit the adverse impact on potential growth, productivity-enhancing policies are needed – for example policies promoting innovation, life-long learning and a faster integration of migrants into the labour market.

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[7]   See Bodnar, K. and Nerlich, C., "The macroeconomic and fiscal impact of population ageing", Occasional Paper Series, No 296, ECB, June 2022.

[8]   See Bodnar, K. and Nerlich, C., op. cit.

Articles

1 The evolution of China's growth model: challenges and long-term growth prospects

Prepared by Alexander Al-Haschimi and Tajda Spital

1 Introduction

China's rapid economic transformation to become the world's second-largest economy is inextricably linked to its investment-led growth model. This investment has been financed by high levels of domestic savings resulting from a number of government policies.[1] These savings have been channelled into a financial system that has provided highly-subsidised lending for infrastructure, manufacturing and real estate investment. As a result, China has achieved high rates of economic growth by ramping up its level of investment faster than most other countries at a similar level of development (Chart 1, panel a).[2]

Nevertheless, this investment-led growth model is coming under increasing pressure. First, diminishing rates of return imply that it is becoming more difficult to generate growth from one additional unit of investment, and some observers believe that China has long passed the point at which it can productively absorb these high rates of investment. Second, a policy-driven severe downturn in China's property sector, which accounted for about 30% of GDP before the real estate downturn in 2021, is set to sustainably diminish this major pillar of domestic demand. Third, external demand is also shrinking, as trade tensions are increasing and a rising number of trading partners are unwilling to further accommodate higher trade deficits with China. More generally, structural challenges, including an ageing population and low productivity growth, are adding to the headwinds faced by China's economy.

In response to these challenges, China's government is redoubling its efforts to spur growth through investment-centric policies. This additional push to boost investment appears to be driven almost exclusively by the state-owned sector, whereas fixed asset investment by the private sector has stalled since the onset of the housing crisis in 2021 (Chart 1, panel b). Government policies to expand output in the face of slowing demand have potential implications for China's trading

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[1] The one-child policy introduced in the late 1970s reduced the amount of old-age support from dependants, thereby raising retirement savings. The shift from a centrally-planned economy towards a greater role for markets in the 1990s reduced the social safety net, driving up precautionary savings, and the switch from employer-provided housing to private property ownership required higher savings for down payments and mortgage payments. See Zhang, L, Brooks, R., Ding, D., Ding, H., He, H., Lu, J. and Mano, R., "China's High Savings: Drivers, Prospects, and Policies," *IMF Working Paper,* No 277, International Monetary Fund, December 2018.

[2] See also Dorrucci, E., Pula, G. and Santabárbara, D., "China's economic growth and rebalancing", *Occasional Paper Series*, No 142, ECB, February 2013; and Dieppe, A., Gilhooly, R., Han, J., Korhonen, I. and Lodge, D. (editors), "The transition of China to sustainable growth – implications for the global economy and the euro area", *Occasional Paper Series*, No 206, ECB, January 2018.

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partners. A supply-driven expansion of production could materially affect trade prices and hence inflation in their economies. The shift towards manufacturing previously-imported advanced goods is designed to enhance China's self-reliance, thereby reducing the import intensity of its growth while shifting competitiveness and trade balances in relation to its trading partners.

Against this background, this article will briefly summarise China's investment-led growth model and assess supply-demand imbalances in its manufacturing sector. It will then evaluate the potential spillover effects for China's trading partners and review the policy implications for key advanced economies.

Chart 1

China's investment-led growth model

a) Investment by stage of development

(x-axis: GDP per capita in US dollars based on 2017 purchasing power parities; y-axis: total investment as a percentage of GDP)

b) China's investment by source

(index, 2019=100; 12-month moving average)
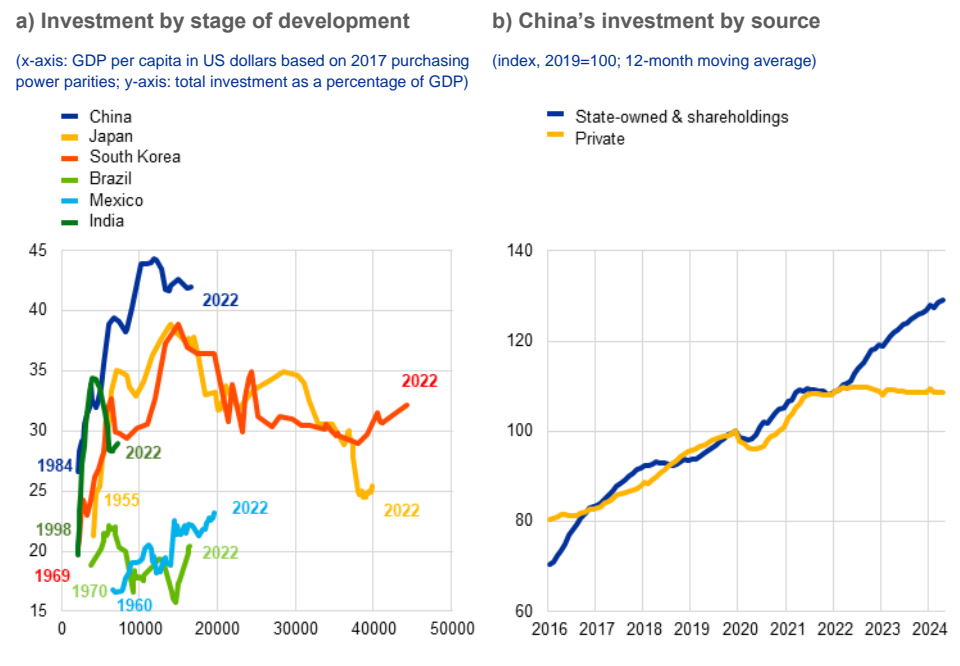
Source: World Bank, Penn World Tables, National Bureau of Statistics of China and ECB staff calculations.
Notes: GDP per capita from 2020 to 2022 is extrapolated based on World Bank data. The starting point for investment shares is GDP of USD 2,000 or above. The latest observations are for 2022 (panel a) and April 2024 (panel b).

2 The evolution of China's economic growth drivers

Investment remains a major growth driver in China. In the 30 years leading up to 2010, the share of investment in China's GDP gradually rose from 35% to 47% (Chart 2). By comparison, the typical investment-to-GDP ratio for developed economies is about 20%, whereas post-Soviet countries averaged about 30% in the first ten years after their transition to a market economy. Over the same 30-year period, the share of final consumption fell steadily from about 65% to below 50% in 2010. By comparison, the contribution of net trade to annual growth ranks significantly below that of investment and consumption. The net trade contribution to annual real GDP averaged 0.9 percentage points in the 1990s and since 2000 has averaged 0 percentage points. While integration into global value chains was instrumental in its technological development, China continued to have a high rate of

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imports, partly due to imports of intermediate goods processed for manufacturing exports but also imports of investment goods, such as machinery, to upgrade its productive capacities. For many decades, high investment rates provided the necessary upgrades to infrastructure and modernised China's production technology, helping the country to become a global manufacturing powerhouse.

However, over time, high rates of investment face diminishing rates of return. Despite already high rates of investment, China's government proceeded with two further investment waves after the global financial crisis. The first was a response to the Great Recession, which saw the Chinese government implement a large-scale stimulus programme focusing on infrastructure and real estate, bringing annual state-financed fixed asset investment growth rates in 2008 and 2009 to 36% and 60% respectively. Once the stimulus policies came to an end, however, significant overcapacity had built up in a number of sectors. By 2015 the government reacted with supply-side reforms, which among other things aimed to reduce excess industrial capacity in specific industries, resolve unprofitable firms and reduce the stock of unsold housing.[3] The second investment wave started in 2020 as a response to the coronavirus (COVID-19) pandemic, when the Chinese government targeted its support programmes at firms with the aim of increasing growth across all manufacturing sectors, including those previously subjected to capacity reduction efforts in 2015. As a result, productive capacity built up again owing to supply-driven factors, outpacing demand, which was more subdued as a result of the zero-COVID policy.

Chart 2

Long-term trend in China's output components

a) Total investment as a share of GDP

(percentage share of GDP)

b) Final consumption as a share of GDP

(percentage share of GDP)
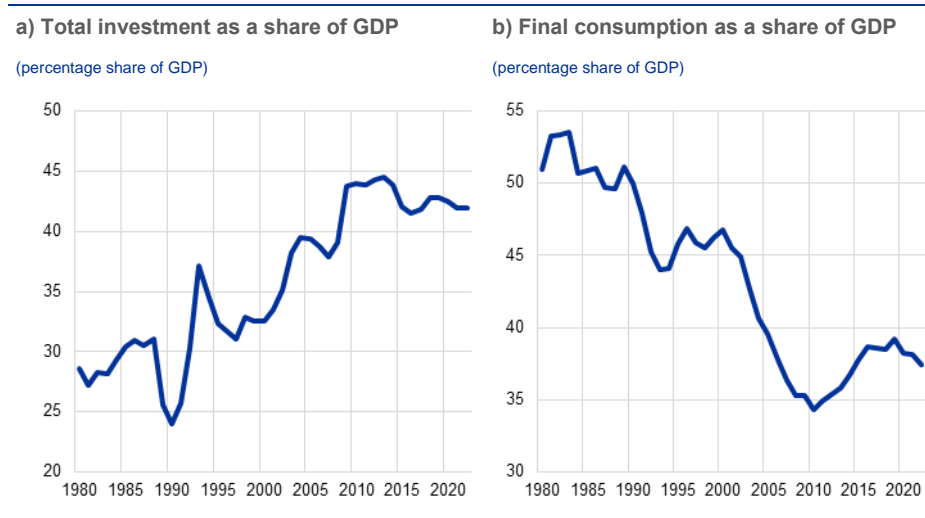
Source: OECD and ECB staff calculations.
Note: The latest observations are for 2022.

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[3] The industries targeted included steel, coal, cement, glass, real estate and agriculture. See Boulter, J., "China's supply-side structural reform", *Bulletin*, Reserve Bank of Australia, December 2018.

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Structural and cyclical factors are increasingly weighing on demand

Since the global financial crisis, GDP growth has been on a secular decline in China, partly due to structural headwinds. Total factor productivity (TFP) began to decline as additional infrastructure spending enhanced productivity less over time. While aggregate annual TFP growth was 2.8% in the ten years leading up to the Great Recession, it slowed to 0.7% over the period 2009-18. In addition, China's working age population started to decline in 2011. According to UN estimates, by 2050 it will have declined by nearly a quarter. These headwinds are already depressing China's potential growth rate and this downward trend is likely to persist (see Box 1 for a model-based analysis).

In addition, cyclical demand factors became negative during the pandemic. Consumer demand fell sharply during the pandemic, as uncertainty amid pandemic restrictions led to a rise in precautionary savings (Chart 3). This was sustained by the housing crisis, which started in 2021 and further depressed consumer demand, given that the dominant share of household wealth in China is linked to the property sector.

Chart 3
Consumer confidence and real estate sector developments

(standardised index and index, 2019=100)
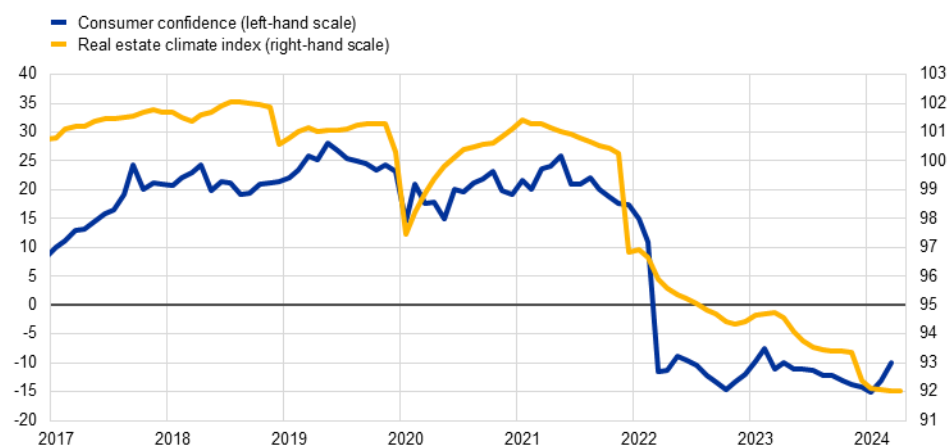
Source: National Bureau of Statistics of China and ECB staff calculations.
Notes: The latest observations are for April 2024 for consumer confidence and May 2024 for the real estate climate index. The real estate climate index summarises a set of indicators for real estate investment, capital, area and sales.

The current housing crisis is likely to make future investment less inward facing

The housing crisis severely impaired one of the three main pillars of investment growth. Total fixed asset investment in China consisted predominantly of three categories in roughly equal parts: infrastructure, real estate and manufacturing. The rapidly growing housing sector increasingly coincided with rising levels of leverage among developers, while the stock of housing began to outstrip

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demand in a growing number of regions. The Chinese authorities took steps in 2020 to rebalance and derisk the sector. With new restrictions on leverage, the derisking policies are also designed to achieve a long-term reduction in the overall size of the sector in terms of share of GDP. The resizing of the sector, amid a liquidity crisis among developers, led real estate investment growth to turn negative in late-2021 (Chart 4). In the absence of the real estate investment pillar, the investment-led growth model now relies more heavily on infrastructure and manufacturing investment to support economic growth.

Chart 4

Fixed asset investment by sector

(year-to-date year-on-year growth)
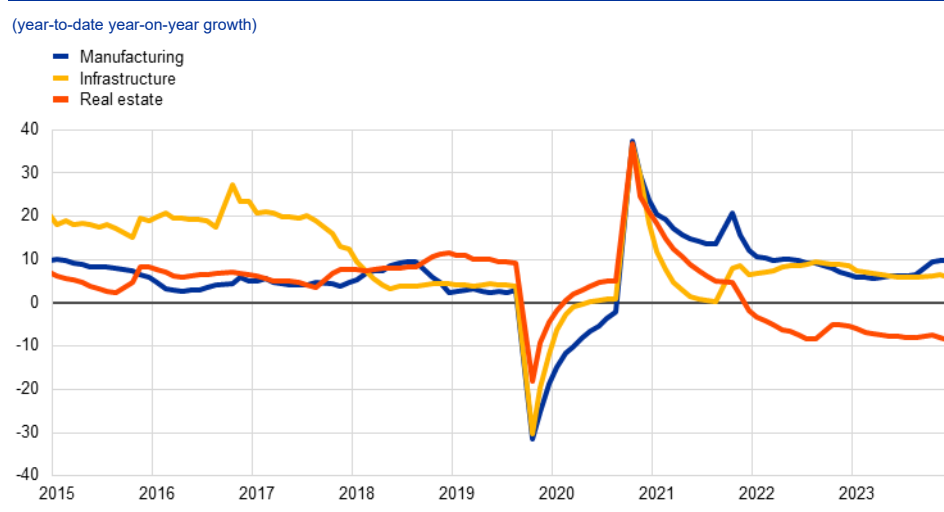
Source: National Bureau of Statistics of China.
Note: The latest observation is for April 2024.

Infrastructure and manufacturing investment are more likely than housing investment to be export oriented. China's push to become self-reliant and further develop its high technology sector implies that its infrastructure spending is changing. There will be less emphasis on building roads and bridges and more on building new infrastructure aimed at developing sectors, such as telecommunications networks, high-speed rail networks, and research and development facilities, which support advanced manufacturing. The most recent announcements made by China's government to build "new productive forces" to shore up growth targeted these sectors. Specifically, the government aims to support new technology sectors such as electric vehicles (EVs), microchip technology and new materials. Given the subdued outlook for domestic demand as a result of the ongoing housing sector weakness, this additional capacity will materialise over the next few years to a significant extent in the export sector, which will have potentially important implications for China's trading partners.

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Box 1

China's long-term growth prospects

Prepared by Sergiu Dinu and Seng Guan Toh

The recent decade has seen a slowdown in China's growth trajectory, particularly after the global financial crisis. As income levels in China approach those in more advanced economies, a further slowdown is expected, mirroring the convergence experienced in other fast-growing East Asian economies. Demographics would also suggest lower potential growth, as China's population is declining and it is faced with growing external constraints (e.g. tariffs and export controls imposed by advanced economies) that may hinder its attempts to catch up with the technological frontier.

This box summarises the findings of a model-based analysis of China's longer-term growth prospects to quantify several structural drivers that are pertinent to its growth model.[4] The model is based on an extension of the neoclassical growth framework entailing a total factor productivity (TFP) catch-up process which describes how China catches up with the world technology frontier (represented by the United States).[5] This model uses Penn World Table data covering 1995-2019 and is calibrated to match historical data on labour developments, capital and TFP. The findings of the analysis point to the importance of both demographics and productivity as structural determinants to understand and address China's growth-related challenges.

A baseline scenario evaluates potential long-term economic growth based on the following assumptions: a stable labour force participation rate, demographic developments based on UN medium-fertility forecasts and a continuation of historical TFP trends.[6] Baseline projections indicate that ageing and the downward trend in productivity growth would lead to a decline in the annual GDP growth rate from 5.3% in 2025 to 3.7% in 2035.[7] In other words, these two structural factors would reduce the annual growth rate by 1.6 percentage points over the decade to 2035. The baseline projections are necessarily subject to high uncertainty. To assess the impact of variations in the baseline, these projections are then compared with two alternative scenarios which quantify the impact of more adverse structural developments on the GDP growth rate. They are: (i) less benign demographic developments reflecting a stronger fall in the fertility rate; and (ii) a more adverse TFP growth slowdown scenario based on an Asian Development Bank paper, further compounded by additional foreign direct investment (FDI) outflows assumed to be the result of global value chain (GVC) fragmentation.[8]

China's fast demographic shift to a declining population threatens to limit the labour supply. The repercussions of China's now defunct one-child policy exacerbate the current issues of decreasing fertility and gender imbalance, which contributed to a fall in the population in 2022 for the first time since 1960. In the medium term, less optimistic demographic developments in the form of lower

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[4] See Dinu, S. and Toh, S.G., "China's structural growth prospects - scenario analysis with demographics and productivity", *Working Paper Series*, European Central Bank, forthcoming.

[5] See Fernández-Villaverde, J., Ohanian, L. E. and Yao, W., "The Neoclassical Growth of China", *Working Paper Series*, No 31351, National Bureau of Economic Research, June 2023. This model allows the construction of scenarios that can quantify the impact of structural and secular issues on China's GDP growth rate.

[6] The most recent World Population Prospects report, which presents demographic trends and projections, was published by the United Nations in 2022.

[7] Note that the projected growth rate measures underlying structural potential long-term growth and hence does not include the unique effects of the COVID-19 pandemic nor recent cyclical drivers, such as the real estate downturn or policy stimulus.

[8] See Peschel, D. and Liu, W., "The Long-Term Growth Prospects of the People's Republic of China", *Working Paper Series*, No 54, Asian Development Bank, December 2022. Their TFP projections for China incorporate additional information about challenges in technological advancements.

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population growth are expected to cut the aggregate GDP growth rate per annum in 10 years' time by more than 0.2 percentage points relative to the baseline (Table A).

China's ability to deepen its domestic technological base faces risks from further fragmentation of GVC. Moreover, increasing uncertainty relating to regulatory and geopolitical risks coincides with rising outflows of FDI. A rise in GVC fragmentation could lead to further FDI outflows and accelerate the slowdown in TFP growth. This in turn could lower the 10-year-ahead baseline GDP growth rate by 0.6 percentage points.

Table A

Long-term structural growth of China

(percentages)

Year	Baseline	Demographics – Lower fertility	TFP slowdown – FDI outflows 2021-26
2030	4.4%	4.2% (-0.2pp)	3.7% (-0.7pp)
2035	3.7%	3.5% (-0.2pp)	3.1% (-0.6pp)
2040	3.2%	2.9% (-0.3pp)	2.6% (-0.6pp)
2050	2.2%	1.9% (-0.3pp)	1.8% (-0.4pp)

Sources: Penn World Table 10.01, UN, OECD, Peschel and Liu, op. cit., State Administration of Foreign Exchange of China, ECB staff calculations.
Note: The numbers in brackets correspond to the percentage point (pp) deviations of the scenarios' projections from the baseline projections.

3 China's development of manufacturing capacity

The build-up of manufacturing capacity in China is historically unparalleled. China's share of gross global manufacturing production rose from 5% to 35% over the course of 1995-2023, and it currently has a higher manufacturing output than that of the next nine largest manufacturing countries combined (Chart 5). This unprecedented rise in productive capacity did not just serve China's large and growing domestic market but coincided with a rapidly rising share of world manufacturing exports, which grew from 3% in 1995 to 20% by 2020. If China is now aiming to invest further in productive capacities, this raises the question of whether the additional capacity will be absorbed domestically or externally.

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Chart 5

Shares in global manufacturing value added by country or area

(percentage share)
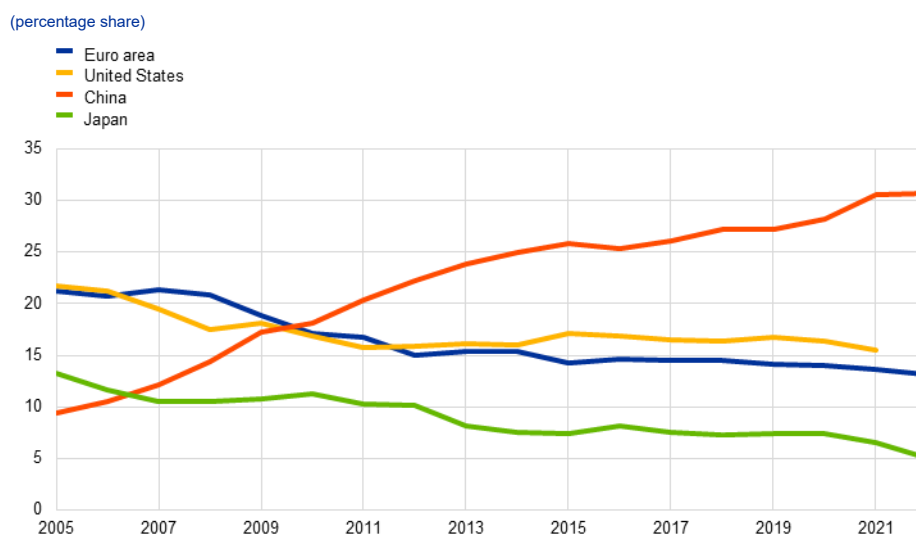
Source: World Bank.
Note: The latest observations are 2021 for the United States and 2022 for the others.

There are signs that the recent rise in manufacturing output is creating distortions in the Chinese market. The supply of Chinese industrial firms outpaced demand, resulting in a build-up of inventories and a decline in prices, ultimately reducing firms' profitability. The number of loss-making firms has doubled to 28% since 2018 in tandem with a considerable increase in the inventory-to-sales ratio (Chart 6).

Chart 6

Loss-making firms and inventories

(percentage share and ratio, 12-month moving average)
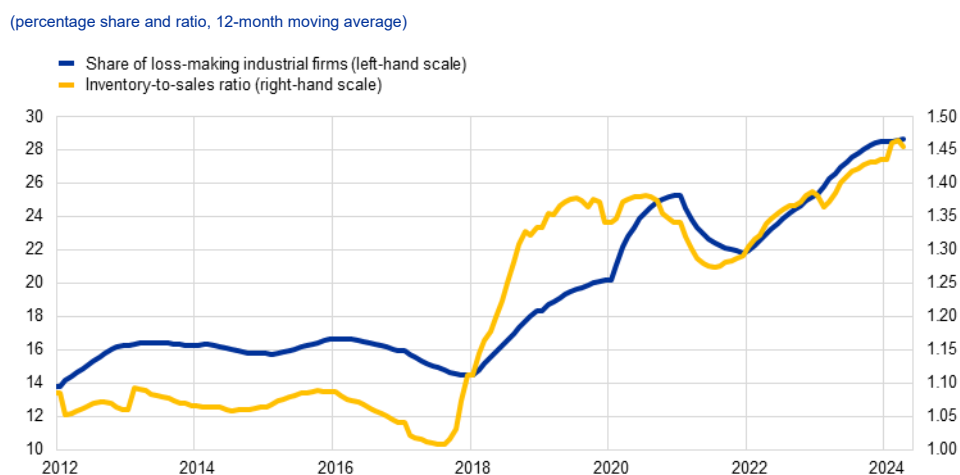
Sources: National Bureau of Statistics of China and ECB staff calculations.
Notes: The inventory-to-sales ratio refers to the ratio between the end-of-month inventories and monthly operating income of Chinese industrial companies. The latest observation is for April 2024.

China's trading partners have been increasingly vocal about their level-playing-field concerns, as production surpluses are often linked to extensive government support. China's industrial policy measures account for a much larger

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share of GDP relative to other economies (Chart 7). While direct subsidies account for only a small share of all measures, indirect subsidies, such as preferential access to lending, lower financing costs and land allocation are much more common.[9] These policies are predominantly accessible to public firms and government-linked private firms, while private and foreign firms do not have the same preferential access.[10]

Chart 7

Industrial policy comparison across countries

State subsidies as a share of GDP

(percentage share and percentage point contributions)
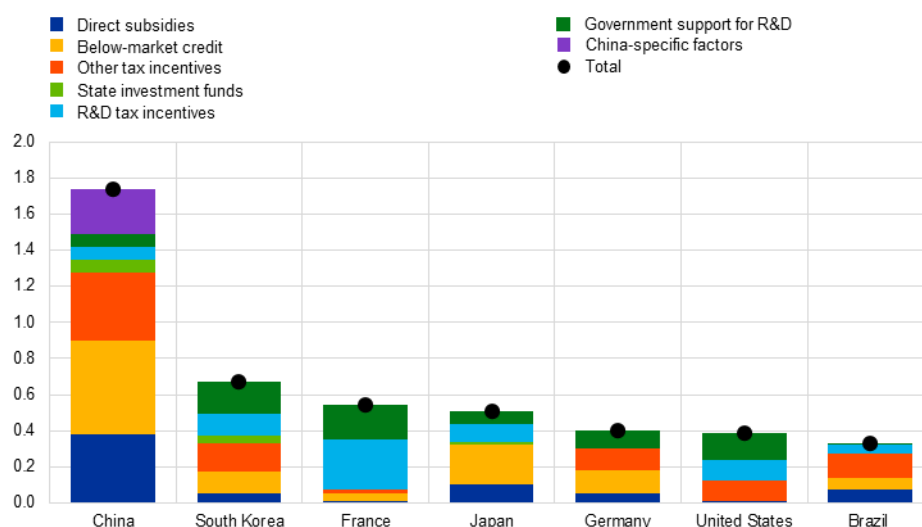
Source: Center for Strategic and International Studies.
Note: The estimates refer to 2019. For more details, see DiPippo, G. et al., "Red ink: estimating Chinese industrial policy spending in comparative perspective", Center for Strategic and International Studies, May 2022.

Tracing excess capacity in China's manufacturing sectors

Signs of rising overcapacity can materialise in different forms across sectors. The building of excess capacity can be defined as a level of production that cannot be absorbed by demand at current prices. An increase in output would thereby increase inventories, be sold at lower prices, or a combination of both. We provide three types of evidence for the existence of overcapacities in China, namely an overview of Chinese inventories and profits by sector, the latest business survey data of European companies in China, and a structural Bayesian VAR analysis of Chinese exports. First, we find that in a wide range of sectors, which together represent the majority of China's manufacturing sector, the inventory-to-sales ratio has increased, highlighting that Chinese domestic output is currently expanding faster than sales (Chart 8). This is particularly evident for sectors linked to real

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[9] Chinese government policies promoting firms in strategic industries largely fall under two initiatives: the "Made in China 2025" initiative aimed at promoting high-tech industries, and the "10,000 Little Giants" initiative targeted at small and medium-sized enterprises.

[10] For more details, see García-Herrero, A. and Schindowski, R., "Unpacking China's industrial policy and its implications for Europe", *Working Paper,* Issue 11, Bruegel, 13 May 2024.

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estate, which faced a sudden and severe decline in domestic demand (especially in the cement, steel and metal products industries). Second, recent survey evidence confirms the existence of overcapacities and their disinflationary effects. In a recent survey by the European Union Chamber of Commerce in China, over one-third of respondents among European companies in China observed overcapacity in their industry in the past year and cited overinvestment as the main reason.[11] Moreover, in the sectors where overcapacities were observed, prices tended to decline. Overall, it emerges that where domestic demand cannot absorb the additional output, producers will aim to direct this excess capacity to export markets, often by lowering prices.

Chart 8

Overcapacity in Chinese sectors

Change in inventories-to-sales ratios and profit growth rates

(change and percentage point change between 2023 and 2015-19)
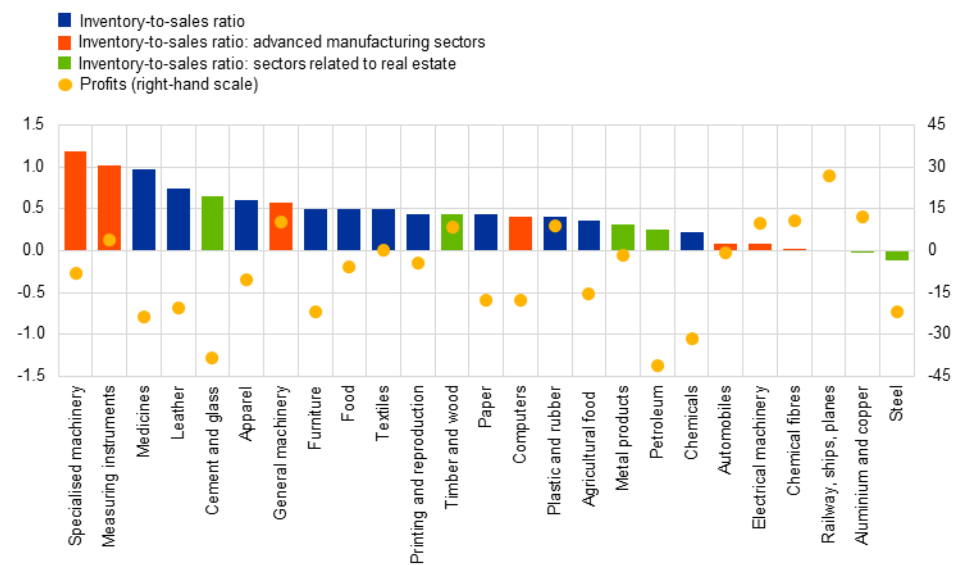
Sources: National Bureau of Statistics of China and ECB staff calculations.
Notes: The red columns refer to industries classified as "advanced manufacturing", while the green columns refer to industries closely linked to the real estate sector. The remaining industries are shown in blue.

The rise in Chinese output is predominantly supply driven. As a third piece of evidence for the existence of overcapacities, a structural Bayesian VAR analysis is carried out to disentangle demand and supply factors in Chinese export growth.[12] It shows that in real estate-related industries, such as steel and other metals, exports over the past year have been almost entirely driven by supply factors, while foreign demand remained broadly neutral or negative (Chart 9, panel a). The same dynamics can be observed for motor vehicle exports (Chart 9, panel b). More generally, when comparing the share of supply factors in exports by sector, we find that over the past year, supply factors have become a growing driver of exports

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[11] Business confidence survey 2024, European Union Chamber of Commerce in China, May 2024.

[12] The Bayesian VAR analysis decomposes supply and demand shocks in Chinese export growth. Structural shocks are identified using sign restrictions, estimated using monthly samples ranging from January 2012 to March 2024. In particular, aggregate foreign demand shocks are identified by assuming that real exports and export prices move in the same direction, while aggregate domestic supply shocks assume they move in opposite directions.

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across a range of sectors compared with the 2017-19 period (Chart 9, panel c). The results show that the share of foreign demand in the exports of sectors related to the real estate and advanced manufacturing sectors in particular appear to be falling.

Chart 9

BVAR historical shock decomposition of Chinese exports

a) Foreign demand and Chinese domestic supply factors in steel and other metal exports

(percentage deviation from the mean and percentage point contributions, year on year)
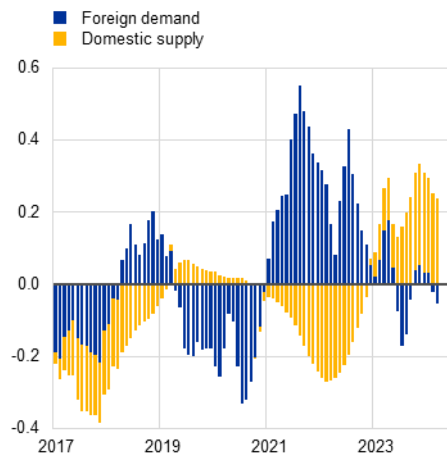
b) Foreign demand and Chinese domestic supply factors in motor vehicle exports

(percentage deviation from the mean and percentage point contributions, year on year)
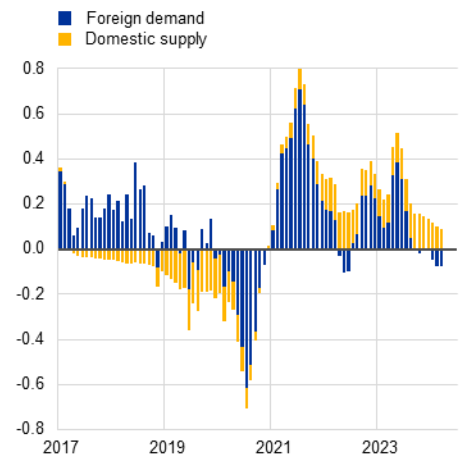
c) Change in domestic supply contribution by sector

(percentage share of domestic supply shocks in total deviations from the mean)
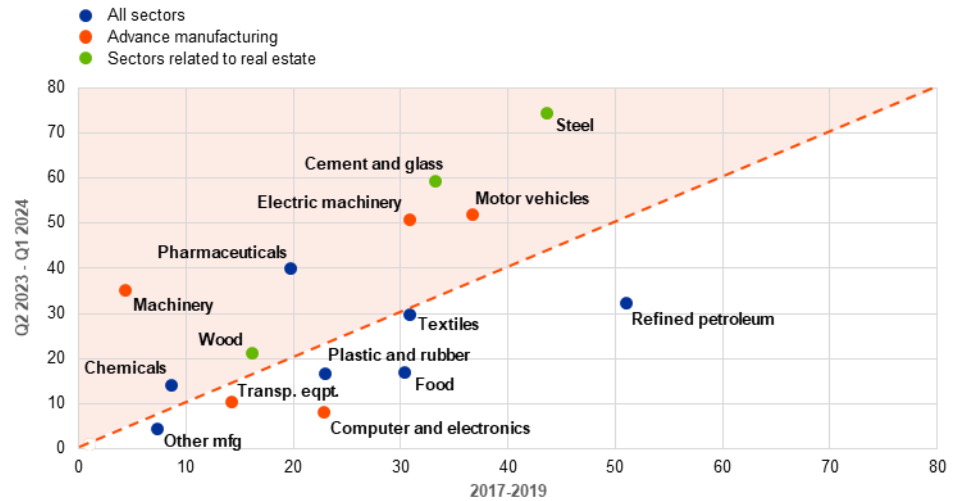
Sources: National Bureau of Statistics of China and ECB staff calculations.
Notes: Panels a) and b) show the median posterior distribution of the historical decomposition of Chinese exports in deviation from its initial condition. All variables are measured in log levels, while the chart shows the decomposition in year-on-year growth rates. In panel c), the x-axis measures the share of domestic supply shocks in total deviation from the mean between 2017 and 2019 based on a BVAR historical shock decomposition. The y-axis shows the average share between the second quarter of 2023 and the first quarter of 2024. For sectors above the diagonal line, it could be implied that domestic supply factors are behind the increase in exports, and thus more likely to have built up overcapacity. The latest observations are for March 2024.

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4 Global implications of China's investment policies

China's efforts to further invest in the productive capacities of highly subsidised industries has global implications for its trading partners. To the extent that additional output cannot be entirely absorbed domestically and external demand remains broadly constant, a rise in China's exports necessitates a further increase in its global share of manufacturing exports. Given recent tariff action against China, a further expansion of its export market share may not go unchallenged in global markets. Moreover, by lowering prices or increasing exports of heavily-subsidised products, a rise in exports could lead to international spillovers of disinflationary pressures. These could be further exacerbated if trading partners' domestic firms in turn lower their prices to remain competitive with Chinese exports. Finally, with China's development of its advanced manufacturing capacities, particularly in green technology sectors, the relatively larger size of state subsidies in China could also affect the competitiveness of trade partners in these relatively new and growing advanced manufacturing sectors.

Impact on euro area prices by sector

A static exercise modelling a further decline in Chinese export prices in sectors with overcapacity would have a downward impact on euro area consumer prices, which could be amplified through a subsequent decline in euro area producer prices. To quantify the potential impact, we perform a sectoral bottom-up analysis based on the elasticities of international production networks captured in input-output tables.[13] We first assume a 30% drop in Chinese export prices in sectors identified as having overcapacities in our BVAR analysis.[14] The decrease in price is calibrated by considering past price movements in the solar panel industry, as this industry can serve as a case study for potential developments in other green technology industries.[15] The simulation results find that the decline in Chinese export prices would lead to a 0.3 percentage point fall in euro area consumer price inflation. This result consists of a smaller direct impact through consumption of Chinese final products, and a larger indirect impact through intermediate input linkages, reflecting the rich interdependencies of euro area and Chinese production networks. Second, we look at how this change is amplified if euro area producers lower their prices in response to cheaper Chinese products. We consider a 7% decrease in the prices of euro area producers. This is calibrated by considering the differential in government subsidies between China and Germany,

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[13] The production network framework assumes a positive technology shock affecting Chinese sectors with overcapacities, propagating forward to export prices and accounting for input interdependence in the supply chains. The framework also assumes nominal rigidities, namely that there exists some wedge between the final price and marginal cost, which softens the overall impact on euro area prices.

[14] The sectors identified are pharmaceuticals, electrical machinery, chemicals, basic metals, motor vehicles, non-metallic minerals, and timber and wood.

[15] As Chinese solar panel prices fell on average by about 30% each year between 2007 and 2011 (from 5.5 USD/kW to 1 USD/kW), our simulation considers a similar magnitude, to gauge the largest potential impact on euro area consumer prices. For more insight into the solar panels industry, see Wen, D., Gao, W., Qian, F., Gu, Q. and Ren, J., "Development of solar photovoltaic industry and market in China, Germany, Japan and the United States of America using incentive policies", *Energy Exploration & Exploitation*, Vol.39, Issue 5, pp.1381-1836, September 2021.

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as German subsidies account for about one-quarter of those of Chinese producers.[16] The price reduction by euro area producers in affected sectors results in an additional 0.6 percentage point drop in euro area consumer price inflation (Chart 10). While the imposition of tariffs could mitigate this impact, it could vary across different products and producers and potentially lead to retaliatory measures.

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[16] See also di Sano, M., Pongetti, G., Schuler, T. and Toh, S.G., "Spillovers to the euro area from recent negative inflation in China", *Economic Bulletin*, Issue 7, ECB, 2023; see also the box by Dieppe, A., Frankovic, I. and Liu, M., "Could China export disinflation?", *Eurosystem staff macroeconomic projections for the euro area, ECB, June 2024*.

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Chart 10

Impact of declining Chinese trade prices on euro area prices by sector

a) Cumulative impact and contribution of individual sectors
(percentage point changes)
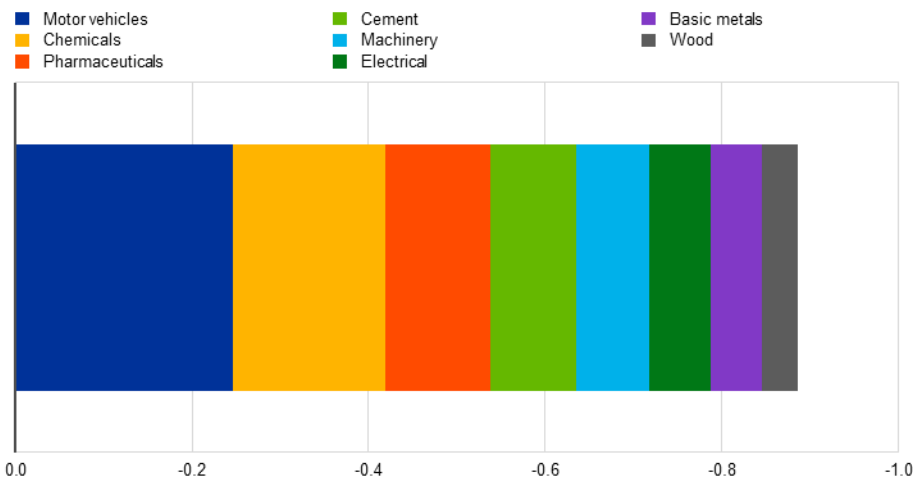
b) Impact on individual sectors and contribution of direct and indirect spillovers
(percentage point changes)
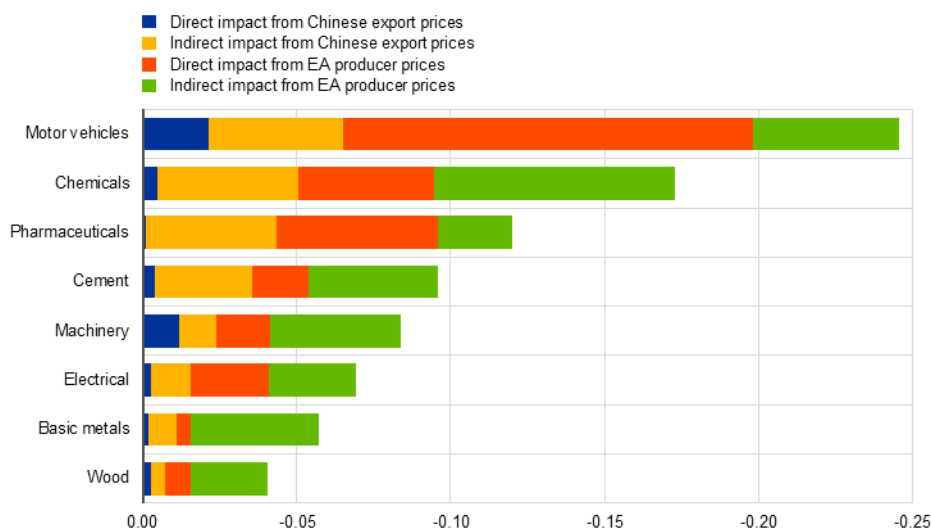
Sources: Trade in Value Added (TiVA) input-output tables and ECB staff calculations.
Notes: The chart shows analysis based on the elasticities of international production networks captured in input-output tables. The chart shows the cumulative impact of declining prices on euro area consumer prices in Chinese sectors previously identified as having overcapacity (panel a) (see BVAR analysis above). It also shows the contribution of individual sectors (panel b). The positive technology shock is standardised to produce a 30% decrease in Chinese export prices in each sector and a reciprocal 7% decrease in euro area producer prices. The blue and red bars show the direct impact that changes in Chinese export prices have on final consumption in the euro area, while the yellow and green bars show the indirect impact, accounting also for intermediate input interlinkages. The latest observation is for 2020.

Impact on China's competitiveness

China's share of global exports has been consistently increasing, particularly in the advanced manufacturing and green technology sectors. These gains in market share can be observed across the board, including in industries where we

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find traces of overcapacity (Chart 11).[17] Rapid expansion is particularly evident in the new green technology industries, where China's growing share of the solar panel industry serves as a cautionary tale for other emerging green industries (Chart 12). To assess the potential scenario where the electric vehicle industry follows a similar trajectory to the solar panel industry, Box 2 attempts to quantify the potential impact a 50% decrease in EV prices would have on prices and market shares in the euro area and other countries.

Chart 11

Increase in China's competitiveness

Changes in Chinese export share

(percentage share of total exports)
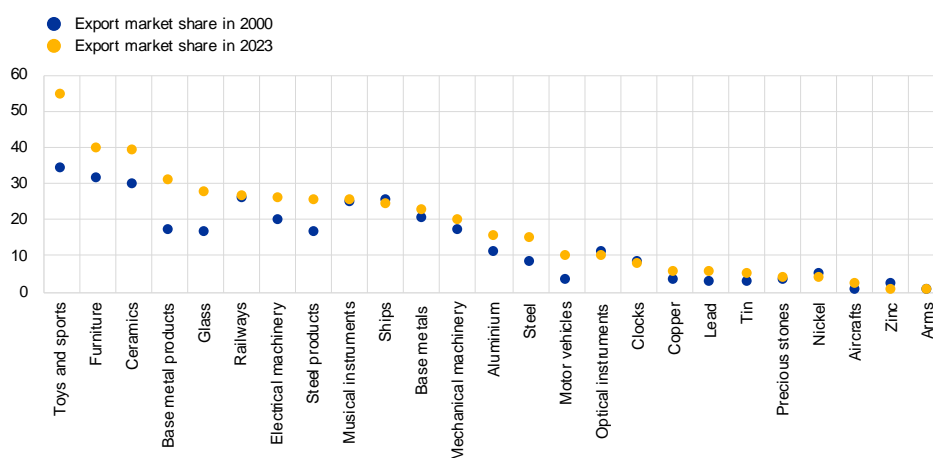
Sources: Trade Data Monitor, UNCTAD and ECB staff calculations.
Notes: The chart shows changes in China's export share in total exports by sector. The latest observations are for 2023 and 2022.

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[17] Analysis by Jean, S. et al., "Dominance on World Markets: the China Conundrum", *Policy Brief,* No 44, CEPII Research Center, December 2023. This Policy Brief shows that, at a more detailed level of harmonised trade classification, China's export market share surpassed 50% for more than 600 products. In comparison, the United States had 100 dominant products while the EU had 300.

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Chart 12

Changes in market share in green technology industries for China, the euro area and the United States

(percentage share of total exports)

a) Solar panels

Legend:
- Euro area
- United States
- China

b) Electric batteries

Legend:
- Euro area
- United States
- China

c) Electric vehicles

Legend:
- Euro area
- United States
- China
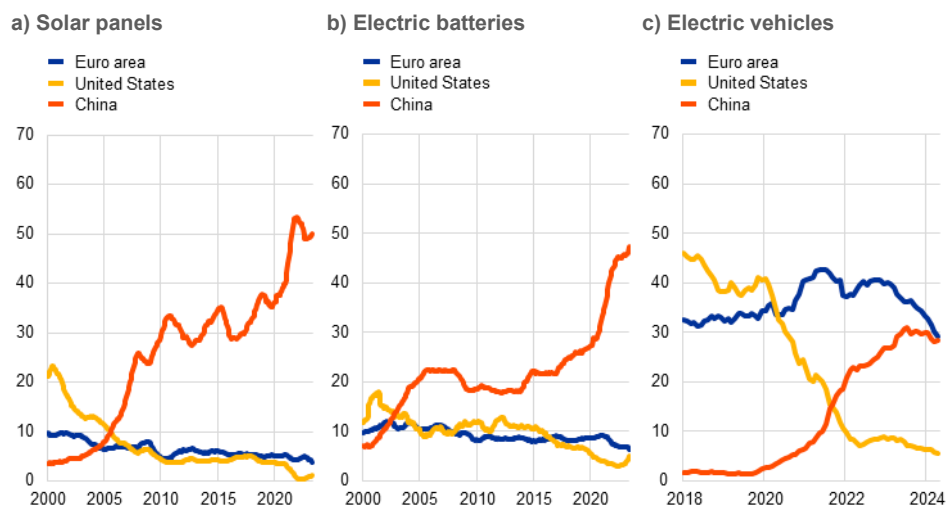
Sources: Trade Data Monitor and ECB staff calculations.
Notes: The chart shows exports as a share of total exports in different green technology sectors. The data refers to trade flows in US dollars. Exports from the euro area exclude trade between euro area countries. The latest observation is for April 2024.

China has increased its competitiveness in sectors traditionally dominated by advanced economies. Along with rising market share, China's value added in global value chains has also been growing.[18] This increase in value added is enhancing China's competitiveness and exposing advanced economies to competition in a greater number of sectors, as China gradually develops a comparative advantage in sectors in which the latter specialise. In the last 20 years in particular, China has become increasingly competitive in sectors previously dominated by other advanced economies (Chart 13). Of these advanced economies, Italy appears to be most exposed because China has become competitive in 60 sectors where Italy holds a comparative advantage. On the other hand, Germany has seen the largest surge in exposure to Chinese competitiveness, which has increased from 20 sectors in 2000 to 50 in 2022.

China's aim of boosting its self-reliance will impact its demand for imports and its competitiveness in third-country markets. It has been aiming to reduce its reliance on global trading partners by importing less and by vertically integrating its value chains.[19] As it gradually replaces imported goods with domestically-produced ones, China's demand for imported industrial goods will decline. A surge in the domestic production of industrial goods will also increase competition from China in third-country export markets. Both phenomena will put downward pressure on the

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[18] Value added in Chinese exports to the EU is growing. This is particularly evident in industries reliant on Chinese inputs within international supply chains, such as basic metals, chemicals and electrical equipment. For more details see Vandermeeren, F., "Understanding EU-China economic exposure", *Single Market Economics Briefs*, No 4, European Commission, 17 January 2024.

[19] China owns entire value chains, ranging from raw material mines to final production processes in specific technologies, such as drones and electric vehicles. For more details, see Arjona, R. et al.,"An enhanced methodology to monitor the EU's strategic dependencies and vulnerabilities", *Single Market Economics Papers*, No14, European Commission, 18 April 2023.

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trade balance of industrial goods exporters, such as the euro area. At the same time, the change in the trade balance is likely to affect the renminbi exchange rate, which will offset part of the gain in China's price competitiveness.

Chart 13

China's increased competitiveness

Countries exposed to China's increased competitiveness

(number of product categories with comparative advantage)
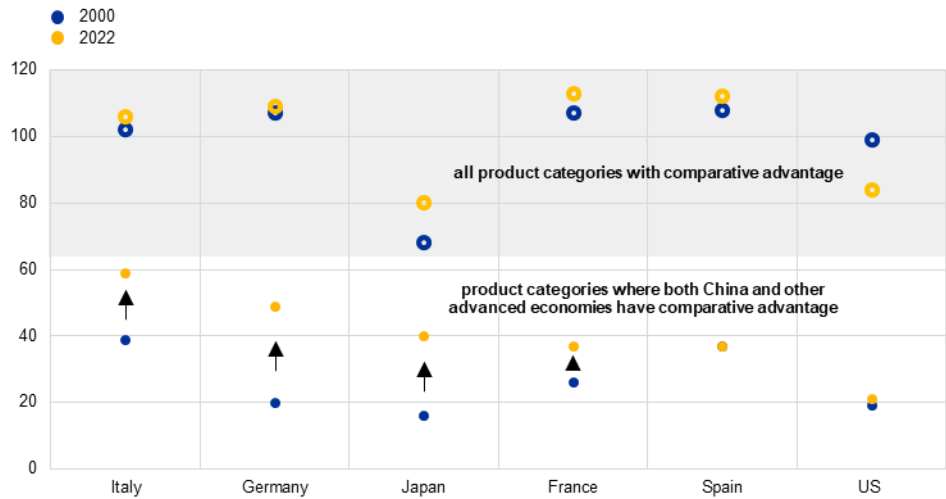
Sources: UN trade and development and ECB staff calculations.
Notes: The chart shows comparative advantage, referring to the revealed comparative advantage indicator, measuring the ratio between the share of a country's exports in a particular product category in its total exports and the same share for the world as a whole. A country has comparative advantage if the value of this ratio is over 1. The latest observation is for 2022.

Impact on competitors' prices

China's competition will also give rise to further disinflationary pressures through second-round effects emerging as a result of competitors being forced to lower the prices of their products. While Chinese production surpluses in some sectors may not affect the market shares of firms in advanced economies directly, they could lead to the reallocation of production from third markets to China, leading to overall lower prices for these products. At the same time, competitive Chinese prices could force producers in advanced economies to also reduce their prices. Both cases could potentially trigger second-round effects on consumer prices in advanced economies.

Box 2

A model-based assessment of the spillovers of Chinese subsidies to electric vehicles

Prepared by Maria-Grazia Attinasi, Lukas Boeckelmann, Bernardo de Castro Martins and Baptiste Meunier

China increasingly subsidises electric vehicle producers, mirroring what happened in the solar panel industry where it has become a global leader thanks to massive state aid. Overall, industrial subsidies in China are estimated to be three to nine times higher than those in advanced economies, with conservative estimates showing subsidies amounting to €221 billion (2% of China's GDP). There has recently been a huge increase in subsidies to Chinese green tech

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companies, notably to producers of electric vehicles.[20] This approach mirrors how China has become a world leader in the solar panel industry, increasing its global market share from 5% in 2000 to 50% in 2024 through massive government subsidies.[21]

Global spillovers are quantified using a state-of-the-art, multi-country, multi-sector model run on a newly-developed granular input-output table. We use the Baqaee and Farhi (2024) model, which accounts for amplification effects of shocks through global production networks and substitution effects via international trade.[22] The model makes it possible to simulate the propagation of shocks both downstream to consumers and upstream to suppliers, and to derive the non-linear effects of shocks across countries and sectors. By enhancing the granularity of available input-output tables in the calibration of the model to isolate green sectors, such as EVs, our methodology enables us to simulate shocks targeted only at green sectors and to recover the sectoral impact on the industries of interest. [23] We simulate a hypothetical and stylised scenario where the relative price of Chinese EVs and electric batteries drops by 50% following government subsidies, in line with estimates of the price differential between Chinese and EU producers.[24]

Massive Chinese subsidies would lower the price of EVs for consumers across the globe but would also severely downsize their domestic production in the rest of the world. Heavily-subsidised Chinese EVs are estimated to lower the price consumers pay for EVs by 30% globally and 15% in the EU (Chart A, panel a). This leads to a 6% increase in the global production of EVs, as consumers substitute thermal vehicles for cheaper EVs, but EU domestic production would decline by 70% (Chart A, panel a) as consumers switch to cheaper Chinese products. As a result, China substantially increases its global market share in EVs by 60 percentage points, notably at the expense of EU producers, whose share shrinks by 30 percentage points (Chart A, panel b), of which 18 percentage points relate to German producers. This scenario closely resembles what happened in the solar panel industry, where Chinese subsidies made products cheaper and enabled China to gain a dominant market share while producers in the rest of the world were forced to scale back production. Finally, even though the *sectoral* impact on the EV industry is sizeable, the *global* impact is limited: total consumer prices decline by only 0.2% and overall EU production falls by a mere 0.1% owing to the small size of the EV industry.

The estimates presented in this box should be considered an upper bound for losses in market shares for the euro area as the model abstracts from potential mitigating effects. First, EU producers may react endogenously to Chinese subsidies by lowering their prices or by bridging the

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[20] See Bickenbach, F., Dohse, D., Langhammer, R. J., and Liu, W-H. (2024), "Foul Play? On the Scale and Scope of Industrial Subsidies in China", *Kiel Policy Brief,* No 173. For example, direct subsidies to the car maker BYD increased from about €0.2 billion in 2020 to €2.1 billion in 2022.

[21] See Gang, C., "China's Solar PV Manufacturing and Subsidies from the Perspective of State Capitalism", *The Copenhagen Journal of Asian Studies,* Vol. 33, Issue 1, pp. 90-106, June 2015.

[22] Baqaee, D. and Farhi, E., "Networks, Barriers, and Trade", *Econometrica*, Vol. 92, Issue 2. pp. 505-541, March 2024.

[23] While input-output tables feature sectoral granularity (e.g. 45 sectors in OECD TiVA tables), they are not granular enough to isolate specific green products. For example, electric vehicles are merged with thermal vehicles in the motor vehicles sector in the OECD TiVA tables. The construction of granular input-output tables relies on product-level trade data to decompose each broad sector in an initial input-output table into green and non-green products following the methodology of Borin, A., Conteduca, F. P., di Stefano, E., Gunnella, V., Mancini, M. and Panon, L., "Trade decoupling from Russia", *International Economics*, Vol. 175, pp.25-44, October 2023. We refine the methodology to capture specific sectoral interlinkages in Attinasi, M-G., Boeckelmann, L., Borin, A., de Castro Martins, B., Mancini, M. and Meunier, B., "Climate change and trade fragmentation", *unpublished manuscript,* European Central Bank, 2024.

[24] For example, Rhodium Group estimates the price differential between German and Chinese EVs to be around 50%. The Baqaee-Farhi model does not include a fiscal block that would simulate the financing mode of subsidies.

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price competitiveness gap through more innovation and digitalisation.[25] The EU could also impose countervailing duties, such as the new tariffs announced in June 2024 and not accounted for in the box.[26] The scenario considered in the box instead illustrates, *other things being equal*, the risks related to sizeable Chinese subsidies. Second, consumer preferences for EVs might be less price sensitive than assumed in our scenario. While we account for this in the Baqaee-Farhi model by setting a product-specific elasticity of substitution, estimates in the literature relate to all vehicles and not specifically to EVs.[27] Should price sensitivities for EVs be lower than for other vehicles, this could lead to an over-estimation of the substitution effects towards Chinese EVs.

Chart A

Global sectoral spillovers of Chinese subsidies to electric vehicles

a) Consumer prices and real production of EVs

(deviation from steady state, percentages)
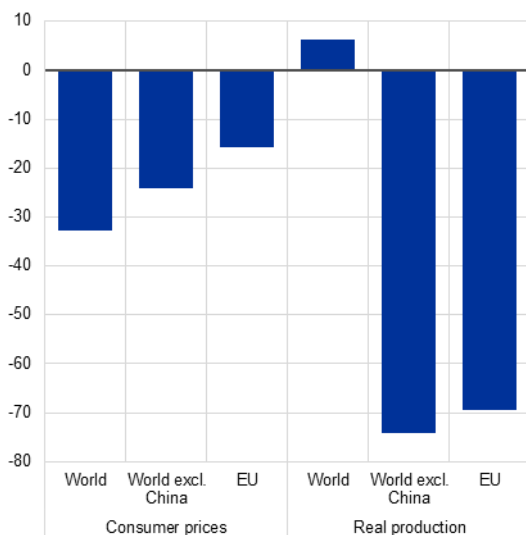
b) Changes in global market share of EVs

(percentage points)
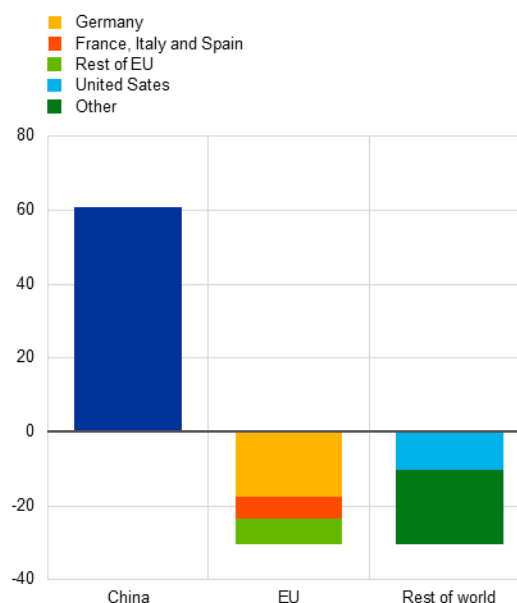
Sources: Baqaee and Farhi, op. cit., OECD, International Energy Agency, Fally, T. and Sayre, J., "Commodity Trade Matters", *Working paper*, No 24965, National Bureau of Economic Research, August 2018 and ECB staff calculations.
Notes: The non-linear impact is simulated through 25 iterations of the log-linearised model. The granular input-output tables isolating electric vehicles are obtained following the methodology of Attinasi, M-G.et al., op.cit.

5   Conclusion

China's recent policy approach to address economic weakness by doubling down on its investment-driven growth model and identifying new productive

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[25]   See also de Santis, R.A., Neves, P., di Nino, V., Furbach, N. and Neumann, U., "Will the euro area car sector recover?", *Economic Bulletin*, Issue 4, ECB, 2024.

[26]   As a result of the anti-subsidy investigation launched by the European Commission in October 2023 on imports of battery electric vehicles for passengers originating in China, in June 2024 the Commission announced new tariffs on Chinese EV producers ranging from 17.4% to 37.6% on top of a 10% duty that was already in place for all electric cars imported from China.

[27]   Trade elasticities are based on Fontagné, L., Guimbard, H. and Orefice, G., "Tariff-based product-level trade elasticities", *Journal of International Economics*, Vol. 137, July 2022, as well as on Boehm, C.E., Levchenko, A.A. and Pandalai-Nayar, N., "The Long and Short (Run) of Trade Elasticities", *American Economic Review*, Vol. 113, No 4, pp. 861-905, April 2023.

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sources is widely expected to increase already existing overcapacities. Given diminishing marginal returns to investment, the continued emphasis on the supply side of the economy is leading to rising inventories, lower profitability and growing supply-demand imbalances in a number of sectors and industries. Against a background of subdued domestic demand, efforts to direct additional productive capacities to export markets is fuelling tensions in global trade relations.

Trade policies vis-à-vis China are changing rapidly. The United States recently introduced a sharp increase in tariffs on Chinese imports, notably raising tariffs on Chinese EVs from 25% to 100%. Moreover, other countries are also increasing tariff and non-tariff barriers to Chinese imports (Chart 14). In the EU, several trade policy instruments were introduced that address level playing field considerations in public procurements and also review dumping practices. The changing trade policy dynamics are also increasingly visible in trade flows. Since 2017-18, China's share of imports has been on a declining path in the United States and Japan, albeit briefly interrupted by the pandemic, when demand initially focused temporarily on medical products and then on manufacturing goods made in China. By contrast, China's share continued to rise in the EU, currently standing above pre-pandemic levels (Chart 15).

Chart 14

Trade measures introduced on Chinese products

(number of trade measures)
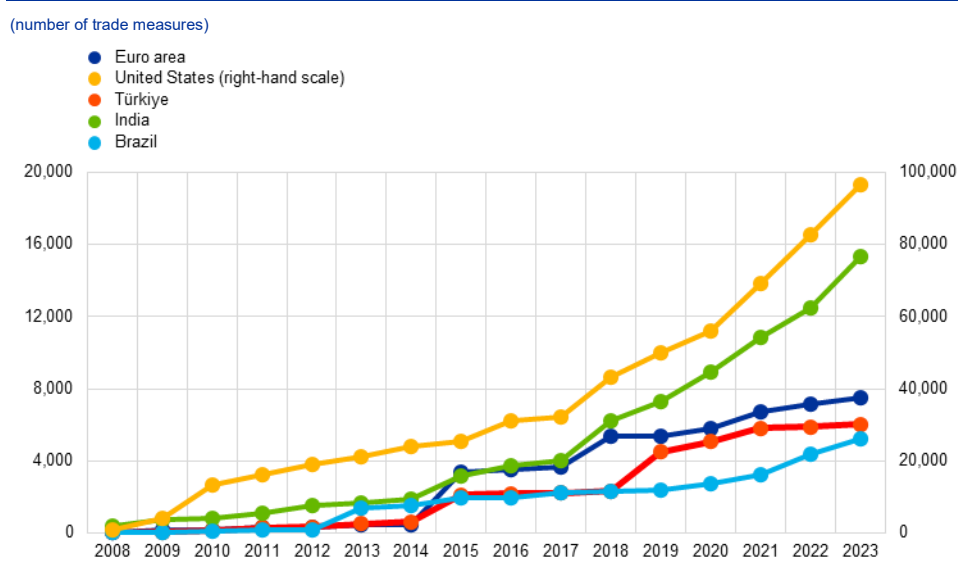
Sources: Global Trade Alert and ECB staff calculations.
Notes: The chart shows new trade measures introduced on Chinese products with HS 6-digit detail since 2008. The latest observation is for December 2023.

Given these shifting trade policy dynamics, the role of the EU as an export market for China could potentially become more central. In the event that non-EU countries further close their markets to Chinese products, China could redouble its efforts to export to the EU, thereby exacerbating the impact on Europe in terms of rising disinflationary pressures, a loss of competitiveness in advanced manufacturing sectors and a declining share in both manufacturing output and exports. Given the potentially significant effects on output, inflation and labour markets, the European

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policy response needs to be carefully calibrated to ensure level playing field conditions.[28]

Chart 15

Share of imports originating from China

(change since 2015; 12-month moving average)

- Euro area
- United States
- Japan
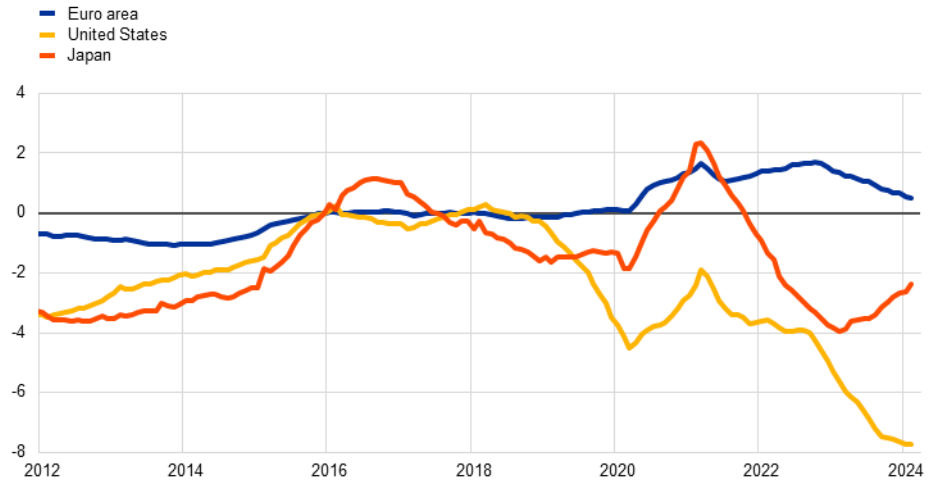
Sources: IMF and ECB staff calculations.
Note: The latest observation is for January 2024.

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[28] A report by the European Commission highlights how China is the main source of the EU's dependencies, accounting for about one-third of all products identified as Single Origin Dependencies. For more details, see Arjona, R. et al., "An enhanced methodology to monitor the EU's strategic dependencies and vulnerabilities", *Single Market Economics* Papers, No 14, European Commission, 18 April 2023.

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2 Introducing the Distributional Wealth Accounts for euro area households

Prepared by Nina Blatnik, Alina Bobasu, Georgi Krustev and Mika Tujula

1 Introduction

This article introduces the euro area Distributional Wealth Accounts (DWA), a dataset developed by the European System of Central Banks (ESCB) which provides new experimental statistics on household wealth. The DWA data complement traditional macroeconomic national accounts and household surveys by providing information on household wealth that is consistent with the macroeconomic Quarterly Sectoral Accounts (QSA).[1] The DWA aim to meet the growing interest in understanding wealth distribution dynamics in the euro area and across euro area countries.[2]

The DWA are of particular interest to central banks, facilitating the analysis of the distributional wealth effects of inflationary and monetary policy shocks. The DWA also support the ECB's monetary policy strategy, which aims to include a systematic assessment of the two-way interaction between income and wealth distributions and monetary policy.[3] Households differ significantly in their levels of wealth and its composition, and in the sensitivity of their income to economic shocks. Therefore, the distributions of wealth and income play a key role in shaping the transmission of monetary policy to economic activity and inflation. At the same time, monetary policy may have heterogenous distributional effects.[4]

This article explores the main features of the DWA and illustrates how the dataset can be used to analyse the distributional effects of macroeconomic shocks, including monetary policy. Section 2 describes the methodology used to compile the DWA, discussing data sources, estimation techniques and data availability. Section 3 presents evidence on the key features of the dataset, documenting the dynamics of the wealth distribution and wealth components over time at the euro area level and across countries. Section 4 discusses how changes in asset prices affect household wealth across the distribution depending on the composition of assets and liabilities and explores the implications of asset prices for wealth inequality. Section 5 assesses the effects of rising inflation and subsequent

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[1] In parallel with the DWA in Europe, similar datasets are currently being developed as part of the third phase of the G20 Data Gaps Initiative, with a view to distributional accounts being compiled for the G20 and other participating economies by 2026.

[2] See, for instance, the boxes entitled "The recent drivers of household savings across the wealth distribution", *Economic Bulletin*, Issue 3, ECB, 2022, and "The consumption impulse from pandemic savings – does the composition matter?", *Economic Bulletin*, Issue 4, ECB, 2023.

[3] See the overview of the ECB's monetary policy strategy on the ECB's website.

[4] See Ampudia, M., Georgarakos, D., Slacalek, J., Tristani, O., Vermeulen, P. and Violante, G., "Monetary policy and household inequality", *Working Paper Series*, No 2170, ECB, July 2018.

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monetary policy tightening across the wealth distribution, and their impact on inequality. Section 6 concludes.

2 The DWA methodology

The DWA provide timely quarterly distributional information on wealth, aligned with the macroeconomic aggregates. The DWA include data on household net wealth and on financial and non-financial assets and liabilities and their components (Figure 1). Households are broken down into the top five deciles of net wealth and the bottom 50%, as well as by employment and housing status. The DWA also provide inequality indicators such as the Gini coefficient, share of net wealth held by the top 5%, 10% and bottom 50%, mean and median net wealth, and debt-to-asset ratios by net wealth decile. Data are available for the euro area as a whole, and for all euro area countries except Croatia, as well as for Hungary. Time series for the euro area are available from the first quarter of 2009, whereas the starting date for the DWA country data varies depending on the availability of the distributional source data. Data are compiled every quarter and published five months after the end of each reference quarter.

Figure 1

Main DWA features: components of assets and liabilities
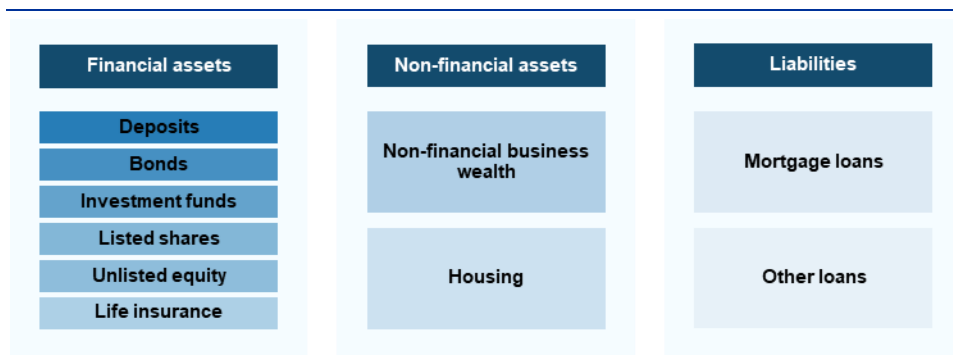
Source: ECB.

The DWA are constructed by linking household-level information from the ECB's Household Finance and Consumption Survey (HFCS) to the macroeconomic QSA, thus complementing the two sources (Figure 2). Macroeconomic data show financial and non-financial transactions and positions for the household sector. The time series start in 1999 and cover the last reference quarter with a lag of around three to four months. They follow the methodology of the European System of Accounts (ESA 2010). By contrast, HFCS data provide information on the distribution of wealth among euro area households.[5] Four waves of the survey have been released, approximating to the years 2010, 2013, 2017 and 2021. These data are published with a lag of around 18 months.

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[5]   The HFCS collects detailed household-level data on various aspects of household balance sheets and related economic and demographic variables. For further information, including on the definition of households, see the HFCS page on the ECB's website.

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The DWA leverage on the advantages of sector accounts and household survey data. Sector accounts are frequent, timely and exhaustive, but lack distributional information. Household surveys are rich in terms of distributional information but are impaired by infrequent updates, longer publication delays and incomplete wealth coverage. The DWA bridges these gaps by offering data consistent with national accounts, adhering to international standards, and providing quarterly updates with timely distributional insights akin to household surveys. Developed by experts from the ESCB, the DWA ensure harmonised compilation of country-level data and euro area aggregates.

Figure 2

Main DWA features: linking micro and macro data on wealth
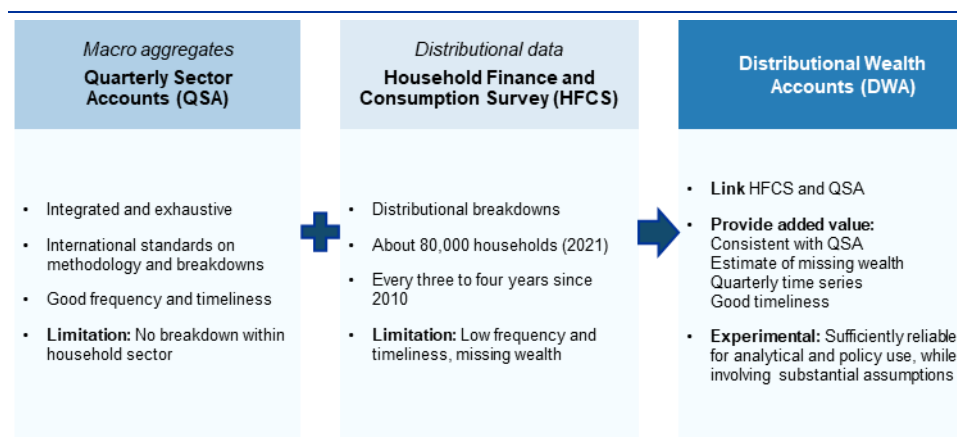
Source: ECB.

The challenge for the DWA is to reconcile the HFCS and the QSA to the full extent possible, using the national accounts concepts and the aggregated results of the QSA as a benchmark. The methodology used to bridge household surveys and sector accounts consists of a series of steps. First, to cover as much common ground as possible between the HFCS and the QSA, a wealth concept specific to the DWA is defined and individual items from both the HFCS and the QSA are adjusted accordingly. At the euro area level, this common ground captures around 90% of household assets and liabilities as recorded in the wealth concept of the national accounts, while a few items (e.g. currency (cash), pension entitlements) are currently not included in the DWA owing to constraints in the availability of data. Work is currently under way to cover these items.[6] Then, for each HFCS release, the QSA data closest in time are matched and the population scope in the HFCS is scaled up to match that of the QSA. Deposits, which tend to be considerably lower in the HFCS than those reported in the QSA, are adjusted at this point in order to accommodate some survey results identified as outliers. Furthermore, because households at the top of the wealth distribution ("rich households") are difficult to capture in surveys, a crucial step in the DWA process involves estimating rich households that are under-represented in survey results. Any gaps still remaining

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[6]   Not reflected in household wealth, as measured by the national accounts and therefore also not in the DWA, are the expected pensions paid by social security systems.

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between the HFCS, adjusted up to this point, and the QSA are allocated proportionately across households for each item in the wealth concept.[7]

Quarterly DWA data are produced by interpolating and extrapolating information from the HFCS waves and combining it with aggregate quarterly changes in the components of wealth as reported in the QSA. The latest DWA quarters after the most recent HFCS wave are extrapolated under the assumption that the distribution of each individual instrument has remained stable. However, DWA distributions of net wealth change in the extrapolation period in line with the trends in the underlying QSA totals for the instruments and the holdings of different household groups. For example, strong increases in share prices will tend to shift the wealth distribution towards those household groups which typically hold shares as part of their financial investments. The DWA capture those effects.

Sensitivity analysis has shown that the DWA are sufficiently reliable for analytical and policy use while involving assumptions and estimates, meaning that data are labelled "experimental". For example, assumptions are used for the distribution of deposits and calculation of time series. At the same time, additional information, generally based on media sources, is used when estimating the wealth of the richest households.[8]

3   Key stylised facts in the DWA dataset

The distribution of household wealth is highly uneven, with rich households owning a large share of the total (Chart 1, panel a).[9] In the euro area, for example, the wealthiest 10% of households hold 56% of net wealth, while the bottom 50% hold only 5%. The uneven distribution implies that, based on wealth, a large share of households that matter more for aggregate income, employment and consumption are under-represented and therefore may be less sensitive to wealth effects.

The bottom half of the distribution has witnessed a faster recovery in household net wealth following the losses during the sovereign debt crisis, leading to a decline in wealth concentration since around 2015. The bottom 50% of the net wealth distribution had experienced strong losses in net wealth during the sovereign debt crisis, as their higher indebtedness exacerbated the negative wealth effects induced by the housing market correction in several countries. Since around 2015, these households have been able to recoup losses at a faster pace, albeit from a much lower base, compared with the 40% just above the median and the wealthiest 10% (Chart 1, panel b). For the bottom half, the annual nominal growth rate of wealth consistently exceeded 4% over this period, before slowing

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[7]   The DWA euro area data are computed by merging the DWA household-level data computed for each country, adjusted to fit with the actual QSA euro area aggregates via proportional allocation and by recalculating the net wealth deciles at the euro area level incorporating all euro area households.

[8]   Additional information can be found in the Overview note, Methodological note and Press release on the ECB's website.

[9]   Net wealth is defined as the difference between total assets (financial and non-financial) and total liabilities. For some households, it could be zero or negative.

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down in recent quarters. Wealth accumulation for the bottom half was supported by relatively faster increases in the value of financial and housing assets − with the latter driven by house price appreciation − and by household deleveraging, thereby reducing debt burdens and strengthening balance sheets. Altogether, these developments have contributed to a slight decrease in the Gini coefficient for the euro area by around 1.5 percentage points since 2015 (Chart 1, panel c).[10] Wealth inequality declined further in recent years in the context of the coronavirus (COVID-19) pandemic, the unanticipated surge in inflation and the subsequent monetary policy tightening (see also Sections 4 and 5).

Chart 1

Developments in euro area wealth distribution

a) Household net wealth by wealth group

(EUR trillions)

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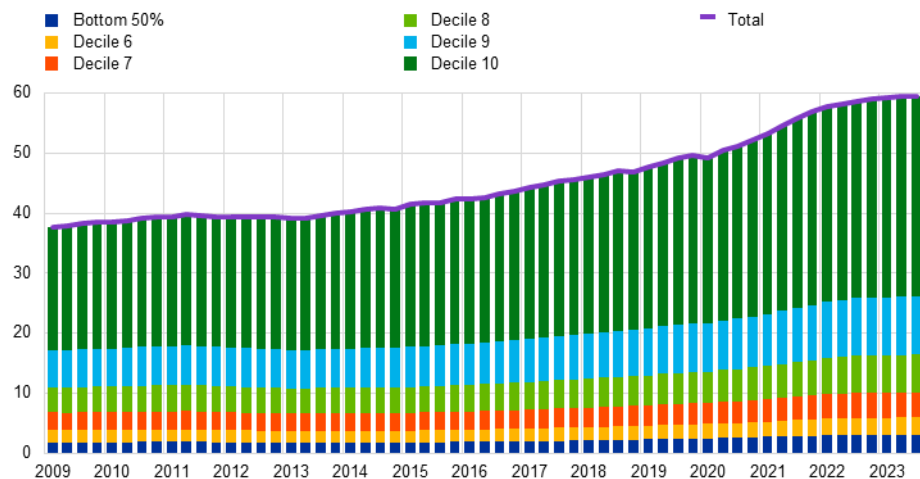
[10] A Gini coefficient of 0 expresses perfect equality where everyone has the same wealth, while a coefficient of 1 expresses full inequality where only one person has all the wealth.

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b) Nominal growth in net wealth and contributions

(annual percentage changes; percentage point contributions)

- Net wealth
- Financial wealth
- Business wealth
- Housing wealth
- Liabilities

Bottom 50%

Next 40%

Top 10%
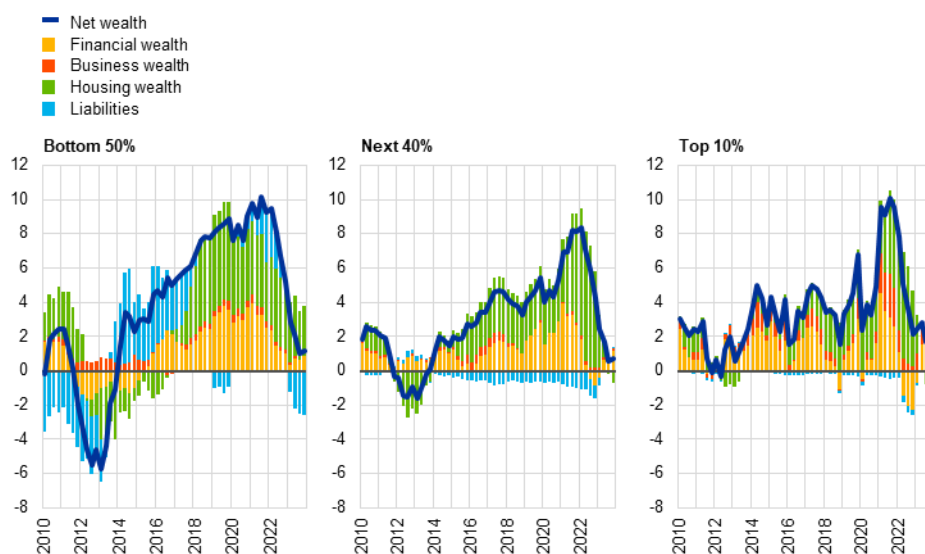
c) Gini coefficient: level and changes since 2015

(left chart: percentages; right chart: percentage point changes)

- Euro area
- Germany
- France
- Italy
- Spain
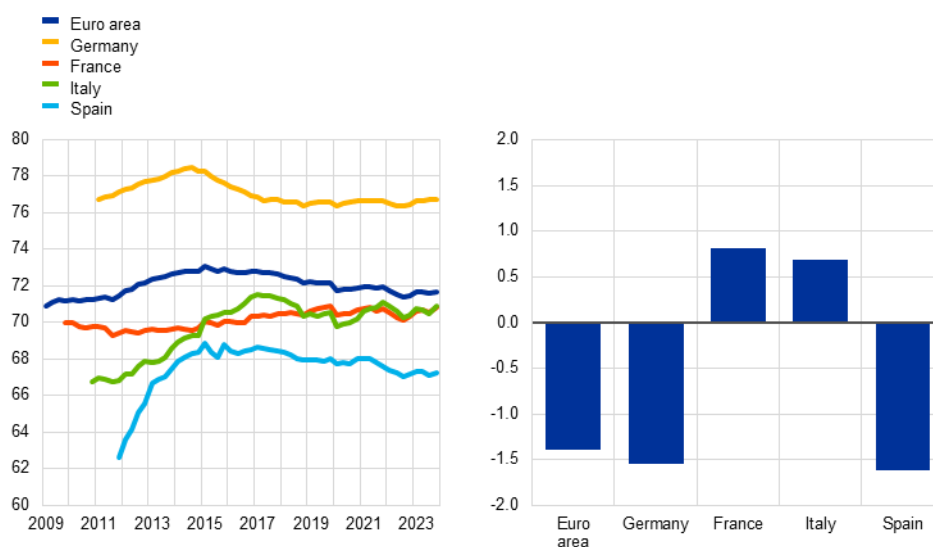
Sources: ECB (DWA) and ECB calculations.
Notes: The starting dates of the DWA differ across countries, consistent with the country-specific HFCS waves. In panel b) and throughout the article, housing wealth in the euro area refers to real estate assets; business wealth is the sum of non-financial business wealth and unlisted equity; financial wealth refers to the sum of all other assets; and liabilities refer to the sum of mortgages and other debt. The latest observations for panels a), b) and c) are for the fourth quarter of 2023. The right chart in panel c) shows percentage point changes in the Gini coefficient from the first quarter or 2015 (peak for the euro area) to the fourth quarter of 2023.

Across countries, differences in wealth inequality remain substantial.[11] This reflects structural factors, such as aggregate homeownership rates, which are negatively correlated with inequality, as low homeownership rates tend to imply that a large share of households in the bottom half of the wealth distribution hold very low

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[11] For a discussion of the factors driving dispersion in wealth inequality across euro area countries, see Leitner, S., "Drivers of wealth inequality in euro area countries: the effect of inheritance and gifts on household gross and net wealth distribution analysed by applying the Shapley value approach to decomposition", *European Journal of Economics and Economic Policies: Intervention*, Vol. 13, Issue 1, 2016, pp. 114-136.

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amounts of wealth.[12] Consistent with this, inequality across the four largest euro area countries is higher in Germany and lower in Spain. Despite such structural differences, the Gini coefficient has remained broadly stable in France and Italy since 2015, while it has declined by relatively similar magnitudes in Germany and Spain. Wealth inequality remains lower in the euro area than in the United States, despite a visible decline in inequality on the other side of the Atlantic since the start of the pandemic (see Box 1).

The concentration of wealth varies both across instruments and over time, reflecting differences in preferences, in access to various asset classes and in credit and liquidity constraints. Concentration is particularly high for financial assets exposed to changes in value: around 80% of equities, investment fund shares and bond holdings are held by the top 10% wealthiest households (Chart 2). Business wealth exhibits similarly high concentration. Deposit holdings, housing wealth and liabilities (mortgages and other types of loan) are more evenly spread. Since 2015 there has been an increase in the concentration of housing wealth and mortgage debt, meaning a faster pace of accumulation – including through valuation effects – among wealthier households than poorer households. Moreover, relative holdings of debt securities and equity increased for the next 40% of households with wealth above the median.

Chart 2
Instrument concentration

(percentages of total outstanding amounts of each instrument)
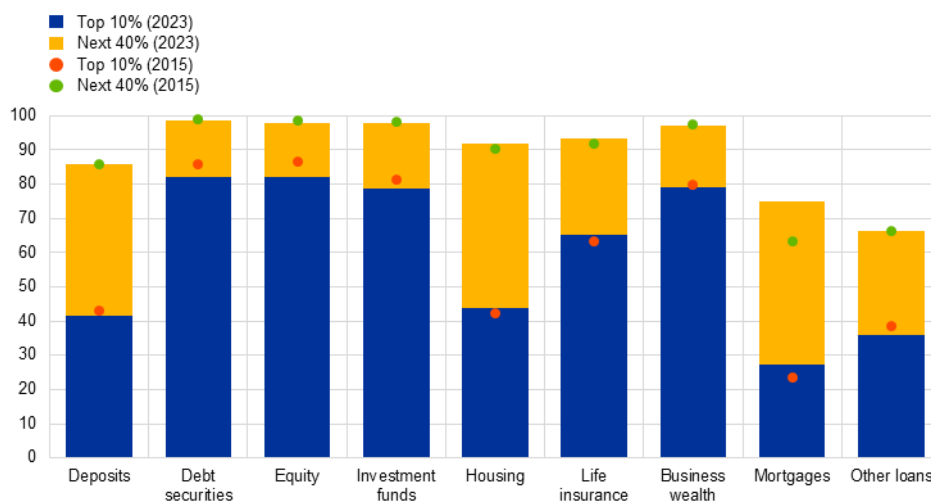
Sources: ECB (DWA) and ECB calculations.
Notes: The chart shows average instrument holdings by net wealth group as a share of the total corresponding instrument outstanding amounts for 2015 and 2023. The latest observations are for the fourth quarter of 2023.

The composition of net wealth also varies across wealth groups and changes over time. The bottom 50% hold a greater proportion of their wealth in bank deposits and housing, at around 25% and 63% respectively. The next 40% hold a similar share of both instruments together, but with a relatively lower weight for deposits and higher weight for housing (15% and 72% respectively). The shares of deposits and

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[12] See Kaas, L., Kocharkov, G. and Preugschat, E., "Wealth inequality and homeownership in Europe", *Annals of Economics and Statistics*, No 136, 2019, pp. 27-54.

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housing are smaller for the top 10% wealthiest households (10% and 50% respectively), as this group holds a larger share of business wealth and financial wealth other than deposits (Chart 3, panel a). Moving up the wealth distribution, the share of deposits declines while net wealth and riskier assets (equities, investment funds and bonds) increase, as wealthy households are able to bear more risk. Furthermore, household indebtedness declines going up the wealth distribution, as assets (e.g. housing) become less leveraged. Over time, a decline in borrowing by the bottom half of the wealth distribution (Chart 3, panel b) has helped to strengthen their balance sheets and increase their net wealth share in total assets, which has served to reduce inequality.

Chart 3

Composition of net wealth distribution

(percentages of group-specific net wealth; percentage point changes)
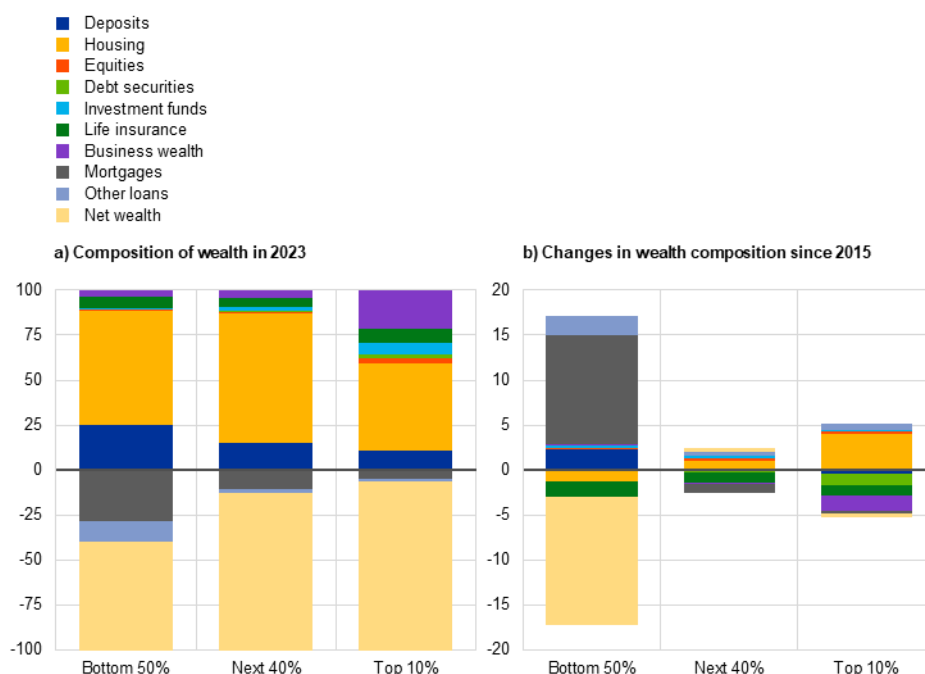
Sources: ECB (DWA) and ECB calculations.
Notes: Net wealth is shown with a negative sign. The latest observations are for the fourth quarter of 2023.

On the liabilities side, household leverage in the euro area has declined substantially for the bottom half of the wealth distribution over the past decade and has remained broadly unchanged for the top half. The deleveraging process over the past decade, supported mainly by the bottom half of the wealth distribution (Chart 4, panel a), was driven by an increase in assets alongside a decline in liabilities. Over recent years, with higher interest rates, deleveraging has continued, albeit at a slower pace, possibly indicating some use of household excess savings towards debt repayment or reduced borrowing. The reduction in leverage in the bottom half of the distribution has been driven mostly by economies which underwent strong housing market cycles, with significant price fluctuations and price corrections in the context of the global financial crisis and the euro area sovereign debt crisis (Chart 4, panel b). Nevertheless, leverage for the bottom 50% remains significantly higher than for wealthier households.

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Chart 4

Leverage ratios across the wealth distribution in the euro area

a) Total debt-to-asset ratios across the wealth distribution

(percentages)

- Total (right-hand scale)
- Bottom 50%
- Next 40% (right-hand scale)
- Top 10% (right-hand scale)
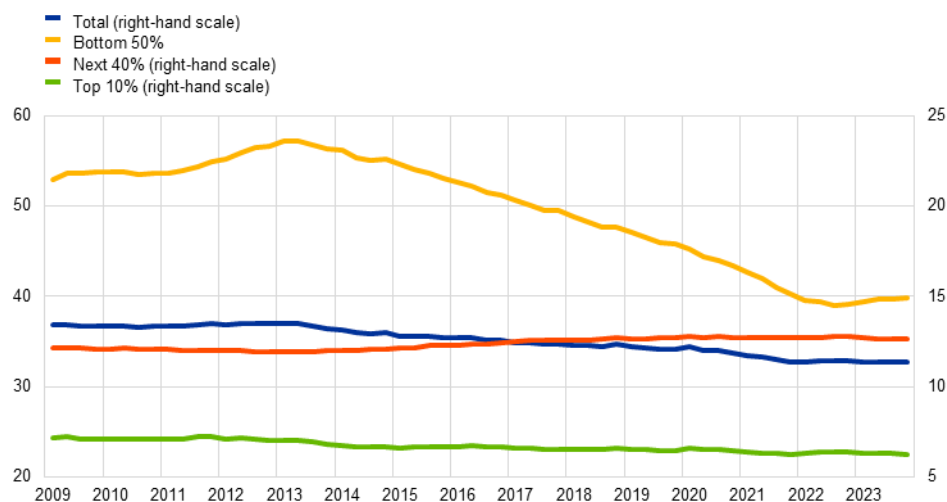
b) Mortgage debt-to-asset ratios for the bottom 50% of the wealth distribution

(percentages)

- Euro area
- Countries with large housing cycle
- Countries with limited housing cycle
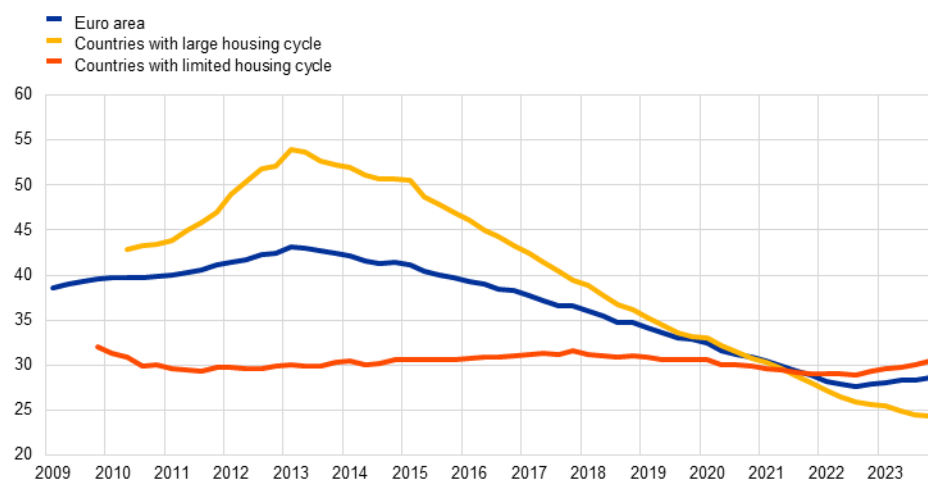
Sources: ECB (DWA) and ECB calculations.
Notes: The leverage ratio is total debt divided by total assets in panel a) and mortgage debt divided by total assets in panel b). In panel b), countries with a large housing cycle are those that experienced a significantly larger decline in house prices (greater than 2% on average per year over 2007-13) compared with the euro area as a whole (-0.35% on average per year over 2007-13), consistent with the assessment in the article entitled "The state of the housing market in the euro area", *Economic Bulletin*, Issue 7, ECB, 2018. These countries include Spain, the Netherlands, Ireland, Portugal, Greece, Estonia, Lithuania and Latvia. The countries with a limited housing cycle comprise those with house price changes similar to or greater than the euro area average during the same period; these include Germany, France, Italy, Belgium, Finland, Slovakia, Slovenia and Luxembourg. The country aggregation is performed bottom-up by aggregating assets and liabilities for the bottom 50% of households by net wealth. The starting dates for the DWA differ across countries, consistent with the country-specific HFCS waves. The latest observations are for the fourth quarter of 2023.

Box 1

Distributional Financial Accounts in the United States

Prepared by Alina Bobasu and Georgi Krustev

Similar to the Distributional Wealth Accounts (DWA) in the euro area, the US Federal Reserve System compiles the Distributional Financial Accounts (DFAs) for the United States. This dataset

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contains quarterly estimates of the distribution of US household wealth since 1989.[13] Despite declining visibly over the last few years, wealth inequality remains significantly higher in the United States than in the euro area, with the top decile of the wealth distribution in the United States holding around two-thirds of total net wealth (Chart A).[14]

Chart A

Concentration of net wealth in the euro area and the United States

(percentages)

- Bottom 50%
- Next 40%
- Top 10%
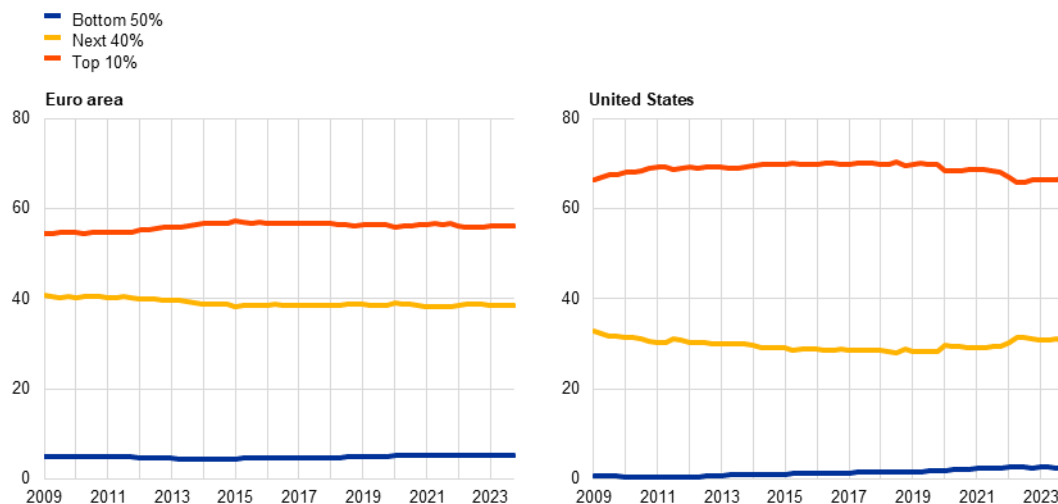
Sources: ECB (DWA), US Federal Reserve Board and ECB calculations.
Notes: The chart shows the net wealth holdings by net wealth group as a share of the total. The latest observations are for the fourth quarter of 2023.

In the United States, the wealth at the top of the distribution is largely held in business and financial assets, such as corporate equities, mutual fund shares and pensions, and less in housing than in the euro area. The bottom 50% of the wealth distribution hold their assets mainly in housing and are more leveraged than euro area households, including through liabilities other than mortgages (Chart B). The higher level of wealth concentration in the United States reflects multiple factors such as the degree of labour income inequality and movements in house prices relative to financial asset prices compared with Europe.[15] Over the past two years, the bottom 50% of the wealth distribution have increased their wealth at a faster pace than the rest (around 6.9% average growth compared with 5% and 0.3% respectively for the next 40% and the top 10%), which has led to a more rapid decline in wealth inequality in the United States than in the euro area. This has mainly been driven by a faster accumulation of housing wealth by the bottom 50%, predominantly due to rising real estate prices and a lower accumulation of debt relative to the rest of the wealth distribution (Chart C). Nevertheless, financial wealth has also played a major role. The wealth of the top 10% declined following the start of the latest monetary policy tightening cycle in the United

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[13]   For more information, see "Distributional Financial Accounts Overview", Board of Governors of the Federal Reserve System, March 2024.

[14]   For a detailed comparison of wealth, income and consumption inequality across advanced economies, see the article entitled "Monetary policy and inequality", *Economic Bulletin*, Issue 2, ECB, 2021.

[15]   See Blanchet, T. and Martinez-Toledano, C., "Wealth inequality dynamics in Europe and the United States: Understanding the determinants", *Journal of Monetary Economics*, Vol. 133(C), 2023, pp. 25-43.

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States in early 2022 driven primarily by equities and, to a lesser extent, pension holdings, which have only just started to increase again more recently (Chart C).[16]

Chart B

United States: composition of net wealth

(percentages of group-specific net wealth; percentage point changes)
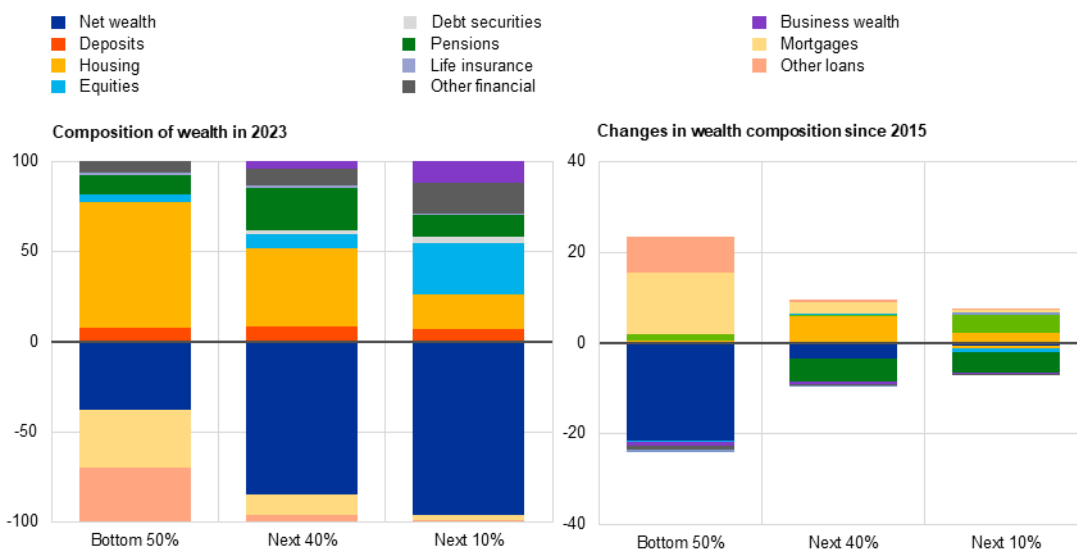
Sources: US Federal Reserve Board and ECB calculations.
Note: The net wealth is shown with a negative sign.

Chart C

United States: net wealth growth and contributions

(annual percentage changes; percentage point contributions)
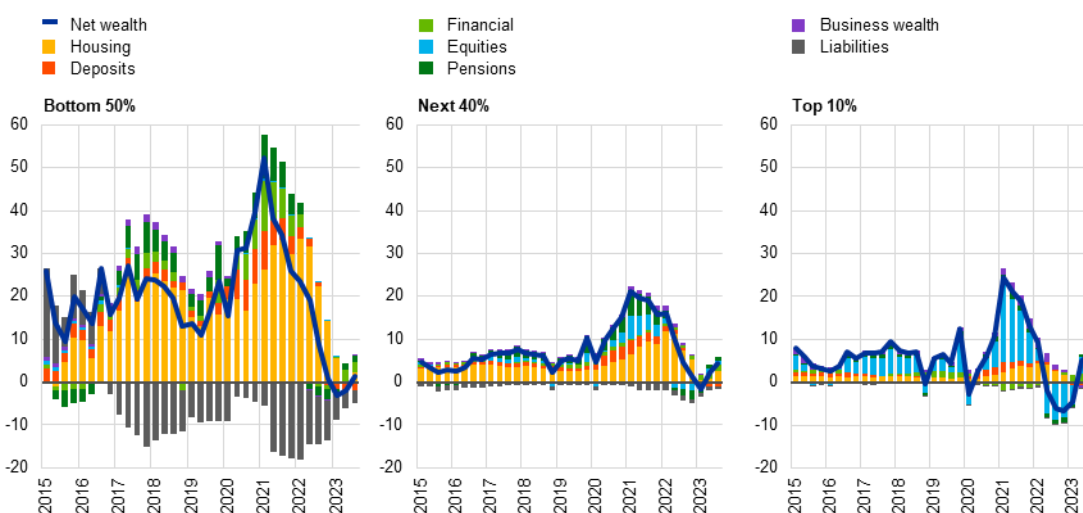
Sources: US Federal Reserve Board and ECB calculations.
Notes: Compared with the euro area, data for the United States include more instruments, such as currency, pension entitlements and consumer durables, with the latter included in housing wealth in Chart C above. Other financial wealth as depicted in the chart excludes deposits, equities and pensions. Business wealth includes equities in non-corporate businesses. The latest observations are for the fourth quarter of 2023.

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16   For a discussion about the drivers of wealth inequality in the United States, see Fagereng, A., Guiso, L., Malacrino, D. and Pistaferri, L., "Heterogeneity and Persistence in Returns to Wealth", *Working Paper Series*, No 171, IMF, 2018.

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4 Asset price fluctuations and the wealth distribution

Changes in asset prices affect household wealth differently across the wealth distribution, depending on the composition of wealth, with consequences for inequality. The impact of asset price changes on household wealth depends on the sensitivity of balance sheet instruments to market conditions and prevailing interest rates, and on households' exposures to such instruments via their holdings of assets and liabilities. Developments in households' holdings tend to be sluggish, as they do not rebalance strongly in response to asset price changes. Changes in household net wealth are primarily driven by gains and losses on holdings of real estate and equity which, in turn, follow house and stock prices very closely.

The effects of asset price changes on household balance sheets represent an important channel of monetary policy transmission. For instance, a decline in house prices, reflecting changing market conditions or monetary policy tightening, reduces the net wealth of existing homeowners and renders them poorer, as the value of their housing wealth falls while their liabilities remain the same. The associated negative wealth effects can prompt them to consume less and save more in order to rebuild their wealth.[17]

Household wealth for the bottom 50% tends to be markedly more sensitive to changes in house prices than the wealth of the top 10%. The bottom half of the distribution, with higher housing-to-net-wealth ratios and more leveraged housing exposures, are significantly more sensitive to changes in house prices than to changes in prices for other assets (Chart 5). A simple indicator of this sensitivity is a leverage multiplier which measures the exposure to a particular asset class in relation to wealth. This indicator allows the mechanical effects of a hypothetical 10% increase in the prices of various asset classes on household net wealth to be traced, and to see how these effects change over time, while abstracting from indirect channels associated, for instance, with portfolio reallocation.[18] A 10% house price appreciation increases the net wealth of households in the bottom 50% by more than 10%, on average. By contrast, the positive effect on wealth of such an increase amounts to around 5% for the top 10% wealthiest households, as they are less indebted and housing represents a smaller portion of their wealth. Housing exposures therefore tend to become smaller as wealth increases due to the effect of lower indebtedness in proportion to housing values (Chart 5, panel a).

At the same time, the effects of equity price changes are strongest at the top of the wealth distribution (Chart 5, panel b). This reflects the high concentration of this type of asset among the wealthy. Consequently, while rising house prices would tend, in isolation, to reduce inequality by disproportionately benefiting the less wealthy, the opposite effect is observed with rising equity prices.

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[17] For an overview of estimates of wealth effects in the euro area, see the box entitled "Estimates of wealth effects for the euro area and the largest euro area countries" in the article entitled "Household wealth and consumption in the euro area", *Economic Bulletin*, Issue 1, ECB, 2020.

[18] For a detailed explanation, see Adam, K. and Tzamourani, P., "Distributional consequences of asset price inflation in the Euro Area", *European Economic Review*, Vol. 89, 2016, pp. 172-192.

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Chart 5

Net wealth changes across the wealth distribution from a 10% rise in asset prices

a) Net wealth gains from a 10% rise in house prices

(percentages of net wealth)
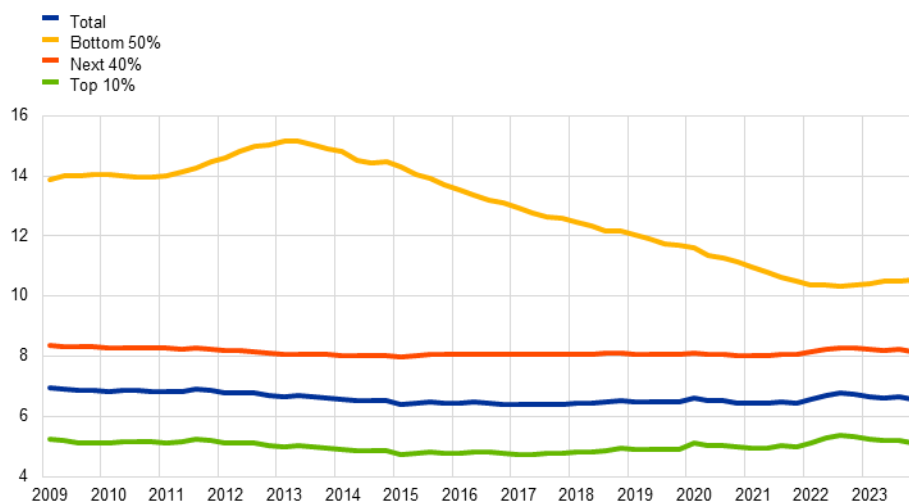
b) Net wealth gains from a 10% rise in equity prices

(percentages of net wealth)
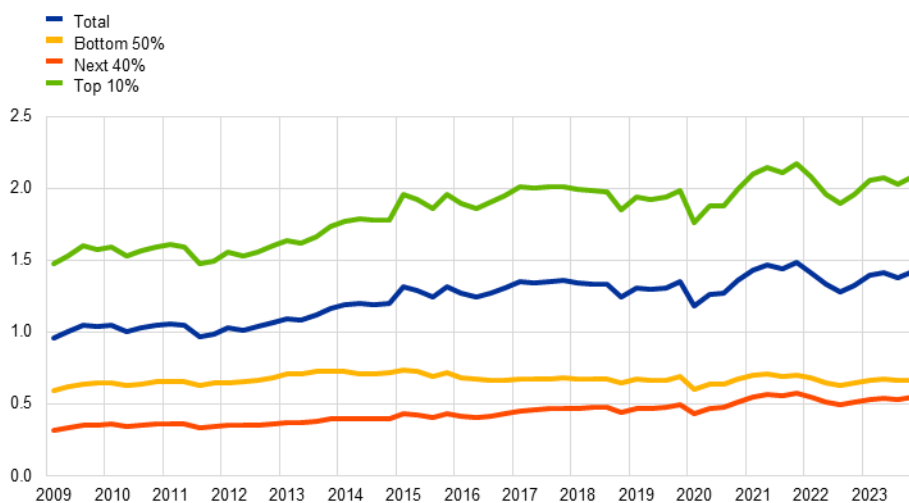
Sources: ECB (DWA) and ECB calculations.
Notes: The sensitivity of wealth to a 10% rise in house prices and a 10% rise in equity prices is based on the ratio of housing wealth to net wealth and the ratio of equity asset holdings to net wealth respectively. Equity assets comprise direct and indirect exposures and are the sum of holdings of listed equity, financial business wealth and indirect equity holdings via household mutual fund shares and pension claims. The ratio of equities in household mutual fund shares is based on aggregate look-through statistics for household asset holdings held indirectly via investment fund shares. For pension claims, the ratio is computed as the share of equities in the total financial assets of insurance corporations and pension funds, including indirect equity exposures via their investment fund holdings, in the latter case using the same equity ratio in investment fund shares held by insurance corporations and pension funds as the share of equity exposures for investment fund shares of households based on look-through statistics. The latest observations are for the fourth quarter of 2023.

Nevertheless, the share of housing in net wealth has decreased over time as the less wealthy have consolidated their balance sheets. Deleveraging over the past decade has caused the share of housing in net wealth at the bottom of the wealth distribution to decline. This may have important implications for monetary policy transmission via asset prices in a context of rising policy rates, as less wealthy households may have become more resilient to housing market corrections compared with the global financial crisis and euro area sovereign debt crisis.

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While homeowners in the bottom half of the distribution have benefited more from higher house prices, this wealth group refrained from house purchases as affordability worsened. Chart 6 shows that, considered in isolation, positive housing wealth revaluations (i.e. driven by higher house prices which gradually increased the market value of homes) from 2015 on have disproportionately benefited net wealth at the bottom half of the distribution.[19] Consequently, rising house prices have contributed to the observed decline in wealth inequality since 2015. At the same time, housing transactions have partly reversed that effect by working in the opposite direction as the bottom 50% reduced their housing assets while the rich accumulated more.[20] This may reflect the distributional consequences of rebalancing, as the rising house prices reduced home affordability for the less wealthy. This conclusion is supported by evidence of declining homeownership rates and correspondingly higher rental rates among the less wealthy over the past decade in countries such as Spain which have seen substantial housing adjustments.[21] The adjustment appears to have had a greater impact on younger cohorts that also reduced their indebtedness and homeownership during the crisis periods to levels closer to the euro area average.[22]

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[19]   This is consistent with the findings in Adam, K. and Tzamourani, P., op. cit.

[20]   Declining leverage for the bottom 50% is consistent with the declining participation in the housing market, most likely due to low affordability in the context of rising house prices and, more recently, higher interest rates and tighter credit constraints.

[21]   See "Recent developments in the rental housing market in Spain", *Economic Bulletin*, Issue 3, Banco de España, 2019.

[22]   This normalisation partly reflects strengthened macroprudential regulations and tighter credit provisions.

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Chart 6

Cumulative effects of transactions and revaluations on net wealth across the wealth distribution

(cumulative percentage changes in net wealth since Q1 2009; percentage point contributions)

- Net wealth
- Financial asset transactions
- Business wealth transactions
- Housing wealth transactions
- Liabilities transactions
- Financial asset revaluations
- Business wealth revaluations
- Housing wealth revaluations

a) Bottom 50%
b) Next 40%
c) Top 10%
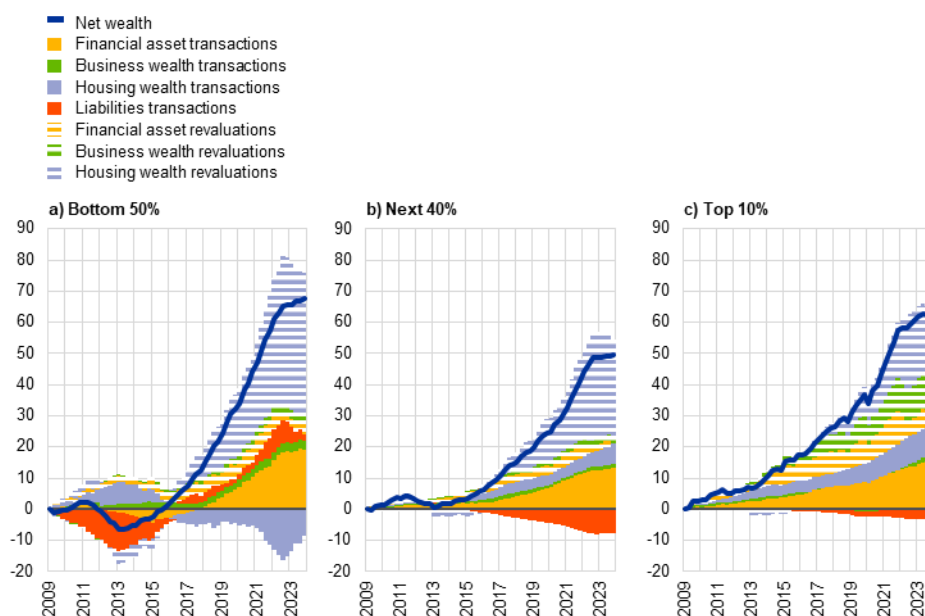
Sources: Eurostat, ECB (DWA, QSA) and ECB calculations.
Notes: Valuation effects by instrument are computed from the aggregate Quarterly Sectoral Accounts (QSA) by subtracting quarterly transactions from differences in outstanding amounts (OA) which include flows, changes in valuations and other changes. Housing revaluations are computed by subtracting housing investment flows (approximated by household gross fixed capital formation plus acquisition of non-financial assets net of consumption of fixed capital) from changes in the housing capital stock (approximated by household non-financial fixed assets including land). Business wealth revaluations are computed from a weighted average of the investment deflators for machinery and equipment and for commercial property prices. The QSA valuation changes by instrument are then applied proportionately (in terms of quarterly percentage changes) to the corresponding instrument holdings across each decile in the wealth distribution to decompose OA stocks into valuation effects (including other changes) and notional stocks (derived from the cumulation of transactions). Liabilities are assumed to result only from transactions. The latest observations are for the fourth quarter of 2023.

5 Impact of inflation and monetary policy on wealth distribution

The composition of assets and liabilities across the wealth distribution determines the extent to which high inflation affects wealth inequality.
Unanticipated inflation may lead to a drop in wealth inequality by redistributing wealth from lenders to borrowers through changes in the real value of nominal assets and liabilities. This is known as the Fisher channel.[23] Nevertheless, the Fisher channel only works fully if income adjusts to inflation, thereby reducing the burden of payments from indebted households, which are usually those at the bottom of the wealth distribution. The Fisher channel is weakened when higher unexpected inflation reduces the real interest income of low and medium-income households and increases the profit income of high-income households.[24]

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[23] See Fisher, I., "The Debt-Deflation Theory of Great Depressions", *Econometrica*, Vol. 1, No 4, 1933, pp. 337-357.

[24] For further discussion on the strength of the Fisher channel in the context of rising inflation, see Erosa, A., and Ventura G., "On inflation as a regressive consumption tax", *Journal of Monetary Economics,* Vol 49, Issue 4, May 2002, pp 761-795 and in Heer, B. and Süssmuth, B., "Effects of inflation on wealth distribution: Do stock market participation fees and capital income taxation matter?", *Journal of Economic Dynamics and Control*, Vol. 31, Issue 1, January 2007, pp. 277-303.

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The effects of an inflation shock on the wealth distribution can be assessed by decomposing changes in real net wealth into contributions from transactions, real asset revaluations and erosion due to inflation.[25] The assessment quantifies the effect on real net wealth stemming from the nominal erosion of its components (which is negative for nominal assets and positive for nominal liabilities) over the high-inflation period since mid-2021 across the wealth distribution. It does so by reproducing the ex-post decomposition in the cumulative change in net wealth between two points in time − end-of-sample (fourth quarter of 2023) − relative to the surge in inflation starting in the second quarter of 2021 − into three components: the transactions component, the developments in real asset prices and the erosion (due to inflation) component. The first and second components are similar to those shown in Chart 6; they trace the effects of savings and revaluations on wealth accumulation (albeit in real terms). The third component quantifies the erosion by inflation of the real value of assets and liabilities, with reimbursements set in advance in nominal terms (deposits and debt).

Real net wealth has declined across the wealth distribution since mid-2021, but higher inflation has tempered losses for poorer households by eroding their liabilities more than their deposits, while also amplifying losses for wealthier households (Chart 7). The effect reflects distributional differences in net nominal positions in assets and liabilities whose reimbursement value is set in nominal terms, in addition to the heterogeneity in net savings which are captured by the transaction component. Poorer households, as a group, hold lower deposits than debt. This implies that inflation will erode a higher share of their liabilities than their assets exposed to inflation (i.e. deposits), while the opposite occurs for wealthier households. This effect captures only the wealth redistribution from savers to borrowers, working mechanically through balance sheet positions, and ignores other effects such as flows of interest income and debt repayments, as well as differences within wealth groups given that only a given share of households holds any debt.[26] Going up in the wealth distribution, real wealth losses have increased over the last two and a half years, despite stronger contributions to net wealth from savings and less limited losses from falling real house prices. This result is mostly attributable to revaluations of financial assets other than deposits (such as shares and bonds) and business wealth, which have experienced larger real losses amid rising interest rates.

25　The approach is based on equation 1 in Infante, L., Loschiavo, D., Neri, A., Spuri, M. and Vercelli, F., "The heterogeneous impact of inflation across the joint distribution of household income and wealth", *Occasional Paper Series*, No 817, Banca d'Italia, November 2023.

26　For instance, the benefits from higher inflation accruing to less wealthy households because of their higher liabilities relative to deposits might be neutralised by their higher unhedged interest rate exposure. This makes them more susceptible to losses from deteriorating net interest income, relatively to wealthier households, as monetary policy reacts by raising interest rates in response to high inflation. Such effects are likely to depend on the prevalence of adjustable rate mortgages and vary greatly across countries. See Tzamourani, P., "The interest rate exposure of euro area households", *European Economic Review*, Vol. 132, February 2021. In addition to affecting net interest income, higher interest rates would also limit the erosion of wealth by reducing inflation. A further caveat is that the analysis does not account for the possibility of group-specific inflation rates across the wealth distribution.

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Chart 7

Changes in real net wealth since Q2 2021 and contributions

(cumulative percentage changes; percentage point contributions)

- Real net worth
- Transactions
- Gain (+)/loss (-) due to inflation
- Financial revaluations
- Business wealth revaluations
- Housing revaluations

a) Bottom 50% b) Next 40% c) Top 10%
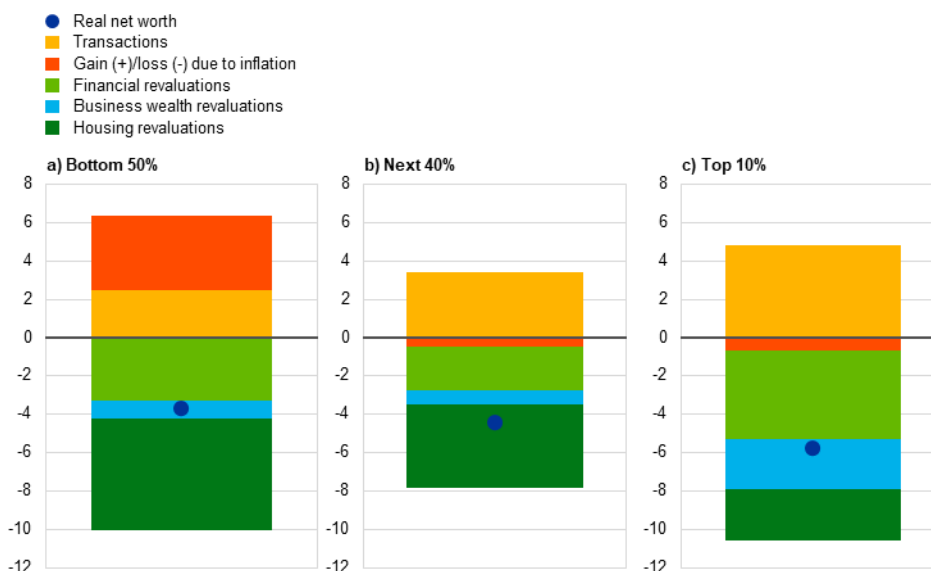
Sources: Eurostat, ECB (DWA, QSA) and ECB calculations.
Notes: The decomposition is based on Infante, L. et al., op. cit. Net worth is deflated with the private consumption deflator. Instruments highly exposed to inflation (whose reimbursement value is set in advance in nominal terms) include deposits and liabilities (mortgages and other debt). The net effect from the impact of higher inflation on deposits (negative) and on liabilities (positive) is aggregated under "Gain(+)/loss(-) due to inflation". For all other assets, revaluations are based on the contributions from cumulative real asset price changes applied at individual instrument class level, derived on the basis of nominal revaluations by instrument taken from the aggregate QSA deflated with the private consumption deflator, and applied to outstanding instrument positions by wealth decile as of the second quarter of 2021. The real asset price revaluation effects are grouped under "Financial revaluations" for all financial assets other than deposits (i.e. listed shares, investment funds, bonds and insurance claims). "Business wealth revaluations" is the sum of financial and non-financial business wealth. Transactions are computed as a residual and group acquisitions of any instruments over the period.

Turning to the effects of monetary policy, changes in the wealth distribution across households can occur mainly through two channels. The first channel involves asset prices, as the size and compositions of holdings in the euro area imply that some households hold more long-term assets and are, therefore, more affected by (asset) price movements related to the monetary policy stance, as also documented in Section 4.[27] The second channel relates to savings remuneration and the cost of debt, as a shift in interest rates will have contrasting effects on the wealth of net borrowers as opposed to net savers. While there is some agreement on the effects of monetary policy on the income distribution, the distributional impacts on wealth are less clear and the findings are rather mixed. In this sense, some of the available analyses suggest overall limited effects on the wealth

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[27] See also O'Farrell, R., Rawdanowicz, L. and Inaba, K., "Monetary Policy and Inequality", *OECD Economics Department Working Papers*, No 1281, OECD Publishing, March 2016.

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distribution, while other studies indicate increasing wealth inequality due to expansionary unconventional monetary policy.[28] [29]

Empirical evidence points to dampening effects of monetary policy tightening across the wealth distribution. Changes in asset prices have a direct impact on household balance sheets.[30] Following the start of monetary policy tightening, equity prices initially declined in the first three quarters of 2022 but subsequently rebounded strongly. In contrast, house prices, which usually exhibit lower volatility, only began declining more visibly later in response to higher interest rates, although the total decline remained modest for the euro area as a whole amidst heterogeneous developments across countries. A linear panel local projections framework is used to assess the impact of monetary policy tightening on the wealth distribution, with a focus on the housing and financial wealth channels.[31] Empirical estimates point to a dampening effect of monetary policy tightening which is heterogenous across the wealth distribution.[32] Overall, all household groups lose in terms of their net wealth (Chart 8, panel a). While the bottom 50% lose mainly via housing wealth due to lower house prices, the next 40%, and especially the top 10%, lose primarily via financial wealth channels, with the housing channel playing a more limited role. Nevertheless, for the latter group, net wealth tends to recover quicker in line with equity prices rebounding faster than house prices (Chart 8, panel b), despite a relatively larger initial fall following the monetary policy shock. Overall, the monetary policy tightening seems to have a dampening effect across the wealth distribution, with the housing channel playing a relatively stronger role for the less wealthy, while the financial channels seem more important for the wealthiest households.[33]

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[28] For studies pointing to limited effects of unconventional monetary policy easing on wealth inequality in the euro area, see Lenza, M. and Slacalek, J., "How does monetary policy affect income and wealth inequality? Evidence from quantitative easing in the euro area", *Journal of Applied Econometrics*, April 2024; for an analysis of Italian household wealth, see Casiraghi, M., Gaiotti, E., Rodano, L. and Secchi, A., "A 'reverse Robin Hood?' The distributional implications of non-standard monetary policy for Italian households", *Journal of International Money and Finance*, Vol. 85, 2018, pp. 215-235; for an analysis on US, see Greenwald, D.L., Leombroni, M., Lustig, H. and Van Nieuwerburgh, S., "Financial and total wealth inequality with declining interest rate", *NBER Working Paper*, No 28613, 2021; for evidence pointing to increasing wealth inequality in the euro area following unconventional monetary policy expansion, see De Luigi C., Feldkircher, M., Poyntner P., Schuberth, H, "Quantitative easing and wealth inequality: the assets price channel", *Oxford Bulletin of Economics and Statistics*, Vol. 85, Issue 3, February 2023, pp 638-670.

[29] For a discussion of the distributional effects of monetary policy on wealth, see also "The distributional footprint of monetary policy", *BIS Annual Economic Report*, Bank for International Settlements, June 2021.

[30] The impact on capital gains/losses from lower/higher interest rates depends on whether assets have longer durations than liabilities; see the articles entitled "Monetary policy and inequality", *Economic Bulletin*, Issue 2, ECB, 2021, and "The impact of the recent inflation surge across households", *Economic Bulletin*, Issue 3, ECB, 2023.

[31] The local projections models follow the approach pioneered in Jordà, O., "Estimation and Inference of Impulse Responses by Local Projections", *American Economic Review*, Vol. 95, No 1, March 2005, pp. 161-182.

[32] As the present analysis focuses on specific wealth groups as reported by DWA, assessing the overall implications of the results for wealth inequality is not straightforward. Available results from the literature suggest that findings can be sensitive to the employed measures of inequality (see De Luigi et al. (2023) op. cit).

[33] There are some caveats due to the limited DWA sample and the partial analysis of this assessment which abstracts from other potentially important general equilibrium channels at play.

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Chart 8

Effects of monetary policy

a) Impact on net wealth of monetary policy tightening

(percentages)

- Bottom 50%
- Next 40%
- Top 10%
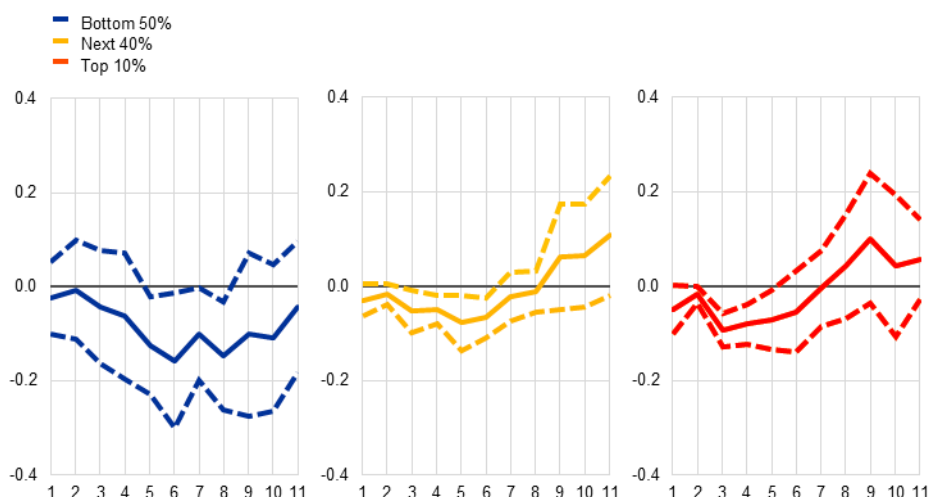
b) Impact on net wealth of monetary policy tightening

(percentages)
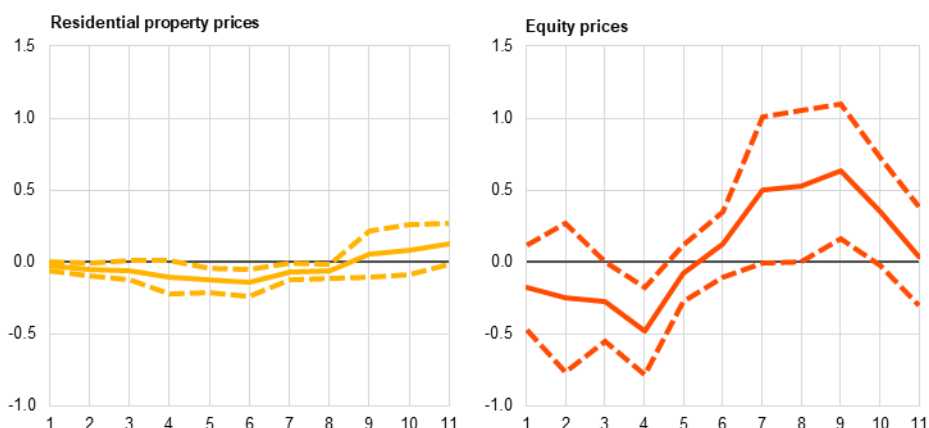
Sources: ECB (DWA), Eurostat and ECB calculations.
Notes: Panel a) shows the results based on a panel local projections model for the five largest euro area countries (Germany, France Italy, Spain and the Netherlands) with an (unbalanced) sample, running from the fourth quarter of 2009 to the fourth quarter of 2023 and accounting for country-fixed effects. The model includes as dependent variables the net wealth for the three relevant groups of the wealth distribution − bottom 50%, next 40% and top 10% − and the monetary policy shocks corresponding to monetary policy surprises, as reflected in changes in one-year overnight index swap risk-free rates around the ECB's monetary policy announcements, as identified in Altavilla, C. et al. (2019) as an exogenous variable.[34] Following Lenza, M. and Slacalek, J., op. cit., asset (real estate and equity) prices have been added to the model alongside real GDP, short-term rate and inflation. Panel b) shows the results based on a panel local projections model, including as dependent variables asset prices. The model includes four lags of the dependent variables as well as lags of the control variables. The dashed lines reflect the 95% confidence intervals. The results for wealth-specific instruments for the three groups of the wealth distribution are consistent with the findings in Chart 8, panel a), showing that housing wealth declines in relative terms slightly more for the bottom 50%, while financial wealth more for the top 10%.

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[34] See Altavilla, C., Brugnolini, L., Gürkaynak, R.S., Motto R., Ragusa, G., "Measuring euro area monetary policy", *Working Paper Series*, No 2281, ECB, May 2019. The results are robust to using the longer-term maturities of different policy instruments, as in Altavilla, C. et al. (2019), or other monetary policy shocks such as those identified in Jarociński, M. and Karadi, P., "Deconstructing Monetary Policy Surprises – The Role of Information Shocks", *American Economic Journal: Macroeconomics*, Vol. 12, No 2, April 2020, pp. 1-43.

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6   Conclusions

This article introduces the newly available DWA, providing evidence on heterogeneity in the wealth levels of households. Wealth concentration in the euro area declined between 2015 and 2023, as the wealth of the 50% less wealthy households rebounded faster than for the top 10%, albeit from relatively lower levels. Wealth accumulation for the bottom half was supported by relatively faster increases in the value of financial and housing assets and by household deleveraging that reduced debt burdens and strengthened balance sheets. Wealth inequality in the euro area remains significantly lower than in the United States. Higher house prices may have reduced inequality in the euro area as a whole since 2015 by, in relative terms, predominantly benefiting the bottom half of the wealth distribution, amidst cross-country heterogeneity. This has more than offset the impact from housing transactions, which likely had the opposite effect, as the bottom 50% have reduced their housing assets while the wealthy have accumulated more.

This article also makes use of the DWA to assess the impact of the recent surge in inflation and subsequent monetary policy tightening on the distribution of wealth. The analysis finds that, in relative terms, poorer households' balance sheets have been affected less by the recent surge in inflation. This is because, in real terms, their liabilities have been eroded more, given the balance between outstanding deposits and debt. At the same time, wealthier households have been affected more by the amplified losses in real net wealth due to revaluations of financial asset prices in real terms, as nominal valuation changes for different financial asset classes have not kept up with inflation. Both groups are assessed to have most likely experienced nominal net wealth losses as a result of monetary policy tightening. While the bottom 50% are likely to have experienced losses in housing wealth due to lower house prices in the euro area as a whole, for the next 40%, and especially the top 10%, such losses are likely to have occurred primarily through financial wealth channels, with housing playing a more limited role.

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3 The empirical performance of ECB/Eurosystem staff inflation projections since 2000

Prepared by Mohammed Chahad, Anna-Camilla Hofmann-Drahonsky, Willi Krause, Bettina Landau and Antoine Sigwalt

1 Introduction

Macroeconomic forecasting plays a key role in shaping the monetary policy of central banks. Inflation forecasts enable the ECB to anticipate risks of notable deviations from its medium-term inflation target of 2% and to adjust proactively its monetary policy instruments to counter them. Medium-term forecasts are particularly important for the timely adjustment of monetary policy, given the time-varying lags in the transmission of monetary policy shocks to the economy.[1]

ECB/Eurosystem staff forecasts are conditional on a set of assumptions, with errors in these assumptions constituting potential key factors behind forecast errors. Both short-term and medium-term inflation forecasts are conditioned on a set of assumptions, and such conditional forecasts are referred to as projections. These assumptions cover variables related to the international environment, commodity prices, exchange rates and interest rates. This implies that for each exercise significant discrepancies between these conditioning assumptions and their final outcomes can lead to large projection errors in variables of interest, such as inflation and growth. Errors in conditioning assumptions often turn out to be a key factor in projection errors. Other factors stem from unexpected economic shocks, or at least their unexpected magnitude; model misspecifications, as some models might fail to correctly simulate the transmission of these shocks to the rest of the economy, even if they are perfectly forecast; and, finally, deficiencies in the expert judgement used to address some of these forecasting limitations.

The recent surge in inflation has been accompanied by significant projection errors by ECB/Eurosystem staff, which highlights the need to constantly monitor and analyse forecast errors in order to understand their implications for the projection process. Two Economic Bulletin boxes in 2022 and 2023 analysed the large inflation projection errors occurring at that time, while a third box in early 2024 documented an improvement in the projections concurrent with the more recent decrease in inflation.[2] While these boxes focused on forecast accuracy, other studies also looked at different properties of ECB/Eurosystem projections, such

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[1] For further information on the ECB/Eurosystem staff projections framework, see A guide to the Eurosystem/ECB staff macroeconomic projection exercises, ECB, July 2016.

[2] See the boxes entitled "What explains recent errors in the inflation projections of Eurosystem and ECB staff?", *Economic Bulletin*, Issue 3, ECB, 2022; "An updated assessment of short-term inflation projections by Eurosystem and ECB staff", *Economic Bulletin*, Issue 1, ECB, 2023; and "An update on the accuracy of recent Eurosystem/ECB staff projections for short-term inflation", *Economic Bulletin*, Issue 2, ECB, 2024.

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as their unbiasedness and efficiency.[3] Forecasts are considered efficient if the forecast errors cannot be explained by any other information available to the forecasters at the time of projection. A forecast which is both unbiased and efficient is called rational.[4] Kontogeorgos and Lambrias concluded that the ECB/Eurosystem inflation projections are rational.[5] However, the sample period considered preceded the coronavirus (COVID-19) pandemic and the subsequent atypical shocks that hit global and, especially, euro area economies. Moreover, the study relied mainly on standard tests, which do not account for time-varying forecast performance.

This article complements previous analyses of ECB/Eurosystem inflation forecast errors in three ways. First, it extends the time frame by including data from early 2000 to the beginning of 2024, offering a more comprehensive picture of ECB/Eurosystem staff projection performance. Second, the article further deepens the analysis by evaluating the properties of the inflation projections using tests that are robust to unstable environments where model performance may shift over time (see Box 1). Third, it also looks for factors that can potentially explain headline HICP projection properties by: (i) analysing HICP components such as food, energy, and HICP excluding energy and food (HICPX); and (ii) examining the role of certain conditioning assumptions. While the latter is directly linked to the conditioning nature of the projections, the analysis of HICP components relates to the bottom-up approach to projecting headline HICP inflation, since ECB/Eurosystem HICP inflation projections are derived from the aggregation of projections of a set of HICP components.

Overall, this article offers a comprehensive empirical evaluation of ECB/Eurosystem staff projections of euro area inflation since early 2000. Section 2 presents the data used to conduct the analysis and evaluates the performance of the ECB/Eurosystem staff projections relative to the predictions of other forecasters and the role played by errors in the conditioning assumptions. Section 3 evaluates the forecasting performance of the ECB/Eurosystem staff projections in absolute terms by discussing projection properties for both headline inflation and its components and looks into the drivers of the errors.

Box 1
Assessing time-varying forecast performance: the fluctuation test and the fluctuation rationality test

In the presence of time-varying forecast performance ("instabilities"), two tests can be used: (i) the fluctuation rationality test (Rossi and Sekhposyan) to evaluate absolute forecast performance and test in particular for forecast rationality (unbiasedness and efficiency); and (ii) the fluctuation test

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[3]   See, for example, Argiri, E., Hal, S.G., Momtsia, A., Papadopoulou, D.M., Skotida, I., Tavlas, G.S. and Wang, Y., "An evaluation of the inflation forecasting performance of the European Central Bank, the Federal Reserve, and the Bank of England", *Journal of Forecasting*, Vol. 43(4), July 2024, pp. 932-947; and Granziera, E., Jalasjoki, P. and Paloviita, M., "The Bias of the ECB Inflation Projections: A State-Dependent Analysis", *Working Paper*, No 11/2024, Norges Bank, May 2024.

[4]   See Mincer, J. and Zarnowitz, V., "The Evaluation of Economic Forecasts", in Mincer, J. (ed.), *Economic Forecasts and Expectations: Analysis of Forecasting Behavior and Performance*, National Bureau of Economic Research, 1969, pp. 3-46.

[5]   See Kontogeorgos, G. and Lambrias, K., "Evaluating the Eurosystem/ECB staff macroeconomic projections: The first 20 years", *Journal of Forecasting*, Vol. 41(2), March 2022, pp. 213-229.

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(Giacomini and Rossi) to compare the forecast performance of two competing projections (relative forecast performance).[6]

Fluctuation rationality test

The Rossi and Sekhposyan (R&S) fluctuation rationality test is a regression-based test (see Mincer and Zarnowitz; and West and McCracken).[7] It is meant to test different hypotheses about the forecasts in the presence of instabilities. In practice, the forecast error associated with an h-step-ahead forecast $(\hat{y}_{t+h|t})$ is regressed on a vector function g_t:

$$y_{t+h} - \hat{y}_{t+h|t} = \theta\, \mathrm{g_t} + \eta_{t+h}$$

Where y_{t+h} is the associated realisation. All tests consist in testing the null hypothesis $H_0: \theta = 0$ vs $H_A: \theta \neq 0$ through the standard Wald statistic with different values for g_t. For unbiasedness, i.e. to check whether the forecast errors are on average equal to the actual observed values, we set $g_t = 1$. Testing for the efficiency of the forecast implies checking that no relevant information available to the forecasters at the date of the forecast can explain the forecast errors. A particular example of efficiency is to test whether forecasts adapt too smoothly to macroeconomic shocks and underreact to new information. This is the case if forecast revisions partly explain the projection errors. In this so-called oversmoothing test, $g_t = \hat{y}_{t+h|t} - \hat{y}_{t+h|t-1}$.

One of the main value-addeds of the R&S test is the ability to derive critical values for statistics computed over rolling windows in order to check for time-varying forecast rationality. The critical values depend on the size of the rolling window and the size of the sample. This method avoids the pitfalls of averaging out instabilities, thereby providing a more accurate assessment of forecast rationality in the presence of instabilities. The null hypothesis is rejected if the test statistic exceeds the critical value at least once over the set of rolling windows. This test can provide better evidence against forecast rationality than traditional tests.

Fluctuation test

The Giacomini and Rossi (G&R) fluctuation test examines the local relative performance of two competing forecasts over time using rolling windows. This follows the standard Diebold and Mariano and Giacomini and White tests and conducts the tests over rolling windows to account for time-varying relative performance.[8] In practice, we consider a quadratic loss function and compute the out-of-sample mean squared forecast error (MSFE) differences between the two projections across each window $\Delta\left(\mathrm{MSFE}_t^{\mathrm{Eurosystem}} - \mathrm{MSFE}_t^{\mathrm{Benchmark}}\right)$, where $\mathrm{MSFE}_t^{\mathrm{X}}$ is the MSFE associated with the ECB/Eurosystem projection ($X: \mathrm{Eurosystem}$) and the benchmark ($X: \mathrm{Benchmark}$). The test checks whether this difference is significantly different from zero using a simple regression-based approach with rolling window estimates as in the fluctuation rationality test. If this difference

6   See Rossi, B. and Sekhposyan, T., "Forecast Rationality Tests in the Presence of Instabilities, with Applications to Federal Reserve and Survey Forecasts", *Journal of Applied Econometrics*, Vol. 31(3), April/May 2016, pp. 507-532; and Giacomini, R. and Rossi, B., "Forecast comparisons in unstable environments", *Journal of Applied Econometrics*, Vol. 25(4), June/July 2010, pp. 595-620.

7   See Mincer, J. and Zarnowitz, V., op. cit.; and West, K.D. and McCracken, M.W., "Regression-Based Tests of Predictive Ability", *International Economic Review*, Vol. 39(4), November 1998, pp. 817-840.

8   See Diebold, F.X. and Mariano, R.S., "Comparing Predictive Accuracy", *Journal of Business & Economic Statistics*, Vol. 20(1), January 2002, pp. 134-144; and Giacomini, R. and White, H., "Tests of Conditional Predictive Ability", *Econometrica*, Vol. 74(6), November 2006, pp. 1545-1578.

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exceeds the critical values at any point, it suggests that one forecast has outperformed the other during that specific window.

These rolling window approaches allow the tests to adapt to potential changes in the data-generating process, making them particularly useful in unstable environments where forecast performance may vary over time.

2 ECB/Eurosystem staff inflation projection accuracy

Overview of the data

To assess the accuracy and some properties of ECB/Eurosystem staff projections, we use a quarterly database of projection errors constructed for headline HICP inflation and the main HICP components. Forecast errors are defined as realisations minus projections at Q+0 to Q+8 horizons. Realisations are taken from the second release of real-time datasets and Q+0 refers to the nowcasting of inflation in the same quarter, while Q+8 refers to an eight-quarters-ahead forecast (see, for instance, Chart 1, which depicts the dynamics of HICP inflation errors at different forecast horizons). We consider the largest samples available for all these data, also covering periods affected by hard-to-predict events that led to large forecast errors, such as the global financial crisis or Russia's war against Ukraine. In addition, we construct a database of headline inflation projection errors, adjusted for the impact of energy prices, exchange rates, interest rates and stock prices ("market-based assumptions"), as well as the export prices of trade partners, foreign demand and food prices ("non-market-based assumptions"). This adjustment was conducted by removing errors due to these conditioning assumptions using linear elasticities from the Eurosystem forecasting models estimated in real time. This boils down to computing the path for the ECB/Eurosystem staff projections which would have been produced if the forecasters had known in advance the actual path of those assumptions, which are, in several cases, such as energy commodity prices, not forecast by ECB/Eurosystem staff. This helps the assessment of whether the source of the errors is due to the conditioning assumptions or other reasons, such as model misspecification.

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Chart 1

Headline HICP inflation and ECB/Eurosystem projection errors for headline HICP inflation at horizons Q+0 to Q+8

(annual percentage changes; percentage point errors, quarterly data)
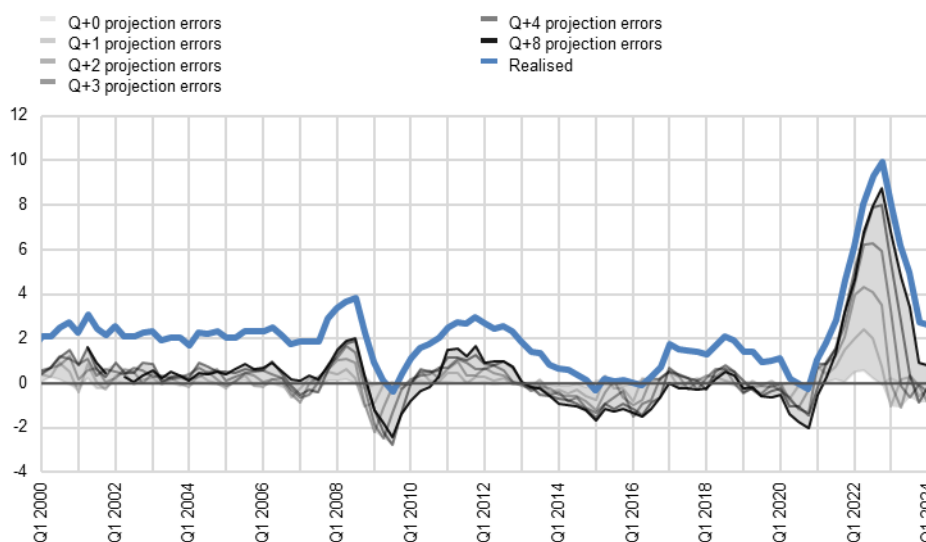
Sources: ECB/Eurosystem staff projections and ECB calculations.
Notes: The blue line indicates the realisations of year-on-year (y-o-y) HICP inflation in percentages. The various grey lines illustrate ECB/Eurosystem staff HICP projection errors in percentage points, defined as realised y-o-y HICP inflation minus the corresponding projection at various horizons from Q+0 (lightest grey) to Q+8 (darkest grey). The grey shaded area encompasses the entire range of these projection errors across the different time horizons.

To compare the ECB/Eurosystem staff projections to other forecasts, a similar database was constructed including both survey and market-based inflation forecasts. Given their good empirical performance (see, for instance, Faust and Wright), survey-based forecasts provide useful benchmarks.[9] This article relies in particular on Consensus Economics forecasts, as these share properties required for comparison with ECB/Eurosystem staff projections, such as a large sample coverage and fixed-horizon projections. For similar reasons, we also consider market-based forecasts, which in our analysis relate to two main instruments: inflation-linked swaps (ILSs) and inflation fixings (see Table 1, which summarises all data available and some of their characteristics). ILSs are available starting from a one-year maturity and in subsequent one-year spot horizon intervals. Shorter maturities are derived by linearly interpolating the seasonally adjusted log-price index on a quarterly basis from the ILS rates and reintroducing seasonality on the basis of the historical patterns observed over the past five years on a rolling basis. Inflation fixings, starting in September 2018, provide information at shorter maturities than ILS rates. Both instruments primarily track the HICP excluding tobacco. Moreover, inflation rates derived from these instruments reflect not just inflation expectations but also inflation risk premia, which may be positive or negative. Although non-inflation risk premia and other imperfections (often collectively termed

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9   See Faust, J. and Wright, J., "Forecasting Inflation", in Elliot, G., Granger, C. and Timmermann, A. (eds.), *Handbook of Economic Forecasting*, Vol. 2, Elsevier, 2013, Chapter 1, pp. 2-56.

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"liquidity premia") could influence these products, their impact on the informational content and forecasting capability is considered minor.[10]

Table 1

Availability of benchmark projections

	First observation	Latest observation	Comments
ECB/Eurosystem staff projections			
HICP	Q4 1998	Q1 2024	
HICP energy	Q4 1998	Q1 2024	Q4 1998 – Q3 2000: only up to Q+4
HICP food	Q4 1998	Q1 2024	Q4 1998 – Q1 2010: only up to Q+4
HICP excluding energy and food	Q4 1998	Q1 2024	Q4 1998 – Q1 2010: only up to Q+4
Benchmarks			
Consensus Economics	Q4 2002	Q1 2024	Complete up to Q+6, partially available for Q+7, and not available for Q+8
			Cut-off dates always follow ECB/Eurosystem staff projections cut-off dates
Market-based	Q1 2005	Q1 2024	From Q1 2005 to Q2 2018, based on interpolation between ILS rates
			Cut-off dates at ECB/Eurosystem staff projections cut-off dates

Sources: ECB/Eurosystem staff projections, Consensus Economics and ECB staff calculations.

For the two benchmarks, some caveats need to be noted when making comparisons with the ECB/Eurosystem staff projections. The cut-off dates of the monthly forecasts from Consensus Economics are always more recent than those of the ECB/Eurosystem staff projections, potentially offering a slight informational advantage to the former, while, for market-based forecasts, ILS and inflation fixings are collected at the ECB/Eurosystem staff projections cut-off dates, where available. In addition, since inflation fixings are not available prior to September 2018, market-based inflation projections are computed using ILS rates starting at the one-year maturity and shorter maturities are then interpolated from the one-year maturity and realised values. Consequently, short-horizon market-based inferred projections should be treated with caution.

Headline HICP inflation projection accuracy

Compared with real-time out-of-sample forecasts of survey and market-based benchmarks, ECB/Eurosystem staff projections perform either similarly or better, with some exceptions. Survey and market-based approaches provide real-time forecasts, although the information set used by the forecasters might differ from that used by ECB/Eurosystem staff owing to slightly different cut-off dates. The information set used by these forecasters is probably much richer than any simple model-based benchmark and also contains relevant and hard-to-quantify expert judgement, thereby providing a challenging benchmark for ECB/Eurosystem staff projections. Nevertheless, inflation projections of ECB/Eurosystem staff are in most

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[10] See the box entitled "The role of technical factors in euro area inflation-linked swap rates", *Economic Bulletin*, Issue 3, ECB, 2024.

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cases either as accurate or more accurate than these benchmarks (Table 2), with the relative RMSEs being close to or higher than unity in several cases. However, ECB/Eurosystem staff projections are found to underperform market forecasts at short horizons. This underperformance mainly reflects the lower relative accuracy of ECB/Eurosystem staff projections over the recent high inflation period. Excluding the latter, ECB/Eurosystem staff projections tend to outperform both survey and market-based projections.[11] Moreover, using the standard RMSE decomposition into the bias and variance of forecast errors, ILS-based short-term inflation forecasts are found to be more biased than equivalent ECB/Eurosystem staff projections, although these ILS-based forecasts outperform the latter. This indicates that the relative underperformance of the ECB/Eurosystem staff short-term projections is driven by a higher forecast error variance, probably reflecting a more rigid forecast than the ILS-based ones. Nevertheless, the results for short-term ILS-based forecasts should be treated with caution, given that up to 2018 the projections from Q+0 to Q+3 are constructed on the basis of interpolations of inflation-linked swaps at one-year maturity and realised inflation.

Table 2

RMSEs of other forecasts relative to ECB/Eurosystem staff projections

		Q+0	Q+1	Q+2	Q+3	Q+4	Q+5	Q+6	Q+7	Q+8
Whole sample	**Inflation-linked financial products***	1.32	0.88	0.91	0.96	0.99	1.03	1.05	1.07	1.09
	Consensus Economics**	0.84	0.91	0.96	0.99	1.00	1.01	1.00	0.99	-
Up to 2019	**Inflation-linked financial products***	2.28	1.14	0.96	0.94	0.94	1.00	1.04	1.04	1.05
	Consensus Economics**	1.01	1.03	1.02	1.01	0.98	0.98	1.01	1.02	-

Sources: Consensus Economics and ECB calculations using inflation fixings and inflation-linked swaps.
Notes: All RMSEs are divided by the corresponding RMSE of the ECB/Eurosystem staff projections. Thus a value below 1 indicates that the projections are more accurate than the ECB/Eurosystem staff projections, while a value above 1 indicates the reverse. * The relative RMSEs for the Inflation-linked financial products (ILS and inflation fixings) are based on the HICP excluding tobacco. Furthermore, since the ECB/Eurosystem projections of the latter are available only up to Q+3 horizons and partially at the Q+4 horizon, for missing points we consider the ECB/Eurosystem projection errors for HICP excluding tobacco to be the same as the projection errors for headline inflation. ** For Consensus Economics, forecasts up to the fourth quarter of 2006 are rounded to one decimal place, and the same rounding has been applied to the corresponding ECB/Eurosystem staff projections.

In most cases, the difference in the forecast performance between ECB/Eurosystem staff and both Consensus Economics and markets is statistically insignificant over all horizons and also over time. Differences in forecast performance highlighted in Table 2 are statistically insignificant. Standard Diebold and Mariano tests suggest that the differences in forecast performance at any horizon are not significant at the 5% confidence level. Taking into account potential time variation in the relative forecast performance, the G&R test confirms these results except in the case of market-based nowcasts, which significantly underperform ECB/Eurosystem nowcasts (Chart 2, panel a). Given that the panels for alternative horizons exhibit relatively mild time variation in the loss differentials, and since the G&R test tends to be less powerful with small rolling window sizes in the absence of instabilities, tests were also conducted with large rolling windows. However, these robustness checks with larger windows confirm all the results, pointing to no significant difference in forecast performance.

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[11] Similarly, when looking at mean absolute errors (MAEs), relative MAEs range between 0.97 and 1.30 over the entire available sample, exhibiting a less marked deterioration since the pre-2021 period.

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Chart 2

Relative forecast performance: ECB/Eurosystem staff and market-based forecasts

- Fluctuation test statistic
- Critical value 5%

a) Forecast horizon Q+0

b) Forecast horizon Q+3

c) Forecast horizon Q+8
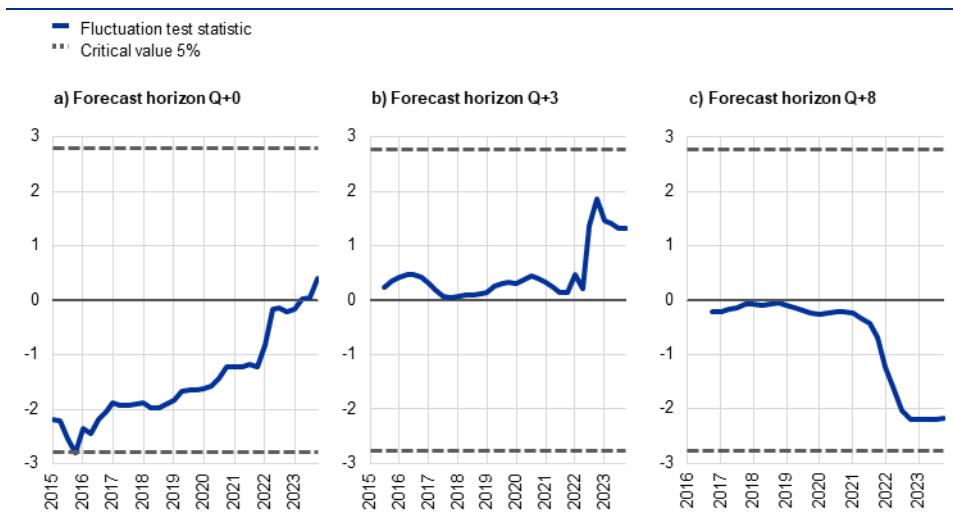
Sources: ECB/Eurosystem staff projections and ECB calculations.
Notes: Fluctuation test statistics reflect the difference between the MSFE of the ECB/Eurosystem staff projections and that of the market-based forecasts, calculated over 32-quarter rolling windows. Positive (negative) values indicate that the ECB/Eurosystem staff projections underperform (outperform) the market-based forecasts. This underperformance/outperformance is assessed as statistically significant if the test crosses the critical value at the 5% significance level.
Market-based inflation forecasts are based on the HICP excluding tobacco. Since the ECB/Eurosystem projections of the latter are available only up to Q+3 horizons and partially at the Q+4 horizon, missing data points were filled in assuming equal projection errors for headline HICP, HICP excluding tobacco and HICP tobacco.

Role of HICP components and conditioning assumptions

Projection accuracy is broadly similar for headline inflation and its main components, including HICP energy and excluding energy and food inflation, over all forecast horizons. Table 3 shows the RMSEs over the last 12 years for HICP inflation and its main components.[12] Results confirm the strong correlation between the level of volatility in the variables and the RMSEs, with HICP energy exhibiting by far the highest RMSEs and HICPX the lowest. However, volatility-adjusted RMSEs ("rescaled RMSEs") show a significant reduction in heterogeneity across variables with, for instance, HICP energy forecast accuracy falling within the middle range of the forecast accuracy of other components. Furthermore, HICP energy projections tend to be slightly less accurate than other components over short horizons but more accurate over longer horizons. A slightly different pattern is observed for HCIPX projections, the accuracy of which tends to deteriorate over longer projection horizons relative to, for instance, headline HICP inflation. Importantly, while HICPX projection errors are smaller than those for other HICP components, adjusting for the lower volatility in HICPX realisations reveals projection accuracy similar to other variables overall.

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[12]   This sample represents the largest common sample for all considered variables and forecast horizons. This choice was made in order to allow comparisons across variables and horizons.

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Table 3

RMSEs of HICP inflation and other inflation indicators in ECB/Eurosystem staff projections

RMSE	Q+0	Q+1	Q+2	Q+3	Q+4	Q+5	Q+6	Q+7	Q+8
HICP	**0.14**	**0.71**	**1.31**	**1.91**	**2.40**	**2.55**	**2.62**	**2.66**	**2.66**
HICP food	0.23	0.97	1.80	2.64	3.31	3.56	3.66	3.72	3.76
HICP energy	0.92	4.56	7.96	10.66	12.58	12.72	12.51	12.35	12.23
HICP excluding energy and food	0.07	0.33	0.59	0.89	1.18	1.29	1.38	1.45	1.49
Rescaled RMSE	**Q+0**	**Q+1**	**Q+2**	**Q+3**	**Q+4**	**Q+5**	**Q+6**	**Q+7**	**Q+8**
HICP	**0.08**	**0.39**	**0.72**	**1.04**	**1.31**	**1.38**	**1.42**	**1.43**	**1.43**
HICP food	0.09	0.37	0.67	0.99	1.23	1.32	1.36	1.38	1.40
HICP energy	0.09	0.47	0.82	1.08	1.28	1.30	1.27	1.25	1.23
HICP excluding energy and food	0.07	0.33	0.59	0.89	1.17	1.28	1.36	1.43	1.46

Sources: ECB/Eurosystem staff projections and ECB calculations.
Note: All RMSEs are computed over the largest common sample for all variables and forecast horizons (Q2 2012 to Q1 2024).

Adjusting for errors in conditioning variables significantly improves the accuracy of ECB/Eurosystem staff projections, emphasising contributions from errors not only in oil price assumptions but also in other conditioning assumptions. To evaluate the accuracy of the staff projections independently of the errors in some conditioning assumptions which are mostly forecast by markets, RMSEs are also computed for the projections assuming no errors in market-based assumptions and other assumptions described in Section 2. Table 4 shows the RMSEs for the ECB/Eurosystem staff projections of HICP adjusted for different conditioning assumptions. It highlights the significant contribution of errors in oil price assumptions to overall HICP projection errors. Notably, adjusting for errors in the oil price assumption reduces the HICP inflation RMSE by more than 15%, while adjusting for errors in other market-based assumptions, including the effective exchange rate, does not significantly change the level of forecast accuracy over the last 12 years. This analysis does not include adjustments related to errors in gas price assumptions which would trigger a further improvement in projection accuracy, in particular over the post-pandemic period. Moreover, after correcting for errors in other conditioning assumptions, the ECB/Eurosystem staff projections improve further, particularly for longer forecast horizons. This emphasises the role of errors in factors such as foreign demand and prices in domestic inflation projection errors.

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Table 4

RMSEs of HICP inflation projections after adjustment for errors in conditioning assumptions relative to unadjusted RMSEs of HICP inflation projections

RMSE adjusted for	Q+0	Q+1	Q+2	Q+3	Q+4	Q+5	Q+6	Q+7	Q+8
All assumptions	0.86	0.77	0.74	0.72	0.71	0.68	0.65	0.62	0.60
All market-based assumptions	0.88	0.81	0.80	0.79	0.80	0.80	0.81	0.81	0.81
Oil prices	0.89	0.84	0.83	0.83	0.84	0.85	0.84	0.84	0.83
Nominal exchange rate	1.00	1.00	0.99	0.99	0.99	0.99	1.00	1.00	1.00

Sources: ECB/Eurosystem staff projections and ECB calculations.
Notes: RMSEs are computed over the largest common sample for all variables and forecast horizons (Q2 2012 to Q1 2024). All RMSEs are divided by the corresponding RMSE of the headline HICP inflation projections. Thus a value below 1 indicates that the projections are more accurate than the unadjusted HICP inflation projections, while a value above 1 indicates the reverse.

3 Further selected properties of ECB/Eurosystem staff inflation projections

Bias and rigidities in ECB/Eurosystem staff headline inflation projections

Detecting potential bias in ECB/Eurosystem projections can help improve their accuracy. A bias indicates whether there is a systematic and persistent over or underprediction of the target variable. Such a bias might, however, not necessarily reflect a lack or misuse of information, as several studies suggest that central bank forecasters have skills and sufficient data to efficiently predict target variables, but it might be optimal for them to make either an optimistic or a pessimistic projection.[13] Nevertheless, identifying bias and its potential sources can improve projection accuracy. By understanding whether forecasts tend to systematically over or underpredict the target variable, the forecasting models or methodologies can be adjusted to compensate for unwarranted bias. This can improve the overall accuracy of future projections. It should also be noted that assessing forecast bias is not straightforward, and it can be argued that unexpected large shocks in one direction, such as the ones seen in 2021-2022, can result in serially correlated forecast errors that do not necessarily reflect a shortcoming of the projection process.

Fluctuation rationality tests indicate that the ECB/Eurosystem staff headline inflation projections are generally unbiased, although there are specific, sometimes short-lived periods in which this unbiasedness breaks down. Rather than assessing forecast bias over the entire available sample, the R&S fluctuation rationality test allows unbiasedness to be checked over smaller windows to prevent offsetting biases over the whole sample. A crucial ingredient in the R&S test is the size of the rolling window. This needs to be large enough, in particular for

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13   This kind of bias is called "rational bias". See, for example, Batchelor, R., "Bias in macroeconomic forecasts", *International Journal of Forecasting*, Vol. 23, Issue 2, April-June 2007, pp. 189-203; and Herbert, S., "State-dependent Central Bank Communication with Heterogeneous Beliefs", *Working Papers*, No 875, Banque de France, April 2022.

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long horizons. We follow Rossi and Sekhposyan by considering different window sizes (Chart 3). Considering 32-quarter rolling windows, fluctuation rationality tests reject the unbiasedness hypotheses for almost all forecast horizons. Increasing the window slightly to 40 quarters, we find no bias at any horizon.[14] This lack of robustness in the fluctuation rationality tests indicates the presence of specific periods in which the unbiasedness of the ECB/Eurosystem staff headline inflation projections breaks down. Moreover, the R&S fluctuation rationality test provides useful information about the timings of the departure from unbiasedness. Chart 3 indicates two substantial breakdowns which occur in 2007-2009 and in 2020. This indicates that over the eight years prior to these dates, ECB/Eurosystem staff either consistently underpredicted or consistently overpredicted inflation. Furthermore, if the projection exercises at the very beginning of the sample (up to December 2000) are excluded, projection errors for up to four-quarters-ahead horizons are found to be perfectly unbiased even with small rolling window sizes.

Chart 3

Fluctuation rationality test of bias for HICP headline inflation
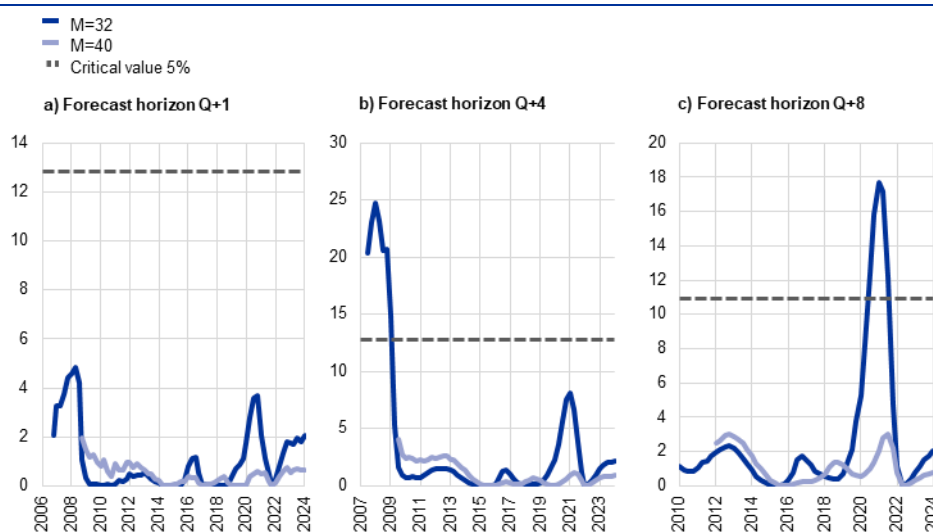
Sources: ECB/Eurosystem staff projections and ECB calculations.
Notes: The y-axis corresponds to the value of the Wald statistic of the test with 32-quarter (M=32, blue line) and 40-quarter (M=40, grey line) rolling windows. The x-axis corresponds to the date of the last data point of the rolling window. For example, the peak of the results for the fluctuation rationality test in the first quarter of 2021 for a 32-quarter rolling window refers to the results for the period from the second quarter of 2013 to the first quarter of 2021. The null hypothesis of the absence of unbiasedness is rejected if the Wald statistic crosses the critical value at the 5% level (dashed grey line). Although critical values vary with the length of the rolling window, they are generally similar. For simplicity, we plot only the critical value at the 5% level for a 32-quarter window.

This occasional bias in HICP projections might in part reflect some rigidities in headline inflation projections, in particular for short horizons.[15] The presence of persistent forecast errors might indicate that new information made available between two projection rounds is not properly accounted for in the forecast revisions.[16] To check for this, an oversmoothing test was conducted to assess

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[14] Considering the full available sample, traditional tests do not reject the hypothesis of unbiasedness at the 5% significance level or at any forecast horizon from Q+0 to Q+8.

[15] This also echoes findings in Section 3 which hinted at more rigid ECB/Eurosystem short-term projections relative to market-based forecasts.

[16] See Coibion, O. and Gorodnichenko, Y., "Information Rigidity and the Expectations Formation Process: A Simple Framework and New Facts", *NBER Working Paper*, No 16537, National Bureau of Economic Research, November 2010.

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whether ECB/Eurosystem staff forecasts tend to adapt too smoothly to macroeconomic shocks and to underreact to new information (see mathematical details of the test in Box 1). The results confirm the presence of such rigidities in ECB/Eurosystem projections for up to three-quarters-ahead horizons, but does not reject the absence of excessive sluggishness for longer horizons (Chart 4).[17] This result is also supported by serial correlation tests, which exhibit autocorrelations in the forecast errors of an order strictly below the corresponding forecast horizon except for horizons up to two quarters ahead, thus violating one of the forecast optimality conditions.[18] It should be noted, however, that in periods of strong shocks in one direction it may be difficult to disentangle whether this outcome is due to sluggishness of the projections or to unexpectedly autocorrelated shocks. In fact, the oversmoothing property tends to weaken when adding information on conditioning assumptions (see below).

Chart 4

Fluctuation rationality test of oversmoothing for HICP
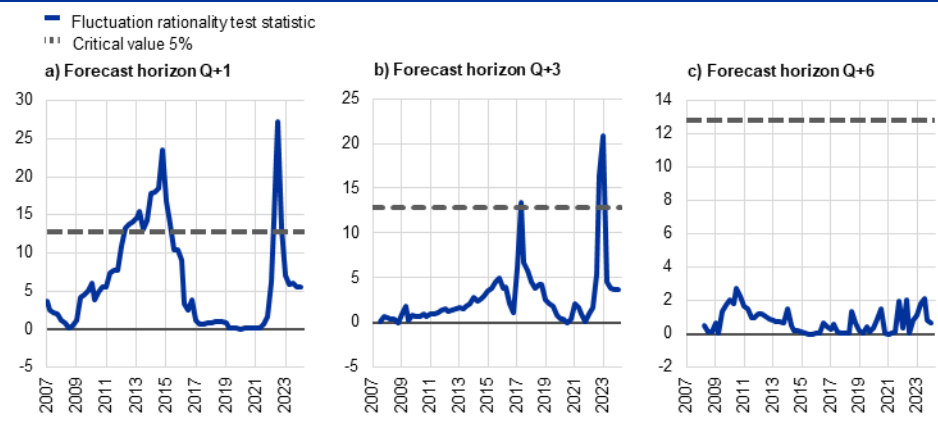
Sources: ECB/Eurosystem staff projections and ECB calculations.
Notes: The y-axis corresponds to the value of the Wald statistic of the test with a 32-quarter rolling window. The x-axis corresponds to the date of the last data point of the rolling window. For example, the peak of the results for the fluctuation rationality test in the second quarter of 2022 (panel a) refers to the results for the period from the third quarter of 2014 to the second quarter of 2022. The null hypothesis of the absence of oversmoothing is rejected if the Wald statistic crosses the critical value at the 5% level (dashed grey line). Results for medium-term projections (more than three-quarters-ahead horizons) do not reject the hypothesis of absence of oversmoothing, as illustrated by the Q+6 results.

Role of HICP components and conditioning assumptions

At the HICP component level, prolonged episodes of bias and rigidities in HICP excluding energy and food inflation seem to drive similar properties in headline inflation. Looking at HICP components, results hint at a prolonged departure from the unbiasedness hypothesis in HICPX inflation projections for all horizons (Chart 5).[19] However, results at horizons above Q+3 should be treated with caution given the relatively small HICPX projection error sample available. Nevertheless, over these samples, which account for 48 to 58 data points depending on the forecast horizon, the sign of forecast errors changed only three times at the

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17 These results are robust to different sizes of the rolling window.

18 See Diebold, F.X. and Lopez, J.A., "Forecast evaluation and combination", *Handbook of Statistics*, Vol. 14, Elsevier, 1996, pp 241-268.

19 This result is robust to different rolling window sizes and to different subsamples of the available data.

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Q+4 horizon and only twice at longer horizons, which clearly indicates the presence of bias (see Chart 6).[20] In particular, from 2013 to the first half of 2021, when inflation was low, ECB/Eurosystem staff projections of HICPX inflation consistently overestimated actual inflation. The bias in HICPX projections may also reflect some rigidities, as HICPX inflation exhibits oversmoothing for most forecast horizons and in particular for short horizons, indicating that forecast revisions underreact to new information between projection rounds. Turning to HICP energy projections, these were found to be unbiased at all horizons up to five quarters ahead, but the unbiasedness hypothesis was systematically rejected for longer horizons.[21] Since ECB/Eurosystem staff projections of energy inflation are more sensitive than other HICP components to market conditioning assumptions, this result probably reflects bias in the oil price futures for long horizons owing to, among other factors, storage costs.

Chart 5

Fluctuation rationality test of bias for HICP and its main components
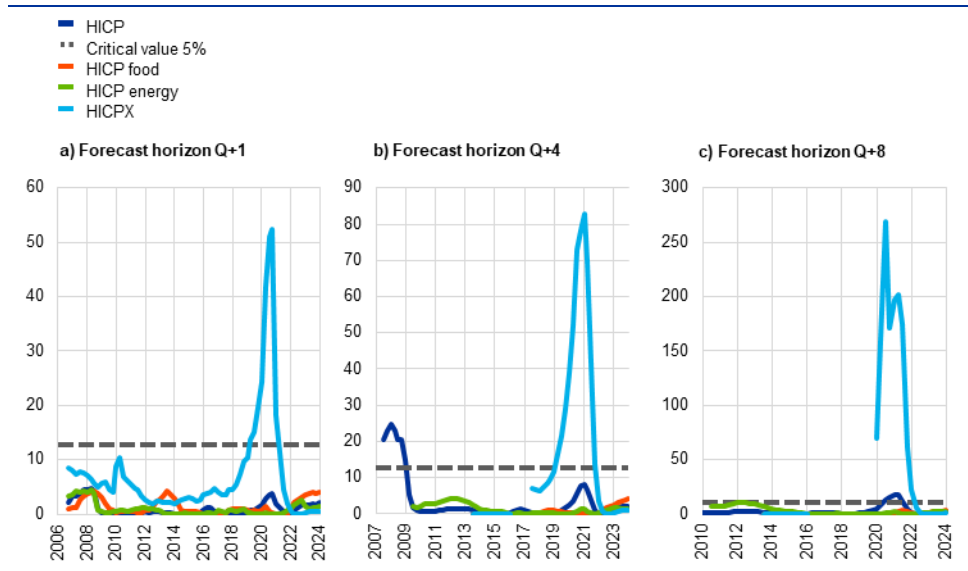
Sources: ECB/Eurosystem staff projections and ECB calculations.
Notes: The y-axis corresponds to the value of the Wald statistic of the test with a 32-quarter rolling window. The x-axis corresponds to the date of the last data point of the rolling window. For example, the peak of the results for the fluctuation rationality test for HICPX inflation in the first quarter of 2021 refers to the results for the period from the second quarter of 2013 to the first quarter of 2021. The null hypothesis of unbiasedness is rejected if the Wald statistic crosses the critical value at the 5% level (dashed grey line). Although critical values vary with sample size, which differs among variables, they are generally similar. For simplicity, we plot only the critical value at the 5% level for headline HICP inflation.

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[20] Over these projection horizons, the standard Mincer and Zarnowitz test again fails to reject the unbiasedness hypothesis at any reasonable significance level. This confirms the presence of time-varying forecast properties and the relevance of considering local measures in such cases.

[21] Furthermore, the suboptimality of HICP energy inflation projections beyond the Q+5 horizon is also highlighted by the fact that projection error variance starts decreasing beyond the Q+5 horizon, which deviates from the properties of optimal forecasts. No such feature is observed in other HICP components, which always show projection error variances increasing with the forecast horizon.

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Chart 6

HICPX inflation and ECB/Eurosystem projection errors for HICPX inflation at horizons Q+0 to Q+8

(annual percentage changes; percentage point errors, quarterly data)
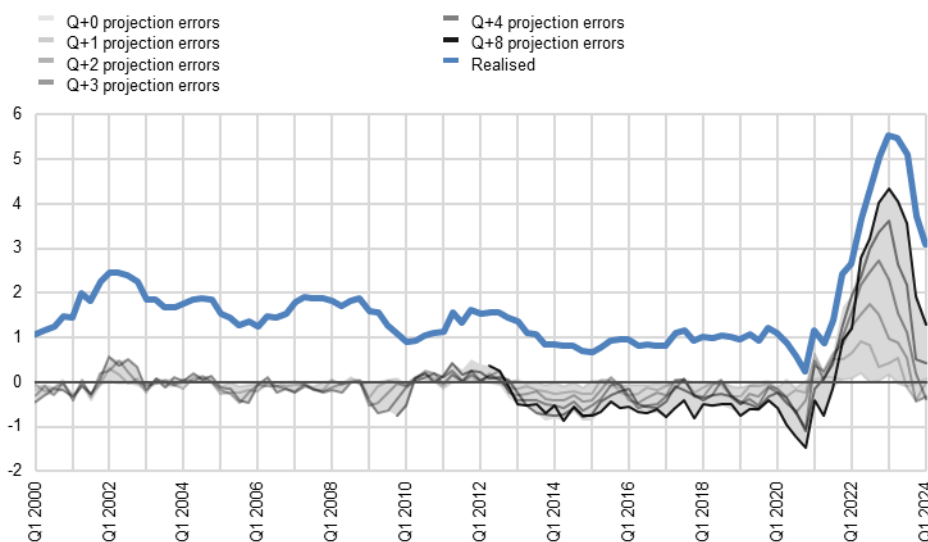
Sources: ECB/Eurosystem staff projections and ECB calculations.
Notes: The blue line indicates the realisations of year-on-year (y-o-y) HICPX in percentages. The various grey lines illustrate ECB/Eurosystem staff HICPX projection errors in percentage points, defined as realised y-o-y HICPX inflation minus the corresponding projection at various horizons from Q+0 (lightest grey) to Q+8 (darkest grey). The grey shaded area encompasses the entire range of these projection errors across the different time horizons.

Some bias and rigidities in ECB/Eurosystem staff inflation projections disappear after adjusting for errors in some conditioning assumptions. Using conservative assumptions with a rolling window of eight years, we previously identified a bias for headline inflation across all horizons starting from Q+2. After correcting for the impact of all available assumptions, a bias is identified only for nowcasts and for projections longer than Q+6 (Table 5). However, when adjusting for market-based assumptions only, the bias persists at the Q+4 and subsequent horizons, indicating that other conditioning assumptions, such as those stemming from the international environment, are mainly responsible for the bias, in particular during the period before the pandemic crisis. Similar conclusions can be drawn when looking at projection rigidities. After adjusting for all available assumptions, rigidities disappear in HICP projections at the Q+2 and subsequent horizons, while after correcting only for errors in all market-based assumptions, tests still reject the null hypothesis of the absence of oversmoothing at the Q+3 and Q+4 horizons. This suggests that the other conditioning assumptions might also suffer some rigidities. However, these results, including the absence of oversmoothing at longer horizons, must be treated with caution given the relatively short sample available, in particular for long-term projections. In addition, given the unprecedented shocks of the pandemic and Russia's war in Ukraine, which could not be predicted very far in advance, it is necessary to exercise caution in interpreting the results, as such events can generate autocorrelations in forecast errors which do not necessarily arise from inefficient use of information.

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Table 5

Fluctuation rationality tests for headline inflation adjusted for various errors in conditioning assumptions

Null hypothesis	Adjusted for	Q+0	Q+1	Q+2	Q+3	Q+4	Q+5	Q+6	Q+7	Q+8
Unbiasedness	**None**	-	-	**	***	***	***	***	***	***
	All assumptions	***	-	-	-	-	-	-	**	***
	All market-based assumptions	-	-	-	-	**	***	***	***	***
	Oil prices	-	-	-	-	*	**	***	***	***
	Nominal exchange rate	-	-	-	-	-	-	-	*	**
Absence of oversmoothing	**None**	***	***	***	***	*	-	-	-	-
	All assumptions	***	**	-	-	-	-	-	-	-
	All market-based assumptions	***	***	***	***	-	-	-	-	-
	Oil prices	***	***	***	***	-	-	-	-	-
	Nominal exchange rate	***	***	***	***	***	**	-	-	-

Notes: A dash (-) indicates that the null hypothesis is not rejected. One asterisk (*) signifies rejection at the 10% level, two asterisks (**) at the 5% level, and three asterisks (***) at the 1% level. Fluctuation rationality tests calculated over 32-quarter rolling windows.

4 Conclusion

This article suggests that the accuracy of Eurosystem/ECB staff projections of headline HICP inflation is either similar to or slightly better than that of market and survey-based forecasts and is also similar across main HICP components. Inflation projections by ECB/Eurosystem staff perform broadly similarly to market and survey-based forecasts, although the latter tend in general to slightly underperform ECB/Eurosystem staff projections, in particular prior to the unprecedented pandemic and post-pandemic shocks. Furthermore, and across HICP components, results show that, over the last 12 years, the accuracy of ECB/Eurosystem staff projections of HICPX inflation was similar to that of the projections of headline inflation and HICP energy inflation, although the latter show larger projection errors, largely reflecting the higher volatility of these variables.

Although unbiased overall, results show specific periods in which the unbiasedness of ECB/Eurosystem staff inflation projections breaks down, while the projections also exhibit rigidities, mainly reflecting the properties of HICPX inflation projections in the decade before 2020. While they are unbiased overall, ECB/Eurosystem staff projections of headline HICP inflation show some bias in specific periods, such as in early 2000 and when inflation was low from 2013 to the first half of 2021. The findings also highlight that, when considering the entire sample, there seems to be no bias in HICPX inflation projections. However, examining shorter periods reveals a negative bias (overestimation) during the low-inflation period before the pandemic and a positive bias (underestimation) during the high-inflation period which followed. Therefore, these findings should not be seen as proof of a consistent bias in HICPX projections.

Finally, this article underscores the important role of the broad set of conditioning assumptions as key contributors to the rigidities, occasional bias

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and reduced accuracy of ECB/Eurosystem staff projections of HICP inflation.
The results confirm the role of errors in oil price assumptions in reducing
ECB/Eurosystem staff inflation forecast accuracy. They also highlight their
contribution to some bias in headline HICP projections, notably for the short term.[22]
However, the results also underline the role of other conditioning assumptions, such
as those stemming from the international environment, in reducing forecast accuracy
and also explaining some of the rigidities and occasional bias in headline inflation
projections. It is also important to mention that gas prices have not been considered
in the analysis, although they have played a key role in forecast errors in the recent
period.

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[22]   ECB staff have recently developed new machine learning-based projections to enhance the information
         provided to policymakers regarding the short-term inflation outlook. See, for instance, Lenza, M.,
         Moutachaker, I. and Paredes, J., "Density forecasts of inflation: a quantile regression forest approach",
         Working Paper Series, No 2830, ECB, July 2023; and Lenza, M., Moutachaker, I. and Paredes, J.,
         "Forecasting euro area inflation with machine learning models", *Research Bulletin*, No 112, ECB,
         October 2023.

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Statistics

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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						Memo item: euro area[2] (HICP)
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	Total	excluding food and energy	United States	United Kingdom (HICP)	Japan	China	
	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	4.0	3.0	4.7	2.6	-0.2	0.9	2.6
2022	3.2	1.9	4.3	1.0	3.0	3.4	9.5	6.8	8.0	9.1	2.5	2.0	8.4
2023	3.2	2.6	0.1	1.9	5.2	0.5	6.9	7.0	4.1	7.4	3.2	0.2	5.4
2023 Q3	0.9	1.2	-0.1	-0.9	1.8	0.0	6.4	7.0	3.5	6.7	3.2	-0.1	5.0
Q4	0.7	0.8	-0.3	0.1	1.2	-0.1	5.9	6.8	3.2	4.2	2.9	-0.3	2.7
2024 Q1	0.9	0.3	0.6	-0.5	1.6	0.3	5.7	6.5	3.2	3.5	2.6	0.0	2.6
Q2	.	.	.	.	.	.	.	.	3.2	2.1	.	.	2.5
2024 Jan.	-	-	-	-	-	-	5.7	6.6	3.1	4.0	2.2	-0.8	2.8
Feb.	-	-	-	-	-	-	5.7	6.4	3.2	3.4	2.8	0.7	2.6
Mar.	-	-	-	-	-	-	5.8	6.4	3.5	3.2	2.7	0.1	2.4
Apr.	-	-	-	-	-	-	5.7	6.2	3.4	2.3	2.5	0.3	2.4
May	-	-	-	-	-	-	5.9	6.1	3.3	2.0	2.8	0.3	2.6
June	-	-	-	-	-	-	.	.	3.0	2.0	.	.	2.5

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

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports[1]		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index[2]					
	Global[2]	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders	Global	Advanced economies	Emerging market economies
	1	2	3	4	5	6	7	8	9	10	11	12
2021	-	-	-	-	-	-	-	-	-	11.1	9.9	12.5
2022	-	-	-	-	-	-	-	-	-	2.5	4.1	0.7
2023	52.0	51.2	51.2	51.8	52.5	49.7	49.8	52.3	47.6	-2.4	-4.0	-0.7
2023 Q3	51.5	50.8	49.3	52.3	51.5	47.5	49.3	51.4	47.0	-0.3	-0.3	-0.2
Q4	51.1	50.8	50.5	50.0	51.4	47.2	49.4	50.9	47.9	0.9	0.8	1.0
2024 Q1	52.6	52.2	52.9	51.3	52.6	49.2	51.1	52.4	49.2	-0.2	0.9	-1.4
Q2	53.2	53.5	53.1	51.5	53.2	51.6	52.2	53.3	50.1	.	.	.
2024 Jan.	52.5	52.0	52.9	51.5	52.5	47.9	50.3	52.3	48.8	-0.9	-0.2	-1.6
Feb.	52.6	52.5	53.0	50.6	52.5	49.2	51.2	52.4	49.3	-0.1	0.8	-1.1
Mar.	52.6	52.1	52.8	51.7	52.7	50.3	51.9	52.4	49.5	-0.2	0.9	-1.4
Apr.	52.5	51.3	54.1	52.3	52.8	51.7	51.4	52.7	50.4	1.8	2.7	0.8
May	54.0	54.5	53.0	52.6	54.1	52.2	52.8	54.0	50.4	.	.	.
June	53.2	54.8	52.3	49.7	52.8	50.9	52.3	53.1	49.3	.	.	.

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									External balance [1]		
	Total	Domestic demand								Total	Exports [1]	Imports [1]
		Total	Private consumption	Government consumption	Gross fixed capital formation				Changes in inventories [2]			
					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	12,475.0	11,980.9	6,354.5	2,737.3	2,727.0	1,388.6	761.4	570.4	162.2	494.1	6,172.3	5,678.2
2022	13,507.8	13,266.5	7,069.5	2,901.0	3,017.6	1,560.7	847.5	602.3	278.4	241.3	7,440.1	7,198.8
2023	14,378.5	13,847.7	7,536.7	3,042.4	3,177.2	1,626.8	904.7	638.2	91.5	530.8	7,419.9	6,889.1
2023 Q2	3,580.1	3,442.6	1,874.2	755.1	788.9	405.8	226.1	155.1	24.4	137.5	1,866.7	1,729.2
Q3	3,610.0	3,468.8	1,899.3	768.5	794.8	407.7	228.8	156.4	6.2	141.2	1,835.0	1,693.9
Q4	3,648.8	3,514.5	1,911.0	777.5	807.5	408.1	225.0	172.5	18.5	134.3	1,847.4	1,713.1
2024 Q1	3,681.3	3,499.2	1,924.6	783.4	796.0	412.6	223.7	157.8	-4.8	182.2	1,875.1	1,692.9

as percentage of GDP

2023	100.0	96.3	52.4	21.2	22.1	11.3	6.3	4.4	0.6	3.7	-	-

Chain-linked volumes (prices for the previous year)

quarter-on-quarter percentage changes

2023 Q2	0.1	0.6	0.1	0.3	0.2	-0.4	0.4	1.1	-	-	-1.0	-0.2
Q3	0.0	-0.1	0.4	0.7	0.1	-0.3	0.6	0.4	-	-	-1.3	-1.6
Q4	-0.1	0.1	0.2	0.6	0.8	-0.6	-2.7	9.7	-	-	0.2	0.6
2024 Q1	0.3	-0.6	0.2	0.0	-1.5	0.7	0.3	-9.0	-	-	1.4	-0.3

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	1.4	4.5	2.6	-	-	7.2	7.9
2023	0.5	0.2	0.5	0.9	1.2	-0.8	3.2	3.6	-	-	-0.8	-1.4
2023 Q2	0.6	0.6	0.6	0.7	1.7	-0.6	5.3	2.5	-	-	0.0	-0.1
Q3	0.2	-0.4	-0.3	1.5	0.7	-0.1	2.7	-0.3	-	-	-2.7	-4.0
Q4	0.2	0.3	0.7	1.4	1.6	-0.4	0.4	8.4	-	-	-2.5	-2.4
2024 Q1	0.4	0.0	0.8	1.6	-0.5	-0.6	-1.4	1.3	-	-	-0.8	-1.5

contributions to quarter-on-quarter percentage changes in GDP; percentage points

2023 Q2	0.1	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.4	-0.4	-	-
Q3	0.0	-0.1	0.2	0.2	0.0	0.0	0.0	0.0	-0.4	0.1	-	-
Q4	-0.1	0.1	0.1	0.1	0.2	-0.1	-0.2	0.4	-0.3	-0.2	-	-
2024 Q1	0.3	-0.5	0.1	0.0	-0.3	0.1	0.0	-0.4	-0.3	0.9	-	-

contributions to annual percentage changes in GDP; percentage points

2021	5.9	4.8	2.4	1.0	0.8	0.7	0.5	-0.3	0.6	1.4	-	-
2022	3.4	3.5	2.2	0.4	0.6	0.2	0.3	0.1	0.4	0.0	-	-
2023	0.5	0.2	0.3	0.2	0.3	-0.1	0.2	0.2	-0.6	0.3	-	-
2023 Q2	0.6	0.6	0.3	0.1	0.4	-0.1	0.3	0.1	-0.2	0.1	-	-
Q3	0.2	-0.5	-0.1	0.3	0.1	0.0	0.2	0.0	-0.8	0.7	-	-
Q4	0.2	0.3	0.4	0.3	0.4	0.0	0.0	0.4	-0.8	-0.1	-	-
2024 Q1	0.4	0.0	0.4	0.3	-0.1	-0.1	-0.1	0.1	-0.6	0.3	-	-

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.

2.2 Value added by economic activity
(quarterly data seasonally adjusted; annual data unadjusted)

					Gross value added (basic prices)							
	Total	Agriculture, forestry and fishing	Manufacturing, energy and utilities	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	11,191.6	186.6	2,218.6	595.0	2,021.7	598.5	515.2	1,247.3	1,298.1	2,173.0	337.6	1,283.4
2022	12,165.7	215.1	2,450.1	656.6	2,333.5	633.2	532.7	1,300.2	1,398.4	2,274.6	371.3	1,342.1
2023	13,007.7	221.7	2,623.9	722.8	2,449.5	679.7	610.2	1,413.6	1,493.0	2,393.1	400.1	1,370.9
2023 Q2	3,243.1	55.6	661.1	179.9	612.3	169.3	151.7	351.0	371.1	592.2	98.9	337.1
Q3	3,257.5	55.0	648.8	181.8	613.7	171.0	155.2	354.5	375.9	601.0	100.5	352.5
Q4	3,295.5	54.0	656.0	184.0	619.9	173.1	156.7	358.5	382.1	610.1	101.3	353.3
2024 Q1	3,316.7	55.1	646.4	187.3	624.5	174.3	160.0	362.2	385.1	619.1	102.5	364.7
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 Q2	0.1	-0.1	-0.6	-0.2	0.2	1.3	0.8	-0.1	0.5	0.2	0.6	0.1
Q3	0.0	-1.1	-1.2	-0.1	0.3	1.0	0.1	0.3	0.2	0.2	1.8	0.0
Q4	0.0	0.2	-0.6	-0.1	-0.3	0.9	-1.0	0.1	0.5	0.7	-1.2	-0.5
2024 Q1	0.3	0.7	-0.4	0.6	0.6	0.3	0.7	0.7	0.5	0.3	0.9	0.2
annual percentage changes												
2021	5.8	1.1	8.7	3.0	7.8	9.3	5.6	2.0	6.7	3.5	4.3	7.2
2022	3.5	-2.5	1.2	1.1	7.7	6.1	0.7	1.8	4.9	1.9	12.0	2.6
2023	0.7	0.5	-1.6	0.5	0.3	4.3	0.2	1.3	1.3	1.2	4.1	-1.2
2023 Q2	0.8	1.3	-0.5	0.4	0.1	4.6	1.0	1.1	1.4	1.2	3.3	-1.2
Q3	0.2	0.0	-2.3	1.3	-0.5	3.5	0.7	1.2	1.1	0.9	3.2	-0.3
Q4	0.2	-0.1	-2.9	1.2	0.0	4.0	-0.9	1.1	1.2	1.3	3.4	-0.7
2024 Q1	0.4	-0.2	-2.7	0.1	0.8	3.4	0.6	1.0	1.7	1.4	2.1	-0.1
contributions to quarter-on-quarter percentage changes in value added; percentage points												
2023 Q2	0.1	0.0	-0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	-
Q3	0.0	0.0	-0.2	0.0	0.1	0.1	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	0.1	0.1	0.0	-
2024 Q1	0.3	0.0	-0.1	0.0	0.1	0.0	0.0	0.1	0.1	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	0.7	0.0	-0.3	0.0	0.1	0.2	0.0	0.1	0.1	0.2	0.1	-
2023 Q2	0.8	0.0	-0.1	0.0	0.0	0.2	0.0	0.1	0.2	0.2	0.1	-
Q3	0.2	0.0	-0.5	0.1	-0.1	0.2	0.0	0.1	0.1	0.2	0.1	-
Q4	0.2	0.0	-0.6	0.1	0.0	0.2	0.0	0.1	0.1	0.2	0.1	-
2024 Q1	0.4	0.0	-0.5	0.0	0.1	0.2	0.0	0.1	0.2	0.3	0.1	-

Sources: Eurostat and ECB calculations.

2 Economic activity

2.3 Employment [1]
(quarterly data seasonally adjusted; annual data unadjusted)

| | Total | By employment status | | By economic activity | | | | | | | | | |
| | | Employ-ees | Self-employed | Agricul-ture forestry and fishing | Manufac-turing, energy and utilities | Const-ruction | Trade, transport, accom-modation and food services | Infor-mation and com-munica-tion | Finance and in-surance | Real estate | Professional, business and support services | Public adminis-tration, education, health and social work | Arts, enter-tainment 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	3.4	1.0	1.7	1.6	1.4	0.9
2023 Q2	1.5	1.5	0.9	-2.3	1.1	1.0	1.9	4.0	1.0	2.3	1.9	1.4	0.8
Q3	1.4	1.4	1.0	-1.0	0.8	1.5	2.0	2.4	1.1	0.9	1.4	1.5	0.5
Q4	1.2	1.2	1.3	-0.5	0.4	1.8	1.3	2.6	0.8	1.1	1.1	1.5	1.2
2024 Q1	1.0	1.0	0.8	-0.3	0.2	1.2	1.2	2.2	0.6	0.0	0.9	1.4	0.4
					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	-1.3	1.0	3.3	7.6	5.9	-0.2	4.6	3.9	0.6	5.7
2023	1.3	1.5	0.4	-1.5	0.6	1.2	1.6	3.0	0.7	1.1	1.6	1.5	1.5
2023 Q2	1.6	1.8	0.8	-2.5	1.2	1.3	1.8	4.1	1.3	1.8	2.2	1.8	1.7
Q3	1.4	1.6	0.7	-1.2	0.6	1.6	1.8	2.0	1.1	1.1	1.6	1.8	1.5
Q4	1.2	1.4	0.5	-0.7	0.5	1.7	1.1	3.0	0.4	0.6	1.4	1.8	1.0
2024 Q1	0.6	0.7	0.5	-1.9	-0.5	0.9	1.0	1.6	-0.2	-0.5	1.0	1.2	0.2
					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	-0.4	-0.2	0.1	4.1	0.1	-0.2	1.8	1.0	-1.0	4.2
2023	-0.1	0.0	-0.7	-0.2	-0.3	-0.3	-0.2	-0.4	-0.3	-0.5	0.0	0.1	0.6
2023 Q2	0.2	0.3	-0.1	-0.3	0.1	0.2	-0.1	0.2	0.2	-0.5	0.3	0.4	0.9
Q3	0.1	0.1	-0.2	-0.2	-0.2	0.1	-0.2	-0.5	0.0	0.2	0.3	0.3	1.0
Q4	0.0	0.2	-0.8	-0.2	0.1	-0.1	-0.2	0.4	-0.3	-0.5	0.3	0.3	-0.2
2024 Q1	-0.3	-0.3	-0.3	-1.5	-0.6	-0.3	-0.2	-0.6	-0.8	-0.5	0.1	-0.2	-0.2

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

2.4 Labour force, unemployment and job vacancies
(seasonally adjusted, unless otherwise indicated)

	Labour force, millions	Under-employment, % of labour force	Unemployment [1] Total Millions	Total % of labour force	Long-term unemploy-ment, % of labour force [2]	Adult Millions	Adult % of labour force	Youth Millions	Youth % of labour force	Male Millions	Male % of labour force	Female Millions	Female % of labour force	Job vacancy rate [3] % of total posts
	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	165.154	3.4	12.831	7.8	3.2	10.347	6.9	2.484	16.9	6.549	7.4	6.283	8.2	2.5
2022	167.998	3.1	11.408	6.8	2.7	9.150	6.0	2.257	14.6	5.733	6.4	5.675	7.2	3.3
2023	170.162	2.9	11.178	6.6	2.4	8.881	5.8	2.297	14.5	5.644	6.2	5.535	6.9	3.0
2023 Q2	170.056	2.9	11.104	6.5	2.4	8.832	5.7	2.272	14.3	5.595	6.2	5.509	6.9	3.1
Q3	170.226	2.9	11.215	6.6	2.3	8.885	5.8	2.330	14.6	5.674	6.3	5.540	7.0	3.0
Q4	170.948	2.9	11.172	6.5	2.3	8.807	5.7	2.366	14.8	5.653	6.2	5.520	6.9	2.9
2024 Q1	171.509	2.9	11.213	6.5	2.3	8.884	5.7	2.328	14.5	5.661	6.2	5.552	6.9	2.9
2023 Dec.	-	-	11.139	6.5	-	8.803	5.7	2.335	14.6	5.645	6.2	5.493	6.9	-
2024 Jan.	-	-	11.192	6.5	-	8.853	5.7	2.339	14.6	5.687	6.2	5.506	6.9	-
Feb.	-	-	11.218	6.5	-	8.881	5.7	2.337	14.6	5.698	6.2	5.520	6.9	-
Mar.	-	-	11.125	6.5	-	8.817	5.7	2.308	14.4	5.617	6.2	5.508	6.9	-
Apr.	-	-	11.040	6.4	-	8.756	5.6	2.284	14.2	5.617	6.1	5.423	6.7	-
May	-	-	11.078	6.4	-	8.791	5.6	2.287	14.2	5.653	6.2	5.425	6.7	-

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 Total (excluding construction) Total	Manu-facturing	Main Industrial Groupings Inter-mediate goods	Capital goods	Consumer goods	Energy	Construc-tion production	Retail sales Total	Food, beverages, tobacco	Non-food	Fuel	Services produc-tion [1]	New passenger car regis-trations
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	88.7	32.4	33.2	22.5	11.9	100.0	100.0	38.1	54.4	7.5	100.0	100.0
						annual percentage changes							
2021	8.8	9.8	9.6	9.4	8.1	0.7	5.7	5.3	1.0	8.3	9.0	8.1	-2.9
2022	2.2	3.0	-1.6	5.1	6.3	-2.9	2.9	0.9	-2.8	3.1	4.5	9.9	-4.3
2023	-2.2	-1.8	-5.6	2.4	-1.7	-5.7	1.5	-2.0	-2.7	-1.0	-1.7	2.8	14.5
2023 Q2	-0.9	0.0	-6.4	7.6	-1.7	-8.5	1.5	-2.2	-3.3	-1.1	-0.7	2.7	22.7
Q3	-4.8	-4.4	-5.6	-2.4	-3.2	-7.6	1.6	-2.3	-1.9	-1.6	-3.8	2.0	15.4
Q4	-4.0	-4.3	-4.8	-2.5	-6.6	-0.9	1.1	-0.7	-0.6	0.0	-4.0	1.7	4.1
2024 Q1	-4.7	-4.8	-2.9	-6.0	-5.5	-1.5	-0.7	-0.2	-0.5	0.2	-0.6	3.3	4.6
2023 Dec.	0.2	0.3	-3.6	4.6	-4.9	-1.9	2.4	-0.4	-0.1	-0.2	-3.4	2.0	-0.4
2024 Jan.	-6.5	-7.4	-3.1	-10.9	-4.2	0.7	1.0	-0.9	-1.3	-0.7	0.6	3.4	7.0
Feb.	-6.3	-6.3	-2.8	-9.1	-4.8	-3.4	-1.5	-0.3	-1.2	0.7	-1.5	4.5	4.2
Mar.	-1.2	-1.0	-2.8	1.7	-7.2	-2.1	-0.3	0.6	1.0	0.7	-1.0	2.2	2.7
Apr.	-3.1	-3.1	-2.1	-5.2	0.2	-1.9	-1.5	0.6	-0.3	1.2	1.1	4.8	3.7
May	-2.9	-3.3	-3.5	-6.5	1.9	0.7	-2.4	0.3	0.3	0.7	-0.6	.	-3.7
						month-on-month percentage changes (s.a.)							
2023 Dec.	1.5	5.2	-1.4	11.4	0.3	0.3	0.3	-0.5	-0.6	-0.6	0.4	0.5	-1.4
2024 Jan.	-2.2	-6.2	2.2	-15.4	-0.3	1.1	0.7	0.0	0.3	0.3	0.5	0.3	-0.7
Feb.	0.0	0.8	0.4	1.9	-0.2	-3.2	0.1	-0.1	-0.3	0.4	-1.0	1.1	0.2
Mar.	0.5	1.0	-0.3	0.9	-1.8	-0.1	-0.5	0.7	1.1	0.0	0.8	-0.4	-1.2
Apr.	0.0	-0.4	-0.3	0.7	3.1	-0.2	-0.2	-0.2	-0.9	0.5	-0.7	1.1	-0.4
May	-0.6	-0.8	-1.0	-1.2	1.2	0.8	.	0.1	0.7	-0.2	0.4	.	-5.3

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

2 Economic activity

2.6 Opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances, unless otherwise indicated)								Purchasing Managers' Surveys (diffusion indices)			
	Economic sentiment indicator (long-term average = 100)	Manufacturing industry		Consumer confidence indicator	Construction confidence indicator	Retail trade confidence indicator	Service industries		Purchasing Managers' Index (PMI) for manufacturing	Manufacturing output	Business activity for services	Composite output
		Industrial confidence indicator	Capacity utilisation (%)				Services confidence indicator	Capacity utilisation (%)				
	1	2	3	4	5	6	7	8	9	10	11	12
1999-20	99.5	-4.3	80.1	-11.1	-12.5	-6.6	6.4	.	-	-	-	-
2021	111.2	9.6	80.9	-7.5	4.1	-1.5	8.5	87.3	-	-	-	-
2022	102.1	5.0	82.4	-21.9	5.2	-3.5	9.2	89.9	-	-	-	-
2023	96.3	-5.6	80.9	-17.4	-2.0	-4.0	6.7	90.5	45.0	45.8	51.2	49.7
2023 Q3	94.2	-8.9	80.7	-16.3	-4.7	-4.6	5.0	90.5	43.2	43.1	49.2	47.5
Q4	94.8	-9.0	79.9	-16.7	-4.2	-6.5	6.2	90.5	43.9	44.0	48.4	47.2
2024 Q1	96.0	-9.2	79.4	-15.5	-5.3	-6.1	7.0	90.1	46.4	46.7	50.0	49.2
Q2	95.9	-10.1	79.0	-14.4	-6.4	-7.2	6.5	90.0	46.2	47.6	53.1	51.6
2024 Jan.	96.1	-9.3	79.4	-16.1	-4.6	-5.7	8.4	90.1	46.6	46.6	48.4	47.9
Feb.	95.5	-9.5	.	-15.5	-5.5	-6.7	6.1	.	46.5	46.6	50.2	49.2
Mar.	96.3	-8.8	.	-14.9	-5.7	-6.0	6.5	.	46.1	47.1	51.5	50.3
Apr.	95.6	-10.4	79.0	-14.7	-6.0	-6.8	6.1	90.0	45.7	47.3	53.3	51.7
May	96.1	-9.9	.	-14.3	-6.2	-6.8	6.8	.	47.3	49.3	53.2	52.2
June	95.9	-10.1	.	-14.0	-7.0	-7.8	6.5	.	45.8	46.1	52.8	50.9

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	17.1	95.2	2.1	3.6	18.9	8.6	8.8	36.2	7.4	77.4	5.5	10.5	3.3
2022	13.1	92.8	-0.2	2.4	12.3	2.3	8.1	37.2	5.5	72.7	3.3	9.3	2.2
2023	13.7	87.1	1.2	2.0	2.0	2.0	-0.8	35.4	5.7	68.3	1.6	1.4	0.6
2023 Q2	13.2	89.4	1.2	2.1	1.0	2.9	1.7	36.4	5.9	69.9	1.8	18.7	0.9
Q3	13.4	88.1	0.6	1.9	0.2	1.8	-0.1	36.1	5.9	68.9	1.6	-12.6	0.5
Q4	13.7	87.1	1.8	2.0	1.2	2.0	-0.8	35.4	5.7	68.3	1.6	3.3	0.6
2024 Q1	14.1	85.9	2.9	2.0	-2.6	2.3	-0.4	34.7	5.3	67.5	1.8	-4.8	0.7

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 Q2	1,413.1	1,354.4	58.7	728.6	668.7	336.3	304.7	303.4	292.0	44.8	89.0	25.7	22.7
Q3	1,432.2	1,371.0	61.2	725.7	646.9	337.8	304.7	325.9	330.7	42.7	88.7	28.9	18.5
Q4	1,408.3	1,336.1	72.2	714.1	647.0	335.9	304.5	311.3	293.4	46.9	91.1	61.6	40.7
2024 Q1	1,433.5	1,321.3	112.2	726.6	623.0	362.9	331.2	299.6	289.1	44.3	78.1	19.3	31.0
2023 Nov.	470.1	444.6	25.5	241.4	214.1	111.2	102.2	102.3	98.8	15.2	29.4	9.4	7.5
Dec.	472.9	444.0	28.9	241.5	214.4	112.6	100.8	102.0	97.2	16.7	31.6	41.4	23.7
2024 Jan.	471.6	429.6	42.0	242.0	198.8	119.2	109.3	96.0	95.6	14.4	25.9	4.0	13.3
Feb.	481.9	446.6	35.3	240.7	210.2	125.1	112.4	101.4	98.8	14.7	25.2	4.5	7.9
Mar.	480.0	445.1	34.9	244.0	214.0	118.5	109.4	102.2	94.7	15.3	27.0	10.8	9.7
Apr.	480.6	442.0	38.6	250.7	213.2	112.5	101.5	101.9	99.8	15.4	27.6	6.0	6.7
12-month cumulated transactions													
2024 Apr.	5,698.8	5,370.7	328.0	2,904.7	2,573.3	1,373.5	1,243.6	1,241.5	1,209.0	179.2	344.8	134.2	111.3
12-month cumulated transactions as a percentage of GDP													
2024 Apr.	39.2	37.0	2.3	20.0	17.7	9.5	8.6	8.6	8.3	1.2	2.4	0.9	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.) | | | | | Memo item: | Imports (c.i.f.) | | | | | Memo items: | |
| | Exports | Imports | Total | Intermediate goods | Capital goods | Consump-tion goods | Manu-facturing | | Total | Intermediate goods | Capital goods | Consump-tion goods | Manu-facturing | 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 Q2	-1.5	-13.5	710.4	331.5	144.3	216.3	592.3		706.6	411.5	113.5	164.3	503.2	74.1
Q3	-5.2	-22.1	704.0	331.3	142.0	214.5	585.5		677.8	390.0	111.7	158.6	488.7	82.2
Q4	-4.8	-16.6	708.5	333.6	144.2	214.8	588.5		669.8	383.1	107.5	157.7	476.9	81.1
2024 Q1	-3.0	-12.0	714.3	336.8	142.2	219.1	590.2		655.1	371.4	105.0	158.1	463.4	75.7
2023 Dec.	-8.3	-18.5	235.2	110.5	47.6	72.1	193.2		221.2	124.9	36.0	52.3	157.9	25.0
2024 Jan.	1.3	-16.0	238.7	113.4	48.1	71.9	197.4		212.0	121.5	33.7	51.3	150.2	25.2
Feb.	0.3	-8.0	238.0	111.3	47.6	73.0	197.1		221.3	124.6	35.6	52.5	154.7	24.8
Mar.	-9.4	-11.5	237.6	112.1	46.6	74.1	195.7		221.8	125.3	35.6	54.4	158.5	25.7
Apr.	13.5	1.8	243.9	113.9	46.3	76.5	199.5		225.4	130.4	35.6	54.8	158.6	28.3
May	-0.5	-6.4	237.4	.	.	.	196.1		225.1	.	.	.	156.8	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)														
2023 Q2	-3.6	-6.7	97.2	92.6	99.8	105.1	97.2		109.5	107.2	112.2	111.8	110.6	158.7
Q3	-4.2	-10.1	96.3	93.8	95.9	102.4	96.0		106.7	104.6	111.4	109.5	108.5	171.5
Q4	-3.6	-8.7	96.4	93.1	96.1	103.0	95.6		104.6	101.9	104.6	108.3	105.7	164.5
2024 Q1	-4.0	-7.0	96.8	94.0	93.5	104.2	95.6		103.7	101.2	101.2	107.6	103.2	164.4
2023 Nov.	-3.2	-9.3	96.3	92.9	96.2	103.3	95.9		103.3	101.0	101.3	107.7	104.2	162.8
Dec.	-7.3	-11.0	96.8	93.1	96.2	104.7	95.4		105.1	102.0	105.3	107.0	105.3	168.6
2024 Jan.	0.8	-9.6	97.9	96.1	95.5	102.4	96.8		101.7	99.9	97.2	104.7	100.9	161.0
Feb.	-0.7	-3.4	96.5	92.6	92.5	105.0	95.2		103.9	101.4	102.9	107.0	103.3	166.8
Mar.	-10.8	-7.8	96.0	93.1	92.4	105.3	94.9		105.5	102.2	103.6	110.9	105.5	165.4
Apr.	10.9	2.7	97.0	94.3	90.5	107.6	95.8		105.0	103.1	102.5	109.0	105.4	174.6

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

3 Prices and costs

3.1 Harmonised Index of Consumer Prices [1]
(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) [2]						Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unpro-cessed food	Non-energy indus-trial goods	Energy (n.s.a.)	Services	Total HICP excluding adminis-tered prices	Adminis-tered prices
		Total	Total excluding food and energy										
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2024	100.0	100.0	70.6	55.1	44.9	100.0	15.1	4.3	25.7	9.9	44.9	88.5	11.5
2021	107.8	2.6	1.5	3.4	1.5	-	-	-	-	-	-	2.5	3.1
2022	116.8	8.4	3.9	11.9	3.5	-	-	-	-	-	-	8.5	7.8
2023	123.2	5.4	4.9	5.7	4.9	-	-	-	-	-	-	5.5	4.9
2023 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	0.6	0.9	0.0	-1.1	0.6	3.0	1.3
2024 Q1	124.4	2.6	3.1	1.5	4.0	0.7	0.8	-0.2	0.3	0.2	1.1	2.7	2.3
Q2	126.3	2.5	2.8	1.3	4.0	0.6	0.4	-0.5	0.0	-0.5	1.3	2.5	2.8
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	1.4	0.5	2.6	2.5
Mar.	125.3	2.4	2.9	1.2	4.0	0.2	0.1	-0.4	-0.1	-0.2	0.5	2.4	2.5
Apr.	126.0	2.4	2.7	1.3	3.7	0.2	0.1	0.0	-0.1	0.3	0.3	2.4	2.1
May	126.3	2.6	2.9	1.3	4.1	0.2	0.1	0.1	0.0	-1.2	0.6	2.5	2.8
June	126.6	2.5	2.9	1.2	4.1	0.1	0.3	0.3	0.1	-0.8	0.3	2.4	3.4

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing					
	Total	Processed food	Unpro-cessed food	Total	Non-energy industrial goods	Energy	Total	Rents	Transport	Communi-cation	Recreation and personal care	Miscel-laneous
	14	15	16	17	18	19	20	21	22	23	24	25
% of total in 2024	19.5	15.1	4.3	35.6	25.7	9.9	9.6	5.6	7.4	2.2	16.4	9.3
2021	1.5	1.5	1.6	4.5	1.5	13.0	1.4	1.2	2.1	0.3	1.5	1.6
2022	9.0	8.6	10.4	13.6	4.6	37.0	2.4	1.7	4.4	-0.2	6.1	2.1
2023	10.9	11.4	9.1	2.9	5.0	-2.0	3.6	2.7	5.2	0.2	6.9	4.0
2023 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	4.0	4.4	2.8	0.1	1.6	-3.9	3.4	2.8	3.6	-0.2	5.3	3.8
Q2	2.6	2.9	1.4	0.6	0.7	0.0	3.3	2.8	3.7	-0.5	5.1	4.0
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	0.1	5.2	3.9
Mar.	2.6	3.5	-0.5	0.4	1.1	-1.8	3.4	2.8	3.9	-0.4	5.2	3.8
Apr.	2.8	3.2	1.2	0.5	0.9	-0.6	3.4	2.8	2.7	-0.5	4.8	3.9
May	2.6	2.8	1.8	0.6	0.7	0.3	3.3	2.8	4.2	-0.7	5.3	4.0
June	2.4	2.7	1.3	0.6	0.7	0.2	3.3	2.8	4.3	-0.4	5.1	4.1

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]										Construc-tion [2]	Residential property prices	Experimental indicator of commercial property prices [3]
	Total (index: 2021 = 100)	Total		Industry excluding construction and energy						Energy			
		Total	Manu-facturing	Total	Inter-mediate goods	Capital goods	Consumer 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	7.4	5.7	10.9	2.6	2.2	3.3	1.7	30.3	5.8	7.9	0.6
2022	133.5	33.5	17.2	14.0	19.9	7.2	12.2	16.4	7.0	82.0	11.9	7.1	0.6
2023	130.5	-2.2	1.8	3.7	-0.3	5.1	8.3	8.5	5.0	-13.3	6.9	-1.1	-8.3
2023 Q2	129.0	-0.8	0.7	4.1	-0.6	5.7	9.5	9.7	5.9	-11.3	7.5	-1.6	-9.2
Q3	128.1	-8.8	-0.5	1.3	-4.0	4.4	6.4	5.6	4.1	-25.2	5.1	-2.2	-9.4
Q4	128.4	-8.7	-1.2	-0.1	-4.8	3.3	3.6	2.2	2.4	-23.1	4.5	-1.2	-9.3
2024 Q1	125.4	-8.0	-1.6	-1.3	-5.2	2.0	1.5	-0.2	0.9	-20.4	3.7	-0.4	.
2023 Dec.	127.7	-9.6	-0.9	-0.3	-4.6	3.0	3.1	1.6	2.1	-25.2	-	-	-
2024 Jan.	126.5	-8.0	-2.0	-1.2	-5.4	2.2	1.8	0.3	1.1	-19.9	-	-	-
Feb.	125.2	-8.3	-1.6	-1.3	-5.4	2.1	1.4	-0.4	0.9	-21.1	-	-	-
Mar.	124.5	-7.8	-1.3	-1.3	-4.8	1.9	1.2	-0.6	0.8	-20.2	-	-	-
Apr.	123.3	-5.7	-0.7	-0.9	-3.9	1.5	1.0	-0.9	0.7	-14.7	-	-	-
May	123.0	-4.2	-0.2	-0.4	-2.9	1.6	1.1	-0.4	0.8	-11.4	-	-	-

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)					
	Total (s.a.; index: 2015 = 100)	Total	Domestic demand				Exports [1]	Imports [1]		Import-weighted [2]			Use-weighted [2]		
			Total	Private con-sumption	Govern-ment con-sump-tion	Gross fixed capital forma-tion				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	121.7	6.0	4.2	6.1	3.9	4.1	0.6	-2.9	76.4	-12.8	-11.6	-14.0	-13.7	-12.5	-15.0
2023 Q3	122.2	6.0	3.2	5.8	4.0	3.0	-1.9	-7.0	79.8	-13.4	-14.5	-12.2	-14.5	-15.2	-13.7
Q4	123.6	5.1	3.6	3.8	3.1	2.5	-1.4	-4.6	78.5	-8.8	-9.3	-8.3	-9.8	-10.4	-9.0
2024 Q1	124.3	3.6	2.6	2.9	3.8	2.1	-0.6	-3.0	76.5	-2.3	3.1	-7.5	-2.7	1.8	-7.8
Q2	.	.	.	.	.	.	.	.	85.0	12.6	15.9	9.4	11.3	12.8	9.4
2024 Jan.	-	-	-	-	-	-	-	-	73.5	-4.8	-0.4	-8.8	-5.5	-2.5	-8.9
Feb.	-	-	-	-	-	-	-	-	77.5	-3.3	1.5	-8.0	-3.2	1.1	-8.2
Mar.	-	-	-	-	-	-	-	-	78.6	1.2	8.3	-5.7	0.7	6.6	-6.2
Apr.	-	-	-	-	-	-	-	-	85.0	12.7	20.4	5.0	10.5	15.1	5.0
May	-	-	-	-	-	-	-	-	.	12.6	12.6	12.6	11.5	11.0	12.2
June	-	-	-	-	-	-	-	-	.	12.6	14.5	10.7	11.8	12.3	11.2

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)					Input prices		Prices charged	
	Manu-facturing	Retail trade	Services	Construction	Consumer price trends over past 12 months	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 Q3	3.5	22.0	15.3	6.4	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	16.6	17.5	5.1	64.5	44.9	62.3	48.2	56.0
Q2	6.0	13.8	13.8	3.4	56.7	49.9	60.5	48.6	54.6
2024 Jan.	4.6	18.6	20.0	9.9	66.1	42.8	62.6	48.6	56.3
Feb.	3.9	16.9	17.3	3.7	65.3	45.5	62.9	48.3	56.6
Mar.	5.5	14.4	15.2	1.7	62.1	46.5	61.5	47.7	55.1
Apr.	5.6	14.1	14.0	2.5	58.3	49.0	61.7	47.9	55.9
May	6.5	13.8	13.4	3.5	56.9	49.2	60.5	48.3	54.2
June	6.1	13.5	14.1	4.3	54.7	51.4	59.3	49.5	53.5

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)

| | Total (index: 2020=100) | Total | By component | | For selected economic activities | | Memo item: Indicator of negotiated wages [1] |
| | | | Wages and salaries | Employers' social contributions | Business economy | Mainly non-business economy | |
	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	1.0	0.5	0.9	1.0	1.4
2022	105.7	4.8	4.0	7.0	5.0	4.1	2.9
2023	110.5	4.5	4.4	4.8	5.0	3.4	4.5
2023 Q2	113.8	4.4	4.5	4.0	4.6	3.9	4.4
Q3	107.4	5.2	5.2	5.0	5.8	3.9	4.7
Q4	118.0	3.4	3.3	4.0	4.2	2.0	4.5
2024 Q1	107.9	5.1	5.2	4.5	5.0	5.3	4.7

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)

	Total (index: 2015 =100)	Total	By economic activity									
			Agriculture, forestry and fishing	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	-3.6	5.5	-1.8	1.2	-1.5	5.0	1.0	0.9	-0.1
2022	113.7	3.3	6.9	3.6	6.1	1.9	3.0	2.7	4.9	3.2	3.5	-3.0
2023	120.8	6.2	3.7	8.1	5.7	7.4	4.3	5.4	4.3	6.5	4.4	2.3
2023 Q2	119.5	6.1	2.3	6.8	5.4	7.7	4.6	4.1	4.5	6.6	4.9	2.6
Q3	121.5	6.5	4.2	9.1	5.0	7.8	4.0	4.6	3.3	6.5	5.5	2.9
Q4	123.3	6.0	4.6	9.3	5.7	7.0	3.8	6.8	5.6	5.3	3.6	4.3
2024 Q1	125.3	5.7	3.1	7.6	6.3	4.6	3.8	4.8	4.5	4.3	5.8	5.6
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	5.1	3.6	4.0	6.2	3.3	3.3	3.9	5.2	3.8	7.1
2023	122.6	5.2	5.6	5.5	4.6	5.8	5.1	4.6	3.9	6.2	4.1	5.6
2023 Q2	121.6	5.2	6.0	5.1	4.7	5.8	5.3	4.1	3.2	6.0	4.6	5.2
Q3	123.4	5.3	5.3	5.7	4.8	5.1	5.1	4.1	3.6	6.3	4.9	5.8
Q4	124.8	4.9	5.1	5.7	5.1	5.6	5.2	5.1	5.6	5.4	3.3	6.6
2024 Q1	126.8	5.0	3.3	4.6	5.1	4.1	5.0	4.8	5.6	5.1	5.7	7.5
Labour productivity per person employed												
2021	101.4	4.4	0.9	8.7	-0.2	7.5	4.6	4.9	1.5	3.6	1.3	3.4
2022	102.5	1.1	-1.7	-0.1	-2.0	4.2	0.3	0.7	-0.9	1.9	0.3	10.4
2023	101.5	-1.0	1.8	-2.5	-1.0	-1.5	0.8	-0.8	-0.4	-0.3	-0.2	3.2
2023 Q2	101.8	-0.8	3.6	-1.6	-0.6	-1.8	0.7	0.0	-1.2	-0.5	-0.2	2.5
Q3	101.6	-1.2	1.0	-3.0	-0.2	-2.5	1.1	-0.4	0.3	-0.2	-0.6	2.7
Q4	101.2	-1.0	0.4	-3.3	-0.6	-1.4	1.4	-1.6	0.0	0.1	-0.2	2.1
2024 Q1	101.2	-0.6	0.2	-2.8	-1.1	-0.4	1.2	0.0	1.0	0.8	-0.1	1.8
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	3.4	2.7	3.9	4.9	3.7
2023	124.0	5.2	5.4	5.8	4.8	5.8	5.3	5.0	4.5	6.0	4.0	4.8
2023 Q2	122.4	4.9	6.5	4.9	4.7	5.9	5.0	3.9	3.7	5.7	4.1	3.9
Q3	124.5	5.1	4.9	5.8	4.8	5.2	5.2	4.3	4.5	6.0	4.6	4.3
Q4	126.2	4.7	4.9	5.6	4.9	5.6	4.5	5.2	4.8	4.9	3.1	6.4
2024 Q1	128.1	5.4	3.9	5.1	5.5	4.5	5.7	5.5	5.7	5.2	5.9	7.9
Hourly labour productivity												
2021	104.7	0.0	0.0	3.4	-6.2	1.0	1.3	2.6	-3.7	-1.4	-0.3	-2.1
2022	104.7	0.0	-1.3	0.2	-2.1	0.1	0.2	0.8	-2.6	1.0	1.3	5.9
2023	103.8	-0.8	2.1	-2.2	-0.7	-1.3	1.2	-0.4	0.1	-0.3	-0.3	2.6
2023 Q2	103.6	-1.0	3.9	-1.7	-0.9	-1.7	0.5	-0.2	-0.7	-0.8	-0.6	1.6
Q3	103.6	-1.2	1.2	-2.8	-0.3	-2.3	1.6	-0.4	0.1	-0.5	-0.9	1.7
Q4	103.4	-1.1	0.6	-3.4	-0.5	-1.2	1.0	-1.3	0.5	-0.2	-0.5	2.3
2024 Q1	103.4	-0.3	1.7	-2.2	-0.8	-0.2	1.7	0.8	1.5	0.7	0.1	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
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
Apr.	3.91	3.85	3.89	3.84	3.70	5.32	0.08
May	3.91	3.82	3.81	3.79	3.68	5.31	0.08
June	3.75	3.63	3.72	3.71	3.65	5.33	0.08

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

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1]					Euro area [1] [2]	United States	United Kingdom	Euro area [1] [2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2021	-0.73	-0.72	-0.68	-0.48	-0.19	0.53	1.12	0.45	-0.69	-0.58	-0.12	0.24
2022	1.71	2.46	2.57	2.45	2.56	0.09	-0.84	-0.24	2.85	2.48	2.47	2.76
2023	3.78	3.05	2.44	1.88	2.08	-0.96	-0.92	-1.20	2.25	1.54	1.76	2.64
2024 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
Apr.	3.74	3.35	3.00	2.58	2.64	-0.72	-0.57	-0.42	2.91	2.44	2.37	2.96
May	3.67	3.33	3.02	2.64	2.70	-0.63	-0.69	-0.47	2.95	2.52	2.45	3.03
June	3.41	3.10	2.80	2.42	2.50	-0.60	-0.73	-0.51	2.74	2.31	2.22	2.91

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

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

	Dow Jones EURO STOXX Indices												United States	Japan
	Benchmark		Main industry indices											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2021	448.3	4,023.6	962.9	289.8	183.0	95.4	164.4	819.0	874.3	377.7	279.6	886.3	4,277.6	28,836.5
2022	414.6	3,757.0	937.3	253.4	171.3	110.0	160.6	731.7	748.4	353.4	283.2	825.8	4,098.5	27,257.8
2023	452.0	4,272.0	968.5	292.7	169.2	119.2	186.7	809.8	861.5	367.8	283.1	803.6	4,285.6	30,716.6
2024 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
Apr.	511.2	4,981.4	1,049.5	325.4	160.1	132.7	232.6	960.6	1,086.7	361.3	281.0	757.2	5,112.5	38,750.5
May	519.5	5,022.6	1,031.6	318.8	165.9	131.8	239.2	987.8	1,105.0	382.4	286.9	779.5	5,235.2	38,557.9
June	510.0	4,952.0	997.7	309.2	160.7	125.2	231.2	951.1	1,159.0	377.0	288.9	772.9	5,415.1	38,858.9

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				Re-volving loans and over-drafts	Ex-tended credit card credit	Loans for consumption			Loans to sole pro-prietors and unincor-porated partner-ships	Loans for house purchase					Composite cost-of-borrowing indicator
			With an agreed maturity of:				By initial period of rate fixation				By initial period of rate fixation					
	Over-night	Redeem-able at notice of up to 3 months	Up tp 2 years	Over 2 years			Floating rate and up to 1 year	Over 1 year	APRC[3]		Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years	APRC[3]	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2023 June	0.23	1.37	2.71	2.59	7.29	16.35	7.03	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	8.42	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	8.78	7.83	8.50	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	8.51	7.83	8.56	5.40	4.74	4.25	3.86	3.57	4.25	3.89
Oct.	0.35	1.59	3.27	3.31	7.98	16.55	8.26	7.87	8.54	5.58	4.83	4.29	3.78	3.61	4.27	3.92
Nov.	0.36	1.62	3.32	3.41	7.98	16.66	7.29	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	16.79	7.55	7.71	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	16.85	7.99	8.02	8.73	5.38	4.85	4.08	3.67	3.52	4.15	3.88
Feb.	0.38	1.70	3.17	3.07	8.18	16.80	7.68	7.94	8.63	5.31	4.83	4.01	3.64	3.49	4.11	3.84
Mar.	0.39	1.71	3.18	2.91	8.18	16.90	8.09	7.79	8.54	5.15	4.79	4.00	3.57	3.44	4.04	3.80
Apr.	0.39	1.73	3.13	2.89	8.14	16.92	8.11	7.85	8.58	5.19	4.82	3.99	3.59	3.42	4.04	3.80
May	0.39	1.73	3.10	2.81	8.20	16.96	7.59	7.95	8.69	5.26	4.79	3.97	3.62	3.42	4.03	3.80

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			
	Over-night	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 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	5.59	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	5.67	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	5.49	5.72	5.68	5.41	5.10	4.51	5.25	5.09	4.37	5.23
2024 Jan.	0.89	3.69	3.37	5.37	5.29	5.69	5.65	5.45	5.23	4.43	5.15	5.00	4.20	5.18
Feb.	0.89	3.63	3.50	5.36	5.44	5.72	5.60	5.46	5.14	4.38	5.10	4.83	3.97	5.14
Mar.	0.91	3.68	3.60	5.35	5.39	5.70	5.53	5.41	5.17	4.34	5.18	5.16	4.16	5.19
Apr.	0.91	3.66	3.34	5.36	5.20	5.61	5.62	5.35	5.09	4.30	5.19	4.99	4.15	5.18
May	0.92	3.64	3.61	5.32	5.27	5.73	5.68	5.37	5.07	4.29	4.99	4.96	4.18	5.10

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		Non-financial corporations	General government		Total	MFIs	Non-MFI corporations		Non-financial corporations	General government	
			Financial corporations other than MFIs			Total	of which central government			Financial corporations other than MFIs			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	1,406.8	427.4	125.0	48.7	89.7	764.7	674.9	386.5	137.9	78.9	26.3	32.1	137.6	104.8
2022	1,378.1	475.1	141.4	50.4	94.6	667.0	621.7	480.3	182.5	115.7	48.1	48.1	133.9	97.1
2023	1,528.1	605.3	134.9	51.1	86.2	701.8	659.1	500.4	212.6	111.5	37.8	48.9	127.5	103.8
2024 Jan.	1,539.4	609.0	155.2	51.4	90.4	684.8	642.7	552.8	211.2	145.8	43.2	47.1	148.8	121.6
Feb.	1,534.3	604.4	152.9	49.4	93.1	683.8	643.2	458.8	183.6	112.6	36.6	39.7	122.9	100.7
Mar.	1,537.4	612.4	151.3	48.5	82.0	691.6	644.0	462.8	183.3	109.7	33.3	38.6	131.3	102.8
Apr.	1,516.6	571.3	160.8	53.8	91.3	693.3	645.0	452.9	171.0	101.4	38.7	48.9	131.5	105.1
May	1,516.1	551.9	181.9	53.5	93.4	688.9	635.8	455.5	174.2	105.9	40.5	41.8	133.6	102.1
June	1,527.2	564.8	171.6	50.5	87.6	703.1	655.0	410.1	160.0	84.8	35.7	38.4	126.8	95.4
Long-term														
2021	19,894.9	4,181.6	3,327.3	1,344.0	1,622.3	10,763.7	9,942.7	316.6	68.8	82.9	33.5	23.3	141.6	128.1
2022	17,849.5	3,967.2	3,194.1	1,341.0	1,417.4	9,270.8	8,558.8	298.9	79.5	71.7	30.2	17.0	130.6	121.2
2023	19,507.0	4,504.4	3,374.2	1,356.7	1,527.9	10,100.5	9,360.8	323.2	94.5	69.1	25.4	21.2	138.4	130.0
2024 Jan.	19,612.7	4,560.4	3,432.7	1,364.7	1,527.4	10,092.2	9,345.0	472.9	167.5	89.7	30.7	22.7	193.0	172.3
Feb.	19,571.4	4,559.9	3,432.0	1,359.1	1,516.8	10,062.7	9,310.8	371.3	100.5	65.0	11.3	19.3	186.4	168.1
Mar.	19,846.1	4,640.0	3,462.0	1,367.0	1,537.5	10,206.6	9,444.8	434.8	126.5	94.4	31.1	34.9	179.0	164.3
Apr.	19,747.2	4,655.5	3,451.2	1,356.4	1,536.2	10,104.2	9,354.5	346.3	100.5	66.3	10.5	35.6	143.9	138.0
May	19,793.5	4,672.7	3,486.1	1,350.2	1,543.3	10,091.3	9,341.1	398.1	77.1	109.2	19.6	33.5	178.3	160.1
June	19,928.4	4,685.0	3,508.8	1,356.3	1,557.8	10,176.9	9,422.2	308.3	74.8	69.4	27.2	28.0	136.0	127.7

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		Non-financial corporations	General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations
			Financial corporations other than MFIs			Total	of which central government				
			Total	FVCs							
	1	2	3	4	5	6	7	8	9	10	11
Outstanding amount											
2021	21,301.6	4,609.0	3,452.2	1,392.7	1,712.0	11,528.4	10,617.5	10,367.6	600.3	1,486.6	8,279.7
2022	19,227.6	4,442.3	3,335.5	1,391.4	1,512.0	9,937.8	9,180.5	8,712.4	525.2	1,290.2	6,896.4
2023	21,035.1	5,109.7	3,509.0	1,407.9	1,614.1	10,802.3	10,019.9	9,690.9	621.8	1,410.7	7,658.0
2024 Jan.	21,152.1	5,169.5	3,587.9	1,416.1	1,617.8	10,777.0	9,987.8	9,842.9	641.1	1,439.4	7,762.0
Feb.	21,105.6	5,164.3	3,584.8	1,408.5	1,609.9	10,746.6	9,954.0	10,167.2	652.5	1,502.1	8,012.2
Mar.	21,383.5	5,252.5	3,613.3	1,415.6	1,619.5	10,898.2	10,088.8	10,523.5	727.4	1,591.3	8,204.3
Apr.	21,263.8	5,226.8	3,612.0	1,410.2	1,627.5	10,797.5	9,999.4	10,248.0	729.1	1,529.5	7,989.0
May	21,309.6	5,224.6	3,668.0	1,403.7	1,636.8	10,780.1	9,976.9	10,382.2	750.6	1,556.6	8,074.6
June	21,455.6	5,249.8	3,680.4	1,406.9	1,645.4	10,880.0	10,077.1	10,074.2	697.9	1,502.7	7,873.2
Growth rate [1]											
2023 Nov.	5.5	10.7	2.9	1.2	2.5	4.5	4.9	-1.3	-3.3	0.9	-1.5
Dec.	5.9	12.2	3.0	1.2	2.3	4.6	5.0	-1.5	-3.1	0.7	-1.7
2024 Jan.	6.0	11.1	4.7	2.4	2.1	4.7	5.1	-1.5	-3.0	0.7	-1.8
Feb.	5.7	10.6	4.4	1.7	2.0	4.5	4.8	-1.5	-3.0	0.7	-1.7
Mar.	5.8	11.4	4.7	2.3	2.3	4.2	4.6	-1.3	-3.0	1.0	-1.6
Apr.	5.7	10.2	4.6	1.0	3.0	4.3	4.6	-1.4	-3.1	0.6	-1.6
May	5.4	8.8	4.0	-2.3	2.8	4.8	4.7	-1.2	-3.2	0.5	-1.3
June	4.7	7.8	3.4	-3.1	3.1	4.1	4.1	-0.6	-3.3	-1.0	-0.3

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

4 Financial market developments

4.8 Effective exchange rates [1]
(period averages; index: 1999 Q1=100)

| | EER-19 | | | | | | EER-42 | |
| | Nominal | Real CPI | Real PPI | Real GDP deflator | Real ULCM | Real ULCT | Nominal | Real CPI |
	1	2	3	4	5	6	7	8
2021	99.6	93.7	93.7	89.3	68.3	87.5	120.5	94.3
2022	95.3	90.8	93.7	84.2	63.4	82.7	116.1	90.9
2023	98.1	94.0	98.1	88.3	65.2	86.3	121.8	94.7
2023 Q3	98.9	94.9	99.0	89.0	65.6	87.2	123.5	95.9
Q4	98.3	94.2	98.3	88.8	65.9	87.1	123.0	95.1
2024 Q1	98.4	94.5	98.3	88.8	65.9	87.7	123.7	95.2
Q2	98.7	94.5	98.9	.	.	.	124.1	95.1
2024 Jan.	98.4	94.4	98.3	-	-	-	123.6	95.2
Feb.	98.1	94.1	98.1	-	-	-	123.3	94.9
Mar.	98.8	94.8	98.7	-	-	-	124.2	95.5
Apr.	98.6	94.5	98.5	-	-	-	124.0	95.1
May	98.9	94.8	99.2	-	-	-	124.4	95.3
June	98.5	94.4	99.0	-	-	-	124.0	94.9
Percentage change versus previous month								
2024 June	-0.4	-0.4	-0.1	-	-	-	-0.3	-0.4
Percentage change versus previous year								
2024 June	0.3	0.6	0.8	-	-	-	1.8	0.2

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 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
Q2	7.797	.	24.959	7.460	391.332	167.773	4.300	0.853	4.9750	11.504	0.974	1.077
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
Apr.	7.766	.	25.278	7.460	392.411	165.030	4.303	0.857	4.9730	11.591	0.976	1.073
May	7.821	.	24.818	7.461	387.183	168.536	4.280	0.856	4.9754	11.619	0.983	1.081
June	7.805	.	24.779	7.459	394.763	169.813	4.321	0.846	4.9767	11.285	0.962	1.076
Percentage change versus previous month												
2024 June	-0.2	0.0	-0.2	0.0	2.0	0.8	1.0	-1.1	0.0	-2.9	-2.2	-0.5
Percentage change versus previous year												
2024 June	0.5	.	4.6	0.1	6.5	10.9	-3.1	-1.4	0.3	-3.4	-1.5	-0.7

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 Q2	32,071.3	31,998.5	72.8	12,218.1	10,028.3	11,962.3	14,119.1	-9.0	6,794.7	7,851.1	1,105.2	16,375.9
Q3	32,250.2	31,983.3	266.9	12,318.8	10,109.6	12,006.9	14,111.2	-31.2	6,842.1	7,762.5	1,113.6	16,374.8
Q4	32,190.1	31,841.7	348.4	11,939.7	9,696.9	12,447.1	14,682.9	-15.3	6,670.8	7,461.9	1,147.7	16,048.3
2024 Q1	33,581.1	32,989.2	591.9	12,255.9	9,806.9	13,142.9	15,446.3	-15.8	6,983.1	7,736.1	1,215.1	16,537.5
Outstanding amounts as percentage of GDP												
2024 Q1	231.4	227.4	4.1	84.5	67.6	90.6	106.5	-0.1	48.1	53.3	8.4	114.0
Transactions												
2023 Q2	56.4	5.1	51.3	-89.4	-84.3	222.8	154.0	-4.8	-74.1	-64.7	1.9	-
Q3	129.6	35.4	94.2	4.4	14.8	98.5	111.0	-1.1	29.9	-90.4	-2.2	-
Q4	-304.0	-424.3	120.3	-308.1	-300.2	44.0	84.3	23.0	-69.3	-208.4	6.4	-
2024 Q1	563.9	451.9	112.0	118.3	50.0	174.4	190.0	11.4	258.6	211.9	1.2	-
2023 Nov.	-4.2	-32.7	28.4	-50.3	-52.1	46.7	26.8	1.1	-3.1	-7.4	1.4	-
Dec.	-277.0	-324.1	47.0	-144.5	-131.5	-4.0	44.2	4.9	-134.8	-236.7	1.5	-
2024 Jan.	214.8	174.8	39.9	25.6	16.0	71.3	91.2	12.0	105.0	67.7	0.8	-
Feb.	208.8	193.9	14.9	52.4	3.0	59.1	72.6	11.4	85.1	118.3	0.9	-
Mar.	140.3	83.1	57.2	40.3	31.1	44.0	26.2	-11.9	68.4	25.8	-0.5	-
Apr.	70.8	53.4	17.3	27.0	-8.2	22.3	44.5	7.3	13.4	17.1	0.8	-
12-month cumulated transactions												
2024 Apr.	492.1	90.7	401.4	-207.1	-316.6	487.9	576.9	37.3	164.1	-169.5	9.9	-
12-month cumulated transactions as percentage of GDP												
2024 Apr.	3.4	0.6	2.8	-1.4	-2.2	3.4	4.0	0.3	1.1	-1.2	0.1	-

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

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 circula-tion	Overnight deposits	Total	Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months	Total		Repos	Money market fund shares	Debt securities with a maturity of up to 2 years	Total	
	1	2	3	4	5	6	7	8	9	10	11	12
	Outstanding amounts											
2021	1,469.3	9,822.6	11,291.8	918.8	2,504.9	3,423.7	14,715.5	118.7	644.1	25.3	788.1	15,503.7
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	1,536.0	8,834.3	10,370.3	2,309.8	2,458.5	4,768.3	15,138.6	186.8	739.5	70.1	996.4	16,135.0
2023 Q2	1,535.3	9,179.2	10,714.4	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	15,073.1	131.0	714.4	75.7	921.1	15,994.2
Q4	1,536.0	8,834.3	10,370.3	2,309.8	2,458.5	4,768.3	15,138.6	186.8	739.5	70.1	996.4	16,135.0
2024 Q1 (p)	1,522.3	8,735.8	10,258.1	2,447.5	2,431.0	4,878.5	15,136.6	192.7	787.1	72.9	1,052.7	16,189.3
2023 Dec.	1,536.0	8,834.3	10,370.3	2,309.8	2,458.5	4,768.3	15,138.6	186.8	739.5	70.1	996.4	16,135.0
2024 Jan.	1,532.6	8,729.1	10,261.7	2,360.5	2,447.6	4,808.1	15,069.9	183.2	754.0	85.6	1,022.8	16,092.7
Feb.	1,532.7	8,711.8	10,244.5	2,423.9	2,433.7	4,857.6	15,102.1	178.5	769.2	69.4	1,017.2	16,119.3
Mar.	1,522.3	8,735.8	10,258.1	2,447.5	2,431.0	4,878.5	15,136.6	192.7	787.1	72.9	1,052.7	16,189.3
Apr.	1,531.3	8,722.3	10,253.7	2,459.8	2,431.4	4,891.2	15,144.9	205.1	797.2	73.2	1,075.5	16,220.4
May (p)	1,528.5	8,740.4	10,268.9	2,505.4	2,430.7	4,936.0	15,204.9	205.1	791.2	66.4	1,062.7	16,267.6
	Transactions											
2021	106.6	908.1	1,014.7	-121.0	65.7	-55.3	959.4	12.3	20.3	13.2	45.7	1,005.1
2022	70.3	-47.4	23.0	429.5	54.9	484.4	507.4	3.9	2.4	76.6	82.8	590.2
2023	-5.0	-954.4	-959.3	925.5	-100.1	825.4	-133.9	40.9	93.8	23.1	157.8	23.9
2023 Q2	-6.9	-275.6	-282.4	226.1	-30.2	195.9	-86.5	11.6	19.0	-5.5	25.2	-61.3
Q3	0.3	-202.7	-202.4	224.0	-52.1	171.9	-30.5	16.4	18.2	-8.8	25.8	-4.7
Q4	0.3	-129.5	-129.2	228.9	-6.8	222.1	92.9	35.0	26.0	-6.3	54.6	147.6
2024 Q1 (p)	-13.1	-104.1	-117.2	135.8	-27.0	108.9	-8.3	8.3	47.4	8.0	63.7	55.4
2023 Dec.	2.3	12.5	14.8	78.3	11.7	90.0	104.8	3.8	21.3	-2.3	22.8	127.6
2024 Jan.	-2.8	-110.2	-113.0	46.7	-11.0	35.7	-77.3	-1.2	14.4	21.2	34.3	-43.0
Feb.	0.1	-17.8	-17.8	65.7	-13.3	52.4	34.6	-4.6	15.1	-14.9	-4.4	30.2
Mar.	-10.3	24.0	13.6	23.5	-2.7	20.8	34.4	14.2	17.9	1.7	33.7	68.2
Apr.	9.0	-15.0	-6.0	10.5	0.4	10.9	4.9	12.2	9.9	1.1	23.2	28.1
May (p)	-2.8	21.1	18.3	35.6	-0.7	34.9	53.3	0.3	-6.0	-6.8	-12.4	40.8
	Growth rates											
2021	7.8	10.2	9.9	-11.7	2.7	-1.6	7.0	12.1	3.2	158.5	6.2	6.9
2022	4.8	-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	66.6	-3.9	20.9	-0.9	32.9	14.5	43.4	19.3	0.1
2023 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	76.3	-3.3	21.9	-2.2	10.3	18.4	64.8	19.9	-1.2
Q4	-0.3	-9.7	-8.5	66.6	-3.9	20.9	-0.9	32.9	14.5	43.4	19.3	0.1
2024 Q1 (p)	-1.3	-7.5	-6.6	49.8	-4.6	16.7	-0.2	68.6	16.3	-16.7	19.3	0.9
2023 Dec.	-0.3	-9.7	-8.5	66.6	-3.9	20.9	-0.9	32.9	14.5	43.4	19.3	0.1
2024 Jan.	-0.5	-9.9	-8.6	62.1	-4.3	19.8	-1.1	25.1	18.2	68.9	22.8	0.1
Feb.	-0.4	-8.9	-7.8	57.9	-4.7	18.8	-0.6	29.6	17.8	0.1	18.2	0.4
Mar.	-1.3	-7.5	-6.6	49.8	-4.6	16.7	-0.2	68.6	16.3	-16.7	19.3	0.9
Apr.	-0.3	-6.8	-5.9	45.4	-4.2	15.6	0.1	78.5	17.8	-10.3	22.6	1.3
May (p)	-0.5	-5.6	-4.9	41.3	-3.9	14.7	0.7	64.6	14.7	-23.2	17.5	1.6

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]					Financial corpora-tions other than MFIs and ICPFs [2]	Insurance corpora-tions and pension funds	Other general govern-ment [4]
	Total	Overnight	With an agreed maturity of up to 2 years	Redeem-able at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeem-able at notice of up to 3 months	Repos			
	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	8,088.0	5,380.9	374.1	2,332.3	0.7	1,272.7	229.0	546.9
2022	3,360.4	2,721.4	497.6	135.0	6.4	8,373.4	5,536.6	444.9	2,391.1	0.9	1,302.3	236.3	560.8
2023	3,335.4	2,424.0	767.7	131.6	12.1	8,425.1	5,111.0	1,021.7	2,290.9	1.4	1,252.4	234.8	541.7
2023 Q2	3,333.1	2,502.4	687.7	132.0	11.0	8,362.5	5,310.2	701.6	2,349.9	0.8	1,186.6	229.1	564.9
Q3	3,322.7	2,438.8	737.1	131.9	14.8	8,350.5	5,205.0	847.5	2,297.1	0.8	1,217.0	212.6	565.7
Q4	3,335.4	2,424.0	767.7	131.6	12.1	8,425.1	5,111.0	1,021.7	2,290.9	1.4	1,252.4	234.8	541.7
2024 Q1 (p)	3,332.7	2,380.0	814.3	127.6	10.8	8,460.0	5,056.1	1,135.9	2,267.0	1.0	1,244.0	227.2	543.1
2023 Dec.	3,335.4	2,424.0	767.7	131.6	12.1	8,425.1	5,111.0	1,021.7	2,290.9	1.4	1,252.4	234.8	541.7
2024 Jan.	3,325.8	2,383.3	802.9	128.4	11.1	8,441.4	5,083.3	1,073.2	2,283.8	1.1	1,208.5	221.9	522.9
Feb.	3,316.4	2,366.9	810.0	127.9	11.5	8,452.6	5,065.7	1,114.0	2,271.9	1.0	1,214.0	223.4	541.6
Mar.	3,332.7	2,380.0	814.3	127.6	10.8	8,460.0	5,056.1	1,135.9	2,267.0	1.0	1,244.0	227.2	543.1
Apr.	3,346.2	2,384.1	824.6	126.7	10.7	8,487.7	5,058.8	1,160.5	2,267.4	1.0	1,248.6	209.8	526.4
May (p)	3,371.9	2,389.6	846.7	126.9	8.7	8,495.6	5,046.6	1,180.3	2,267.7	1.0	1,262.3	214.7	537.0
Transactions													
2021	248.2	272.8	-21.3	-6.9	3.6	422.0	411.1	-65.0	76.1	-0.2	159.2	-10.4	46.0
2022	121.9	-89.2	206.5	5.9	-1.4	296.1	167.5	75.2	53.3	0.1	1.2	7.7	14.0
2023	-29.1	-302.9	269.3	-1.4	5.9	22.5	-458.3	575.4	-95.1	0.6	-55.5	0.0	-25.9
2023 Q2	0.7	-91.7	90.6	-0.6	2.4	-19.1	-127.0	135.2	-27.1	-0.1	-37.7	-1.3	-10.7
Q3	-13.7	-65.7	48.3	-0.1	3.7	-14.2	-110.6	149.3	-52.9	0.0	30.2	-17.3	0.6
Q4	21.2	-8.7	32.4	-0.1	-2.5	76.6	-93.0	175.0	-6.0	0.6	30.9	23.0	-24.1
2024 Q1 (p)	-4.0	-46.0	45.8	-3.5	-0.2	32.1	-55.7	112.2	-24.0	-0.4	-8.3	-8.0	1.3
2023 Dec.	11.4	20.7	-4.7	-0.3	-4.2	52.3	-12.5	52.0	12.2	0.6	25.6	11.6	5.4
2024 Jan.	-10.9	-42.1	34.3	-3.3	0.1	13.5	-28.6	49.7	-7.2	-0.3	-46.4	-13.2	-18.8
Feb.	-9.1	-16.9	7.3	0.1	0.4	10.8	-17.7	40.6	-11.9	-0.1	8.2	1.3	18.7
Mar.	16.0	12.9	4.1	-0.3	-0.7	7.7	-9.4	21.9	-4.9	0.1	29.9	3.9	1.5
Apr.	13.0	3.7	10.3	-0.8	-0.2	27.3	2.5	24.5	0.4	-0.1	3.1	-17.6	-17.7
May (p)	28.4	7.0	23.1	0.1	-1.9	8.5	-11.8	20.0	0.3	0.0	3.8	5.1	10.6
Growth rates													
2021	8.4	10.8	-6.9	-5.0	103.4	5.5	8.3	-14.8	3.4	-18.4	14.2	-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	-1.0	91.8	0.3	-8.2	128.2	-4.0	67.4	-4.1	0.0	-4.6
2023 Q2	0.7	-12.7	125.2	2.1	10.4	1.1	-4.5	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	-0.9	-11.1	54.0	-1.0	91.8	0.3	-8.2	128.2	-4.0	67.4	-4.1	0.0	-4.6
2024 Q1 (p)	0.1	-8.2	36.4	-3.2	39.0	0.9	-7.1	101.2	-4.6	12.1	1.4	-1.6	-5.7
2023 Dec.	-0.9	-11.1	54.0	-1.0	91.8	0.3	-8.2	128.2	-4.0	67.4	-4.1	0.0	-4.6
2024 Jan.	-1.1	-11.2	49.6	-3.2	57.8	0.3	-8.3	121.7	-4.3	39.2	-5.3	-4.9	-7.3
Feb.	-1.2	-10.5	42.3	-3.1	45.7	0.6	-7.9	114.3	-4.7	28.9	-1.7	-1.3	-6.0
Mar.	0.1	-8.2	36.4	-3.2	39.0	0.9	-7.1	101.2	-4.6	12.1	1.4	-1.6	-5.7
Apr.	0.6	-7.0	32.6	-3.2	16.1	1.4	-6.2	91.8	-4.3	9.0	1.9	-8.6	-6.8
May (p)	1.9	-5.4	31.8	-3.2	-11.9	1.5	-5.7	81.0	-3.9	11.2	2.7	-5.7	-4.4

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							Debt securities	Equity and non-money market fund investment fund shares
	Total	Loans	Debt securities	Total	Loans		To non-financial corpora-tions [3]	To house-holds [4]	To financial coprora-tions other than MFIs and ICPFs [3]	To insurance corpora-tions and pension funds		
					Total							
					Total	Adjusted loans [2]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2021	6,531.5	994.3	5,535.4	14,805.5	12,340.5	12,722.7	4,864.8	6,372.6	941.9	161.1	1,576.9	888.1
2022	6,361.8	1,004.7	5,332.0	15,390.4	12,990.1	13,177.9	5,129.8	6,632.2	1,080.6	147.6	1,564.3	836.0
2023	6,315.7	994.7	5,295.6	15,493.8	13,037.0	13,256.8	5,126.7	6,648.6	1,122.8	139.0	1,559.1	897.7
2023 Q2	6,275.3	986.6	5,263.3	15,430.9	12,986.6	13,207.9	5,126.9	6,636.1	1,081.1	142.5	1,575.0	869.3
Q3	6,212.1	989.2	5,197.9	15,435.4	12,984.0	13,192.8	5,114.7	6,635.7	1,096.5	137.2	1,576.9	874.6
Q4	6,315.7	994.7	5,295.6	15,493.8	13,037.0	13,256.8	5,126.7	6,648.6	1,122.8	139.0	1,559.1	897.7
2024 Q1	6,217.3	976.8	5,214.9	15,547.5	13,044.8	13,275.9	5,115.7	6,644.2	1,145.1	139.8	1,571.2	931.4
2023 Dec.	6,315.7	994.7	5,295.6	15,493.8	13,037.0	13,256.8	5,126.7	6,648.6	1,122.8	139.0	1,559.1	897.7
2024 Jan.	6,249.9	984.4	5,240.1	15,498.6	13,004.6	13,240.7	5,110.5	6,634.7	1,125.2	134.1	1,584.3	909.7
Feb.	6,210.2	982.6	5,202.1	15,527.6	13,028.1	13,262.5	5,113.2	6,638.2	1,140.6	136.1	1,581.9	917.5
Mar.	6,217.3	976.8	5,214.9	15,547.5	13,044.8	13,275.9	5,115.7	6,644.2	1,145.1	139.8	1,571.2	931.4
Apr.	6,209.8	972.8	5,211.4	15,534.1	13,058.3	13,292.4	5,111.4	6,642.1	1,167.7	137.0	1,556.0	919.8
May	6,176.7	972.8	5,178.3	15,530.6	13,067.0	13,300.2	5,117.2	6,640.7	1,179.1	130.0	1,541.6	922.0
Transactions												
2021	663.1	-0.9	673.6	562.7	475.8	509.2	176.9	261.7	47.4	-10.1	77.7	9.2
2022	176.0	9.6	165.6	635.9	624.1	680.7	269.4	241.9	126.1	-13.4	18.2	-6.4
2023	-160.5	-16.8	-144.0	55.5	25.1	72.6	-5.4	7.8	30.7	-8.1	-15.3	45.7
2023 Q2	-75.1	-8.6	-67.0	7.0	-25.7	6.3	-5.1	-28.6	7.2	0.8	17.5	15.2
Q3	-18.2	1.6	-19.5	10.1	2.2	-9.3	-8.6	2.1	14.0	-5.3	2.1	5.8
Q4	5.9	7.8	-2.2	39.1	46.6	69.4	10.0	17.6	16.7	2.2	-23.8	16.3
2024 Q1	-75.1	-16.4	-58.9	60.9	24.9	37.5	-5.4	-0.9	30.5	0.8	12.3	23.7
2023 Dec.	36.3	9.0	27.2	6.2	-5.1	13.4	11.3	-3.5	-17.8	4.9	-4.3	15.7
2024 Jan.	-44.2	-8.8	-35.6	7.2	-28.0	-11.8	-14.1	-13.2	4.2	-4.9	27.0	8.3
Feb.	-22.1	-2.0	-20.0	36.3	32.9	33.3	5.7	4.7	20.4	2.0	-1.3	4.7
Mar.	-8.8	-5.6	-3.3	17.3	20.1	16.0	3.0	7.6	5.8	3.6	-13.4	10.6
Apr.	14.4	-3.3	17.6	-7.4	13.2	16.5	-4.5	-1.1	21.7	-2.8	-14.5	-6.1
May	-28.7	0.0	-28.8	-9.0	2.9	3.2	8.1	-1.2	2.9	-7.0	-13.8	1.9
Growth rates												
2021	11.3	-0.1	13.8	3.9	4.0	4.2	3.8	4.3	5.2	-4.6	5.1	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	0.6	-0.1	0.1	2.8	-5.4	-1.0	5.4
2023 Q2	-2.5	-2.3	-2.5	1.6	1.4	2.0	2.5	1.1	0.8	-12.2	1.0	4.4
Q3	-2.1	-2.1	-2.1	0.2	-0.2	0.3	-0.4	0.3	-0.2	-13.9	1.6	5.0
Q4	-2.5	-1.7	-2.7	0.4	0.2	0.6	-0.1	0.1	2.8	-5.4	-1.0	5.4
2024 Q1	-2.6	-1.6	-2.8	0.8	0.4	0.8	-0.2	-0.1	6.3	-1.2	0.5	7.2
2023 Dec.	-2.5	-1.7	-2.7	0.4	0.2	0.6	-0.1	0.1	2.8	-5.4	-1.0	5.4
2024 Jan.	-2.5	-1.1	-2.7	0.4	-0.1	0.4	-0.5	-0.1	3.0	-9.1	1.3	6.4
Feb.	-2.8	-1.3	-3.1	0.7	0.2	0.7	-0.3	-0.2	5.8	-7.7	1.6	6.2
Mar.	-2.6	-1.6	-2.8	0.8	0.4	0.8	-0.2	-0.1	6.3	-1.2	0.5	7.2
Apr.	-1.9	-0.7	-2.1	0.7	0.5	0.9	-0.2	-0.2	8.7	-4.5	-0.6	5.7
May	-1.4	-1.4	-1.5	0.6	0.6	0.8	-0.1	0.3	6.9	-7.6	-2.5	5.2

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	885.0	1,005.2	2,974.6	6,372.6	6,637.5	698.3	4,970.8	703.5
2022	5,129.8	5,130.8	962.6	1,077.6	3,089.6	6,632.2	6,832.8	717.3	5,214.7	700.2
2023	5,126.7	5,143.4	910.1	1,091.2	3,125.5	6,648.6	6,865.8	733.5	5,229.2	685.9
2023 Q2	5,126.9	5,137.8	922.0	1,088.2	3,116.8	6,636.1	6,869.6	726.0	5,209.8	700.3
Q3	5,114.7	5,123.3	911.5	1,085.4	3,117.8	6,635.7	6,867.1	731.6	5,212.7	691.3
Q4	5,126.7	5,143.4	910.1	1,091.2	3,125.5	6,648.6	6,865.8	733.5	5,229.2	685.9
2024 Q1	5,115.7	5,132.8	888.0	1,088.6	3,139.0	6,644.2	6,873.5	742.0	5,222.6	679.6
2023 Dec.	5,126.7	5,143.4	910.1	1,091.2	3,125.5	6,648.6	6,865.8	733.5	5,229.2	685.9
2024 Jan.	5,110.5	5,128.0	889.9	1,093.8	3,126.9	6,634.7	6,869.4	734.7	5,216.4	683.7
Feb.	5,113.2	5,130.4	890.8	1,090.6	3,131.8	6,638.2	6,871.8	736.7	5,220.3	681.2
Mar.	5,115.7	5,132.8	888.0	1,088.6	3,139.0	6,644.2	6,873.5	742.0	5,222.6	679.6
Apr.	5,111.4	5,127.3	876.8	1,087.7	3,146.9	6,642.1	6,876.1	741.3	5,223.9	676.9
May	5,117.2	5,130.1	888.2	1,086.2	3,142.8	6,640.7	6,877.4	742.0	5,222.2	676.5
					Transactions					
2021	176.9	208.3	0.2	2.3	174.4	261.7	267.3	10.7	254.9	-3.9
2022	269.4	309.2	78.0	77.4	114.1	241.9	250.3	23.3	217.8	0.9
2023	-5.4	24.9	-43.8	10.5	27.9	7.8	25.7	18.9	9.9	-21.1
2023 Q2	-5.1	-0.1	-9.6	-2.9	7.5	-28.6	1.1	3.9	-27.6	-4.9
Q3	-8.6	-10.3	-10.8	-3.3	5.6	2.1	0.6	6.7	3.1	-7.6
Q4	10.0	30.3	4.0	5.4	0.7	17.6	3.4	3.8	17.6	-3.8
2024 Q1	-5.4	-3.3	-20.0	-1.4	16.0	-0.9	9.8	9.4	-5.2	-5.0
2023 Dec.	11.3	16.7	6.7	4.6	0.0	-3.5	-0.4	2.0	-3.7	-1.9
2024 Jan.	-14.1	-12.9	-18.8	1.8	2.9	-13.2	3.5	1.1	-12.4	-1.8
Feb.	5.7	6.2	2.1	-2.4	5.9	4.7	4.0	2.5	4.5	-2.3
Mar.	3.0	3.4	-3.3	-0.9	7.2	7.6	2.3	5.7	2.7	-0.9
Apr.	-4.5	-5.4	-7.5	-2.4	5.4	-1.1	3.2	-0.1	1.4	-2.4
May	8.1	5.2	12.2	-0.8	-3.3	-1.2	2.6	1.0	-1.5	-0.7
					Growth rates					
2021	3.8	4.3	0.0	0.2	6.2	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 Q2	2.5	3.1	-1.8	6.3	2.5	1.1	1.7	2.6	1.3	-1.7
Q3	-0.4	0.2	-8.8	2.2	1.4	0.3	0.8	2.8	0.3	-2.5
Q4	-0.1	0.5	-4.6	1.0	0.9	0.1	0.4	2.6	0.2	-3.0
2024 Q1	-0.2	0.3	-3.9	-0.2	1.0	-0.1	0.2	3.3	-0.2	-3.0
2023 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	-5.8	0.8	0.7	-0.1	0.3	2.7	-0.1	-3.1
Feb.	-0.3	0.3	-4.5	0.1	0.8	-0.2	0.3	2.8	-0.2	-3.1
Mar.	-0.2	0.3	-3.9	-0.2	1.0	-0.1	0.2	3.3	-0.2	-3.0
Apr.	-0.2	0.2	-3.8	-0.7	1.1	-0.2	0.2	3.0	-0.2	-3.1
May	-0.1	0.3	-2.3	-0.8	0.9	0.3	0.3	2.9	0.4	-2.9

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	736.1	6,884.3	1,838.9	37.1	1,999.0	3,009.3	1,376.4	410.6	128.5	136.8
2022	648.6	6,755.7	1,783.1	45.9	2,121.8	2,804.8	1,333.4	387.2	137.2	147.2
2023	461.3	7,340.2	1,826.4	90.5	2,422.1	3,001.2	1,859.0	268.1	155.0	152.6
2023 Q2	484.9	6,985.0	1,806.8	61.5	2,229.8	2,886.9	1,461.0	293.9	169.0	172.6
Q3	455.9	7,144.7	1,824.6	72.9	2,367.0	2,880.2	1,633.3	314.0	153.8	163.3
Q4	461.3	7,340.2	1,826.4	90.5	2,422.1	3,001.2	1,859.0	268.1	155.0	152.6
2024 Q1 (p)	399.4	7,464.7	1,828.5	105.2	2,502.4	3,028.5	2,045.5	243.2	178.0	174.2
2023 Dec.	461.3	7,340.2	1,826.4	90.5	2,422.1	3,001.2	1,859.0	268.1	155.0	152.6
2024 Jan.	457.2	7,377.6	1,829.9	96.9	2,447.4	3,003.4	1,961.6	217.4	165.7	159.7
Feb.	438.6	7,366.3	1,828.1	101.7	2,464.0	2,972.5	1,941.7	244.6	165.4	173.4
Mar.	399.4	7,464.7	1,828.5	105.2	2,502.4	3,028.5	2,045.5	243.2	178.0	174.2
Apr.	438.2	7,507.3	1,826.4	107.9	2,531.7	3,041.3	2,173.2	248.9	163.6	177.4
May (p)	445.1	7,507.5	1,824.7	109.1	2,527.9	3,045.9	2,232.7	280.2	159.1	165.0
Transactions										
2021	25.4	-38.7	-74.9	-5.0	-39.7	81.0	-112.2	-121.7	-8.3	-4.3
2022	-83.4	62.0	-89.0	-4.4	15.5	139.9	-68.4	-174.8	10.4	18.0
2023	-193.6	332.2	24.7	40.1	225.3	42.1	459.0	-191.4	19.7	9.0
2023 Q2	-88.7	96.8	13.8	6.1	61.8	15.1	90.0	-75.1	16.8	6.7
Q3	-29.1	96.5	16.9	11.4	44.9	23.3	130.5	-59.7	-13.3	-6.0
Q4	5.4	61.3	-11.3	17.6	60.0	-5.0	176.1	-6.9	1.2	-10.7
2024 Q1 (p)	-61.5	107.1	4.9	14.7	94.3	-6.8	133.8	-18.6	25.6	21.5
2023 Dec.	53.8	12.2	-2.0	6.8	19.1	-11.7	52.9	98.3	-15.4	-9.4
2024 Jan.	-3.7	61.9	2.7	6.4	38.3	14.5	105.9	-53.8	10.7	7.0
Feb.	-18.6	12.4	1.8	4.7	14.8	-9.0	-11.9	21.7	2.3	13.7
Mar.	-39.2	32.8	0.4	3.5	41.2	-12.4	39.7	13.6	12.5	0.8
Apr.	39.5	23.2	-2.1	2.6	23.4	-0.7	100.6	-16.7	-14.4	3.2
May (p)	6.8	11.2	-1.0	1.3	3.2	7.7	61.6	34.9	-4.5	-12.4
Growth rates										
2021	3.6	-0.6	-3.9	-11.9	-2.0	2.7	-	-	-6.0	-3.0
2022	-11.4	0.9	-4.8	-13.0	0.6	4.9	-	-	7.8	12.7
2023	-29.7	4.9	1.4	80.2	10.5	1.5	-	-	14.3	6.0
2023 Q2	-37.5	3.6	-2.2	25.1	8.7	3.2	-	-	1.8	10.3
Q3	-30.2	4.9	1.4	48.8	10.4	2.3	-	-	5.6	14.2
Q4	-29.7	4.9	1.4	80.2	10.5	1.5	-	-	14.3	6.0
2024 Q1 (p)	-30.3	5.2	1.3	89.9	11.7	0.9	-	-	20.3	7.1
2023 Dec.	-29.7	4.9	1.4	80.2	10.5	1.5	-	-	14.3	6.0
2024 Jan.	-20.1	5.2	1.6	85.3	10.3	2.1	-	-	8.4	4.2
Feb.	-21.4	5.0	1.7	88.6	10.5	1.4	-	-	10.0	11.0
Mar.	-30.3	5.2	1.3	89.9	11.7	0.9	-	-	20.3	7.1
Apr.	-23.2	5.1	0.4	89.7	12.4	0.8	-	-	9.6	11.8
May (p)	-10.4	4.7	0.6	85.1	11.0	0.7	-	-	-6.1	-8.6

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

6 Fiscal developments

6.1 Deficit/surplus
(as a percentage of GDP; flows during one-year period)

	Deficit (-)/surplus (+)					Memo item:
	Total	Central government	State government	Local government	Social security funds	Primary deficit (-)/ surplus (+)
	1	2	3	4	5	6
2020	-7.0	-5.7	-0.4	0.0	-0.9	-5.5
2021	-5.2	-5.2	0.0	0.1	0.0	-3.8
2022	-3.7	-3.9	0.0	0.0	0.3	-2.0
2023	-3.6	-3.6	-0.2	-0.2	0.4	-1.8
2023 Q1	-3.8	.	.	.	.	-2.1
Q2	-4.0	.	.	.	.	-2.3
Q3	-3.9	.	.	.	.	-2.2
Q4	-3.6	.	.	.	.	-1.9

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

6.2 Revenue and expenditure
(as a percentage of GDP; flows during one-year period)

	Revenue						Expenditure						
		Current revenue						Current expenditure					
	Total	Total	Direct taxes	Indirect taxes	Net social contribu-tions	Capital revenue	Total	Total	Compen-sation of employ-ees	Inter-mediate consump-tion	Interest	Social benefits	Capital expenditure
	1	2	3	4	5	6	7	8	9	10	11	12	13
2020	46.5	46.0	12.9	12.7	15.5	0.5	53.5	48.9	10.7	6.0	1.5	25.3	4.6
2021	47.1	46.3	13.2	13.1	15.1	0.8	52.3	47.1	10.2	6.0	1.5	24.0	5.2
2022	47.0	46.2	13.5	12.9	14.8	0.8	50.6	45.3	9.9	5.9	1.7	22.8	5.3
2023	46.5	45.6	13.4	12.5	14.7	0.8	50.1	44.6	9.8	6.0	1.7	22.6	5.4
2023 Q1	46.7	45.9	13.4	12.8	14.7	0.8	50.4	45.1	9.8	5.9	1.7	22.7	5.3
Q2	46.5	45.7	13.4	12.7	14.7	0.8	50.5	45.1	9.8	5.9	1.7	22.7	5.4
Q3	46.4	45.6	13.4	12.6	14.7	0.8	50.3	44.9	9.8	6.0	1.7	22.6	5.4
Q4	46.4	45.6	13.4	12.5	14.7	0.8	50.0	44.6	9.8	6.0	1.7	22.6	5.4

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

6.3 Government debt-to-GDP ratio
(as a percentage of GDP; outstanding amounts at end of period)

	Total	Financial instrument			Holder			Original maturity		Residual maturity			Currency	
		Currency and de-posits	Loans	Debt securi-ties	Resident creditors		Non-resident credi-tors	Up to 1 year	Over 1 year	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Euro or participating currencies	Other curren-cies
					Total	MFIs								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2020	97.2	3.2	14.5	79.5	54.3	39.1	42.9	11.2	86.0	18.8	31.0	47.5	95.6	1.7
2021	94.8	3.0	13.9	77.9	54.9	41.3	39.9	9.9	84.9	17.4	30.3	47.2	93.3	1.4
2022	90.8	2.7	13.2	74.9	53.1	40.2	37.7	8.8	82.0	16.3	28.8	45.7	89.9	1.0
2023	88.6	2.5	12.2	73.9	49.9	36.6	38.7	8.0	80.5	15.4	28.4	44.7	87.8	0.8
2023 Q1	90.6	2.5	12.8	75.2	.	.	.	.	.	.	.	.	.	.
Q2	90.1	2.5	12.4	75.1	.	.	.	.	.	.	.	.	.	.
Q3	89.6	2.5	12.2	74.9	.	.	.	.	.	.	.	.	.	.
Q4	88.6	2.5	12.2	73.9	.	.	.	.	.	.	.	.	.	.

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 require-ment
			Total	Transactions in main financial assets								
				Total	Currency and deposits	Loans	Debt securities	Equity and invest-ment fund shares	Revalua-tion effects and other changes in volume	Other		
	1	2	3	4	5	6	7	8	9	10	11	12
2020	13.1	5.5	2.2	2.5	2.1	0.4	-0.1	0.1	-0.3	0.1	5.3	9.6
2021	-2.5	3.8	-0.2	0.6	0.4	0.1	0.0	0.1	-0.1	-0.7	-6.0	5.1
2022	-3.9	2.0	-0.3	-0.2	-0.7	0.2	0.1	0.1	0.6	-0.7	-5.6	2.7
2023	-2.3	1.8	-0.3	-0.5	-0.5	-0.2	0.1	0.1	0.6	-0.4	-3.8	2.7
2023 Q1	-3.9	2.1	-0.7	-0.8	-1.2	0.2	0.1	0.1	0.8	-0.7	-5.3	2.3
Q2	-3.4	2.3	-0.9	-1.2	-1.5	0.1	0.1	0.1	0.7	-0.5	-4.7	2.3
Q3	-2.5	2.2	-0.4	-0.6	-0.8	-0.2	0.2	0.1	0.7	-0.4	-4.3	2.8
Q4	-2.3	1.9	-0.4	-0.5	-0.5	-0.2	0.1	0.1	0.6	-0.4	-3.8	2.7

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]						
		Principal		Interest			Outstanding amounts					Transactions	
	Total									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	13.1	11.7	4.2	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2023 Q2	12.8	11.5	3.4	1.3	0.3	8.1	1.9	1.3	1.5	1.9	2.0	2.8	1.1
Q3	13.0	11.7	3.5	1.3	0.3	8.1	1.9	1.1	1.8	2.0	1.7	3.3	1.5
Q4	13.1	11.7	4.2	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2024 Q1	12.9	11.6	3.8	1.4	0.3	8.3	2.1	1.3	2.3	2.0	1.6	3.7	2.5
2023 Dec.	13.1	11.7	4.2	1.4	0.3	8.1	2.0	1.2	1.9	2.0	1.6	3.6	1.9
2024 Jan.	12.5	11.2	3.9	1.3	0.3	8.2	2.0	1.2	2.0	2.0	1.4	3.6	2.1
Feb.	12.6	11.2	4.3	1.3	0.3	8.2	2.0	1.2	2.1	2.0	1.6	3.7	2.3
Mar.	12.9	11.6	3.8	1.4	0.3	8.3	2.1	1.3	2.3	2.0	1.6	3.7	2.5
Apr.	13.0	11.6	3.9	1.4	0.4	8.3	2.1	1.3	2.1	2.1	1.4	3.7	2.6
May	12.9	11.4	3.3	1.4	0.4	8.3	2.1	1.3	2.2	2.1	1.4	3.7	2.6

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

6 Fiscal developments

6.6 Fiscal developments in euro area countries
(as a percentage of GDP; flows during one-year period and outstanding amounts at end of period)

	Belgium	Germany	Estonia	Ireland	Greece	Spain	France	Croatia	Italy	Cyprus
	1	2	3	4	5	6	7	8	9	10
				Government deficit (-)/surplus (+)						
2020	-9.0	-4.3	-5.4	-5.0	-9.8	-10.1	-8.9	-7.2	-9.4	-5.7
2021	-5.4	-3.6	-2.5	-1.5	-7.0	-6.7	-6.6	-2.5	-8.7	-1.8
2022	-3.6	-2.5	-1.0	1.7	-2.5	-4.7	-4.8	0.1	-8.6	2.7
2023	-4.4	-2.5	-3.4	1.7	-1.6	-3.6	-5.5	-0.7	-7.4	3.1
2023 Q1	-4.0	-2.9	-1.3	1.9	-2.8	-4.4	-4.8	-0.1	-8.5	3.1
Q2	-3.8	-3.3	-1.8	1.9	-2.7	-4.6	-5.3	-0.5	-8.3	3.0
Q3	-3.9	-3.2	-2.3	1.6	-1.4	-4.5	-5.5	-0.3	-7.7	3.1
Q4	-4.4	-2.5	-3.4	1.7	-1.6	-3.6	-5.5	-0.7	-7.4	3.1
				Government debt						
2020	111.9	68.8	18.6	58.1	207.0	120.3	114.9	86.1	155.0	114.9
2021	107.9	69.0	17.8	54.4	195.0	116.8	113.0	77.5	147.1	99.3
2022	104.3	66.1	18.5	44.4	172.7	111.6	111.9	67.8	140.5	85.6
2023	105.2	63.6	19.6	43.7	161.9	107.7	110.6	63.0	137.3	77.3
2023 Q1	106.3	65.6	17.3	43.5	169.4	111.2	112.5	68.6	139.3	82.9
Q2	105.6	64.6	18.5	43.1	167.2	111.2	112.0	65.8	140.1	84.9
Q3	107.6	64.7	18.2	43.5	165.6	109.8	112.0	63.9	137.9	79.0
Q4	105.2	63.6	19.6	43.7	161.9	107.7	110.6	63.0	137.3	77.3

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	11	12	13	14	15	16	17	18	19	20
				Government deficit (-)/surplus (+)						
2020	-4.4	-6.5	-3.4	-9.4	-3.7	-8.0	-5.8	-7.6	-5.3	-5.6
2021	-7.2	-1.1	0.5	-7.6	-2.2	-5.8	-2.9	-4.6	-5.2	-2.8
2022	-4.6	-0.6	-0.3	-5.5	-0.1	-3.3	-0.3	-3.0	-1.7	-0.4
2023	-2.2	-0.8	-1.3	-4.9	-0.3	-2.7	1.2	-2.5	-4.9	-2.7
2023 Q1	-4.3	-1.0	-0.9	-4.8	-0.4	-3.0	0.1	-3.0	-2.3	-0.4
Q2	-3.0	-1.1	-1.0	-4.3	-0.5	-3.4	0.0	-2.8	-2.8	-1.3
Q3	-3.3	-0.9	-1.0	-3.7	-0.4	-3.2	0.4	-2.8	-3.4	-2.0
Q4	-2.2	-0.8	-1.3	-4.9	-0.3	-2.7	1.2	-2.5	-4.9	-2.7
				Government debt						
2020	42.7	46.2	24.6	52.2	54.7	82.9	134.9	79.6	58.8	74.7
2021	44.4	43.4	24.5	53.9	51.7	82.5	124.5	74.4	61.1	72.6
2022	41.8	38.1	24.7	51.6	50.1	78.4	112.4	72.5	57.7	73.5
2023	43.6	38.3	25.7	50.4	46.5	77.8	99.1	69.2	56.0	75.8
2023 Q1	43.7	38.0	28.4	51.6	48.3	80.1	112.3	72.2	57.9	73.6
Q2	40.1	38.1	28.3	49.8	46.9	78.5	110.0	70.7	59.5	74.5
Q3	42.0	37.4	25.8	49.6	45.8	78.3	107.5	71.8	58.4	74.3
Q4	43.6	38.3	25.7	50.4	46.5	77.8	99.1	69.2	56.0	75.8

Source: Eurostat.