



EUROPEAN CENTRAL BANK
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Economic, financial and monetary developments

Overview

On 8 September 2022 the Governing Council decided to raise the three key ECB interest rates by 75 basis points. This major step frontloads the transition from the prevailing highly accommodative level of policy rates towards levels that will ensure the timely return of inflation to the Governing Council's 2% medium-term target. Based on the Governing Council's updated assessment, over the next several meetings it expects to raise interest rates further to dampen demand and guard against the risk of a persistent upward shift in inflation expectations. The Governing Council will regularly re-evaluate its policy path in light of incoming information and the evolving inflation outlook. Its future policy rate decisions will continue to be data-dependent and follow a meeting-by-meeting approach.

The Governing Council took this decision, and expects to raise interest rates further, because inflation remains far too high and is likely to stay above its target for an extended period. According to Eurostat's flash estimate, inflation reached 9.1% in August. Soaring energy and food prices, demand pressures in some sectors owing to the reopening of the economy, and supply bottlenecks are still driving up inflation. Price pressures have continued to strengthen and broaden across the economy and inflation may rise further in the near term. As the current drivers of inflation fade over time and the normalisation of monetary policy works its way through to the economy and price-setting, inflation will come down. Looking ahead, ECB staff have significantly revised up their inflation projections and inflation is now expected to average 8.1% in 2022, 5.5% in 2023 and 2.3% in 2024.

After a rebound in the first half of 2022, recent data point to a substantial slowdown in euro area economic growth, with the economy expected to stagnate later in the year and in the first quarter of 2023. Very high energy prices are reducing the purchasing power of people's incomes and, although supply bottlenecks are easing, they are still constraining economic activity. In addition, the adverse geopolitical situation, especially Russia's unjustified aggression towards Ukraine, is weighing on the confidence of businesses and consumers. This outlook is reflected in the latest staff projections for economic growth, which have been revised down markedly for the remainder of the current year and throughout 2023. Staff now expect the economy to grow by 3.1% in 2022, 0.9% in 2023 and 1.9% in 2024.

The lasting vulnerabilities caused by the pandemic still pose a risk to the smooth transmission of monetary policy. The Governing Council will therefore continue applying flexibility in reinvesting redemptions coming due in the pandemic emergency purchase programme (PEPP) portfolio, with a view to countering risks to the transmission mechanism related to the pandemic.

Economic activity

High inflation, tighter financial conditions and lingering supply-related headwinds are taking their toll on economic activity worldwide. Survey data signal a broad-based moderation in economic activity. According to the September 2022 ECB staff macroeconomic projections, the global growth outlook is subdued, with global real GDP (excluding the euro area) projected to grow by 2.9% in 2022, 3.0% in 2023 and 3.4% in 2024. This outlook is weaker than that described in the June 2022 Eurosystem staff macroeconomic projections and implies that the global economy is expected to grow at a rate slightly below its long-term average this year and next year, as economic activity slows across advanced and emerging market economies. A weaker demand outlook and improved supply have helped to alleviate supply chain pressures, though they are still present. In line with global growth, the outlook for global trade and euro area foreign demand has also deteriorated compared with the June projections. Global inflationary pressures remain broad and elevated amid commodity price spikes, lingering supply constraints, still relatively robust demand and tight labour markets. These pressures are, however, expected to decline as commodity markets stabilise and growth weakens. In an environment of high uncertainty, the balance of risks around the baseline projections is tilted to the downside for global growth and to the upside for global inflation.

The euro area economy grew by 0.8% in the second quarter of 2022, mainly owing to strong consumer spending on contact-intensive services, as a result of the lifting of pandemic-related restrictions. Over the summer, as people travelled more, countries with large tourism sectors benefited especially. At the same time, businesses suffered from high energy costs and continued supply bottlenecks, although the latter have been gradually easing. While buoyant tourism has been supporting economic growth during the third quarter, the Governing Council expects the economy to slow down substantially over the remainder of this year. There are four main reasons behind this. First, high inflation is dampening spending and production throughout the economy, and these headwinds are reinforced by gas supply disruptions. Second, the strong rebound in demand for services that came with the reopening of the economy will lose steam in the coming months. Third, the weakening in global demand, also in the context of tighter monetary policy in many major economies, and the worsening terms of trade will mean less support for the euro area economy. Fourth, uncertainty remains high and confidence is falling sharply.

At the same time, the labour market has remained robust, supporting economic activity. Employment increased by more than 600,000 people in the second quarter of 2022 and the unemployment rate stood at a historical low of 6.6% in July. Total hours worked increased further, by 0.6%, in the second quarter of 2022 and have surpassed their pre-pandemic levels. Looking ahead, the slowing economy is likely to lead to some increase in the unemployment rate.

The euro area baseline scenario of the September 2022 ECB staff macroeconomic projections rests on the assumptions that gas demand will be tempered by high prices and precautionary energy saving measures (following the recent EU

agreement to reduce gas demand by up to 15%) and that no major rationing of gas will be needed. Nevertheless, some production cuts are assumed to be necessary in the winter in countries that are heavily dependent on imports of Russian natural gas and at risk of a shortfall in supply. Although supply bottlenecks have recently eased somewhat faster than had been expected, they are still weighing on activity and are assumed to dissipate only gradually. Over the medium term as the energy market rebalances, uncertainty declines, supply bottlenecks are resolved and real incomes improve, growth is expected to rebound, despite less favourable financing conditions. The labour market is expected to weaken following the slowdown in economic activity, though remaining overall rather resilient. Overall, according to the September 2022 ECB staff projections, annual average real GDP growth is expected to stand at 3.1% in 2022, to slow down markedly to 0.9% in 2023 and to rebound to 1.9% in 2024. Compared with the June 2022 Eurosystem staff projections, the outlook for GDP growth has been revised up by 0.3 percentage points for 2022, following positive surprises in the first half of the year, and revised down by 1.2 percentage points for 2023 and by 0.2 percentage points for 2024, mainly owing to the impact of energy supply disruptions, higher inflation and the related fall in confidence.

According to the September 2022 ECB staff macroeconomic projections, the euro area budget balance is projected to improve steadily in the period up to 2024, although by somewhat less than foreseen in the June projections. However, the fiscal projections continue to be surrounded by high levels of uncertainty, mainly related to the war in Ukraine and developments in energy markets that could lead governments to adopt additional fiscal stimulus measures. Such fiscal support measures have been largely aimed at countering the rising cost of living for consumers, particularly in relation to energy. Moreover, the financing of new defence capacities and support for refugees from Russia's war in Ukraine have also played a role. Nevertheless, the euro area government budget deficit is expected to continue to fall, declining from 5.1% of GDP in 2021 to 3.8% in 2022 and then to 2.7% by the end of the forecast horizon. Following the strong fiscal loosening in response to the coronavirus (COVID-19) crisis in 2020, the fiscal stance tightened last year and is projected to continue to tighten somewhat, in particular in 2023, and to be neutral in 2024. In a context of heightened uncertainty and downside risks to the economic outlook in the light of the war in Ukraine, as well as energy price increases and continued supply chain disturbances, on 23 May 2022 the European Commission recommended extending the general escape clause of the Stability and Growth Pact to the end of 2023. This would allow fiscal policies to adjust to changing circumstances if necessary. At the same time, with fiscal imbalances still exceeding their pre-pandemic levels and inflation exceptionally high, fiscal policy needs to be increasingly selective and targeted in order to avoid adding to medium-term inflationary pressures, while ensuring fiscal sustainability over the medium term.

Fiscal support measures to cushion the impact of higher energy prices should be temporary and targeted at the most vulnerable households and firms to limit the risk of fuelling inflationary pressures, to enhance the efficiency of public spending and to preserve debt sustainability. Structural policies should aim at raising the euro area's growth potential and supporting its resilience

Inflation

Inflation rose further to 9.1% in August. Energy price inflation remained extremely elevated, at 38.3%, and it was again the dominant component of overall inflation. Market-based indicators suggest that, in the near term, oil prices will moderate, while wholesale gas prices will stay extraordinarily high. Food price inflation also rose in August, to 10.6%, partly reflecting higher input costs related to energy, disruptions of trade in food commodities and adverse weather conditions. While supply bottlenecks have been easing, these continue to gradually feed through to consumer prices and are putting upward pressure on inflation, as is recovering demand in the services sector. The depreciation of the euro has also added to the build-up of inflationary pressures. Price pressures are spreading across more and more sectors, in part owing to the impact of high energy costs across the whole economy. Accordingly, measures of underlying inflation remain at elevated levels and the latest staff projections see inflation excluding food and energy reaching 3.9% in 2022, 3.4% in 2023 and 2.3% in 2024. Resilient labour markets and some catch-up to compensate for higher inflation are likely to support growth in wages. At the same time, incoming data and recent wage agreements indicate that wage dynamics remain contained overall. Most measures of longer-term inflation expectations currently stand at around 2%, although recent above-target revisions to some indicators warrant continued monitoring.

Inflation continues to surge on the back of further large supply shocks, which are feeding through to consumer prices at a faster pace than in the past. According to the September 2022 ECB staff macroeconomic projections, Headline HICP inflation is expected to stay above 9% for the rest of 2022 owing to extremely elevated energy and food commodity prices, as well as upward pressures from the reopening of the economy, supply shortages and tight labour markets. The expected decline in inflation from an average of 8.1% in 2022 to 5.5% in 2023 and 2.3% in 2024 mainly reflects a sharp decline in energy and food price inflation as a result of negative base effects and an assumed decline in commodity prices, in line with futures prices. HICP inflation excluding energy and food is seen to remain at unprecedented high levels until the middle of 2023 but is also expected to decline thereafter as the effects of the reopening of the economy subside and as supply bottlenecks and energy input cost pressures ease. Headline inflation is expected to remain above the ECB's target of 2% in 2024. This is due to lagged effects of high energy prices on the non-energy components of inflation, the recent depreciation of the euro, robust labour markets and some effects of inflation compensation on wages, which are expected to grow at rates well above historical averages. Compared with the June 2022 Eurosystem staff projections, headline inflation has been revised up substantially for 2022 (by 1.3 percentage points) and 2023 (2.0 percentage points), and slightly for 2024 (0.2 percentage points), reflecting recent data surprises, dramatic increases in the assumptions for wholesale gas and electricity prices, stronger wage growth and the recent depreciation of the euro. These effects more than offset the downward impact of the recent decline in food commodity prices, less severe than previously assumed supply bottlenecks and the weaker growth outlook.

Risk assessment

In the context of the slowing global economy, risks to growth are primarily on the downside, in particular in the near term. As reflected in the downside scenario in the staff projections, a long-lasting war in Ukraine remains a significant risk to growth, especially if firms and households faced rationing of energy supplies. In such a situation, confidence could deteriorate further and supply-side constraints could worsen again. Energy and food costs could also remain persistently higher than expected. A further deterioration in the global economic outlook could be an additional drag on euro area external demand.

The risks to the inflation outlook are primarily on the upside. In the same way as for growth, the major risk in the short term is a further disruption of energy supplies. Over the medium term, inflation may turn out to be higher than expected because of a persistent worsening of the production capacity of the euro area economy, further increases in energy and food prices, a rise in inflation expectations above the Governing Council's target, or higher than anticipated wage rises. However, if energy costs were to decline or demand were to weaken over the medium term, it would lower pressures on prices.

Financial and monetary conditions

Market interest rates have increased in anticipation of further monetary policy normalisation in response to the inflation outlook. Credit to firms has become more expensive over recent months, and bank lending rates for households now stand at their highest levels in more than five years. In terms of volumes, bank lending to firms has so far remained strong, in part reflecting the need to finance high production costs and inventory building. Mortgage lending to households is moderating because of tightening credit standards, rising borrowing costs and weak consumer confidence.

Monetary policy decisions

Based on its current assessment, the Governing Council decided to raise the three key ECB interest rates by 75 basis points. Accordingly, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility were increased to 1.25%, 1.50% and 0.75% respectively, with effect from 14 September 2022. This major step frontloads the transition from the prevailing highly accommodative level of policy rates towards levels that will support a timely return of inflation to the Governing Council's 2% medium-term target. The Governing Council took this decision, and expects to raise interest rates further, because inflation remains far too high and is likely to stay above its target for an extended period. Future policy rate decisions will continue to be data-dependent and follow a meeting-by-meeting approach.

Following the raising of the deposit facility rate to above zero, the two-tier system for the remuneration of excess reserves is no longer necessary. The Governing Council therefore decided at its meeting on 8 September 2022 to suspend the two-tier system by setting the multiplier to zero.

The Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the asset purchase programme for an extended period of time past the date when it started raising the key ECB interest rates and, in any case, for as long as necessary to maintain ample liquidity conditions and an appropriate monetary policy stance. As concerns the PEPP, the Governing Council intends to reinvest the principal payments from maturing securities purchased under the programme until at least the end of 2024. In any case, the future roll-off of the PEPP portfolio will be managed to avoid interference with the appropriate monetary policy stance. Redemptions coming due in the PEPP portfolio are being reinvested flexibly, with a view to countering risks to the monetary policy transmission mechanism related to the pandemic.

The Governing Council will continue to monitor bank funding conditions and ensure that the maturing of operations under the third series of targeted longer-term refinancing operations (TLTRO III) does not hamper the smooth transmission of its monetary policy. It will also regularly assess how targeted lending operations are contributing to its monetary policy stance.

To preserve the effectiveness of monetary policy transmission and safeguard orderly market functioning, on 8 September 2022 the Governing Council decided to temporarily remove the 0% interest rate ceiling for remunerating government deposits. Instead, the ceiling will temporarily remain at the lower of either the Eurosystem's deposit facility rate or the euro short-term rate (€STR), also under a positive deposit facility rate. The measure is intended to remain in effect until 30 April 2023. This change will prevent an abrupt outflow of deposits into the market, at a time when some segments of the euro area repo markets are showing signs of collateral scarcity, and will allow for an in-depth assessment of how money markets are adjusting to the return to positive interest rates.

The Governing Council stands ready to adjust all of its instruments within its mandate to ensure that inflation stabilises at its 2% target over the medium term. The Transmission Protection Instrument is available to counter unwarranted, disorderly market dynamics that pose a serious threat to the transmission of monetary policy across all euro area countries, thus allowing the Governing Council to more effectively deliver on its price stability mandate.

1 External environment

High inflation, tighter financial conditions and lingering supply bottlenecks are taking their toll as global economic activity is slowing down. According to the September 2022 ECB staff macroeconomic projections, the global growth outlook is subdued, with global real GDP – excluding the euro area – projected to grow by 2.9% in 2022, 3.0% in 2023 and 3.4% in 2024. This outlook is weaker than that described in the June 2022 Eurosystem staff macroeconomic projections and implies that the global economy is expected to grow at a rate slightly below its long-term average this year and next, as economic activity slows across advanced and emerging market economies. A weaker demand outlook and improved supply have helped to alleviate supply chain pressures, though these are still present. The outlook for global trade and euro area foreign demand has also deteriorated compared with the June projections. Global price pressures remain broad-based and elevated amid commodity price spikes, lingering supply constraints, still relatively robust demand and tight labour markets. These pressures are, however, expected to decline as commodity markets stabilise and growth weakens. In an environment of high uncertainty, the balance of risks around the baseline projections is tilted to the downside for global growth and to the upside for global price pressures.

The world economy is slowing down, as high inflation, tighter financial conditions and lingering supply bottlenecks take their toll on economic activity. The war in Ukraine has pushed energy commodity prices higher and disrupted global food supply chains, fuelling inflationary pressures worldwide and raising concerns about global food security. In China, the economic recovery from the spring lockdowns in key provinces has stalled recently. This is due to weaker demand as a result of the strict containment measures introduced to tackle small-scale coronavirus (COVID-19) outbreaks, production cuts in some energy-intensive sectors and a deepening recession in the residential real estate sector. The sustained easing of pandemic restrictions across major advanced economies since the spring has helped to support consumption in the travel and hospitality sectors. However, the exceptionally strong inflationary pressures that have forced central banks to tighten monetary policy are weighing on disposable income and savings accumulated during the pandemic.

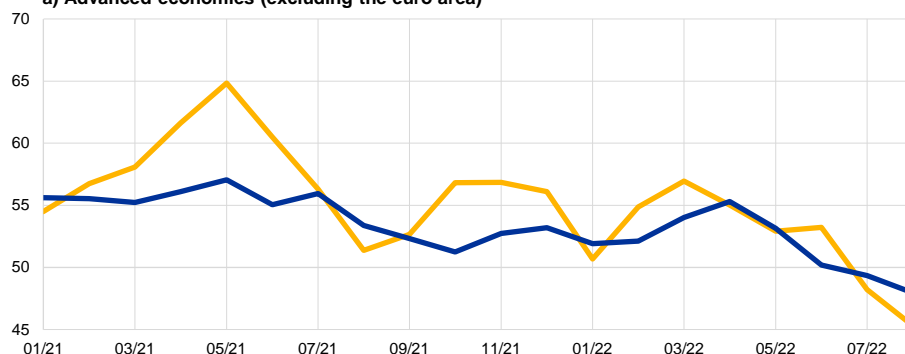
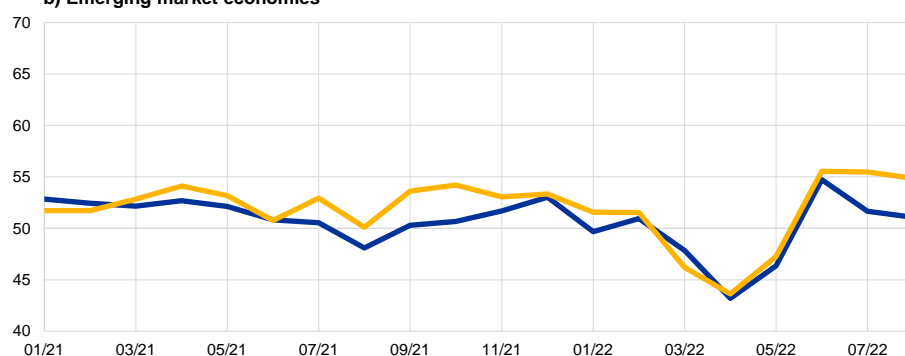
Survey data signal a broad-based moderation in economic activity.

Manufacturing output in advanced and emerging market economies deteriorated further in August 2022 (Chart 1). Similar developments are also visible in the services sector, especially for advanced economies. The activity tracker for global real GDP (excluding the euro area), which is based on a broad range of indicators, confirms survey-based evidence and points to a continued loss of momentum in economic activity over the course of August. These developments align with the estimated contraction in the second quarter of 2022, as global real GDP growth (excluding the euro area) stood at -0.6%. Compared with the June projections, this more negative outturn reflects weaker than previously projected growth in China, Japan, the United Kingdom and the United States.

Chart 1**PMI output by sector and economy type**

(diffusion indices)

— Services
— Manufacturing

a) Advanced economies (excluding the euro area)**b) Emerging market economies**

Sources: S&P Global and ECB staff calculations.
Note: The latest observations are for August 2022.

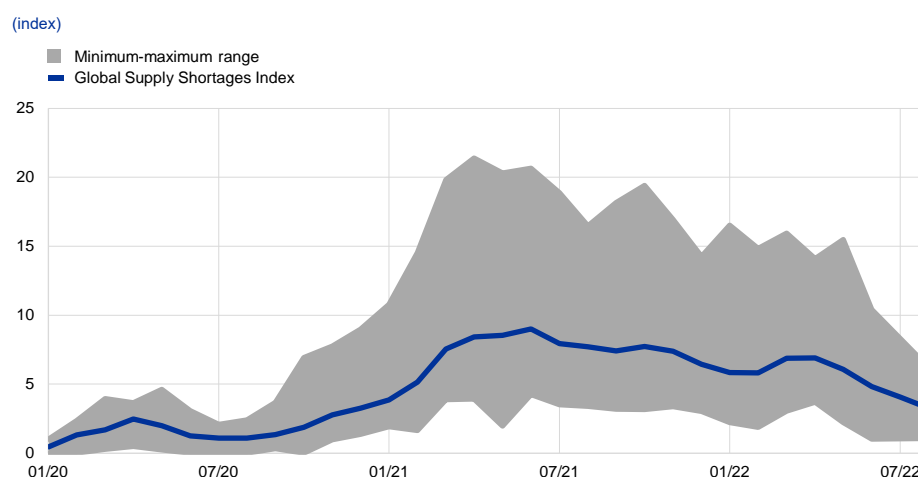
The global growth outlook is subdued, with global real GDP (excluding the euro area) projected to grow by 2.9% in 2022, 3.0% in 2023 and 3.4% in 2024.

Overall, the global economy is expected to grow at a rate slightly below its long-term average this year and next, as economic activity slows down across advanced and emerging market economies. Compared with the June 2022 Eurosystem staff macroeconomic projections, global real GDP growth (excluding the euro area) has been revised down by 0.1 percentage points for 2022, 0.4 percentage points for 2023 and 0.2 percentage points for 2024. Worsening outlooks for China and the United States explain most of the downward revisions to growth over the projection horizon. In the United Kingdom, the sharp rise in energy prices is expected to significantly weigh on activity, which is projected to start declining by the turn of the year. The downward revisions to growth for this year have been partly offset by a somewhat milder than previously envisaged recession in a Russia that has so far proved more resilient to economic sanctions than originally anticipated, and by stronger than previously expected activity in some large emerging market economies, such as Brazil, Mexico and Turkey.

Weaker activity in global manufacturing is weighing on trade that already started to decelerate in spring this year. Notwithstanding the supply disruptions

brought about by the strict lockdowns in key Chinese provinces this spring, a loss in trade momentum is clearly visible in global goods trade, as private demand for goods gradually normalises from high levels across advanced economies. Moreover, the prospects for global goods trade continue to deteriorate, as indicated by new export orders in manufacturing, which remained in contractionary territory in August for the second consecutive month. Against this backdrop, suppliers' delivery times shortened, though they still remain above their previous levels in some key economies such as the United Kingdom and the United States. Supply shortages also eased across a broad range of items in the manufacturing sector, helping, together with moderating demand, to alleviate some of the global supply pressures (Chart 2). Even so, some supply bottlenecks still remain.

Chart 2
Global Supply Shortages Index



Sources: S&P Global and ECB staff calculations.

Notes: The Global Supply Shortages Index measures how many selected items have been in short supply against their long-run average for each month. The long-run average refers to value 1 of the index. The shaded minimum-maximum range refers to the 5th-95th percentile range across 20 items. The latest observations are for August 2022.

The global trade outlook has also deteriorated. Global imports (excluding the euro area) are expected to grow by 4.6% in 2022, 2.7% in 2023 and 3.4% in 2024, while euro area foreign demand is projected to be somewhat weaker, especially in 2023. Compared with the June projections, the outlooks for global trade and for euro area foreign demand have been revised down for the later years of the projection horizon. For this year, however, both have been revised up on the back of stronger than previously expected trade dynamics across advanced economies in early 2022, especially in the United Kingdom and European countries outside the euro area.

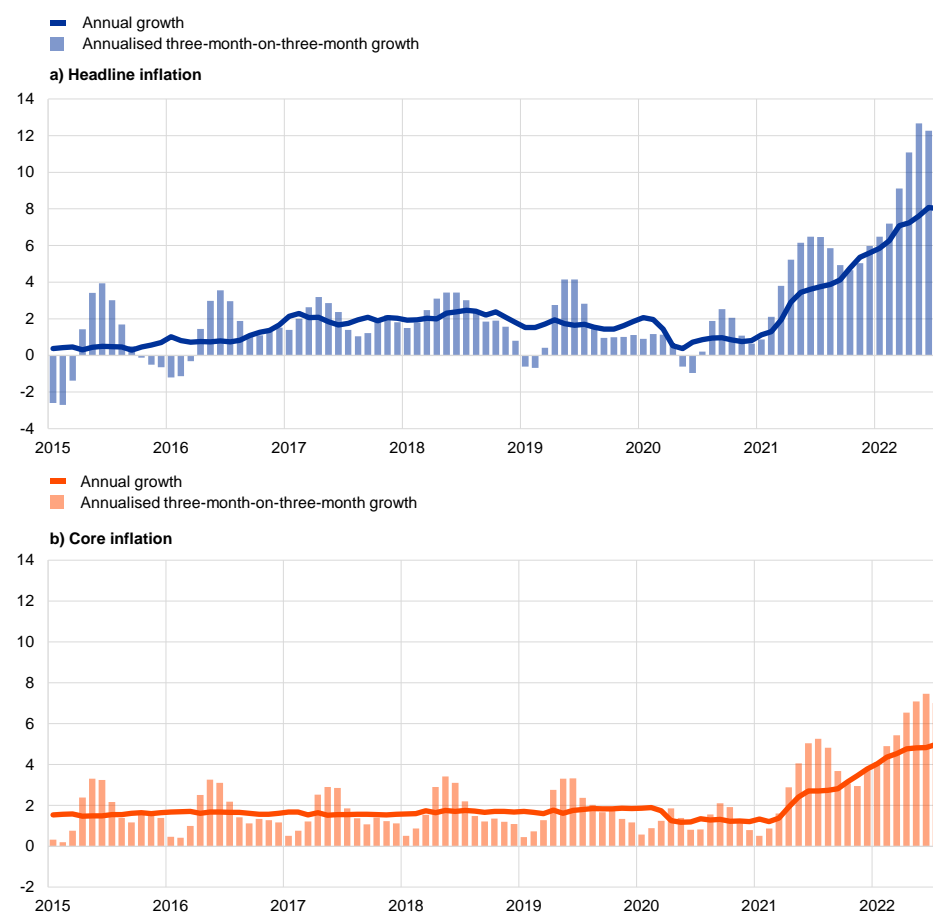
Global price pressures remain broad-based and elevated. They reflect commodity price spikes, lingering supply constraints, still relatively robust demand and tight labour markets, although inflationary pressures are expected to ease gradually as commodity markets stabilise and growth weakens. Annual headline inflation in OECD countries – excluding Turkey – declined slightly to 8.0% in July from 8.1% in June, as an increase in core inflation was more than compensated for

by a lower contribution from energy and food inflation.¹ Meanwhile, inflation momentum remains strong and well above the level prevailing in mid-2021 when demand recovered strongly as economies reopened (Chart 3).

Increasing inflationary pressures are also evident from the rising export prices of euro area competitors. These prices (in national currencies) have been revised upwards compared with the June projections, as the impact of slightly lower oil and non-energy commodity price assumptions is outweighed by more intense domestic and global pipeline price pressures. However, the anticipated decline in commodity prices in line with their futures, coupled with the deterioration in global growth, is projected to dampen inflationary pressures in the medium term.

Chart 3
OECD consumer price inflation

(year-on-year percentage changes and three-month-on-three-month annualised percentage changes)



Sources: OECD and ECB calculations.

Notes: The OECD aggregates reported in the panels are calculated excluding Turkey. In Turkey, annual headline and core inflation stood at 79.6% and 63.8% respectively. Annual headline and core inflation in July for OECD countries including Turkey (not shown in the panels) were 10.2% and 6.8% respectively, compared with 10.3% and 6.5% in June. Core inflation excludes energy and food. The latest observations are for July 2022.

¹ We report inflation data for the OECD area without Turkey. This is because the country, with its annual headline consumer price inflation reaching 79.6% in July, could be considered an outlier among the OECD countries.

Oil and non-energy commodity prices declined compared with the June projections, while European gas prices shot up further. The downward pressure on oil prices was related to the prospect of oil demand easing, brought about by the worsening global economic outlook and increases in world oil production. In July world oil production reached its highest level since January 2020. Russian oil supply has so far proven more resilient than expected, but this is in large part down to Russia diverting its oil exports to India, Turkey and China. While oil prices have declined recently, gas prices have risen further, mainly on the back of Russian supply cuts. Most notably, the 80% reduction in gas deliveries to Germany via the Nord Stream 1 pipeline in July and the more recent announcement that these gas flows would be interrupted again indefinitely have heightened fears that Russian gas supplies to western Europe will be completely cut off. The price of industrial metals declined amid concerns over Chinese demand and, more generally, the deteriorating global economic outlook. Food prices also fell, mainly owing to trilateral deals agreed by Turkey and the United Nations with Russia and Ukraine to establish a safe corridor for Ukrainian grain shipments.

Developments in global financial conditions have been mixed since the previous projections. Initially, financial conditions tightened. High and rising inflation led to faster monetary policy normalisation than previously expected, higher bond yields and a correction in risky assets. However, as the growth outlook weakened, a significant part of this tightening has recently gone into reverse, especially in emerging market economies and to a lesser extent the United States and other advanced economies. This loosening counteracts some of the impact of actions taken by central banks while they generally signalled that much still needs to be done to rein in record-high inflation. Given the data-dependent nature of monetary policy, financial conditions remain sensitive to new inflation and macroeconomic developments.

In the United States, real GDP contracted again in the second quarter of 2022, as household spending weakened and investment declined. Rising mortgage rates and high cost pressures led to a fall in residential investment as housing starts continue to drop. Private consumption decelerated amid deteriorating consumer confidence and falling real disposable income owing to high inflation. Looking ahead, real GDP growth is projected to turn positive as of the third quarter, although it is expected to remain subdued overall. Headline inflation eased more than expected in July, following an acceleration in June. Annual headline consumer price inflation declined to 8.5% in July, as energy prices decreased, while core inflation remained unchanged at 5.9%.

The Chinese economy rebounded in June 2022, but the recovery stalled in July. Economic activity contracted sharply in the second quarter of 2022 as a result of the strict containment measures implemented under China's zero-COVID strategy in response to outbreaks in key provinces. The economy is forecast to return to growth in the second half of this year, under the assumption of enhanced policy support and limited incidence of COVID-19 outbreaks. Accordingly, compared with the June projections, the growth outlook for China has been revised down markedly

for this year and somewhat less for the remainder of the projection horizon. Consumer price pressures in China remain moderate, though.

In Japan, the recovery in economic activity resumed, supported by the reopening of the economy. After a contraction in the first quarter of 2022, the economic recovery resumed in the second quarter, supported by a rebound in domestic demand following an easing of COVID-19 restrictions. The economy is expected to remain on a moderate recovery path. Annual CPI inflation is projected to stay above the Japanese central bank's 2% target this year and to fall below it thereafter.

In the United Kingdom, growth momentum is set to weaken further, as a decline in household disposable income weighs on consumer spending. Real GDP growth slowed in the second quarter of 2022 and is expected to decrease further in the coming quarters. Given the sharp rise in inflation, which is projected to increase further, economic activity is expected to start declining by the turn of the year. The labour market remains tight, while broad wage pressures are adding to the persistently high domestic inflation. High commodity prices are also expected to continue to push up consumer price inflation over the rest of this year.

In Russia, recent data signal the onset of a recession which is likely to be less severe than previously expected. In the second quarter of 2022, real GDP declined by 5.8% compared with the previous quarter, suggesting that the projected recession this year is likely to be less pronounced than indicated in the June 2022 Eurosystem staff projections. Nevertheless, economic activity is projected to decline significantly, as both domestic demand and international trade are being increasingly hit by unprecedented international sanctions. These sanctions have led to higher import prices and supply disruptions, both of which are exerting upward pressure on inflation. However, some of this pressure has recently been offset by a stronger rouble and weaker consumer demand.

2 Economic activity

The euro area economy grew by 0.8% in the second quarter of 2022. This mainly reflected the dynamism of the services sector, as the lifting of pandemic-related restrictions supported consumer spending in contact-intensive services. Travel increased, which particularly helped those countries with a large tourism industry. By contrast, the manufacturing sector suffered from high energy costs, reductions in gas supplies and continued, albeit declining, supply bottlenecks. Looking ahead, the economic consequences of the war in Ukraine are continuing to unfold and to darken the euro area outlook. In the third quarter, economic activity is expected to slow substantially. While a dynamic tourism sector was still supporting euro area economic growth in the summer months, the boosting effect of the reopening of the economy is fading. Moreover, all sectors of the economy are being negatively affected by high inflation and persistent uncertainty, notably related to gas supply disruptions and the broader geopolitical repercussions of a long-lasting war. The same factors are expected to continue to weigh on euro area activity during the winter of 2022/23. On the upside, fiscal measures aimed at cushioning the impact of higher energy prices, overall resilient labour markets and accumulated savings should help support economic activity. Beyond the near term, as the energy market rebalances, uncertainty declines, supply bottlenecks are resolved and real incomes improve, euro area economic growth is expected to gradually recover.

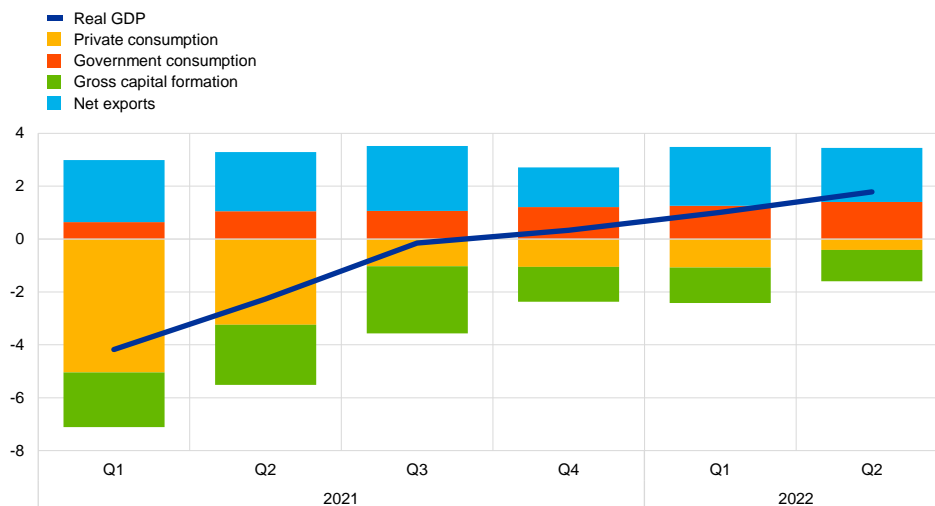
This assessment is broadly reflected in the September 2022 ECB staff macroeconomic projections for the euro area, which foresee annual real GDP growth at 3.1% in 2022, 0.9% in 2023 and 1.9% in 2024. Compared with the June 2022 Eurosystem staff macroeconomic projections, the outlook was revised upwards for 2022 and downwards for 2023 and 2024.

Economic activity in the euro area benefited from the reopening of the economy in the second quarter of 2022. Real GDP increased by 0.8% quarter on quarter, driven by a positive contribution from domestic demand, whereas net trade had a small negative impact. Private consumption and investment rose strongly in the second quarter, while government consumption displayed a more modest increase (Chart 4). Most of the unexpectedly robust growth in the second quarter was due to strong activity in the services sector following the lifting of most pandemic-related restrictions. Available country data and short-term indicators point to a shift in private consumption away from goods and towards services, especially the most contact-intensive services. Consumer spending on tourism and hospitality-related services was already remarkably strong in the spring, which particularly benefited countries with a large tourism industry, like Spain, Italy and France.

Chart 4

Euro area real GDP and its components

(percentage changes since the fourth quarter of 2019; percentage point contributions)



Sources: Eurostat and ECB calculations.

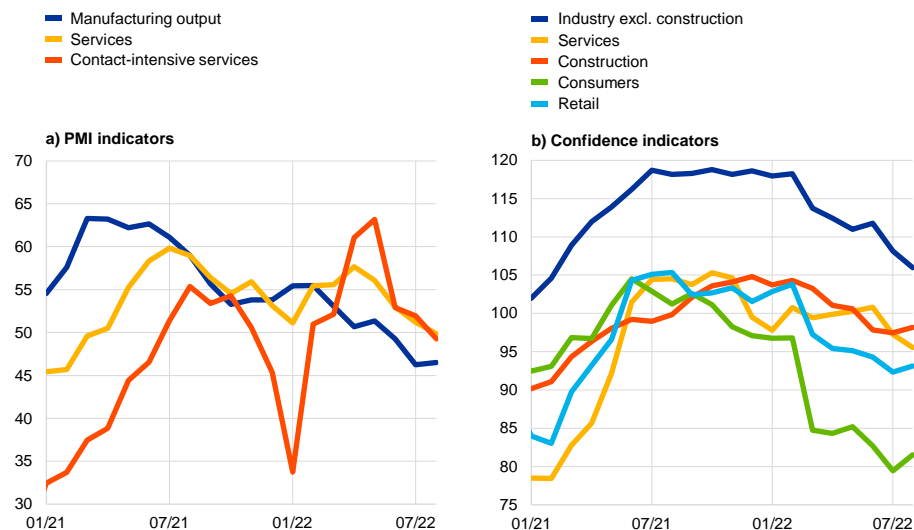
Note: The latest observations are for the second quarter of 2022.

Looking ahead, there are clear signs of a continued slowdown in economic activity against a background of high inflation and persistent uncertainty related to the war in Ukraine and energy-related developments. Incoming survey data point to a downward growth momentum affecting all sectors of the economy in the third quarter of 2022. The composite Purchasing Managers' Index (PMI) decreased in August to an 18-month low, standing in contractionary territory for the second consecutive month. This further decline continues to be driven by the manufacturing sector, which is suffering from high energy costs, continued, albeit declining, supply bottlenecks and falling demand (Chart 5, panel a). The services PMI fell in August to a level indicating stagnation in activity. This suggests that the positive effects of the post-pandemic rebound in consumer spending on services are waning, dampened by cost-of-living pressures, despite the still favourable impact of tourism activity in the summer months. In addition, bottlenecks related to labour shortages have considerably intensified in the services sector. The most recent confidence indicators also point to slowing growth dynamics across sectors in the third quarter. The further fall in the European Commission's Economic Sentiment Indicator (ESI) in August was largely driven by a significant weakening of confidence in industry and, to a lesser extent, in services (Chart 5, panel b). Consumer confidence improved somewhat in August from its record low in July. Nevertheless, it remains below its previous trough reached at the beginning of the coronavirus (COVID-19) crisis. These latest developments reflect households' ongoing concerns about high energy and food prices amid elevated uncertainty surrounding the impact of the war in Ukraine.

Chart 5

Survey indicators across sectors of the economy

(panel a: percentage balances; panel b: percentage balances, February 2020 = 100)



Sources: S&P Global (panel a), European Commission and ECB calculations (panel b).

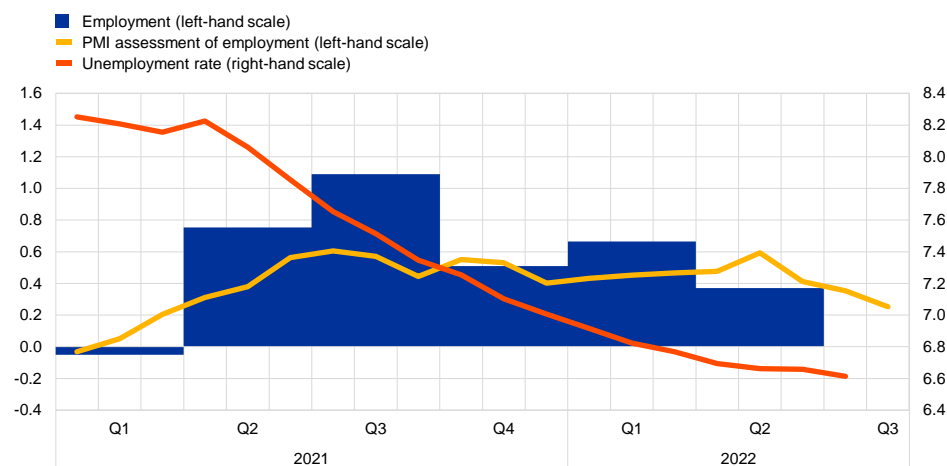
Notes: "Contact-intensive services" refers to accommodation, food and beverage services. The latest observations are for August 2022.

At the same time, the labour market has remained robust, supporting economic activity. Total employment increased by 0.4% quarter on quarter in the second quarter of 2022, following an increase of 0.7% in the first quarter. This implies an increase in the number of people in employment of 2.7 million between the fourth quarter of 2019 and the second quarter of 2022. The level of total employment is now in line with what would be implied by its historical relationship with real GDP. Hours worked increased by 0.6% in the second quarter of 2022 and now stands 0.6% higher than the pre-pandemic level in the fourth quarter of 2019. The unemployment rate stood at 6.6% in July 2022, which was slightly (0.1 percentage points) lower than in June and around 0.8 percentage points lower than the pre-pandemic level observed in February 2020 (Chart 6). Recourse to job retention schemes also continued to decline and was estimated at 0.9% of the labour force in the second quarter of 2022, down from 1.4% in the first quarter. This compares with more than 15% of the labour force in job retention schemes in the second quarter of 2020. The euro area labour market has strengthened considerably since the onset of the pandemic. Notably, in the first quarter of 2022 there was one job vacancy for every three unemployed workers, and in July 2022 more than 33% of euro area firms reported that labour shortages were limiting their production. This development was broad-based across sectors.

Chart 6

Euro area employment, the PMI employment indicator and the unemployment rate

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



Sources: Eurostat, S&P Global and ECB calculations.

Notes: The two lines indicate monthly developments; the bars show quarterly data. The PMI is expressed as a deviation from 50 divided by 10. The latest observations are for the second quarter of 2022 for employment, August 2022 for the PMI and July 2022 for the unemployment rate.

Short-term labour market indicators point to continued employment growth, despite some weakening signals. The monthly composite PMI employment indicator stood at 52.5 in August, decreasing by one point in comparison to July, but still remaining above the threshold level of 50 that indicates an expansion in employment. The PMI employment indicator has been in expansionary territory since February 2021. Looking at developments across different sectors, the PMI employment indicator points to continued, albeit weaker, employment growth in the industry and services sectors and to a decrease in employment in construction.

After the rebound in the second quarter, private consumption is facing significant headwinds from high inflation and elevated uncertainty. Private consumption grew by 1.3% in the second quarter, supported by the reopening of contact-intensive sectors. However, consumption of goods remained weak as it continued to be affected by high inflation and supply constraints. Retail sales fell by 0.8% in the second quarter of 2022, following a drop of 0.6% in the first quarter of the year, and new car registrations remained significantly (31.4%) below their pre-pandemic level in the second quarter. Consumption of goods is likely to remain weak in the third quarter after retail sales in July were 0.2% lower than their monthly average in the second quarter. Consumer confidence has declined further in the third quarter, reflecting households' ongoing economic concerns. In contrast to goods, spending on services was strong in the second quarter amid eased pandemic restrictions and the reopening of contact-intensive sectors, including tourism. However, the positive effects of the reopening on private consumption growth appear to be waning. The European Commission's latest consumer and business surveys indicate that demand for accommodation, food and travel services is expected to expand more slowly in the third quarter.

Household savings are helping to partly cushion the impact of very high inflation. By the first quarter of 2022, accumulated savings in excess of pre-

pandemic levels amounted to around €850 billion. These savings should help to smooth consumption to some extent in the face of a drop in real incomes. However, households in lower income groups have accumulated relatively small savings and may need to reduce their current saving or dissave. These households are strongly exposed to the energy and food price shock, notwithstanding fiscal income support. In contrast, medium to high-income households might use their accumulated savings for spending purposes. However, the ECB's Consumer Expectations Survey from July suggests that households have strongly revised up their perceived need for a precautionary savings buffer. Furthermore, the elevated inflation is expected to lead to a faster erosion of the accumulated stock of savings in real terms.

Business investment is expected to slow, after a robust increase in the second quarter of 2022 driven by the transport equipment component. Non-construction investment increased by 1.8% quarter on quarter in the second quarter as manufacturing of motor vehicles recovered against the background of a gradual easing of supply bottlenecks. Non-construction investment increased in the second quarter in all large euro area countries except Spain. In spite of a recent slight decline, euro area capital goods producers still hold a large stock of outstanding orders, as indicated by European Commission order book and outstanding business indicators, which remained well above average until August. European Commission survey data suggest that the main factor limiting production, in spite of some recent improvement, remains lack of material and/or equipment, while demand is not seen as a constraint. However, uncertainty related to the Ukraine war, higher energy prices, increased cost of financing and the risk of gas rationing all imply a substantial slowdown in the third quarter of 2022. In July, the manufacturing PMI and the PMI new order indicator (i.e. the new order flow) for capital goods continued to decline and stood firmly in contractionary territory. Although financing conditions are still favourable, the cost of borrowing for companies has risen strongly since the start of the Ukraine war. Business investment is expected to return to dynamic growth in the course of 2023, supported in part by Next Generation EU (NGEU) funds.

Housing investment declined slightly in the second quarter of 2022 and is likely to remain weak in the near term. Housing investment fell by 0.4% in the second quarter of 2022 compared with the first quarter, when it rose by 2.8% quarter on quarter. The European Commission's indicator of recent construction activity continued to decline on average in July and August compared with the second quarter, while the PMI for residential construction fell further into negative growth territory. Company order books still appear to be well filled, as indicated by the European Commission's survey up to August, which should support construction activity in the months ahead. However, firms are continuing to suffer significantly from supply shortages, as perceived production limits due to labour shortages reached a new all-time high in August, while equipment and material bottlenecks eased only slightly. Moreover, households' short-term intentions to renovate and buy or build a home fell again in the third quarter, indicating weaker demand. This is also reflected in a further increase in the share of companies reporting insufficient demand as a factor limiting production alongside the continued decline in new orders, as indicated by the construction PMI. The weakening of demand is taking place against the backdrop of heightened uncertainty, significantly higher

construction costs, falling real incomes and more restrictive financing conditions (Box 4), all of which should increasingly weigh on housing investment going forward.

Euro area trade lost some momentum as extra-euro area exports slowed, while the outlook points to subdued trade owing to weakened demand for manufacturing and services exports.

In June, nominal extra-euro area goods exports decreased after having strongly expanded the month before, while growth in extra-euro area imports slowed in both months. The euro area deficit in trade in goods stabilised, while the seasonally adjusted current account returned to surplus, supported by an increase in the services trade balance. The strong export performance in May and the slowdown in June were mainly driven by chemical exports to the United States, which was probably due to temporary restocking by US importers. Short-term shipping and survey indicators suggest that supply bottlenecks – while remaining at elevated levels – may be easing. Nonetheless, the short-term outlook points to further deterioration in euro area trade owing to simultaneous declines in demand for manufacturing and services exports, as indicated by PMI new export orders, which stood in contractionary territory for both sectors in July and August. Momentum for the recovery in trade in services, while still supported by a strong tourism season, moderated as labour shortages and declines in real incomes became a more binding constraint on activity.

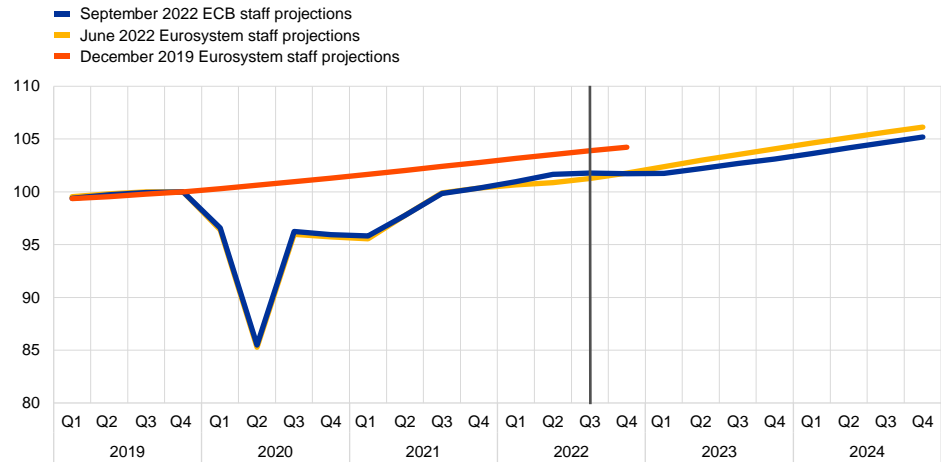
Beyond the near term, euro area economic growth is expected to gradually pick up after the headwinds weighing on activity during the winter of 2022/23 dissipate.

The uncertainty surrounding this outlook remains large. The September 2022 ECB staff macroeconomic projections foresee annual real GDP growth at 3.1% in 2022, 0.9% in 2023 and 1.9% in 2024 (Chart 7). Compared with the June 2022 Eurosystem staff macroeconomic projections, the growth outlook was revised upwards for 2022 and downwards for 2023 and 2024. Quarterly year-on-year real GDP growth is projected to be 1.4% in the fourth quarter of 2022, 1.4% in the fourth quarter of 2023 and 2% in fourth quarter of 2024. This shows that the projected average real GDP growth rate for 2022 is strongly influenced by positive carry-over effects from the dynamic first half of the year, while the projected average real GDP growth rate for 2023 is strongly influenced by the expected slowdown in the second half of 2022.

Chart 7

Euro area real GDP (including projections)

(index: fourth quarter of 2019 = 100, seasonally and working day-adjusted quarterly data)



Sources: Eurostat and the article entitled "ECB staff macroeconomic projections for the euro area, September 2022", published on the ECB's website on 8 September 2022.

Note: The vertical line indicates the start of the September 2022 ECB staff macroeconomic projections.

3 Prices and costs

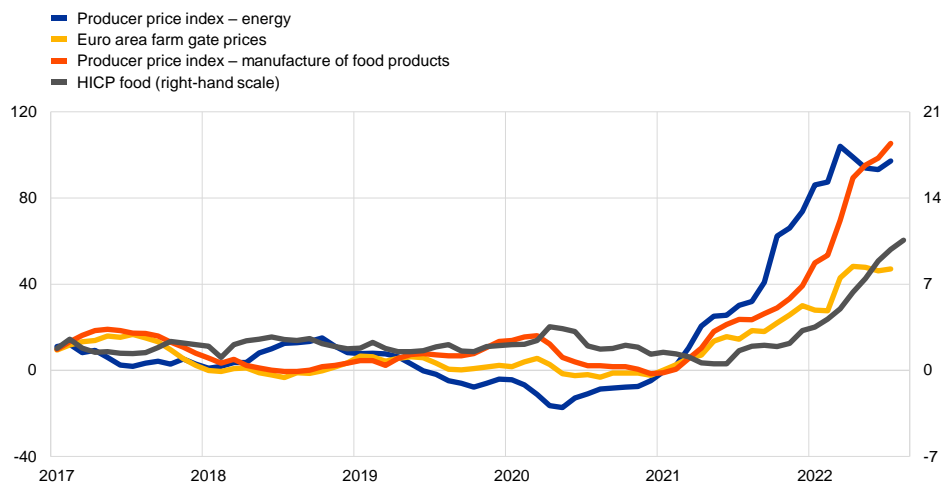
Inflation rose further to 9.1% in August, with energy price inflation remaining the dominant component of overall inflation. Soaring energy and food prices, supply bottlenecks and demand pressures in some sectors owing to the reopening of the economy are still driving up inflation. Price pressures have continued to strengthen and broaden across the economy, and inflation may rise further in the near term. As the current drivers of inflation fade over time and the normalisation of monetary policy works its way through the economy and price-setting, inflation will come down. Looking ahead, inflation has been revised up significantly in the September 2022 ECB staff projections and is now expected to average 8.1% in 2022, 5.5% in 2023 and 2.3% in 2024. Inflation excluding energy and food is expected to reach 3.9% in 2022, 3.4% in 2023 and 2.3% in 2024. Most measures of longer-term inflation expectations currently stand at around 2%, although recent above-target revisions to some indicators warrant continued monitoring.

According to Eurostat's flash estimate for August, HICP inflation rose again to 9.1% from 8.9% in July. The increase in August was mainly driven by further rises in HICP food inflation and HICP inflation excluding energy and food. The annual rate of change in HICP energy inflation edged down, but remained exceptionally high at 38.3%. This component of the basket continued to account for almost half of overall inflation. Energy inflation remained elevated due to the high levels of oil, gas and electricity prices, together with abnormally high refining margins for diesel and distribution margins for private transport fuels. Market-based indicators suggest that, in the near term, oil prices will moderate, while wholesale gas prices will stay extraordinarily high. Food inflation rose substantially, from 9.8% in July to 10.6% in August, reflecting high global food commodity prices and euro area farm gate prices. The pressures on food prices are increasingly being driven by higher input costs for energy and fertilisers – as is also visible in producer price dynamics (Chart 8) – as well as by disruptions in trade in food commodities and adverse weather conditions.

Chart 8

Energy and food input cost pressure

(annual percentage changes)



Source: Eurostat.

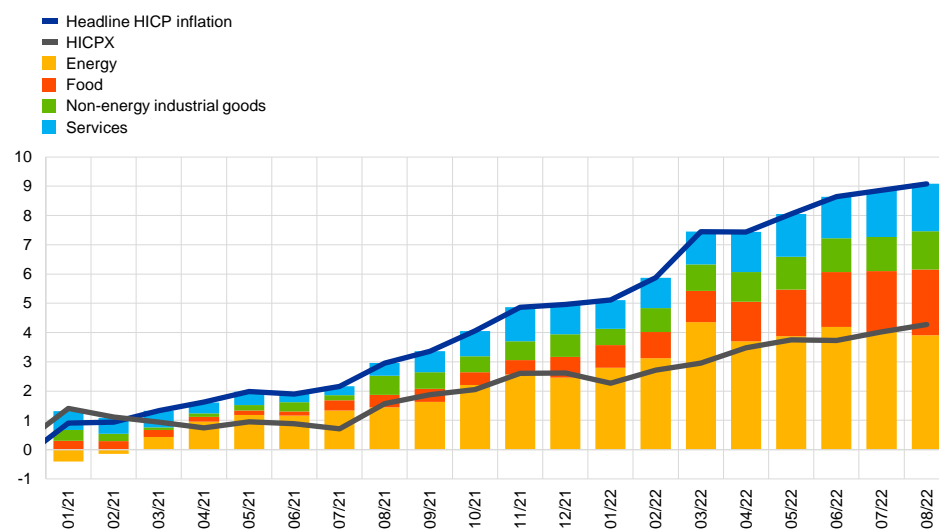
Note: The latest observations are for August 2022 for HICP food (flash estimate) and July 2022 for the remaining items.

HICP inflation excluding energy and food (HICPX) increased further in August, to 4.3%, reflecting both higher non-energy industrial goods (NEIG) and services inflation (Chart 9). Here, too, higher input costs stemming from the surge in energy prices remained a prominent factor. NEIG inflation reached a new high, in part reflecting ongoing global supply disruptions. Services inflation also rose, with the impact of energy prices on items such as transport being aggravated by the impact of surging food prices on items such as catering services and of reopening effects on items such as accommodation. These effects have more than offset the temporary downward impact of government measures such as the €9 public transport ticket in Germany (that expired in August).

Chart 9

Headline inflation and its main components

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Note: The latest observations are for August 2022 (flash estimate).

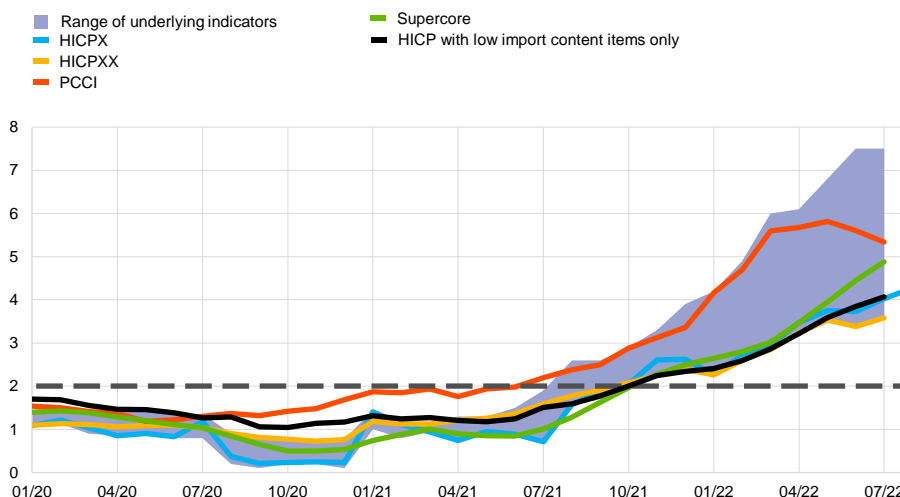
Measures of underlying inflation remain at elevated levels (Chart 10). This

reflects the spreading of price pressures to more and more sectors and HICP items, owing in part to the impact of high energy costs across the whole economy. Within the wide range of indicators, most exclusion-based measures continued to increase. HICPX inflation rose from 4.0% in July 2022 to 4.3% in August. Other measures are only available up to July. HICPXX inflation (which excludes energy, food, travel-related items, clothing and footwear) had edged up to 3.6% in July after declining in the previous month. The Supercore indicator, which comprises cyclically sensitive HICP items, had risen to 4.9%, from 4.5% in June, while the model-based Persistent and Common Component of Inflation (PCCI) had declined further, to 5.3%, in July. Month-on-month rates of the PCCI have been moving broadly sideways. Still, persistently high month-on-month PCCI rates continue to indicate strong upward dynamics of underlying inflation up to July. The indicator of domestic inflation, which represents price developments of HICP items with lower import content, had increased further and surpassed 4% in July.² It is likely that the temporary €9 public transport ticket in Germany had a downward impact on measures of underlying inflation like HICPX from June to August, which can be expected to reverse in September. At the same time, it remains uncertain how persistent the elevated levels of these different measures and indicators will be. A large part of the upward push in underlying inflation dynamics can be attributed to indirect effects from the surge in energy and food prices and from exceptional developments in the balance between supply and demand related to the pandemic and the Russian invasion of Ukraine.

² See the box entitled “A new indicator of domestic inflation for the euro area”, *Economic Bulletin*, Issue 4, ECB, 2022.

Chart 10
Indicators of underlying inflation

(annual percentage changes)



Sources: Eurostat and ECB calculations.

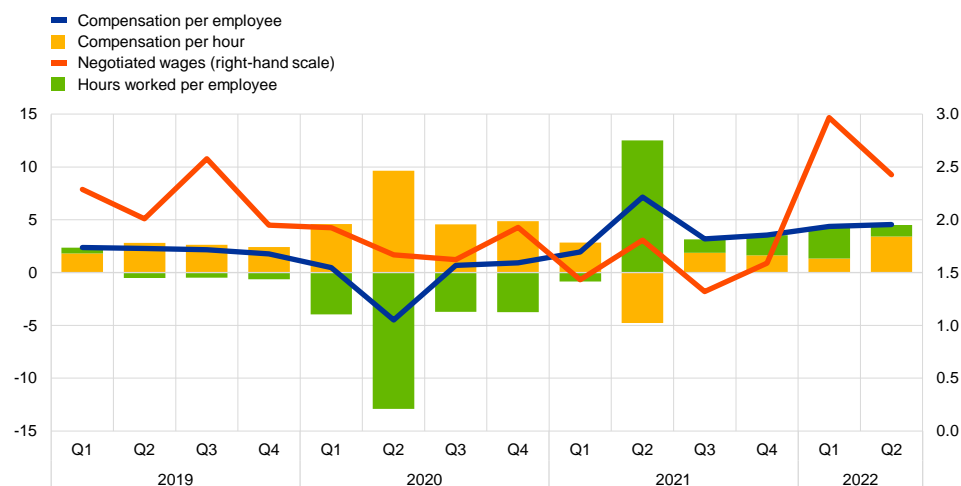
Notes: The range of indicators of underlying inflation includes HICP excluding energy, HICP excluding energy and unprocessed food, HICPX (HICP excluding energy and food), HICPXX (HICP excluding energy, food, travel-related items, clothing and footwear), the 10% and 30% trimmed means and the weighted median. The latest observations are for August 2022 (flash estimate) for the HICPX and July 2022 for the remaining items.

The latest data on negotiated wages continue to point to relatively moderate wage dynamics (Chart 11). Growth in negotiated wages declined to 2.4% in the second quarter of 2022, compared with 3.0% in the previous quarter. However, this downward movement is not fully indicative of the underlying dynamics as wage agreements also comprise one-off payments that can lead to substantial volatility in annual growth rates. The decline in negotiated wage growth in the second quarter was mainly driven by developments in Germany and base effects from large one-off payments disbursed in June 2021. More recent information on wage agreements concluded since the start of 2022 point to some strengthening in wage dynamics, although wage growth remains contained compared with current inflation rates. Actual wage developments as measured by compensation per employee strengthened further in the second quarter of 2022, increasing to 4.6% compared with 4.4% in the previous quarter. This was driven by a strong increase in the annual growth rate of compensation per hour, which stood at 3.4% in the second quarter compared with 1.3% in the first quarter of 2022 (driven by base effects). Rising average hours worked continued to support compensation per employee growth. Pandemic-related distortions to these indicators are declining as the effects of government measures related to job retention schemes have continued to decrease.

Chart 11

Breakdown of compensation per employee into compensation per hour and hours worked

(annual percentage changes)



Sources: Eurostat and ECB calculations.

Note: The latest observations are for the second quarter of 2022.

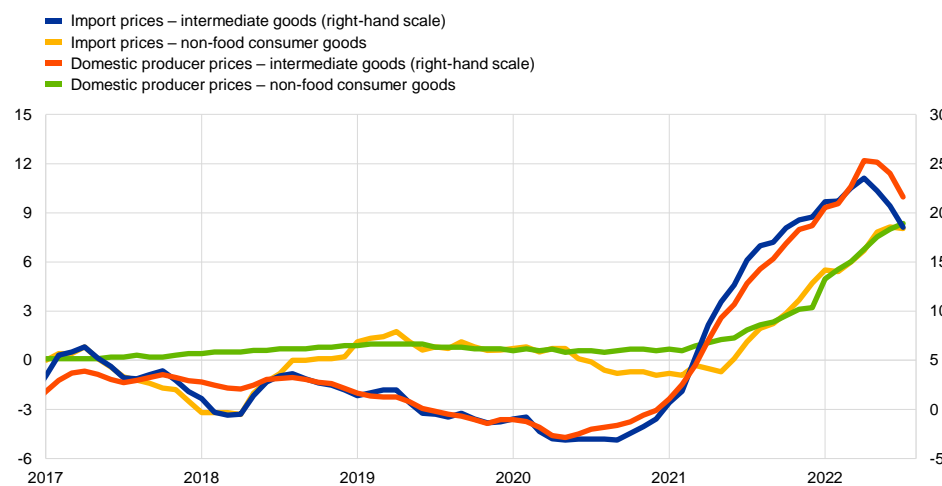
Pipeline pressures on NEIG inflation remain strong, and the pass-through of costs to prices has likely become faster (Chart 12).

Data for July suggest that while pressures in the earlier stages of the pricing chain for NEIG eased, they increased further in the later stages. The annual growth rate of import prices for intermediate goods declined for the second consecutive time since mid-2020 to 18.5% in July 2022 from 20.7% in June. The annual growth rate of producer prices for domestic sales of intermediate goods declined further in July 2022, to 21.6%, down from 23.8% in the previous month. The growth rates of import and domestic producer prices for non-food consumer goods showed somewhat mixed signals: import prices declined slightly, to 8.0% in July, while producer prices increased to 8.3%. This remains exceptionally high when compared with the average annual rate of 0.5% over the period from 2001 to 2019. Import price dynamics remain elevated, in part reflecting the build-up of inflationary pressures due to the depreciation of the euro. An updated analysis of the pass-through of producer prices for non-food consumer goods suggests that this is currently faster than in the past and that NEIG inflation may face further upward pressure this year.³ This is in line with the data on selling-price expectations for consumer goods, which remain elevated despite moderating somewhat over the past four months.

³ See the box entitled “Recent developments in pipeline pressures for non-energy industrial goods inflation in the euro area”, *Economic Bulletin*, Issue 5, ECB, 2021.

Chart 12**Indicators of pipeline pressures**

(annual percentage changes)



Sources: Eurostat and ECB calculations.
 Note: The latest observations are for July 2022.

Most measures of longer-term inflation expectations currently stand at around 2%, although recent above-target revisions to some indicators warrant continued monitoring.

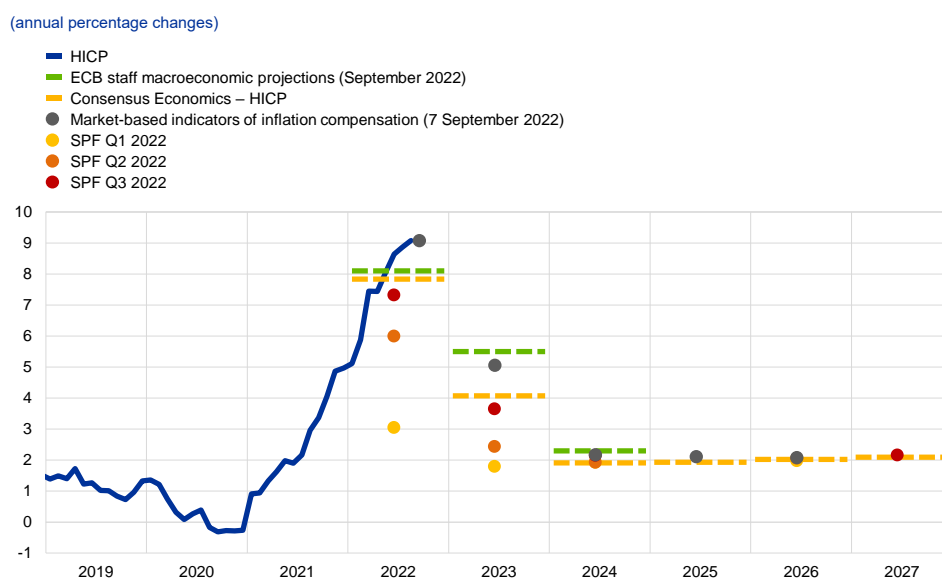
Survey-based measures of longer-term inflation expectations continued to increase gradually, reaching levels around or slightly above 2%, while market-based measures declined beyond the very near-term maturities, amid significant volatility (Chart 13). According to the ECB's Survey of Professional Forecasters (SPF) from July 2022, longer-term inflation expectations (for 2026) rose further, to 2.2%, while those of Consensus Economics stood at 2.1% in July, up from 1.9% in the previous quarter. At the same time, both the median and the mode expectation in the SPF survey remained at 2.0%. In the latest ECB Survey of Monetary Analysts, the medium- to long-term inflation expectations remained unchanged at 2.0% in July. The ECB's Consumer Expectations Survey showed that the longer-term (three years ahead) inflation expectations of households increased further in July.⁴ During the review period, market-based measures of inflation compensation (based on HICP excluding tobacco) ultimately fell beyond the very near-term maturities, amid firming expectations of further monetary policy normalisation and concerns about a slowdown in economic growth ahead. The declines in inflation compensation measures mask substantial volatility over the review period. Near-term maturities in particular were volatile, as they spiked following soaring electricity costs, before falling back on news about EU policy initiatives to contain the energy crisis. According to these market-based measures, inflation is now expected to return to around 2% over the course of 2024 and remain close to that level thereafter, with the five-year forward inflation-linked swap rate five years ahead standing at 2.2%. Importantly, market-based measures of inflation compensation are not a direct measure of market participants' actual inflation expectations, since they contain inflation risk premia to compensate for inflation uncertainty. The relative stability of survey-based measures of long-term inflation

⁴ See "ECB Consumer Expectations Survey results – July 2022", press release, 2 September 2022.

expectations, which are free of inflation risk premia, suggests that the current volatility in long-term market-based measures predominantly reflects variation in inflation risk premia.

Chart 13

Survey-based indicators of inflation expectations and market-based indicators of inflation compensation



Sources: Eurostat, Refinitiv, Consensus Economics, Survey of Professional Forecasters (SPF), ECB staff macroeconomic projections for the euro area and ECB calculations.

Notes: The market-based indicators of inflation compensation series is based on the one-year spot inflation rate, the one-year forward rate one year ahead, the one-year forward rate two years ahead, the one-year forward rate three years ahead and the one-year forward rate four years ahead. The latest observations for market-based indicators of inflation compensation are for 7 September 2022. The SPF for the third quarter of 2022 was conducted between 1 and 5 July 2022. The cut-off date for the Consensus Economics long-term forecasts was July 2022 for 2024, 2025, 2026 and 2027 and August 2022 for 2022 and 2023. The cut-off date for data included in the ECB staff macroeconomic projections was 25 August 2022. The latest observation for HICP is for August 2022 (flash estimate).

The September 2022 ECB staff macroeconomic projections for the euro area foresee headline inflation remaining elevated in the near term, before falling back to averages of 5.5% in 2023 and 2.3% in 2024 (Chart 14).

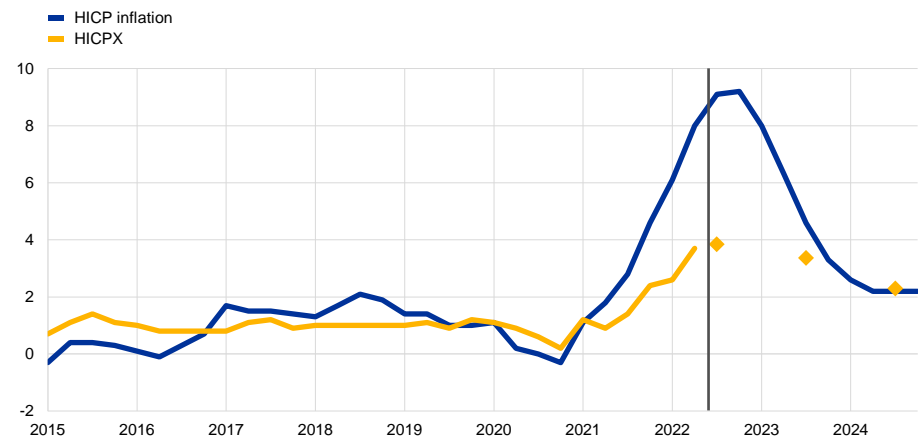
Looking at the annual growth rate of inflation in the fourth quarter of the year, it is expected to be 9.2% in 2022, 3.3% in 2023 and 2.2% in 2024. Inflation is continuing to surge on the back of further large supply shocks which are feeding through to consumer prices at a faster pace than in the past. Headline HICP inflation is expected to stay above 9% for the rest of 2022, owing to extremely elevated energy and food commodity prices, together with upward pressures from the reopening of the economy, supply shortages and tight labour markets. The expected decline in inflation from an average of 8.1% in 2022 to 5.5% in 2023 and 2.3% in 2024 mainly reflects a sharp decline in energy and food price inflation as a result of negative base effects and an assumed decline in commodity prices, in line with futures prices. HICP inflation excluding energy and food is seen to remain at unprecedented high levels until the middle of 2023; that said, it is also expected to decline thereafter as the effects of the reopening of the economy subside and supply bottlenecks and energy input cost pressures ease. Headline inflation is expected to remain above the ECB's target of 2% in 2024. This is due to lagged effects from high energy prices on the non-energy components of inflation, the recent depreciation of the euro, robust labour markets

and some effects of inflation compensation on wages, which are expected to grow at rates well above historical averages. Compared with the June 2022 Eurosystem staff projections, headline inflation has been revised up substantially for 2022 (by 1.3 percentage points) and 2023 (2.0 percentage points), and slightly for 2024 (0.2 percentage points). This reflects recent data surprises, dramatic increases in the assumptions for wholesale gas and electricity prices, stronger wage growth and the recent depreciation of the euro. These effects more than offset the downward impact of the recent decline in food commodity prices, supply bottlenecks proving less severe than previously assumed and the weaker growth outlook.

Chart 14

Euro area HICP inflation and HICPX (including projections)

(annual percentage changes)



Sources: Eurostat and ECB staff macroeconomic projections for the euro area (September 2022).

Notes: The vertical line indicates the start of the projection horizon. The latest observations are for the second quarter of 2022 (data) and the fourth quarter of 2024 (projections). The cut-off date for data included in the projections was 25 August 2022. Historical data for HICP inflation and HICPX are at quarterly frequency. Forecast data are at quarterly frequency for HICP inflation and annual frequency for HICPX.

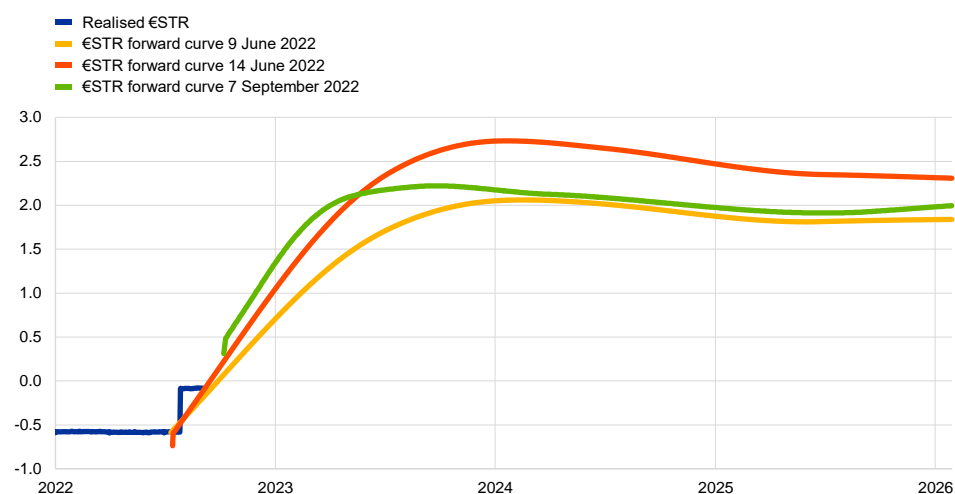
4 Financial market developments

Over the review period (9 June to 7 September 2022) euro area asset prices were volatile as market participants pondered the implications of the high inflationary pressures and the risk of recession on the expected future course of central bank rate policy. Ultimately, euro area risk-free rates rose as market participants revised their expectations towards a faster and more pronounced monetary policy tightening. Long-term risk-free rates likewise rose. Sovereign bond yields increased in lockstep with risk-free rates, as sovereign spreads saw little change while displaying some volatility in selected countries. The higher rates and deteriorating growth outlook weighed on risky corporate assets, with European corporate bond spreads wider and equity prices lower on balance. The euro depreciated further in trade-weighted terms owing to euro area growth concerns, with the EUR/USD exchange rate slightly below parity.

Since the June Governing Council meeting, the euro area short-term risk-free rates rose as market participants revised their expectations towards a faster and more pronounced tightening of monetary policy. Over the review period, the €STR averaged -34 basis points and excess liquidity decreased by approximately €39 billion to €4,578 billion. The overnight index swap (OIS) forward curve – based on the benchmark €STR – displayed a volatile pattern. Overall, as inflation concerns outweighed the rising risk of recession, the OIS forward curve increasingly pointed towards expectations for a faster and more pronounced tightening of the ECB’s rate policy (Chart 15). At the end of the review period, the OIS forward curve priced in cumulative hikes amounting to around 150 basis points by the end of 2022 and peaking at approximately 2.2% in late 2023.

Chart 15
€STR forward rates

(percentages per annum)



Sources: Thomson Reuters and ECB calculations.

Note: The forward curve is estimated using spot OIS (€STR) rates.

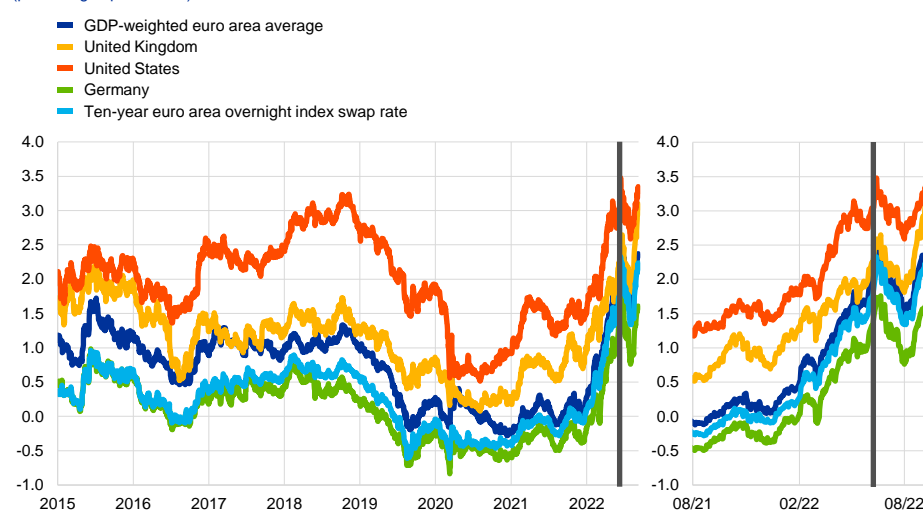
Long-term bond yields increased in response to the market reassessment of the expected future monetary policy path (Chart 16). Over the review period,

global longer-term bond yields fluctuated markedly as market participants continuously reassessed expectations for central bank policy in response to any news about inflation and the growth outlook. On balance, euro area long-term bond yields rose somewhat: the euro area GDP-weighted average ten-year sovereign bond yield increased to stand at about 2.3%, 16 basis points higher than at the time of the June Governing Council meeting. Likewise, the ten-year US, UK and German sovereign bond yields rose 22, 71 and 14 basis points to about 3.3%, 3.0% and 1.6% respectively.

Chart 16

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

(percentages per annum)



Sources: Refinitiv and ECB calculations.

Notes: The vertical grey line denotes the start of the review period on 9 June 2022. The latest observations are for 7 September 2022.

Euro area sovereign bond yields moved roughly in line with risk-free rates, and sovereign spreads remained almost unchanged (Chart 17). While risk-free rates fluctuated markedly over the review period, the ten-year GDP-weighted euro area sovereign spread over the OIS rate remained relatively stable, decreasing by 12 basis points. At the end of the review period, changes in individual sovereign spreads differed somewhat across countries. For example, the Italian and Portuguese ten-year sovereign bond spreads narrowed by 10 and 29 basis points respectively, while the German ten-year Bund spread fell by a further 14 basis points. At the same time, Italian spreads showed a volatile pattern amid the escalation of the internal political crisis, albeit entailing limited spillovers to other sovereigns.

Chart 17

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

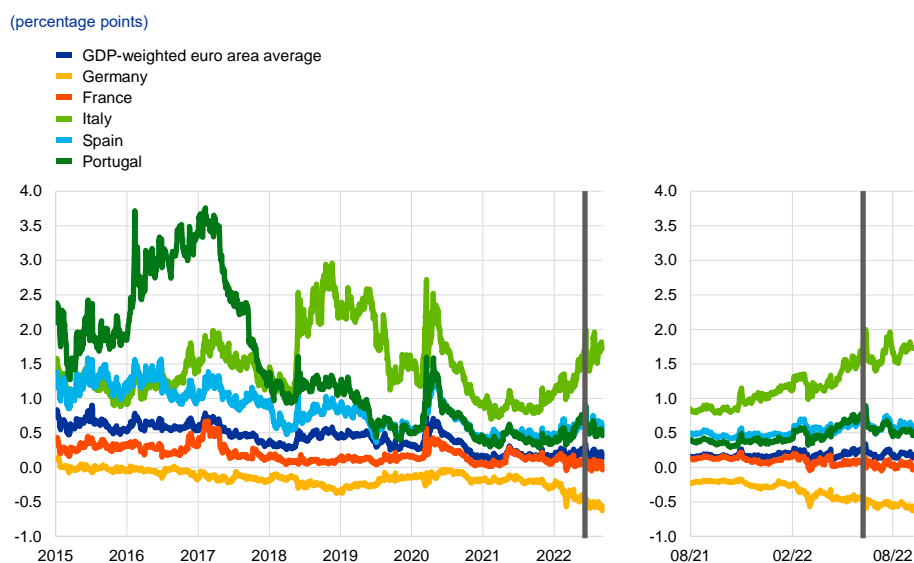
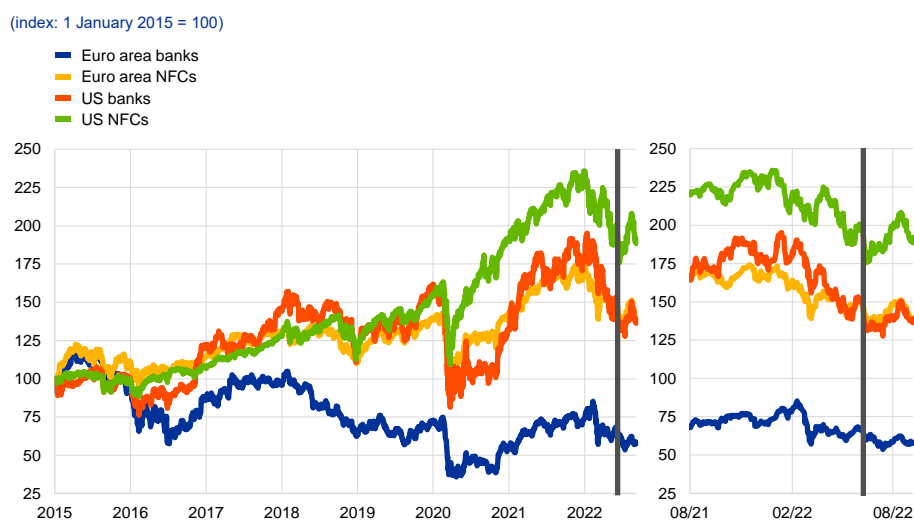


Chart 18

Euro area and US equity price indices



Growing concerns about the economic outlook and tightening monetary policy continued to weigh on euro area corporate bond spreads, which widened overall during the review period. Over the review period, concerns about a slowdown in economic growth ahead, some downgrades in earnings expectations and tighter expected monetary policy resulted in somewhat wider spreads. On balance, spreads on high-yield corporate bonds widened by 18 basis points, while spreads on investment-grade corporate bonds showed some resilience and ended the review period 2 basis points wider.

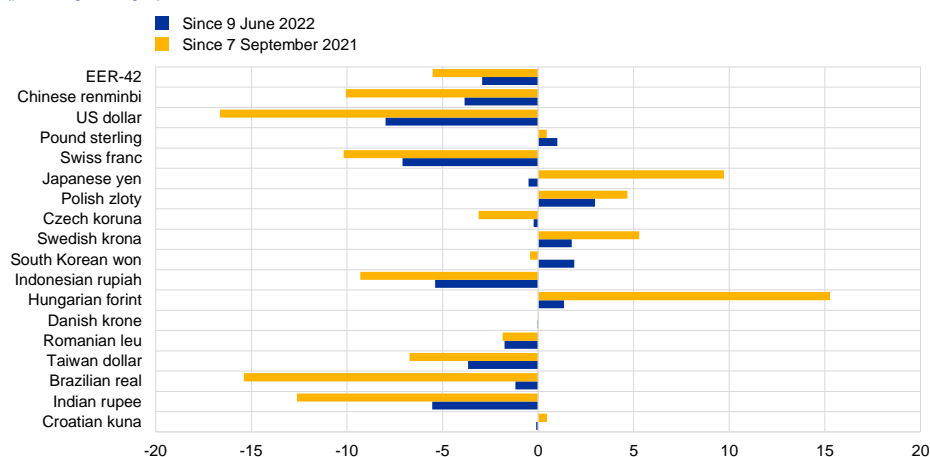
European equity markets fell over the review period, driven by similar factors to those affecting corporate bond markets (Chart 18). European equity markets fluctuated throughout the review period, as markets were sensitive to any news about the inflation and growth outlooks and their implications for global central bank rate policies. Ultimately, euro area equity markets fell overall during the review period. Specifically, equity prices of euro area non-financial corporations (NFCs) and banks decreased by 5.7% and 11.3% respectively. Stock prices were negatively affected by some downward revisions to earning expectations, by the sizeable downgrades to real euro area expected GDP growth, possibly not yet fully reflected in earnings expectations, and by the higher level of long-term interest rates. This decline in the stock prices of NFCs and banks was cushioned by the decline in the equity risk premium (see Section 5). In the United States as well, higher interest rates and fears of a recession led to a 3.1% decrease in the equity prices of banks, but only a 0.8% decrease in those of NFCs, proving the latter to be more resilient.

In foreign exchange markets, the euro continued to depreciate in trade-weighted terms (Chart 19). Overall, during the review period, the nominal effective exchange rate of the euro, as measured against the currencies of 42 of the euro area’s most important trading partners, weakened by 2.9%. The broad euro weakness was also reflected in an 8% depreciation of the euro against the US dollar, trading slightly below parity at the end of the review period, amid rising concerns about the euro area growth outlook and faster monetary policy tightening in the United States. The euro also depreciated against the Swiss franc and the Japanese yen by 7.1% and 0.5% respectively, but appreciated by 1% against the pound sterling. The euro also weakened against the currencies of most emerging market economies, including the Indian rupee (by 5.5%) and the Chinese renminbi (by 3.8%).

Chart 19

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

(percentage changes)



Source: ECB.

Notes: EER-42 is the nominal effective exchange rate of the euro against the currencies of 42 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 7 September 2022.

5 Financing conditions and credit developments

Bank lending rates and bank funding conditions have increased since the end of May, as policy normalisation continues. The growth rate of loans to firms was strong in nominal terms and lending to households was solid but with incipient signs of moderation. Over the period from 9 June to 7 September, the cost of equity for firms declined sizeably, while the cost of market-based debt financing increased. The total volume of external financing for firms rose, mainly reflecting increased bank borrowing. Broad money growth continued on a moderating trend, reflecting the end of the Eurosystem's net asset purchases in July and the higher energy bill of euro area households and firms which reduces disposable income.

The funding costs of euro area banks were overall higher in recent months, as policy normalisation continued. The steep upward trend in the composite cost of the debt financing of euro area banks seen at the start of 2022 paused in July (Chart 20, panel a). Since the beginning of 2022, increasing risk-free rates have led to rising yields on bank bonds to levels exceeding those seen before the start of the asset purchase programme in 2015, despite some volatility since the June Governing Council meeting (Chart 20, panel b). With the recent interest rate hike in July 2022, the ECB brought an end to the negative interest rates for the first time in eight years. Most banks have begun increasing remuneration on their customer deposits, which account for a sizeable share of euro area banks' funding.

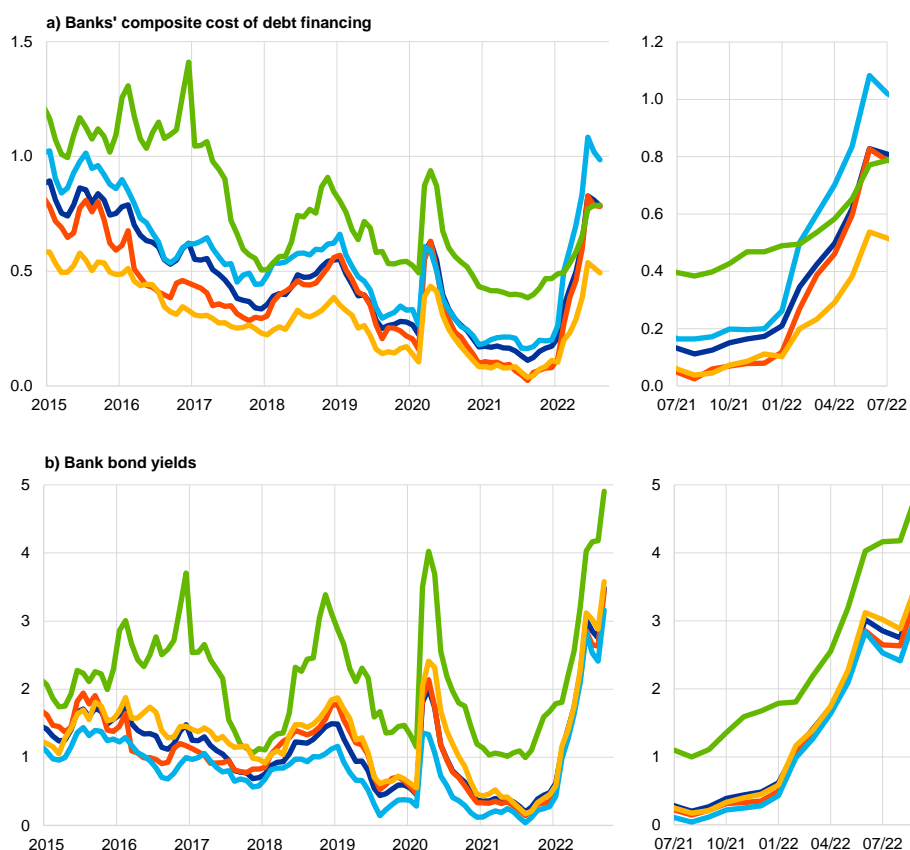
The balance sheets of banks were overall robust but are starting to reflect the weakening economic environment. Bank capital ratios returned to their lower pre-pandemic levels. Moreover, bank profitability is supported by higher net interest income, as policy normalisation continues. While banks also made further progress in reducing their non-performing loan ratios, some measures of asset quality have deteriorated. The recent decline in bank price-to-book ratios points to some deterioration in the outlook for banks, amid the weakening economic prospects and increasing credit risk.

Chart 20

Composite bank funding rates in selected euro area countries

(annual percentages)

- Euro area
- Germany
- France
- Italy
- Spain



Sources: ECB, IHS Markit iBoxx indices and ECB calculations.

Notes: Composite bank funding rates 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 July 2022 for composite bank funding rates and 7 September 2022 for bank bond yields.

Bank lending rates for firms and households have increased further since the end of May, as banks tighten their loan supply. The sharp increase in risk-free rates and in euro area government bond yields since the beginning of 2022 has pushed up lending rates, especially those of households for house purchase (Chart 21). The composite bank lending rate for loans to households for house purchase showed another strong increase in July and stood at 2.15%. The monthly increase of 18 basis points has brought mortgage rates up by a cumulated 84 basis points since the beginning of the year. Meanwhile, bank lending rates for loans to non-financial corporations (NFCs) were more volatile and decreased slightly by 6 basis points to 1.77% in July, having increased by 41 basis points since the start of 2022. For the coming months, available evidence suggests a further increase in the lending rates

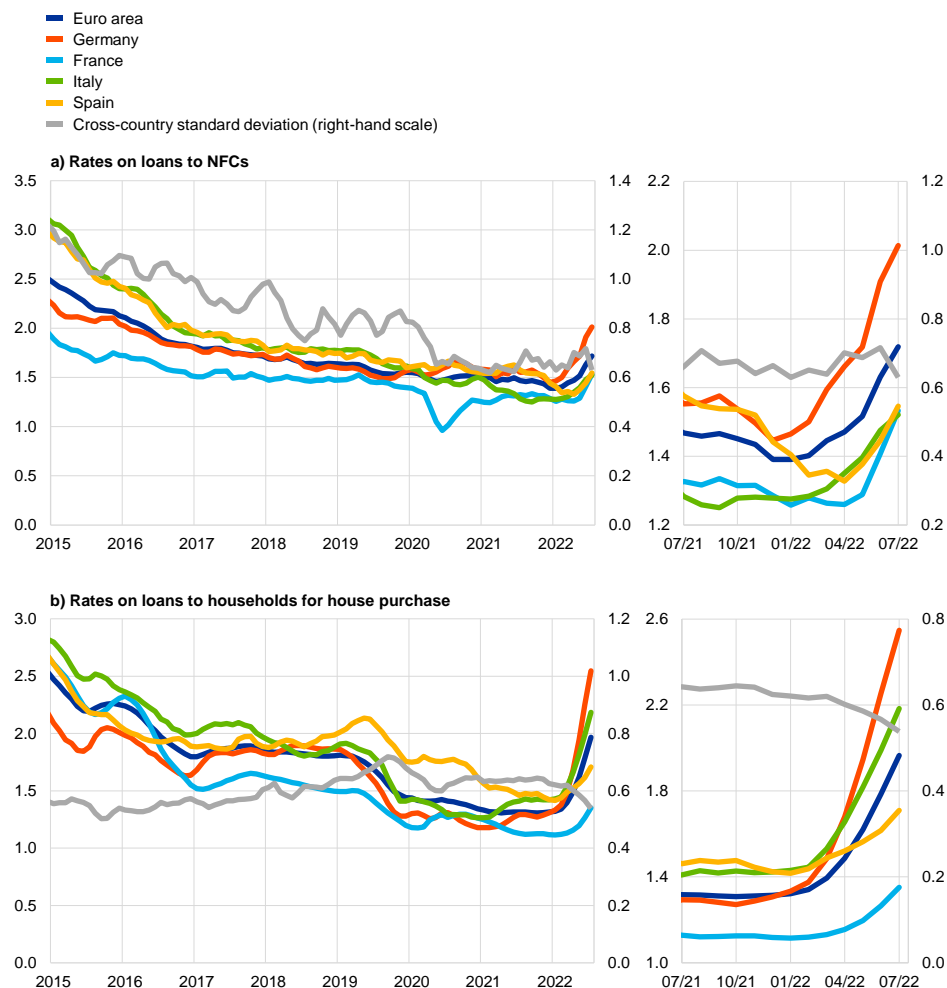
for firms based on the marked increase recorded by diffusion indices.⁵ On the supply side, lending rate developments reflect a tightening of credit standards on loans to firms and households, as indicated by the July [euro area bank lending survey](#), since downside risks related to the economic outlook have increased and policy normalisation is under way. On the demand side, higher energy prices have driven firms' financing needs up and adversely affected households' budgets, in particular those of low-income households. Moreover, according to the [Consumer Expectations Survey](#), consumers lowered their expectations for economic growth, and increased their expectations for becoming unemployed. The spread between bank lending rates on very small loans and on large loans was close to pre-pandemic levels, suggesting that bank-based financing conditions for small and medium-sized enterprises have remained favourable in relative terms. Moreover, the cross-country dispersion of lending rates to firms and households has remained contained (Chart 21, panels a and b).

⁵ These indices, which are computed from micro data, measure the net number of banks that are raising lending rates for firms and tend to have leading indicator properties.

Chart 21

Composite bank lending rates for NFCs and households in selected countries

(annual percentages, three-month moving averages; standard deviation)



Source: ECB.

Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for July 2022.

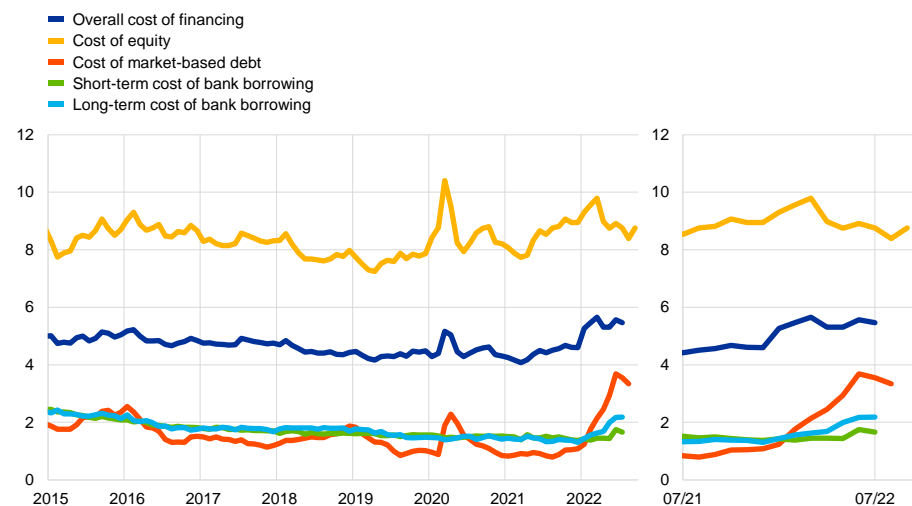
Over the period from 9 June to 7 September 2022, the cost of equity financing for NFCs declined sizeably, while the cost of market-based debt issuance increased. Due to lags in the data available for the cost of bank borrowing, the overall cost of financing for NFCs, comprising the cost of bank borrowing, the cost of market-based debt and the cost of equity, can be calculated only up to July 2022, when it increased to 5.5% from 5.3% in May. This was mainly the result of a substantial increase in the cost of market-based debt, with the cost of bank borrowing (Chart 22) also contributing to the increase in the overall cost of financing, albeit to a lesser extent. The cost of equity remained virtually unchanged until July 2022. The July 2022 data remained close to the peak recorded earlier in the year and significantly above the levels seen in the previous two years. Over the period from 9 June to 7 September, the cost of equity declined by around 15 basis points, while the cost of market-based debt increased by around the same amount. The slight decline in the cost of equity is attributable to a decline in the equity risk

premium that more than compensated for the impact of a higher risk-free rate on the cost of equity. The increase in the risk-free rate also contributed to the increase in the cost of market-based debt. Spreads on bonds issued by NFCs declined marginally in the investment grade segment but widened largely in the high-yield segment.

Chart 22

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

(annual percentages)



Sources: ECB and ECB estimates, Eurostat, Dealogic, Merrill Lynch, Bloomberg and Thomson Reuters.

Notes: The overall cost of financing for NFCs is calculated as a weighted average of the cost of borrowing from banks, market-based debt and equity, based on their respective outstanding amounts. The latest observations are for 7 September 2022 for the cost of market-based debt (monthly average of daily data), 2 September 2022 for the cost of equity (weekly data) and July 2022 for the overall cost of financing and the cost of borrowing from banks (monthly data).

The growth rate of loans to firms was strong in July, while lending to

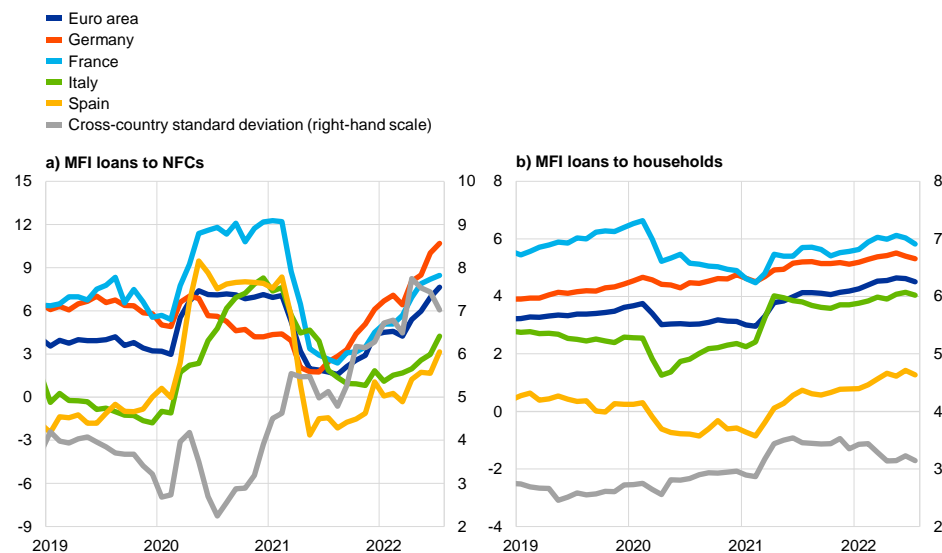
households moderated.

The annual growth rate of loans to NFCs accelerated to 7.7% in July, from 6.9% in June and 6.0% in May (Chart 23, panel a). This once again reflected a large base effect that was mainly related to longer maturities. Shorter-term loans continued to make a large contribution given the persistence of supply chain bottlenecks, higher input costs and increased uncertainties, all of which raise firms' working capital needs. To some extent, the resilience of loan growth also reflects a move away from the issuance of debt securities, with market-based funding conditions having tightened more sharply than bank-based funding conditions. The annual growth rate of loans to households moderated slightly to 4.5% in July, following three steady monthly rates of 4.6% (Chart 23, panel b). This was mainly owing to weaker lending for house purchase and consumption.

Chart 23

MFI loans in selected euro area countries

(annual percentage changes; standard deviation)



Source: ECB.

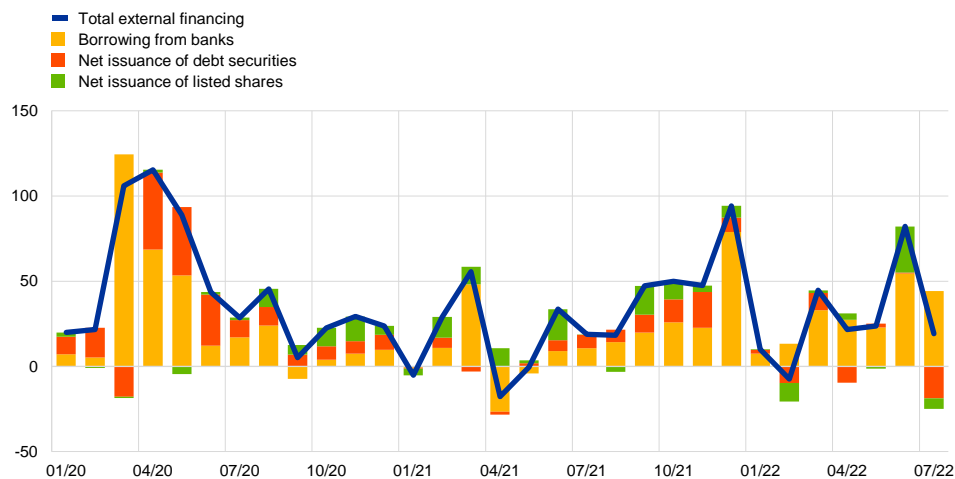
Notes: Loans from monetary financial institutions (MFIs) are adjusted for loan sales and securitisation; in the case of NFCs, loans are also adjusted for notional cash pooling. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for July 2022.

The total volume of external financing for firms increased further, mainly reflecting bank borrowing.

The annual growth rate of external financing increased from 2.4% in March to 3.2% in July, reflecting greater financing needs of firms, in particular the short-term needs of energy-intensive firms. This increase was most notable in the summer months and followed a series of relative moderate flows over the first five months of this year (Chart 24). Since the beginning of 2022, external financing flows have been strongly supported by higher volumes of bank loans to firms, while net issuance of debt securities was weak, reflecting an increase in the relative cost of market-based debt financing. The issuance of listed shares was overall muted but picked up in June, driven by the activities of energy-intensive firms, only to turn negative again in July. This reversal is explained by a recent increase in the share of buybacks and a decline in the value of mergers and acquisitions.

Chart 24**Net external financing flows for euro area NFCs**

(monthly flows in EUR billions)



Sources: ECB, Eurostat, Dealogic and ECB calculations.

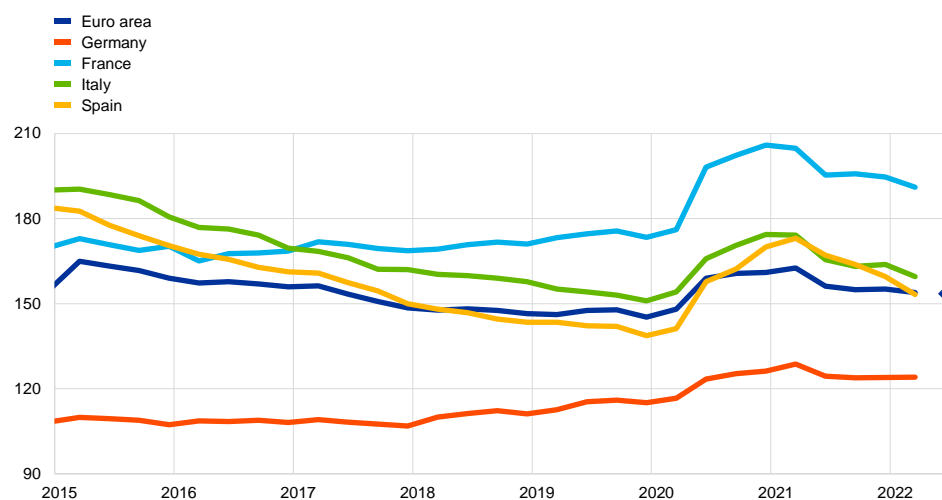
Notes: Net external financing is the sum of borrowing from banks (MFI loans), net issuance of debt securities and net issuance of listed shares. MFI loans are adjusted for loan sales, securitisation and cash-pooling activities. The latest observations are for July 2022.

Gross indebtedness of euro area NFCs moderated further from the high levels observed during the pandemic (Chart 25). The gross debt ratio, in terms of firms' value added, decreased by 2.8 percentage points in the second quarter of 2022 as compared to the ratio one year ago. This occurred on the back of strong growth in value added, thereby reducing the increase since the end of 2019 to 8.2 percentage points. The broadly based increase in NFC gross indebtedness since early 2020 is related to firms' greater recourse to debt financing, especially in the first phase of the COVID-19 pandemic, where gross debt increased unevenly across firm types and countries. These developments mask differences in firms' exposure to the pandemic and the national policy response. In comparison to the last phase of interest rate hikes in 2011, debt ratios in the more vulnerable countries are lower and should help to contain fragmentation risk on the corporate side. Although corporate balance sheets in most countries are currently healthier than they were during the European sovereign debt and banking crisis, the level of gross indebtedness of NFCs is still elevated in a historical context, implying that the sensitivity of firms to adverse shocks remains substantial. Hence, in view of deteriorating economic prospects and ongoing inflationary pressures, the resilience of firms is likely to also depend on continued policy support, in particular from fiscal authorities.

Chart 25

Gross indebtedness of NFCs in selected euro area countries

(percentages of NFC gross value added)



Sources: ECB, Eurostat and ECB estimates.

Notes: Debt is defined as the sum of total loans granted to NFCs net of intra-sectoral lending, debt securities issued and pension liabilities. The blue diamond indicates the nowcast for the second quarter of 2022. Otherwise, the latest observations are for the first quarter of 2022.

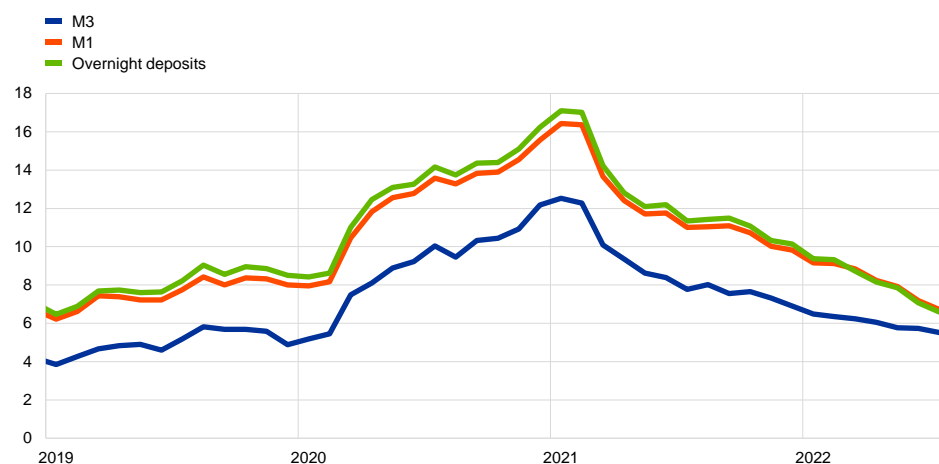
The pace of overnight deposit accumulation has slowed from the high levels that were observed during the pandemic (Chart 26). The annual growth rate of overnight deposits decreased to 6.6% in July, from 7.1% in June. Although higher costs for food and energy put pressure on firms' cash buffers and households' capacity to increase savings, there were sizeable monthly inflows into M3 deposits of firms and households in July, bringing their short-term dynamics close to pre-pandemic levels.⁶ The recent recovery in these deposits likely reflects precautionary motives amid the deteriorating economic outlook. At the same time, growth in the deposit holdings of firms and households has varied across countries, reflecting differences in their liquidity needs and national fiscal support measures.

⁶ See the box entitled "Household saving during the COVID-19 pandemic and implications for the recovery of consumption", *Economic Bulletin*, Issue 5, ECB, 2022.

Chart 26

M3, M1 and overnight deposits

(annual growth rate, adjusted for seasonal and calendar effects)



Source: ECB.

Note: The latest observations are for July 2022.

Broad money (M3) growth continued to moderate towards its long-term average in July.

The pace of annual M3 growth has slowed since the peak observed at the height of the pandemic. In July the annual growth rate of M3 declined to 5.5%, from 5.7% in June (Chart 26). The moderation in annual M3 growth reflects the end of the Eurosystem's net asset purchases in July 2022 and further increases in the energy bill of euro area households and firms which reduces disposable income. On the components side, the main driver of the moderation in M3 growth were overnight deposits included in the narrow aggregate M1, while time deposits included in the broader monetary aggregate M3 strengthened in July. On the counterparts side, credit to the private sector made the largest contribution to annual M3 growth. The positive contribution from the Eurosystem's purchases of government securities under the asset purchase programme and the pandemic emergency purchase programme decreased further. Meanwhile, net monetary outflows to the rest of the world continued to dampen money growth. This is mainly attributable to the adverse impact of higher energy prices on the euro area trade balance.

6 Fiscal developments

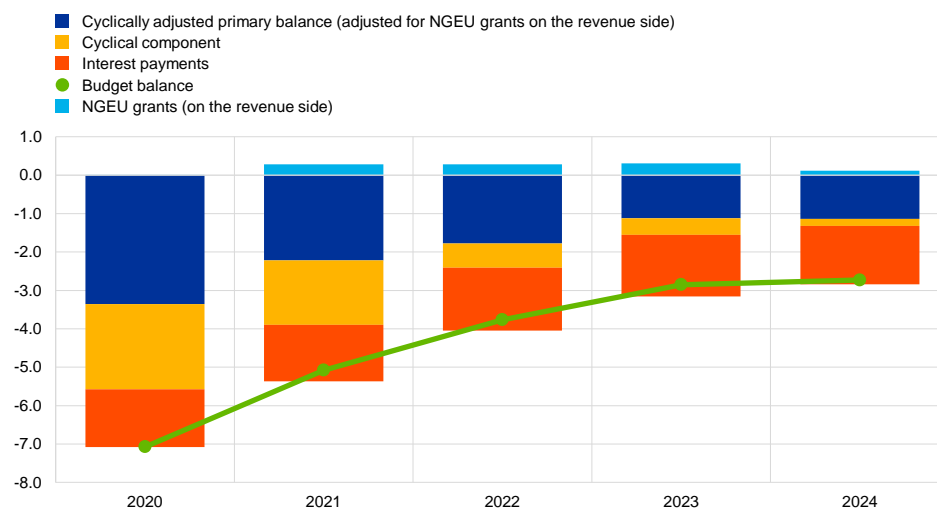
According to the September 2022 ECB staff macroeconomic projections, the euro area budget balance is projected to improve steadily in the period up to 2024, although by somewhat less than foreseen in the June projections. However, the fiscal projections continue to be surrounded by high levels of uncertainty, mainly related to the war in Ukraine and developments in energy markets that could lead governments to adopt additional fiscal stimulus measures. Recently, such fiscal support measures have been largely aimed at countering the rising cost of living for consumers, in particular for energy. Moreover, the financing of new defence capacities and support for refugees from Russia's war in Ukraine have also played a role. Nevertheless, the euro area government budget deficit is expected to continue to fall – from 5.1% of GDP in 2021 to 3.8% in 2022 and then to 2.7% by the end of the forecast horizon. Following the strong fiscal loosening in response to the coronavirus (COVID-19) crisis in 2020, the fiscal stance tightened last year and is projected to continue to tighten somewhat, in particular in 2023, and to be neutral in 2024. In a context of heightened uncertainty and downside risks to the economic outlook owing to the war in Ukraine, as well as energy price increases and continued supply chain disturbances, on 23 May 2022 the European Commission recommended extending the general escape clause of the Stability and Growth Pact (SGP) to the end of 2023. This would allow fiscal policies to adjust to changing circumstances if necessary. At the same time, with fiscal imbalances still exceeding their pre-pandemic levels and inflation exceptionally high, fiscal policy needs to be increasingly selective and targeted in order to avoid adding to medium-term inflationary pressures, while ensuring fiscal sustainability over the medium term.

According to the September 2022 ECB staff macroeconomic projections, the euro area general government budget balance will continue to improve over the forecast horizon.⁷ The general government deficit-to-GDP ratio for the euro area declined to 5.1% of GDP in 2021, after having reached an unprecedented 7.1% in 2020. It is projected to fall further to 3.8% of GDP in 2022 and then to 2.9% and 2.7% respectively in 2023 and 2024 (Chart 27). From 2022 the continued improvement in the budget balance is projected to be driven by the economic cycle and a higher cyclically adjusted primary balance, as a large share of the pandemic emergency measures have started to expire and new measures are less sizeable. Over the whole forecast horizon, euro area aggregate interest payments as a ratio of GDP will still be broadly in line with those observed between 2019 and 2021. This reflects the fact that, although interest rates on new issuances of sovereign debt have risen significantly, these are close to the average rate of interest paid on the existing stock of debt.

⁷ See “[ECB staff macroeconomic projections for the euro area, September 2022](#)”, published on the ECB's website on 8 September 2022.

Chart 27**Budget balance and its components**

(percentages of GDP)



Sources: ECB and September 2022 ECB staff macroeconomic projections.

Note: The data refer to the aggregate general government sector of euro area countries.

The euro area fiscal stance started tightening in 2021 and is expected to continue to do so until 2023, but to be broadly neutral in 2024.⁸

In 2022 the slight tightening of the fiscal stance is mainly owing to a continued withdrawal of a significant part of the pandemic emergency support, which will be only partially offset by additional expansionary measures. These additional measures amount to around 1.4% of GDP in 2022 (around 0.3 percentage points more than in the June projections). They are aimed at countering the rising cost of living for consumers, as well as financing higher defence capacity and supporting refugees from the war in Ukraine. Moreover, non-discretionary factors, which stem from an only partial reversal of the strong revenue windfalls from 2021, are also projected to lessen the tightening in 2022 and to continue to do so over the remainder of the forecast horizon. Nevertheless, the fiscal tightening is projected to be somewhat larger in 2023, when most of the support measures are expected to have expired. A broadly neutral stance is forecast for the end of the horizon, although significant support to the economy will remain in place.⁹

The overall euro area budget balance for 2022 has not been revised for 2022, but a somewhat more adverse outcome is expected thereafter. Compared with the June 2022 Eurosystem staff macroeconomic projections, the euro area budget

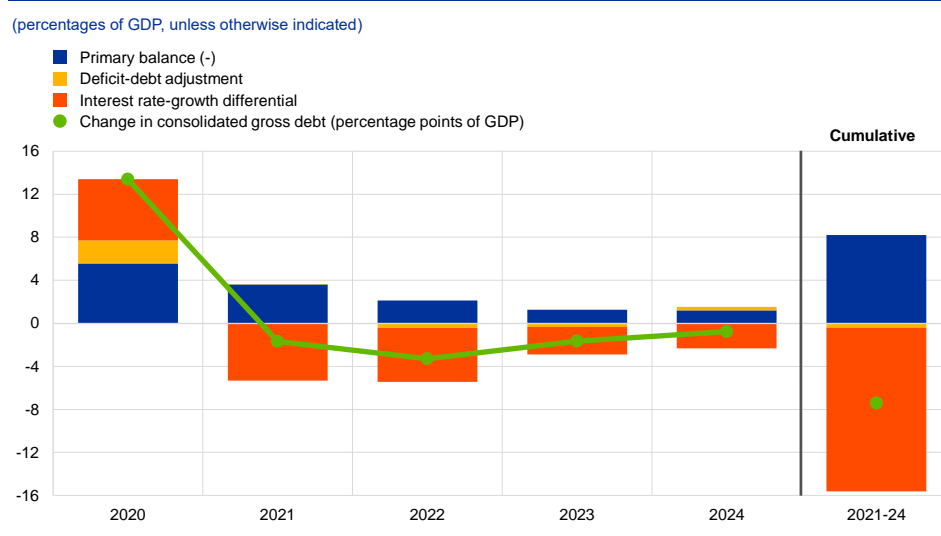
⁸ The fiscal stance reflects the direction and size of the stimulus from fiscal policies to the economy beyond the automatic reaction of public finances to the business cycle. It is measured here as the change in the cyclically adjusted primary balance ratio net of government support to the financial sector. Given that the higher budget revenues related to NGEU grants from the EU budget do not have a contractionary impact on demand, the cyclically adjusted primary balance is in this context adjusted to exclude those revenues. For more details on the euro area fiscal stance, see the article entitled “The euro area fiscal stance”, *Economic Bulletin*, Issue 4, ECB, 2016.

⁹ The euro area aggregate fiscal stance, adjusted for revenues related to NGEU grants (as of 2021), is estimated at -4.2 percentage points of GDP in 2020 and +1.1 percentage points of GDP in 2021. It is projected to stand at +0.1, +0.7 and 0.0 percentage points of GDP in 2022, 2023 and 2024 respectively. Compared to the June 2022 projections, it has remained broadly unchanged for 2022 and has been revised upwards (downwards) by 0.1 percentage points for 2023 (2024).

balance-to-GDP ratio has remained broadly unchanged in 2022, as temporary extra stimulus measures have been offset by an improvement in the cyclical component and the additional impact of non-discretionary factors reflecting stronger cash revenues. The budget balance for 2023 and 2024 has been revised downwards by 0.2 and 0.3 percentage points respectively, mainly owing to an expected weaker cyclical component.¹⁰

Following a large increase in 2020, euro area government debt-to-GDP is expected to fall slowly to just below 90% by 2024, but to remain above its pre-crisis level. After the debt ratio increased by about 13 percentage points to about 97% in 2020, a falling but still high primary deficit in 2021 is estimated to have been more than offset by a significant debt-reducing contribution from a favourable interest rate-growth differential, leading to a moderate reduction in the debt-to-GDP ratio. This ratio is projected to continue to decline slowly but steadily throughout the period from 2022 to 2024, as debt-increasing primary deficits will be outweighed by still favourable contributions from interest rate-growth differentials and, to a limited extent in the first two years, from deficit-debt adjustments (Chart 28). At the end of the projection horizon in 2024, the debt-to-GDP ratio is expected to stabilise at just below 90%, i.e. 6 percentage points above its pre-crisis level in 2019.

Chart 28
Drivers of change in euro area government debt



Sources: ECB and September 2022 ECB staff macroeconomic projections.
Note: The data refer to the aggregate general government sector of euro area countries.

The baseline fiscal projections continue to be surrounded by high levels of uncertainty, mainly related to the war in Ukraine and developments in energy markets. In terms of fiscal assumptions, risks to the current baseline are tilted towards additional fiscal stimulus in the near term. Such risks relate to further or extended compensatory energy measures and other spending related to the effects

¹⁰ Additional government support to compensate for higher energy prices and other spending in response to the war in Ukraine is estimated to amount to 0.9% of euro area GDP in 2022.

of the war, some of which were already announced by governments after the cut-off date for the current projections.

Fiscal measures are partly acting as a buffer to the shock from the war, but should be temporary and increasingly targeted, while limiting the risk of adding to inflationary pressures. In a context of heightened uncertainty and downside risks to the economic outlook owing to Russia's war in Ukraine, as well as energy price rises and continued supply chain disturbances, on 23 May 2022 the Commission recommended extending the SGP's general escape clause to the end of 2023.¹¹ This would allow fiscal policies to adjust to changing circumstances if necessary. It is, however, important that fiscal policies in all countries preserve debt sustainability. Moreover, any measures that governments implement to compensate households and companies should be clearly targeted and designed to limit the risk of adding to inflationary pressures in the economy. As described in the box entitled "[Policy responses to address high energy prices and ensure energy security](#)"¹² in this issue of the Economic Bulletin, energy measures should remain temporary and incentivise energy saving, while efficiently addressing the short-term challenges and protecting the most vulnerable households. Both horizontal tax cuts and untargeted transfers are less cost-efficient than spending measures which focus the benefit on the most vulnerable individuals.

¹¹ See Communication from the Commission to the European Parliament, the Council, the European Central Bank, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: 2022 European Semester – Spring Package ([COM/2022/600 final](#)), European Commission, 23 May 2022.

¹² See Box 1 of the article entitled "[Fiscal policies to mitigate climate change in the euro area](#)" in this issue of the Economic Bulletin.

Boxes

1 The role of public employment during the COVID-19 crisis

Prepared by Agostino Consolo and António Dias da Silva

Employment growth in the public sector has played an important role in supporting total employment during the coronavirus (COVID-19) pandemic.¹ In the first quarter of 2022, public employment was about 3.5% above pre-pandemic levels, compared with 0.6% in industry and 0.2% in market services (Chart A, panel a). Similarly, total hours worked in the public sector reached pre-pandemic levels in the first quarter of 2021 and were 1.7% above pre-pandemic levels in the first quarter of 2022. By contrast, total hours worked in the private sector remained 1.1% below pre-pandemic levels in the first quarter of 2022 (Chart A, panel b).² Looking at the largest countries, Germany, Spain and France have experienced a strong positive contribution from public employment, while the contribution in Italy has been more modest.

¹ In this box, we consider public employment to be all employment in activity sectors O to Q according to the classification used in Eurostat's EU Labour Force Survey, namely public administration, defence, education, human health and social work activities. In 2021, the public sector accounted for 25% of total employment and 23% of total hours worked in the euro area economy.

² Average hours worked tend to play an important role in the cyclical adjustment of the labour market in the euro area. See, for example, the article entitled "[Hours worked in the euro area](#)", *Economic Bulletin*, Issue 6, ECB, 2021.

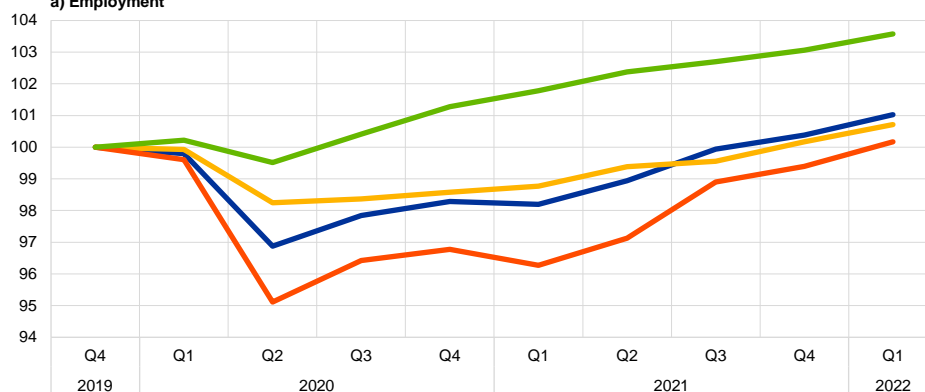
Chart A

Euro area employment and total hours across sectors

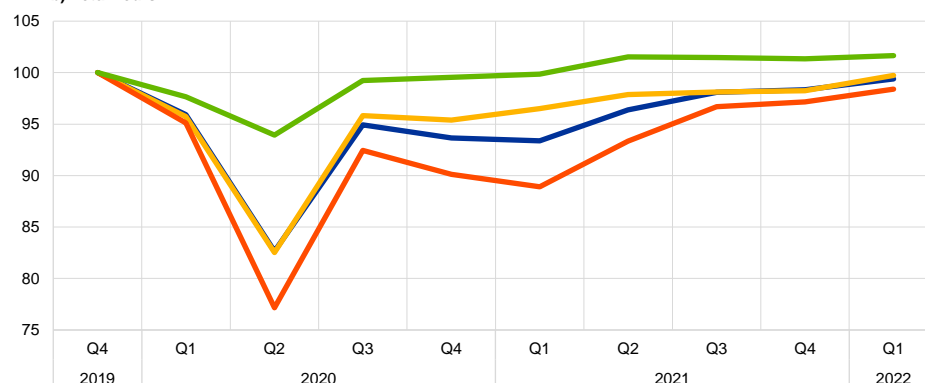
(index: Q4 2019 = 100)

■ Total economy
■ Industry
■ Market services
■ Public sector

a) Employment



b) Total hours



Source: Authors' calculations based on Eurostat data.
Note: The latest observations are for the first quarter of 2022.

While during past recessions in the euro area, employment in the public sector also increased more than in other sectors, the increase this time has been stronger than in past recessions. Chart B shows the different percentage point contributions to cumulative employment growth following the 2008 financial crisis and the euro area sovereign debt crisis. In both cases, public employment displayed a similar pattern to that observed in the COVID-19 pandemic recovery, contributing positively to total employment growth. However, the increase in public employment during the pandemic has been stronger than in past recessions. The positive contribution of public employment is mostly determined by the positive long-term trends in the health and education sectors (Chart C). These positive trends may be related to population ageing, calling for higher expenditure in health-related services, and to the increasing share of tertiary education over time. Health expenditure is higher across older cohorts, and an ageing society will call for greater expenditure on

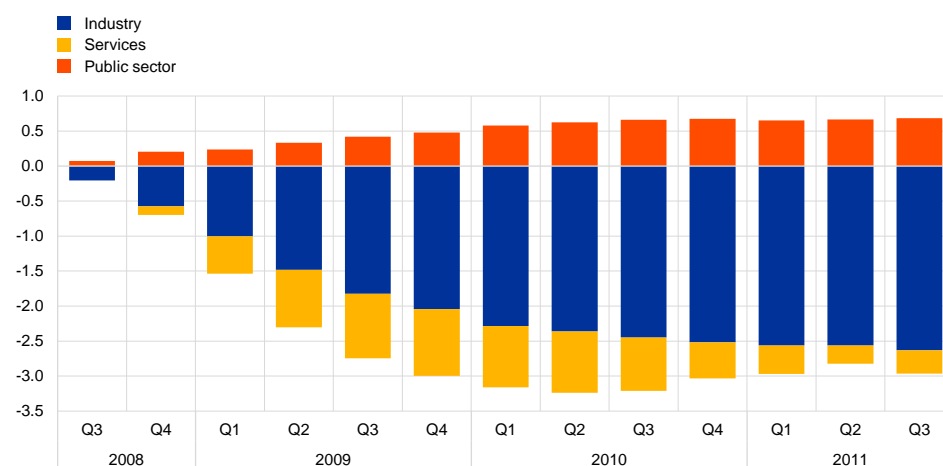
health services.³ In addition, across OECD countries, expenditure per student on primary to tertiary educational institutions grew at an average rate of 1.6% per year between 2012 and 2018, while the number of students remained stable.⁴

Chart B

Euro area employment in past recessions

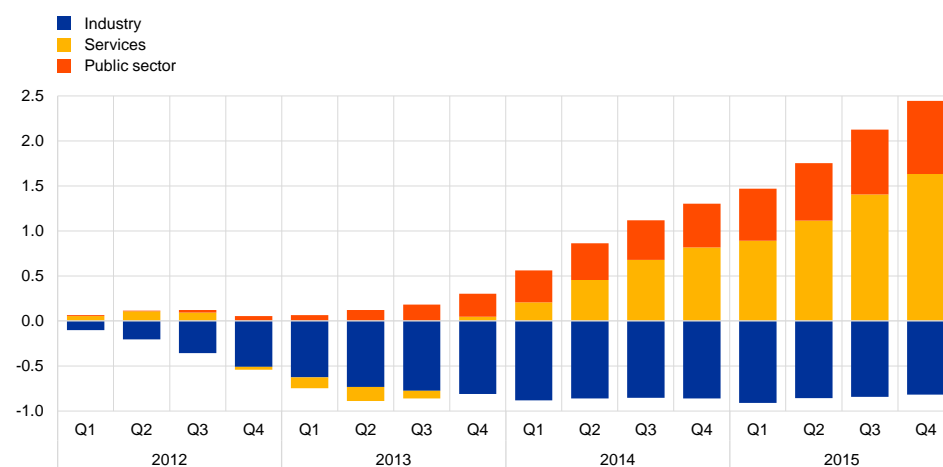
a) 2008 financial crisis

(index: Q2 2008 = 100)



b) Euro area sovereign debt crisis

(index: Q4 2011 = 100)



Source: Authors' calculations based on Eurostat data.

In contrast to past episodes, the increase in public employment during the pandemic is associated with a rise in the share of temporary workers. About two-thirds of the 3.1% contraction in total employment at the beginning of the pandemic was due to a 15% fall in temporary employment, driven by the decline in employment in the private sector. This is a normal feature of recessions, when

³ See, for instance, *Health at a Glance 2021: OECD Indicators*, OECD, 2021. Chapter 8 of this publication, entitled "Health workforce", shows an increase in the practising medical doctor/population ratio across OECD countries. See also, for instance, *Skills forecast: trends and challenges to 2030*, Cedefop reference series, No 108, Cedefop, Eurofound, 2018. This publication forecasts a higher demand for skills in the EU health sector in view of an ageing population.

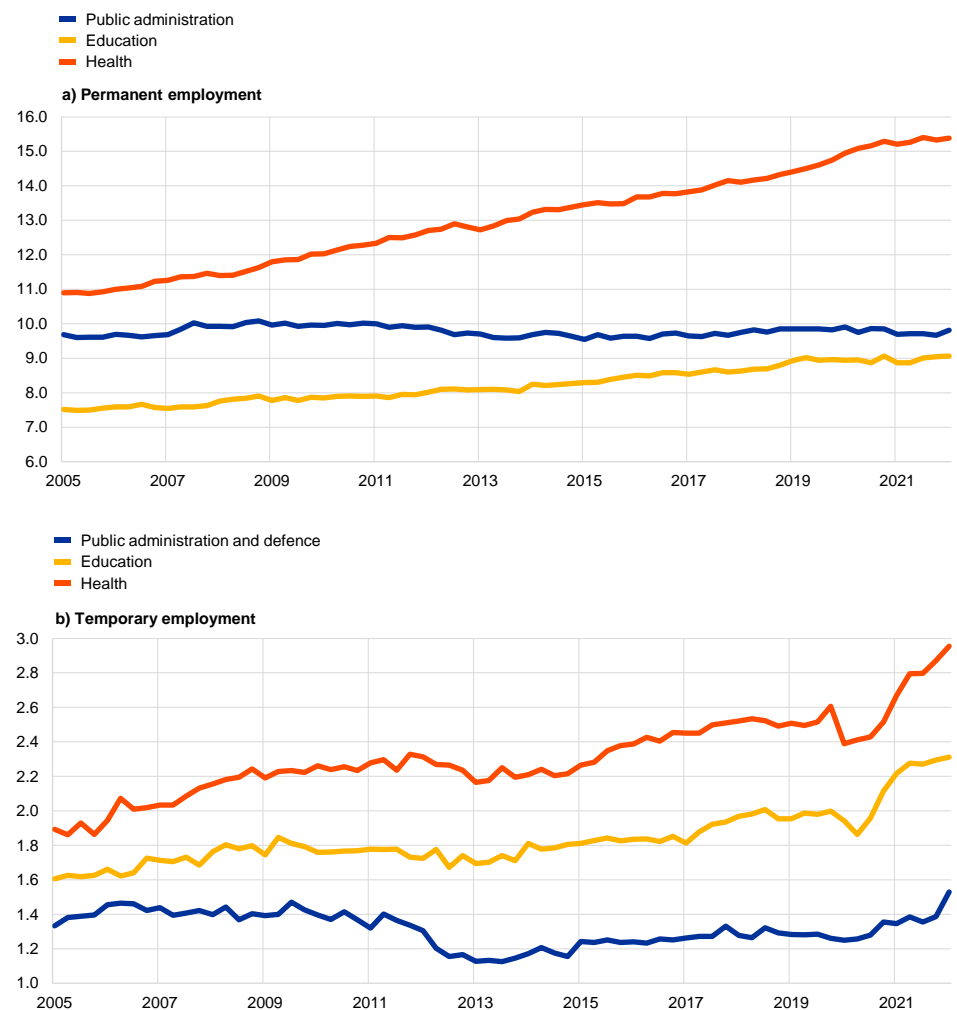
⁴ See *Education at a glance*, OECD, 2021.

employees with temporary contracts tend to be dismissed first or do not have their contracts renewed. However, temporary employment in the public sector during the COVID-19 crisis has behaved differently from that in the private sector and compared with previous crises. In the first quarter of 2022, it was 11.5% above the pre-pandemic level, and its share in total public sector employment had increased by 2 percentage points. This increase has been mostly concentrated in health and education (Chart C). The health and education sectors have added 1.4 million jobs (almost 1 million on temporary contracts), which is about 22% of the total employment creation since the second quarter of 2020. During the COVID-19 crisis the increase in hospitalisation, testing and vaccination rates, as well as the social distancing measures, may have led to higher temporary hiring rates in the health and education sectors to accommodate the temporary pandemic-related restrictions.

Chart C

Employment in public administration, education and health

(millions of persons)



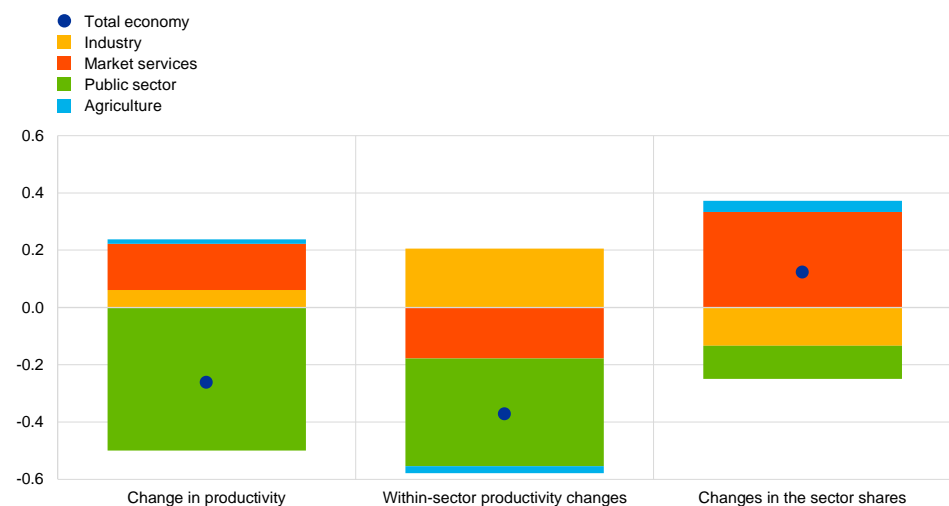
Source: Authors' calculations based on Eurostat data.
 Note: The latest observations are for the first quarter of 2022.

The increase in temporary workers in the public sector is likely to have contributed negatively to aggregate labour productivity. Over the COVID-19

pandemic period the contribution of the public sector to the change in overall labour productivity has been -0.5 percentage points (Chart D). Based on a shift-share analysis, most of the changes during the period from the fourth quarter of 2019 to the first quarter of 2022 were driven by changes within the public sector (-0.4 percentage points) and, to a lesser extent, by the increase in the share of public employment in the total economy. As a large part of employment growth within the public sector has been driven by the growth in temporary jobs, the productivity trend can be attributed to the strong rise in temporary employment in education and health. Employees on temporary contracts are typically paid less than permanent employees. Productivity figures for non-market activities are mainly affected by labour costs. An increase in temporary contracts – which are characteristic of jobs with lower skill content or lower seniority – could partly explain the decline in productivity growth in the public sector.⁵ Another contributing element is the decline in average hours worked.

Chart D
Change in productivity

(percentage changes during the period from Q4 2019 to Q1 2022)



Source: Authors' calculations based on Eurostat data.

Note: The chart shows a shift-share analysis of the cumulative growth rate of labour productivity per employee between changes within each sector and changes in the shares across sectors (change in the weight).

The increase in temporary employment in the public sector could be partly reversed once COVID-19-related health measures are phased out, but the effects of such a reversal would probably be limited to 0.2% of the euro area labour force. Temporary employment in the education and health sectors remains above the respective long-term trends.⁶ A reversal back to trend growth would imply a reduction in temporary jobs in the public sector of about 300,000 persons, potentially adding 0.2 percentage points to the euro area unemployment rate if these jobs are not reallocated to other sectors.

⁵ As gross value added is not available for the public sub-sectors, and public wage data are not available for temporary and permanent jobs, a quantitative decomposition of productivity is not feasible.

⁶ Statistical trends are estimated using the asymmetric Christiano-Fitzgerald band-pass filter and by removing the business cycle frequencies between six and 32 quarters.

2 COVID-19 and retirement decisions of older workers in the euro area

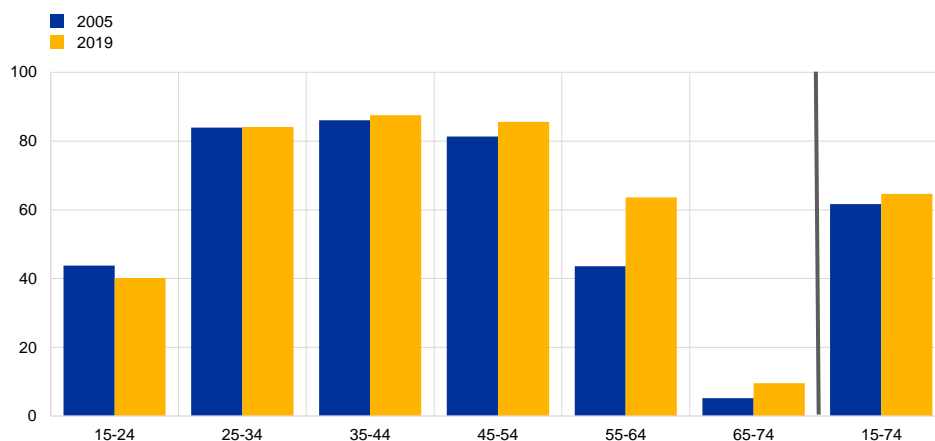
Prepared by Vasco Botelho and Marco Weißler

The increased activity of older workers has been a feature of the rise in the euro area labour force participation rate over the past 15 years. The euro area labour force participation rate increased from 61.7% in 2005 to 64.6% in 2019 (Chart A), driven primarily by the greater labour market activity of older workers. The participation rate for people aged between 55 and 64 increased by more than 21 percentage points over this period and by more than 4 percentage points for workers aged between 65 and 74. These developments are particularly important in the context of an ageing society, with the euro area labour force becoming older over time.¹ Workers aged 55 or older accounted for more than 20% of the labour force in 2021, up from 12% in 2005.

Chart A

Labour force participation rates in the euro area by age group

(percentages, age groups)



Sources: Eurostat, European Union Labour Force Survey (EU-LFS) and ECB staff calculations.

At least at first, the coronavirus (COVID-19) pandemic triggered a decrease in the labour market activity of older workers in the euro area (Chart B). The euro area labour market has recovered a long way since the trough reached during the pandemic, with some indicators even exceeding their pre-COVID-19 levels. While participation rates of older workers have exceeded pre-pandemic levels, they still fall short of what would be expected given the increasing activity of older workers observed in previous years.² Looking forward, the European Commission's 2021 Ageing Report projects that the participation rate of older workers will keep

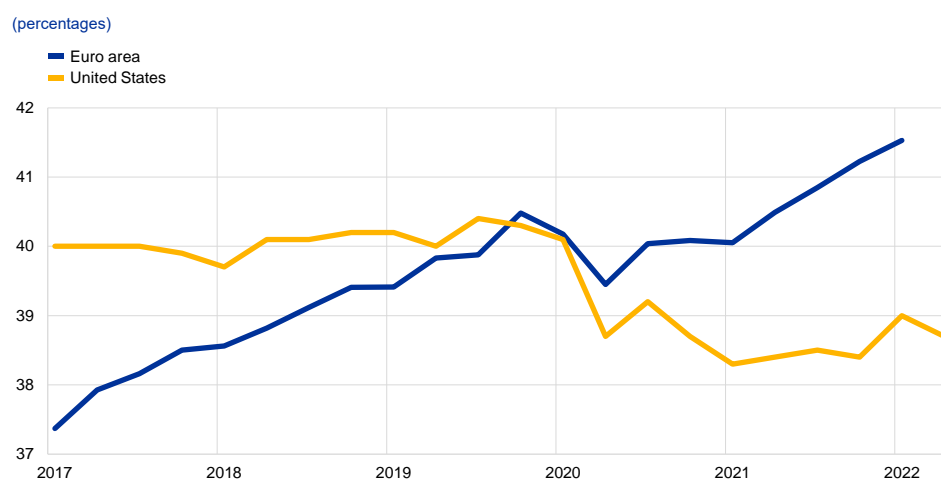
¹ See also the article entitled "Drivers of rising labour force participation – the role of pension reforms", *Economic Bulletin*, Issue 5, ECB, 2020, and Bodnár, K. and Nerlich, C., "The macroeconomic and fiscal impact of population ageing", *Occasional Paper Series*, No 296, ECB, June 2022.

² See the box entitled "Labour supply developments in the euro area during the COVID-19 pandemic", *Economic Bulletin*, Issue 7, ECB, 2021.

increasing until 2040, before slowly stabilising thereafter at over 72% for workers aged 55-64 and around 20% for workers aged 65-74.³ The recent developments in the euro area are in stark contrast with one frequently discussed observation for the United States. There, the labour force participation of older workers has not yet recovered to pre-pandemic levels. This is despite the US participation rate for older workers being broadly stable before the pandemic, while the rate in the euro area had steadily increased to match US levels by the end of 2019 and surpass them from 2020 onwards. Hence, while some people argue that the United States saw an excessive rate of early retirement and hence a permanently reduced participation rate during the pandemic, this effect is not directly observable in the euro area.⁴

Chart B

Labour force participation rates of older workers in the United States and the euro area



Sources: Eurostat, EU-LFS, U.S. Bureau of Labor Statistics Current Population Survey and ECB staff calculations.

Notes: Older workers are people aged 55-74 for the euro area and 55 and over for the United States.

The latest observations are for the first quarter of 2022 for the euro area and the second quarter of 2022 for the United States.

On aggregate, yearly transitions of older workers into retirement rose only marginally in 2020 following the outbreak of COVID-19. The number of retirees is rising in the euro area, albeit at a slow pace. The increase is largely in line with demographic trends such as the ageing of the population, with yearly rates of transition into retirement remaining broadly unchanged in 2020 compared with pre-pandemic levels (Chart C). There was only a limited number of excess retirees in the first year of the pandemic – irrespective of how much they were at risk of being infected at their workplace. In addition, there remains the possibility that some of those excess retirees might later re-join the labour market. In the United States, the share of retirees returning to the labour market has been moving back towards pre-crisis levels.⁵ This suggests that some older workers will gradually return to the

³ See “The 2021 Ageing Report”, *Institutional Paper*, No 148, European Commission, 2021. According to the report, this is mostly driven by a further catch-up in labour force participation of women and various potential pension reforms increasing the actual retirement age.

⁴ See Faria-e-Castro, M., “The COVID Retirement Boom”, *Economic Synopses*, No 25, Federal Reserve Bank of St. Louis, 2021, and Domash, A. and Summers, L.H., “How tight are U.S. labor markets?”, *NBER Working Paper Series*, No 29739, National Bureau of Economic Research, 2022.

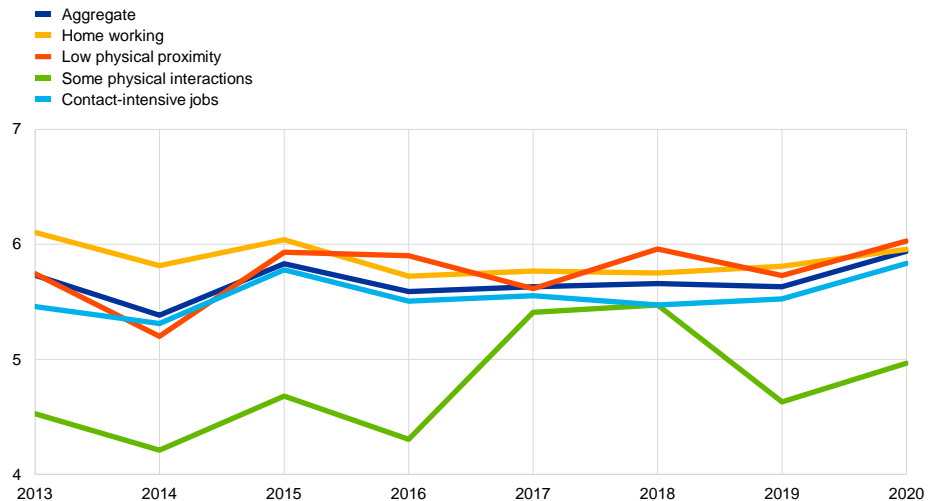
⁵ See, for example, Bunker, N., “‘Unretirements’ Continue to Rise as More Workers Return to Work”, *Indeed Hiring Lab*, April 2022.

labour market as the economy recovers, assuming that the health risks remain mitigated.

Chart C

Yearly transitions into retirement by occupation categories

(percentages)



Source: Eurostat, EU-LFS, O*NET and ECB staff calculations.

Notes: A worker transitioning into retirement is no longer active, has left their job over the last year and is considered to have left the job for (early) retirement. Under all definitions, workers are aged between 55 and 74, and retirement transitions are calculated as a share of the active population of people aged 55-74 in the previous year in all euro area countries. Occupation categories follow Basso, G., Boeri, T., Caiumi, A. and Paccagnella, M., "Unsafe jobs, labour market risk and social protection", *Economic Policy*, Vol. 37, Issue 110, 2022, pp. 229-267. This classification of occupations reflects the extent to which workers are at risk of being infected by airborne viruses.

More granular data show that the marginal increase in retirements affected around 175,000 workers, driven mostly by a shift in the timing of retirement decisions.

Any potential impact of the pandemic on the retirement transitions of older workers in the euro area is likely driven by various factors, such as lockdowns and associated containment measures, an increase in economic and health uncertainty, and the strong fiscal support and labour market policy actions involving the widespread use of job retention schemes. Using data from the Survey of Health, Ageing and Retirement in Europe (SHARE) for people aged 55-74 from March-April 2020 and June 2021, it is possible to quantify how the pandemic shaped the retirement decisions of some older workers.⁶ During this period, 70% of retirees reported retiring as initially planned, 23% earlier than planned and 7% later than

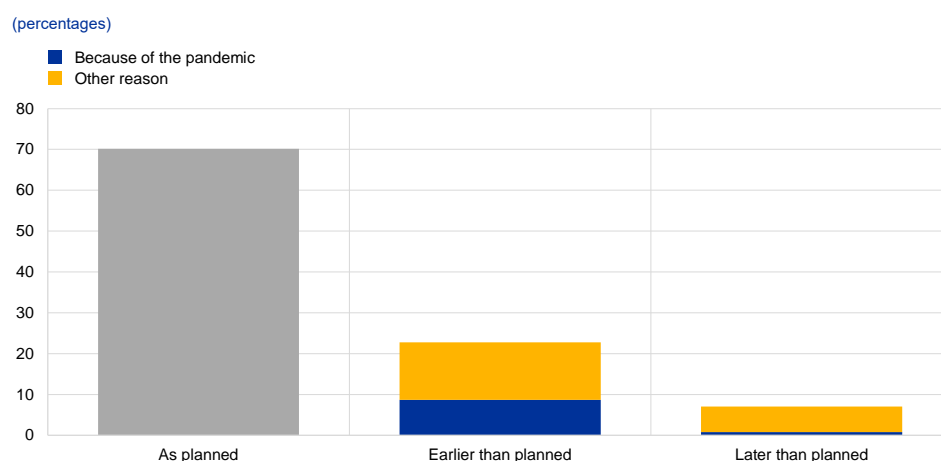
⁶ This paper uses data from SHARE Wave 9 (10.6103/SHARE.w9ca800); for details of the SHARE methodology, see Börsch-Supan, A. et al., "Data Resource Profile: The Survey of Health, Ageing and Retirement in Europe (SHARE)", *International Journal of Epidemiology*, Vol. 42, Issue 4, August 2013, pp. 992-1001.

The SHARE data collection has been funded by the European Commission, DG RTD through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-13: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812), FP7 (SHARE-PREP: GA N°211909, SHARE-LEAP: GA N°227822, SHARE M4: GA N°261982, DASISH: GA N°283646) and Horizon 2020 (SHARE-DEV3: GA N°676536, SHARE-COHESION: GA N°870628, SERISS: GA N°654221, SSHOC: GA N°823782, SHARE-COVID19: GA N°101015924) and by DG Employment, Social Affairs & Inclusion through VS 2015/0195, VS 2016/0135, VS 2018/0285, VS 2019/0332 and VS 2020/0313. Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGH4_04-064, HHSN271201300071C, RAG052527A) and from various national funding sources is gratefully acknowledged (see www.share-project.org).

planned (Chart D). These figures imply that most retiring workers were broadly unaffected by the pandemic. By contrast, 38% of those who retired earlier than planned report doing so because of the pandemic. Hence, of the 5.5% of all active workers who retired after the outbreak of the pandemic, 8.7% retired early directly because of the pandemic. This is equivalent to only around 0.5% of the labour force aged 55-74, or some 175,000 people, which is in line with the only marginal increase in retirement seen in the aggregate data. At the same time, only a very small share of older workers retired later than planned as a consequence of the pandemic, suggesting that most older workers did not smoothen the effects from the heightened economic uncertainty by postponing their retirement.⁷

Chart D

COVID-19 and the timing of retirement decisions by older workers



Source: Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 9.

Early retirement was most pronounced for workers in relatively poorer health, reflecting perceptions of heightened health risks stemming from the pandemic. Factors such as socio-demographic or health characteristics are important when assessing the retirement decisions of older workers.⁸ A prominent factor associated with early retirements is the individual's assessment of their own personal state of health (Chart E). Following the outbreak of the pandemic, around 30% of the older workers that assessed their health to be relatively poor retired earlier than initially planned. Conversely, only 12% of those that stated being in excellent health retired early. These patterns are far more pronounced for workers who have not been vaccinated against COVID-19. Among the unvaccinated older workers, more than half of those with poor health retired earlier than planned, while less than 10% of those with good health and less than 5% of those with excellent

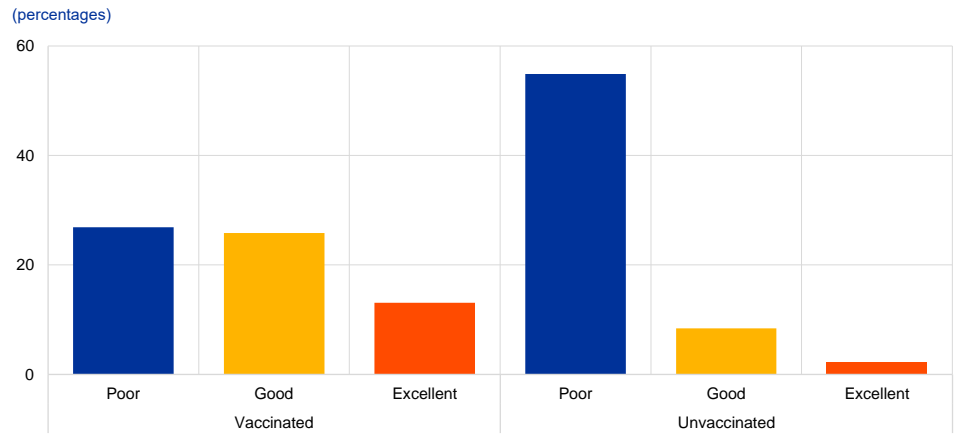
⁷ See the box entitled “COVID-19 and the increase in household savings: precautionary or forced?”, *Economic Bulletin*, Issue 6, ECB, 2020, and the box entitled “COVID-19 and the increase in household savings: an update”, *Economic Bulletin*, Issue 5, ECB, 2021, both noting that COVID-19 has led to a surge in household savings. This can be a major factor mitigating any fear of future income risks, which is an important driver of the timing of retirement decisions.

⁸ See, for example, Beydoun, H., Beydoun, M., Weiss, J., Gautam, R., Hossain, S., Alemu, B. and Zonderman, A., “Predictors of Covid-19 level of concern among older adults from the health and retirement study”, *Scientific Reports* 12, article number 4396, 2022.

health ended up retiring early. These findings highlight an important link between the state of health of workers and their retirement decisions.

Chart E

Share of retirees who retired earlier than planned after the outbreak of the pandemic, by state of health and vaccination status



Source: Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 9.
 Notes: The weighted SHARE data are representative of the population aged 50 and over. Health is defined as excellent if respondents report having very good or excellent health (26.2% of the older population), good when they report having good health (43.9%) and poor when they report having fair or poor health (29.9%). Among older workers with poor health, 86.3% reported being vaccinated, with the vaccination rate standing at 87% for older respondents with good health and 84.7% for older respondents with excellent health.

Overall, our analysis finds that the development of the labour market activity of older workers was driven to some extent by a pandemic-induced shift in retirement decisions. The pandemic caused the labour market activity of older workers in the euro area to decrease temporarily and shifted the timing of retirement decisions for around 175,000 workers forward. This relatively low number suggests that in contrast with developments observed in the United States, the pandemic did not have a very strong impact on the retirement decisions of older workers in the euro area. However, health concerns seemed to play a role in the timing of retirement for older workers. These findings are important for analysing the euro area labour market by demonstrating the transmission of large, exogenous health shocks into economic activity. This highlights the potential role of structural policies in improving the resilience of the euro area labour force by improving workers' health or by facilitating a health-oriented working environment.

3 Does the tail wag the dog? A closer look at recent movements in the distributions of inflation expectations

Prepared by Lucyna Górnicka and Aidan Meyler

Having moved below 2% over the period spanning the first quarter of 2019 to the second quarter of 2021, the distribution of individual longer-term inflation expectations from the ECB Survey of Professional Forecasters (SPF) has most recently recentred around 2% and is now quite similar to the average distribution experienced over the period from the third quarter of 2003 to the first quarter of 2014 (Chart A).^{1,2} However, one difference stands out: a perceptible “tail” of respondents is now reporting longer-term inflation expectations of 2.5% or higher. In the SPF for the third quarter of 2022, this portion increased to 17% (representing eight of the 46 respondents who provided longer-term inflation expectations).³ This box analyses in more detail the expectations of the respondents in this upper tail, in order to understand whether its recent overall fattening might harbingering a movement in the rest of the distribution.⁴

¹ The panel of the ECB SPF, which was established in 1999, is composed of professional macroeconomic forecasters operating in Europe. The currently active panel comprises 75 to 80 institutions, of which around 60 respond in any given round – of these, on average 75%, or 45 institutions, provide their longer-term inflation expectations.

² This reference period is chosen as it starts after the ECB’s monetary policy strategy review in 2003 which clarified the medium-term inflation objective of below, but close to, 2%. In 2014 (when the ECB started its asset purchase programme) the number of respondents reporting expectations of 2.0% declined and that of those reporting 1.7% increased.

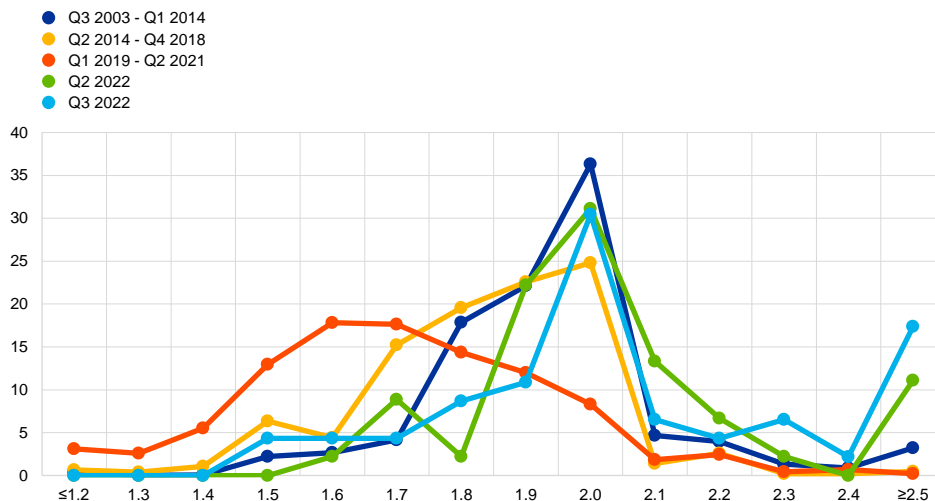
³ Never before did more than 10% of SPF respondents report longer-term inflation expectations of 2.5% or more. The only other period (beyond one single round) in which more than 5% of respondents reported longer-term inflation expectations of 2.5% or above was that from the second quarter of 2011 to the third quarter of 2013 when 7 to 9% (or three to four respondents) did so.

⁴ For an argument that movements in the cross-sectional distribution of inflation expectations could provide early warnings of de-anchoring, see Reis, R., “[Losing the Inflation Anchor](#)”, *Brookings Papers on Economic Activity*, BPEA Conference Drafts, 9 September 2021.

Chart A

Histogram of individual longer-term inflation expectations in the ECB SPF

(y-axis: percentage of respondents; x-axis: percentage of inflation)



Notes: The SPF asks respondents to report their point forecasts and to separately assign probabilities to different ranges of outcomes. This chart shows the spread of point forecast responses.

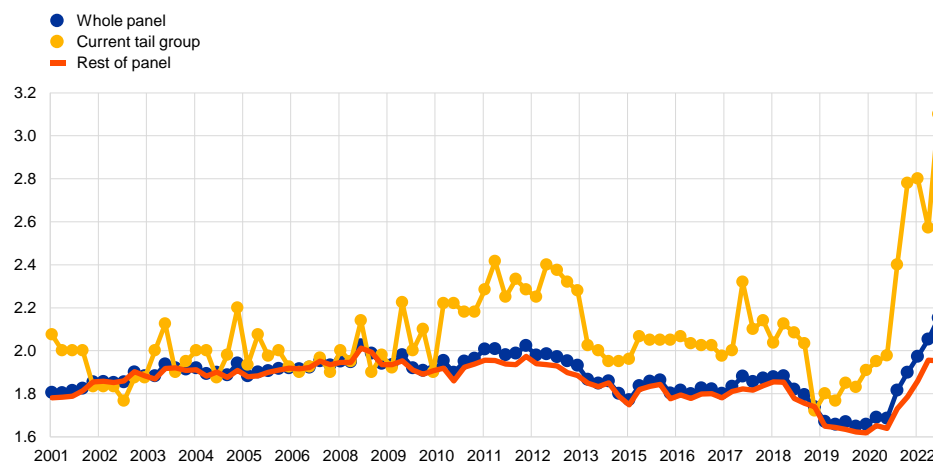
Since 2010 longer-term inflation expectations of the current tail group have been higher and more volatile than those of the rest of respondents (Chart B).

On average, inflation expectations of the current tail group have been 0.3 percentage points higher than those of the rest (2.15% vs 1.85%). However, the gap has widened over the past four survey rounds. The volatility (measured by standard deviation) of the tail group's inflation expectations has also been much higher since 2010 (0.3 vs 0.1 percentage points). However, given the small sample size (eight in the most recent round, but on average only five have responded in each round since 2010), some caution is warranted when interpreting these data.

Chart B

Evolution of longer-term inflation expectations from the ECB SPF

(year-on-year percentage changes)



Note: "Current tail group" refers to eight respondents providing longer-term expectations of 2.5% or above in the round for the third quarter of 2022.

The current tail group expects the current inflation spike to be more persistent.

The reasons for this can be explored by considering the group's most recent expectations for other variables. Table A reports only the longer-term expectations for other variables, but the complete time profile is informative. The tail group expects the current spike in headline inflation to be more persistent and also expects higher and more persistent underlying inflation than the rest of the SPF respondents. This is reflected in the tail group's higher headline and core inflation expectations across forecast horizons, from near to longer term. The tail group's labour cost expectations are higher from the next calendar year onward and their unemployment rate expectations are generally lower (i.e. consistent with a tighter labour market in the long run) than those of the rest of the panel. There is no clear relation with real GDP growth expectations for either group. Overall, the differences in expectations for the unemployment rate, although consistent with a view of a tighter labour market, do not appear large enough to explain the wide gap between the tail group's longer-term inflation expectations and those of other professional forecasters.

Table A

Longer-term expectations across macroeconomic variables in the ECB SPF for the third quarter of 2022

	HICP inflation	HICPX inflation	Real GDP growth	Unemployment rate	Labour cost growth
Tail group	3.1%	3.2%	1.8%	6.1%	4.3%
(excluding extreme outlier)	(2.6%)	(2.5%)	(1.6%)	(6.2%)	(3.0%)
Number of respondents	8	5	8	7	4
Rest of panel	2.0%	1.9%	1.4%	6.4%	2.5%
Number of respondents	38	25	35	30	12
Whole panel	2.2%	2.2%	1.5%	6.4%	3.0%
(excluding extreme outlier)	(2.1%)	(2.0%)	(1.5%)	(6.4%)	(2.6%)
Number of respondents	46	30	43	37	16

Note: Where percentages are shown in brackets, they denote the value excluding one extreme outlier, whereas the percentage without brackets includes the outlier.

The forecasters who currently report the highest longer-term inflation expectations have tended to be more sensitive to realised inflation in the past.

When assessing the correlations with inflation and growth (both realised values and short-term expectations) over time, the longer-term inflation expectations appear more correlated with realised inflation and with individual short-term expectations among the tail group than among the rest of forecasters, while there is no clear link with realised growth or short-term growth expectations for either group.⁵

Finally, do the tail group's expectations lead those of the rest of the respondents? This can be checked by conducting Granger causality tests of the tail group's average expectations, for the long term and for the next year, versus those

⁵ This assessment is confirmed by forecaster-level regressions of long-term inflation expectations on past realised inflation, GDP growth and unemployment (controlling for forecaster fixed effects). While both the tail group and the rest of the panel respond to realised inflation, the tail does so considerably more than the rest of the panel: a 1 percentage point increase in inflation increases the tail group's longer-term inflation expectations by 0.2 percentage point compared with only 0.03 percentage point for the rest of the panel.

of the rest of the panel.⁶ This analysis produces no clear evidence of Granger causality in either direction: in other words, the tail, historically, does not appear to have wagged the dog.

Our analysis thus suggests that the tail group's expectations have not led movements in the expectations of the rest of the professional forecasters.

Some recent research argues that the right tail of the forecasters' distribution is composed of fast learners, identified as those attentive to new data and news.⁷ According to this view, forecasters who updated their beliefs early were good predictors of the future. Our findings suggest that respondents in the tail group are more sensitive to the current developments than other forecasters and might be extrapolating short-term inflation dynamics more strongly and persistently into the longer term.

⁶ Granger, C. W. J., "Investigating Causal Relations by Econometric Models and Cross-spectral Methods", *Econometrica*, 1969.

⁷ Reis, R., "Inflation expectations: rise and responses", Speech at the ECB Forum on Central Banking, 29 June 2022.

The impact of rising mortgage rates on the euro area housing market

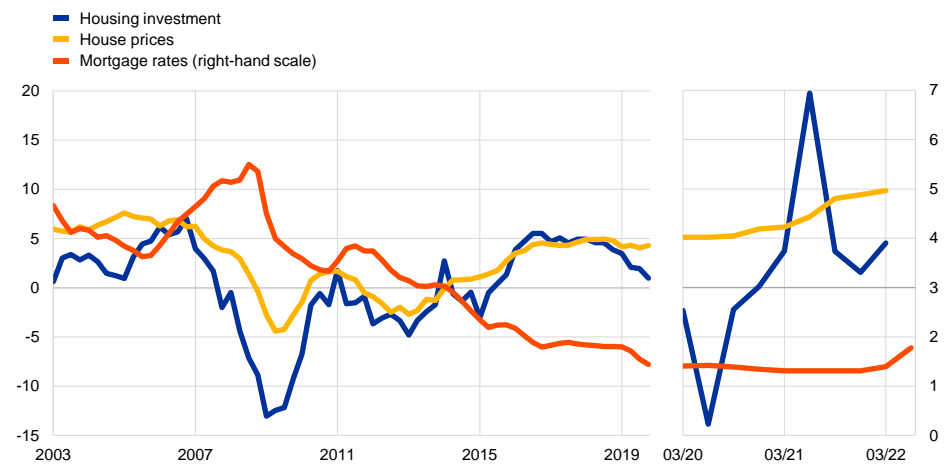
Prepared by Niccolò Battistini, Johannes Gareis and Moreno Roma

Mortgage rates in the euro area have risen significantly since the beginning of 2022, following a historical low in 2021. Over the past two years the euro area housing market has been buoyant and has been supported by favourable mortgage rates (Chart A).¹ Aggregate euro area house price growth accelerated from an annual increase of around 4% at the end of 2019 to close to 10% in the first quarter of 2022 – the highest rate since early 1991. At the same time, housing investment recovered rapidly after the pandemic-related slump in 2020 to stand around 6% above pre-crisis levels in the first quarter of this year. The composite cost-of-borrowing indicator for households for house purchase fell to a historical low of 1.3% in September 2021 and remained largely unchanged until December 2021.² However, mortgage rates rose significantly (by 63 basis points) in the first half of this year, the largest six-monthly increase ever recorded.

Chart A

Housing investment, house prices and mortgage interest rates

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



Sources: Eurostat, ECB and ECB staff calculations.

Note: Mortgage rates refer to the composite cost-of-borrowing indicator for households for house purchase and are expressed in quarterly averages.

Empirical evidence suggests that housing market dynamics are very sensitive to mortgage rates. A linear local projection framework is used to shed light on the impact that rising mortgage rates have on euro area house prices and housing

¹ For an assessment of euro area housing market developments during the coronavirus (COVID-19) pandemic, see the article entitled “[The euro area housing market during the COVID-19 pandemic](#)”, *Economic Bulletin*, Issue 7, ECB, 2021. For a discussion of housing market risks, see Igan, D., Kohlscheen, E. and Rungcharoenkitkul, P., “[Housing market risks in the wake of the pandemic](#)”, *BIS Bulletin*, No 50, BIS, March 2022.

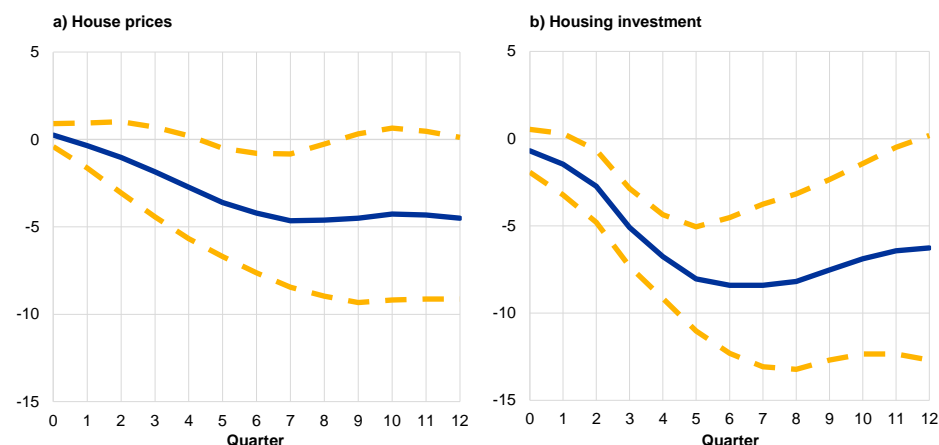
² Throughout this box mortgage rates refer to the composite cost-of-borrowing indicator for households for house purchase.

investment.³ According to the estimated model, a 1 percentage point increase in the mortgage rate leads, all else being equal, to a decline in house prices of around 5% after about two years (Chart B).⁴ However, the same percentage point increase in the mortgage rate has a greater impact on housing investment, leading to a drop of 8% after about two years.

Chart B

Estimated semi-elasticities of house prices and housing investment to a 1 percentage point increase in the mortgage rate

(percentages)



Sources: Eurostat, ECB and ECB staff calculations.

Notes: The charts show "smoothed" estimated semi-elasticities of house prices and housing investment to a 1 percentage point increase in the mortgage rate, using linear local projections. The projections include real GDP, the HICP, a short-term interest rate and housing loans as control variables and are estimated for the period running from the first quarter of 1995 to the last quarter of 2019 (i.e. excluding the period of the COVID-19 crisis). "Smoothed" refers to centred three-period moving averages of the estimated semi-elasticities, excluding the initial and final points. The dashed lines refer to the 90% confidence bands.

The impact of rising mortgage rates on house prices and housing investment is larger in a low interest rate environment.

Asset price theory suggests that the lower the level of mortgage rates, the more sensitive house prices are to changes in mortgage rates, because lower mortgage rates lead to greater discounting effects on future rents and prices.⁵ This higher sensitivity of house prices may, in turn, also imply a higher sensitivity of housing investment via housing profitability and collateral value effects, as both are important drivers of housing investment and are affected

³ The model includes lags for each housing variable as well as lags for a set of additional variables that control for the state of the economy and for financial and credit market conditions, such as real GDP, the HICP, a short-term interest rate and housing loans. These control variables are also included up to lag zero, so the estimated sensitivity of house prices and housing investment to changes in mortgage rates only reflects the impact of a "mortgage spread shock" which is driven by any other factor not captured by the control variables including, for example, changes in borrowers' riskiness and term premia for long-term rates. For a similar model for the US housing market see Liu, H., Lucca, D., Parker, D. and Rays-Wahba, G., "The Housing Boom and the Decline in Mortgage Rates", *Liberty Street Economics*, Federal Reserve Bank of New York, September 2021.

⁴ All model variables are expressed in logarithmic values multiplied by 100, except for interest rates, which are expressed in percentages. Hence, the estimated sensitivity of house prices and housing investment measures the percentage change in house prices and housing investment in response to a 1 percentage point change in the mortgage rate. This is commonly referred to as "semi-elasticity".

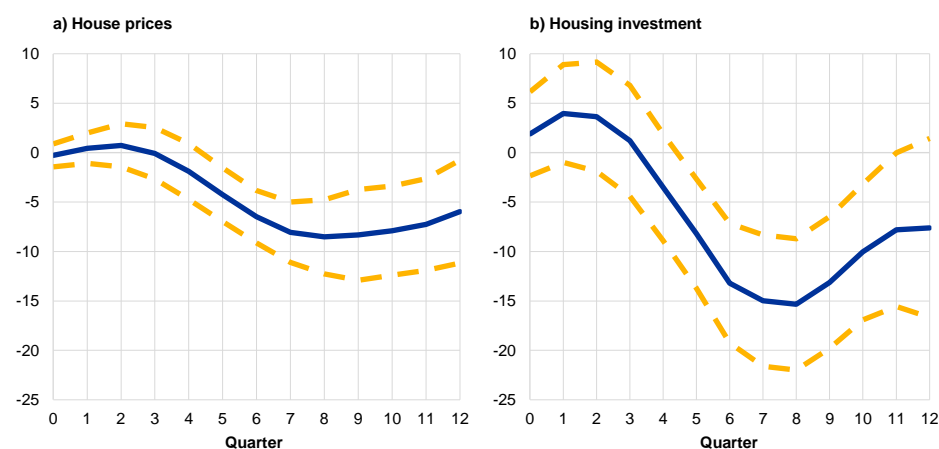
⁵ See, for instance, Himmelberg, C., Mayer, C. and Sinai, T., "Assessing High House Prices: Bubbles, Fundamentals and Misperceptions", *Journal of Economic Perspectives*, Vol. 19, No 4, Fall 2005, pp. 67-92.

by house price movements.⁶ To capture this non-linearity, the model is adjusted to include an indicator that controls for the level of mortgage rates.⁷ The results of this non-linear model show that in a low interest rate environment the estimated decline in house prices and housing investment in response to a 1 percentage point mortgage rate increase is about 9% and 15% respectively after about two years. This is around twice as large as the linear results suggest (Chart C).⁸

Chart C

Estimated semi-elasticities of house prices and housing investment to a 1 percentage point increase in the mortgage rate in a low interest rate environment

(percentages)



Sources: Eurostat, ECB and ECB staff calculations.

Notes: The charts show "smoothed" estimated semi-elasticities of house prices and housing investment to a 1 percentage point increase in the mortgage rate in a low interest rate environment, using non-linear local projections. The projections include real GDP, the HICP, a short-term interest rate and housing loans as additional variables and are estimated for the period running from the first quarter of 1995 to the last quarter of 2019 (i.e. excluding the period of the COVID-19 crisis). "Smoothed" refers to centred three-period moving averages of the estimated semi-elasticities, excluding the initial and final points. The dashed lines refer to the 90% confidence bands.

⁶ For the link between housing profitability and housing investment see, for example, Jud, G. D. and Winkler, D. T., "The Q Theory of Housing Investment", *The Journal of Real Estate Finance and Economics*, No 27, November 2003, pp. 379-392.

⁷ Specifically, the indicator measures the probability of being in a low interest rate environment and is determined by a logistic function, with the 12-quarter moving average of the mortgage rate as the state variable and the low interest rate environment threshold set at the median of this variable, implying an interest rate of 4.5%. The transition speed parameter is set at 5. For different applications of this technique see, for example, Auerbach, A.J. and Gorodnichenko, Y., "Fiscal Multipliers in Recession and Expansion", in Alesina, A. and Giavazzi, F. (eds.), *Fiscal Policy after the Financial Crisis*, University of Chicago Press, 2013, pp. 63-102, also Tenreyro, S. and Thwaites, G., "Pushing on a String: US Monetary Policy Is Less Powerful in Recessions", *American Economic Journal: Macroeconomics*, Vol. 8, No 4, October 2016, pp. 43-74.

⁸ For further evidence of the higher sensitivity of housing market developments in the euro area to changes in mortgage rates in a low interest rate environment, see the box entitled "Drivers of rising house prices and the risk of reversal", *Financial Stability Review*, ECB, May 2022, which suggests that real house prices decline 280 basis points more in response to a 1 percentage point increase in real mortgage rates from current levels when non-linear relationships are taken into account. A greater impact at low interest rates is also confirmed by simulations using the ECB-BASE model, albeit in a much weaker form. For the ECB-BASE model, see Angelini, E., Bokan, N., Christoffel, K., Ciccarelli, M. and Zimic, S., "Introducing ECB-BASE: The blueprint of the new ECB semi-structural model for the euro area", *Working Paper Series*, No 2315, ECB, September 2019. An important caveat of the non-linear local projections relates to the concerns about the endogeneity of the state variable recently raised in Gonçalves, S., Herrera, A. M., Kilian, L. and Pesavento, E., "When Do State-Dependent Local Projections Work?", *Research Department Working Papers*, No 2205, Federal Reserve Bank of Dallas, May 2022. To address these concerns, the state variable is based on the assumption of a long lag (see the previous footnote).

However, housing market developments are affected by other factors – including those of a structural nature – in addition to mortgage rates. While the empirical evidence from local projections points to potentially large downward corrections for the euro area housing market, other factors – not captured by the models – should also be considered. Such factors could increase uncertainty surrounding the housing outlook.⁹ Following the COVID-19 pandemic, households now seem to be attaching greater value to more spacious properties that allow people to work from home and are finding locations further from the office more appealing.¹⁰ Preliminary evidence points to higher price rises since the COVID-19 pandemic for detached houses in some of the euro area countries for which data are available (Chart D, panel a). In addition, euro area prices have increased more for properties outside euro area capital cities since the COVID-19 pandemic, and the share of the euro area population living in detached houses increased in 2020 (Chart D, panel b).¹¹ A preference for more space could also support housing investment. Pandemic-induced shifts in housing preferences could counteract higher mortgage rates and could explain some of the resilience which has been observed in the euro area housing market.

⁹ Among other factors, the attractiveness of housing for investment purposes is likely to diminish, given the relative stability of rental yields compared with the observed increase in bond yields. However, higher inflation, which tilts portfolio allocation towards “real assets” such as housing, could partly mitigate this effect.

¹⁰ See, for example, Bottero, M., Bravi, M., Caprioli, C., Dell’Anna, F., Dell’Ovo, M. and Oppio, A., “New Housing Preferences in the COVID-19 Era: A Best-to-Worst Scaling Experiment”, *Computational Science and Its Applications – ICCSA 2021*, September 2021, pp. 120-129, also Tajani, F., Morano, P., Di Liddo, F., Guarini, M. R. and Ranieri, R., “The Effects of Covid-19 Pandemic on the Housing Market: A Case Study in Rome (Italy)”, *Computational Science and Its Applications – ICCSA 2021*, September 2021, pp. 50-62.

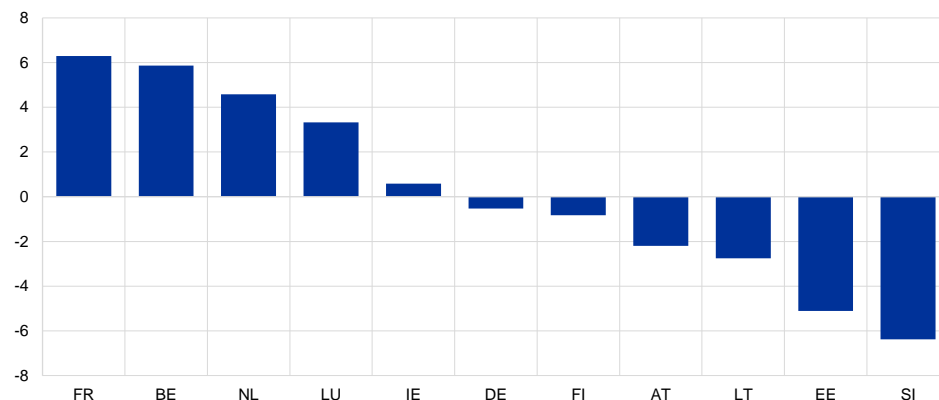
¹¹ It is worth stressing that such preference shifts affect relative rather than aggregate property prices.

Chart D

Price rises for detached houses compared with price rises for semi-detached houses, aggregate euro area house prices and house prices in euro area capital cities, and share/change in the share of the population living in detached houses

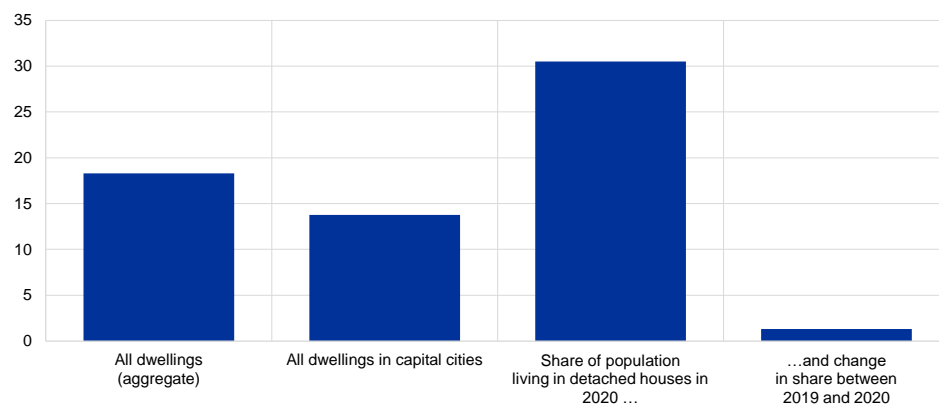
a) Price rises for detached houses compared with price rises for semi-detached houses

(percentage point differences since the first quarter of 2020)



b) Euro area house prices and share/change in share of population living in detached houses

(percentage changes in prices since the first quarter of 2021; share of population as a percentage of total population, percentage point change in share of population)



Sources: OECD, BIS, Eurostat, ECB and ECB staff calculations.

Notes: Panel a: For Germany and Belgium the data refer to the difference between the prices of houses and flats. Data for Germany, Estonia, Ireland and Lithuania refer to all dwellings (new and existing), while for other countries they refer to existing dwellings. The latest observation is for the first quarter of 2022, except for Luxembourg, Austria and Finland, for which it is the last quarter of 2021. Panel b: The euro area aggregate series for house prices is a weighted average based on GDP weights and includes Belgium, Germany, Estonia, Ireland, Spain, France, Italy, the Netherlands, Austria, Slovenia and Finland.

5 Liquidity conditions and monetary policy operations from 20 April to 26 July 2022

Prepared by Ioana Duca-Radu and Juliane Kinsele

This box describes the ECB’s monetary policy operations and liquidity developments during the third and fourth reserve maintenance periods of 2022. Together, these two maintenance periods ran from 20 April 2022 to 26 July 2022 (the “review period”).

Average excess liquidity in the euro area banking system rose by €34.1 billion during the review period, reaching a record level of €4,523.1 billion. The overall increase was mainly driven by net asset purchases conducted under the asset purchase programme (APP) and was partially offset by an increase in net autonomous factors. The increase mainly took place in the third maintenance period, while average excess liquidity declined during the fourth maintenance period, primarily owing to TLTRO III repayments and APP net purchases coming to an end as of 1 July 2022.

Liquidity needs

The average daily liquidity needs of the banking system, defined as the sum of net autonomous factors and reserve requirements, increased by €25.3 billion to €2,602.8 billion during the review period. This increase was due almost entirely to a rise in net autonomous factors by €21.6 billion to €2,443.7 billion (see the section of Table A entitled “Other liquidity-based information”), while minimum reserve requirements increased by only €3.7 billion to €159.1 billion.

Liquidity-absorbing autonomous factors rose during the review period by €63.4 billion to €3,385.3 billion, owing to increases in other autonomous factors and banknotes in circulation. Other autonomous factors (see Table A below for further information) increased during the review period by €42.3 billion to €1,145.7 billion. Banknotes in circulation increased by €33.6 billion to €1,596.9 billion, indicating a return to pre-pandemic patterns. The increased precautionary demand in some jurisdictions following the Russian invasion of Ukraine levelled off at the end of the second maintenance period. This meant that the average of the first and second maintenance period did not follow its typical seasonal pattern, which is usually characterised by the return of banknotes following the Christmas period and the end of the year. Government deposits decreased only slightly by an average of €12.4 billion and remained at an average of €642.7 billion. This contrasts with the record high average of €749.0 billion in the sixth maintenance period of 2020, when euro area governments increased their precautionary liquidity buffers in response to the outbreak of the coronavirus (COVID-19) pandemic and heightened uncertainty over revenues and expenditures.

Liquidity-providing autonomous factors increased by €42.0 billion to €942.0 billion. This increase mainly reflects a €38.1 billion rise in net foreign assets. Overall, the rise in liquidity-absorbing autonomous factors more than offset these developments, so that net autonomous factors contributed to a decrease in excess liquidity.

Table A provides an overview of the autonomous factors¹ discussed above and their changes.

Table A
Eurosystem liquidity conditions

	Current review period: 20 April 2022 to 26 July 2022						Previous review period: 9 February 2022 to 19 April 2022	
	Third and fourth maintenance periods		Third maintenance period: 20 April to 14 June		Fourth maintenance period: 15 June to 26 July		First and second maintenance periods	
Autonomous liquidity factors	3,385.3	(+63.4)	3,346.9	(-8.6)	3,436.4	(+89.5)	3,321.9	(+149.9)
Banknotes in circulation	1,596.9	(+33.6)	1,591.5	(+15.6)	1,604.0	(+12.4)	1,563.2	(+32.2)
Government deposits	642.7	(-12.4)	624.1	(-43.7)	667.6	(+43.6)	655.2	(+50.0)
Other autonomous factors (net) ¹⁾	1,145.7	(+42.3)	1,131.4	(+19.5)	1,164.9	(+33.5)	1,103.5	(+67.7)
Current accounts above minimum reserve requirements	3,843.0	(+84.3)	3,888.3	(+117.8)	3,782.5	(-105.9)	3,758.7	(+85.7)
of which exempted excess reserves under the two-tier system	942.2	(+19.1)	935.5	(+5.1)	948.9	(+13.4)	923.0	(+0.4)
of which non-exempted excess reserves under the two-tier system	2,893.2	(+57.6)	2,952.8	(+112.7)	2,833.6	(-119.2)	2,835.6	(+85.3)
Minimum reserve requirements²⁾	159.1	(+3.7)	157.8	(+1.0)	160.9	(+3.1)	155.4	(+0.6)
Exemption allowance³⁾	954.6	(+22.3)	946.6	(+5.9)	965.1	(+18.5)	932.3	(+3.3)
Deposit facility	680.2	(-50.2)	681.3	(-33.5)	678.7	(-2.7)	730.4	(-9.2)
Liquidity-absorbing fine-tuning operations	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)

Source: ECB.

Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.

1) Computed as the sum of the revaluation accounts, other claims and liabilities of euro area residents, capital and reserves.

2) Memo item that does not appear on the Eurosystem balance sheet and therefore should not be included in the calculation of total liabilities.

3) Exempted and non-exempted excess reserves are explained on the ECB's [website](#).

¹ For further details on autonomous factors, see the article entitled "The liquidity management of the ECB", *Monthly Bulletin*, ECB, May 2002.

Assets

(averages; EUR billions)

	Current review period: 20 April 2022 to 26 July 2022						Previous review period: 9 February 2022 to 19 April 2022	
	Third and fourth maintenance periods		Third maintenance period: 20 April to 14 June		Fourth maintenance period: 15 June to 26 July		First and second maintenance periods	
Autonomous liquidity factors	942.0	(+42.0)	936.3	(+27.6)	949.7	(+13.4)	900.1	(+68.7)
Net foreign assets	938.3	(+38.1)	934.2	(+21.0)	943.7	(+9.5)	900.2	(+41.8)
Net assets denominated in euro	3.7	(+3.9)	2.1	(+6.6)	6.0	(+3.9)	-0.1	(+26.9)
Monetary policy instruments	7,125.9	(+59.5)	7,138.4	(+49.1)	7,109.1	(-29.3)	7,066.4	(+158.1)
Open market operations	7,125.9	(+59.5)	7,138.4	(+49.1)	7,109.1	(-29.3)	7,066.4	(+158.1)
Credit operations	2,178.3	(-22.5)	2,199.3	(-0.7)	2,150.3	(-49.0)	2,200.8	(-4.5)
MROs	0.7	(+0.4)	0.5	(+0.2)	1.0	(+0.5)	0.3	(+0.1)
Three-month LTROs	0.3	(+0.2)	0.2	(+0.1)	0.4	(+0.2)	0.1	(+0.0)
TLTRO III operations	2,174.6	(-22.6)	2,195.7	(-0.8)	2,146.4	(-49.4)	2,197.2	(-5.0)
PELTROs	2.8	(-0.4)	2.9	(-0.2)	2.6	(-0.3)	3.2	(+0.4)
Outright portfolios	4,947.6	(+82.0)	4,939.1	(+49.9)	4,958.8	(+19.7)	4,865.6	(+162.7)
First covered bond purchase programme	0.0	(-0.0)	0.0	(-0.0)	0.0	(-0.0)	0.0	(-0.4)
Second covered bond purchase programme	0.5	(-0.5)	0.7	(-0.1)	0.2	(-0.5)	1.0	(-1.2)
Third covered bond purchase programme	300.2	(+3.9)	298.8	(+2.2)	302.1	(+3.3)	296.3	(-1.4)
Securities Markets Programme	3.4	(-0.9)	3.3	(+0.0)	3.4	(+0.0)	4.2	(-2.3)
Asset-backed securities purchase programme	26.0	(-0.9)	26.5	(-0.6)	25.4	(-1.1)	27.0	(-1.4)
Public sector purchase programme	2,579.8	(+54.2)	2,572.3	(+38.8)	2,589.8	(+17.6)	2,525.6	(+37.9)
Corporate sector purchase programme	341.1	(+14.5)	338.7	(+8.1)	344.2	(+5.5)	326.5	(+16.4)
Pandemic emergency purchase programme	1,696.6	(+11.6)	1,698.8	(+1.5)	1,693.7	(-5.1)	1,685.1	(+115.1)
Marginal lending facility	0.0	(-0.0)	0.0	(-0.0)	0.0	(-0.0)	0.0	(+0.0)

Source: ECB.

Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.

Other liquidity-based information

(averages; EUR billions)

	Current review period: 20 April 2022 to 26 July 2022						Previous review period: 9 February 2022 to 19 April 2022	
	Third and fourth maintenance periods		Third maintenance period: 20 April to 14 June		Fourth maintenance period: 15 June to 26 July		First and second maintenance periods	
Aggregate liquidity needs ¹⁾	2,602.8	(+25.3)	2,568.8	(-35.1)	2,648.0	(+79.2)	2,577.4	(+81.8)
Net autonomous factors ²⁾	2,443.7	(+21.6)	2,411.1	(-36.1)	2,487.2	(+76.1)	2,422.1	(+81.2)
Excess liquidity ³⁾	4,523.1	(+34.1)	4,569.7	(+84.3)	4,461.1	(-108.5)	4,489.1	(+76.4)

Source: ECB.

Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.

1) Computed as the sum of net autonomous factors and minimum reserve requirements.

2) Computed as the difference between autonomous liquidity factors on the liability side and autonomous liquidity factors on the asset side. For the purposes of this table, items in the course of settlement are also added to net autonomous factors.

3) Computed as the sum of current accounts above minimum reserve requirements and the recourse to the deposit facility minus the recourse to the marginal lending facility.

Interest rate developments

(averages; percentages)

	Current review period: 20 April 2022 to 26 July 2022						Previous review period: 9 February 2022 to 19 April 2022	
	Third and fourth maintenance periods		Third maintenance period: 20 April to 14 June		Fourth maintenance period: 15 June to 26 July		First and second maintenance periods	
MROs	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)
Marginal lending facility	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)
Deposit facility	-0.50	(+0.00)	-0.50	(+0.00)	-0.50	(+0.00)	-0.50	(+0.00)
€STR	-0.583	(-0.003)	-0.584	(-0.002)	-0.581	(+0.003)	-0.579	(-0.003)
RepoFunds Rate Euro Index	-0.646	(-0.008)	-0.642	(+0.002)	-0.652	(-0.010)	-0.638	(+0.108)

Sources: ECB and CME Group.

Note: Figures in brackets denote the change from the previous review or maintenance period.

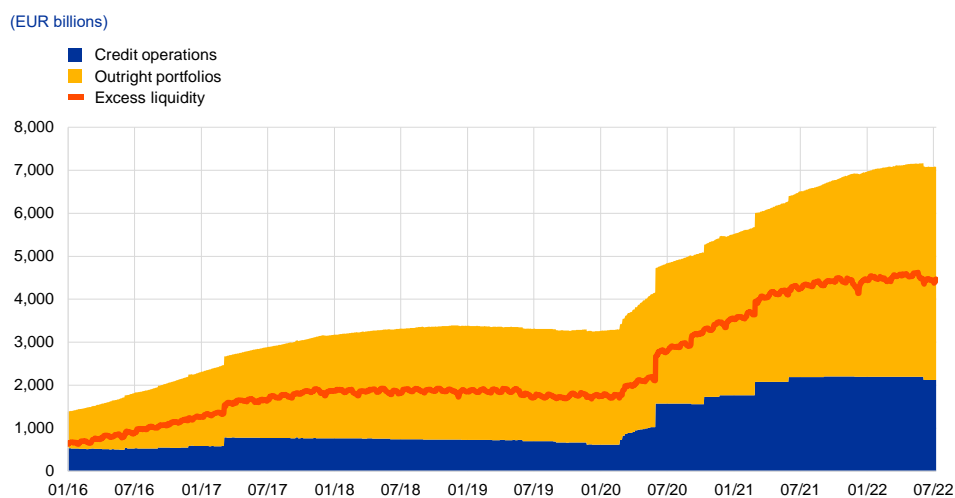
Liquidity provided through monetary policy instruments

The average amount of liquidity provided through monetary policy instruments increased by €59.5 billion to €7,125.9 billion during the review period (Chart A).

This increase mainly took place during the third maintenance period and was due to continued APP net purchases. During the fourth maintenance period net purchases under the APP ended on 1 July and voluntary repayments under TLTRO III were settled, resulting in a decline in excess liquidity.

Chart A

Evolution of liquidity provided through open market operations and excess liquidity



Source: ECB.

Note: The latest observations are for 26 July 2022.

The average amount of liquidity provided through credit operations decreased by €22.5 billion during the review period. This decrease was mostly the result of voluntary TLTRO III repayments of €74.1 billion made at the end of June, the full effect of which on review period averages will only become apparent in the next maintenance period. The main refinancing operations (MROs) and three-month longer-term refinancing operations (LTROs) continued to play only a marginal role, with the average recourse increasing slightly to €0.4 billion and €0.2 billion respectively compared with the previous review period.

At the same time, outright portfolios increased by €82.0 billion to €4,947.6 billion owing to net purchases under the APP. The APP developments were mainly driven by net purchases under the public sector purchase programme, which increased on average by €54.2 billion to €2,579.8 billion. Net purchases under the corporate sector purchase programme increased on average by €14.5 billion to €341.1 billion. The other programmes under the APP saw only marginal changes. Average holdings in the pandemic emergency purchase programme (PEPP) stand at €1,696.6 billion. Although net purchases under the PEPP were discontinued at the end of March 2022, reinvestments of maturing principal amounts continue. Maturing securities held in non-active programmes, including the Securities Markets Programme and the first and second covered bond purchase programmes, reduced their aggregate size by €1.4 billion.

Excess liquidity

Average excess liquidity increased by €34.1 billion, reaching a new record high of €4,523.1 billion (Chart A). It reflects the difference between the total liquidity provided to the banking system and banks' liquidity needs. Banks' current account holdings in excess of minimum reserve requirements (excess reserves) grew by

€84.3 billion to €3,843.0 billion, while the average recourse to the deposit facility decreased by €50.2 billion to €680.2 billion. Daily excess liquidity peaked on 14 June, the last day of the third maintenance period, at €4,622.4 billion.

Excess reserves exempt from the negative deposit facility rate under the two-tier system² increased by €19.1 billion to €942.2 billion. Non-exempt excess liquidity, which includes the deposit facility, increased slightly by €7.4 billion to reach €3,573.4 billion. The aggregate utilisation rate of the maximum exemption allowance, i.e. the ratio of exempted reserves to the maximum exempted amount³, has remained above 98% since the third maintenance period of 2020. During the current review period it was marginally lower at 98.7%, compared with 99.0% in the previous review period. The share of exempted excess reserves in total excess liquidity stood at 20.8%, compared with 20.6% in the previous review period.

Interest rate developments

The average €STR remained broadly unchanged at -58.3 basis points during the review period. Owing to the high level of excess liquidity, the €STR continues to be relatively inelastic, even in response to substantial fluctuations in liquidity. The ECB policy rates – the rates on the deposit facility, MROs and the marginal lending facility – were left unchanged during the review period. The 50-basis point hike in the ECB policy rates only came into effect after the review period ended, and its influence will be reviewed in the next box on liquidity conditions.

The average euro area repo rate, measured by the RepoFunds Rate Euro Index, also remained broadly unchanged at -64.6 basis points. Despite the average level remaining largely unchanged, the end-of-quarter pattern was particularly pronounced at the end of June, when the RepoFunds Rate Euro Index recorded a level of -1.145% – the lowest, excluding year-ends, since October 2014.

² More information about the two-tier system for remunerating excess reserve holdings is available on the ECB's [website](#).

³ The maximum exempted amount is measured as the sum of the minimum reserves and the exemption allowance, which is equal to six times the minimum reserves amount.

6 Common minimum standards for incorporating climate change risks into in-house credit assessment systems in the Eurosystem

Prepared by Julia K rding and Florian Resch¹

In-house credit assessment systems (ICASs) need to take all relevant risk factors, including climate change, into account to ensure the collateral pledged in monetary policy operations remains adequate. Climate change and the transition to a greener economy affect the ECB’s primary objective of maintaining price stability, due to the impact they have on the economy and the risk profile and value of assets on the Eurosystem balance sheet. On 8 July 2021 the ECB published an [action plan](#) accompanied by a [roadmap](#) towards including climate change considerations in its monetary policy strategy and operations. One aspect covered in the latter document is the assessment of climate change risks in credit ratings for collateral. Both transition and physical risks need to be taken into account when assessing credit risk, as they can affect the growth, financial performance, market position and business model of a company, and hence its creditworthiness. The Eurosystem has therefore developed common minimum standards for incorporating climate change risks into ICAS ratings. These have been agreed by the ECB and will enter into force by the end of 2024, as [announced](#) on 4 July 2022.

ICASs – the Eurosystem’s internal source for rating credit claims

Within the Eurosystem collateral framework, the ICASs developed by seven euro area national central banks are an important source of credit risk assessment for non-marketable collateral (credit claims).² Counterparties can use ICAS ratings to mobilise loans granted to non-financial corporations, including small and medium-sized enterprises (SMEs), as collateral; in most cases these are not covered by external credit assessment institutions. At the end of 2021, ICASs rated 34% of non-marketable collateral value after haircuts. A set of Eurosystem-wide rules ensures they follow harmonised processes and incorporate relevant key risk factors into their assessments. The rating process involves a statistical model, which typically features financial ratios, followed by an expert analysis covering qualitative information and additional quantitative data. The expert assessment comprises a review of the corporation’s strengths and weaknesses, its links with parent and subsidiary companies, an evaluation of management and an analysis of the industrial and economic environment. ICASs have already started to recognise

¹ This box is based on extensive work related to the development of common minimum standards for incorporating climate change risks in ICAS ratings. In addition to the contributors mentioned above, the following colleagues from the ECB and NCBs also contributed: L. Auria, J. Braun, S. Caleiro, S. Ciummo, T. Fluteau, P.-Y. Gauthier, F. Giovannelli, A. Maldonado, F. Monterisi and S. Wukovits.

² Auria, Bingmer, Caicedo Graciano et al., “[Overview of central banks’ in-house credit assessment systems in the euro area](#)”, *ECB Occasional Paper Series, No 284*, Frankfurt, October 2021.

climate change as a risk factor in their analyses. The ECB's Governing Council has agreed on a set of common minimum standards for incorporating climate change risks in the rating process, which will be implemented by the end of 2024.

Core principles for incorporating climate change risks in ICAS ratings

The common minimum standards stipulate that the analysis of climate change risks must meet the same high standards for quality and reliability as the assessment of any other risk factor and must be integrated into the regular rating process. The standards specify requirements governing data sources, methodology and processes to be used. Because ICAS ratings are used within the European Credit Assessment Framework as a source for credit risk assessment, ICASs will follow the concept of single materiality, i.e. these will only consider risks that are relevant and material to a company's creditworthiness. In their assessment, they will distinguish between transition and physical risks and consider the different transmission channels. The analysis should be carried out at firm level whenever sufficient and reliable data are available. The definition of climate change risks and incorporation in the rating process to assess their financial impact are in line with the recommendations of the Financial Stability Board's Task Force on Financial Disclosure.³

ICAS assessments of climate change risks will mainly focus on the companies most affected and those which pose the highest risk to the Eurosystem because of their size; the analysis of these will therefore be more comprehensive. Following the principle of proportionality is consistent with the greater availability of data expected under the proposed Corporate Sustainability Reporting Directive (CSRD).⁴ Analysis of climate change risks affecting the creditworthiness of non-financial corporations will be conducted in the following order of priority:

- large corporations from high-polluting sectors;
- SMEs from high-polluting sectors for which firm-level data are available;
- other large corporations;
- other SMEs for which firm-level data are available.

For all other firms, ICASs are strongly encouraged to carry out an assessment at sectoral/regional level.

³ Task Force on Financial Disclosure, [Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures](#), Basel, June 2017.

⁴ Proposal for a [Corporate Sustainability Reporting Directive](#), April 2021.

Data and methodologies for incorporating climate change risks

ICASs will strive to obtain firm-level information to assess climate change risks. When making their assessments, these need to combine data on a company's risk drivers (e.g. carbon prices), risk exposure (e.g. greenhouse gas emissions) and vulnerability after mitigating measures (e.g. technology to reduce emissions) for each type of climate change risk. Having reliable and comparable data available for them all will be a challenge for both ICASs and other credit assessment sources, especially in the short run. The disclosure requirements proposed under the CSRD represent a great leap forward in addressing this issue in a harmonised way. ICASs will use companies' disclosure under the CSRD as the primary source for data on climate change risks as soon as they are available. They are also strongly encouraged to obtain firm-level data from other sources (e.g. disclosures under the Non-Financial Reporting Directive⁵ or the [EU Emissions Trading System](#)) and to use sectoral or regional information where no firm-level information is obtainable.

ICASs recognise the difficulty of assessing the implications of longer-term climate change risks over the one-year prediction horizon of their ratings. The ICASs intend to address this methodological challenge by proceeding in stages. In step 1, they will identify and assess the relevant climate change risks for a company looking beyond the credit risk prediction horizon. In step 2, they will then focus on assessing the materiality of these risks, i.e. the extent to which they affect the short-term credit risk of the company.

The methods for climate change risk assessment will rest on state-of-the-art techniques. ICASs will consider methods and metrics based on harmonised disclosure and industry standards and apply forward-looking approaches. When disclosing under the CSRD, companies are expected to publish an extended set of indicators based on standardised and comparable methodologies whenever possible.⁶ These data can be directly used in metrics or combined with data from other sources. As the expected effects of climate change risks are observable at a lower frequency and amplitude in historical data, the methods and metrics applied will include forward-looking approaches. These will rest on harmonised scenarios taken from industry standards, e.g. those of the Network for Greening the Financial System (NGFS),⁷ to support consistent assessment by different ICASs.

ICASs' climate change risk assessments will be transparent and objective. ICASs will document their data sources and usage and the methods and processes used to assess climate change risks. For each rating, the outcome of the climate change risks assessment and the adjustment to the ICAS rating stemming from its explicit consideration will be documented. This information may be used in the annual review of the appropriateness of the ICASs' credit risk assessments and to support checks on the validity of climate change risk assessments. Given the lack of

⁵ [Directive 2014/95/EU](#) of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and group (OJ L 330, 15.11.2014, p. 1).

⁶ European Financial Reporting Advisory Group, [Climate standard prototype](#), Brussels, September 2021.

⁷ Network for Greening the Financial System, [NGFS Scenarios Portal](#).

historical data for back-testing, the latter may be limited to benchmarking exercises and qualitative assessments in the short run.

Application and further evolution

The common minimum standards for ICASs are a milestone for better incorporating climate change risks into the Eurosystem's collateral framework.

By explicitly incorporating them into ratings, the minimum standards support coherent assessment of these risks and the implementation of related risk management decisions. ICASs are currently further intensifying their work to incorporate climate change risks into their assessments. All ICASs will abide by the common minimum standards from end-2024 onwards. Wider availability of reliable and comparable data and improved methods are expected to lead to further evolution in best practices. ICASs are committed to continuously developing, following and contributing to this evolution and will consider incorporating related aspects such as environmental and biodiversity risks. They will therefore aim to lead by example, embracing a culture of credit assessments that appropriately reflect one of our current key challenges: climate change risks.

Article

1 Fiscal policies to mitigate climate change in the euro area

Prepared by Mar Delgado-Téllez, Marien Ferdinandusse and Carolin Nerlich

1 Introduction

Mitigating climate change is a matter of urgency, which requires sustained and comprehensive policy efforts, including implementing fiscal measures. Under the European Green Deal, Member States committed to reducing EU greenhouse gas emissions by 55% – compared with 1990 levels – by 2030 and to reaching carbon neutrality by 2050, in line with the Paris Agreement.¹ Delivering on these commitments will require additional sustained and frontloaded policy efforts in many areas.²

Many of these climate change initiatives have a clear fiscal angle. These can be directly linked to fiscal policy, mainly through public spending or taxation, and these can also have an indirect influence on macroeconomic and fiscal outcomes. On the revenue side, the EU emissions trading system (ETS), national carbon taxes and other national environmental taxes, such as excise taxes on fossil fuels, are key climate policies in euro area countries that – directly or indirectly – put a price on carbon emissions. Economic theory suggests that carbon pricing should be a core element of any successful climate change policy. On the expenditure side, green public investment, climate-focused subsidies and transfers to the private sector as well as the withdrawal of environmentally harmful subsidies are among the measures intended to contribute to the green transition by stimulating the use of clean energy, fostering green innovation and improving energy efficiency. In addition, there is an interplay between these different fiscal policies to mitigate climate change and non-fiscal policies, such as regulations to increase energy efficiency.

This article provides an overview of existing, required and expected climate-related fiscal policy measures to accelerate the green transition in the euro area. The article examines the climate-related fiscal measures currently in place, which represent relatively small shares in government revenues and expenditures. The focus is on two potent fiscal instruments, namely carbon pricing and public

¹ European Commission, [The European Green Deal](#), Communication and Annex, December 2019.

² The European Commission has submitted a set of proposals to bring the respective EU policies up to par for reducing net greenhouse gas emissions by at least 55% by 2030, compared with 1990 levels, in the Fit for 55 package. See European Commission, [‘Fit for 55’: delivering the EU’s 2030 Climate Target on the way to climate neutrality](#), July 2021.

green investment. Finally, the article discusses compensatory measures to ensure a more equitable green transition.³

2 Existing fiscal measures to mitigate climate change

At present, environmental taxes represent only a modest part of total public revenues. While most countries have higher energy taxes than the minimum mandated by the EU Energy Taxation Directive⁴, this Directive has not been revised since 2003. Energy taxes in the euro area amounted to 4.8% of total public revenues in 2019 (Chart 1, panel a). Transport taxes generally target the most polluting vehicles through, for instance, higher registration or circulation fees.⁵ Transport taxes represented on average around 1.2% of revenues in the euro area in 2019. Furthermore, most energy and transport taxes are not proportional to the greenhouse gas emissions generated.

Emissions trading schemes and carbon taxes explicitly target carbon emissions, although the limited sectoral coverage and initially low permit prices have resulted in limited public revenues. The EU ETS was launched in 2005, and in 2021 it covered 1.73 gigatonnes of CO₂-equivalent greenhouse gas emissions from 31 jurisdictions, amounting to 3.2% of the global total.⁶ Because of low auction prices for emission permits and the free allocation of permits during the first phases of its implementation, revenues were initially not significant (Chart 1, panel a). The surge in auction prices in 2021 and at the beginning of 2022 has increased revenues. However, the caveat remains that the EU ETS does not cover several carbon-intensive economic sectors, and a large share of emission permits has been given away freely rather than auctioned, to contain the risk of carbon leakage.⁷ In addition to the EU ETS, some countries have explicit carbon taxes: Finland's carbon tax, for example, has existed since 1990. But many of these national taxes tend to be relatively insignificant in terms of emissions coverage and price (Chart 1, panel b). In 2021, Germany introduced a national ETS for the transport and buildings sectors, which are not covered by the EU ETS.

³ Measures to adapt to the impact of climate change, which also have a strong fiscal angle, fall outside the scope of this article.

⁴ Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity ([OJ L 283, 31.10.2003](#)), p. 51.

⁵ European Commission, Directorate-General for Mobility and Transport, El Beyrouty, K., Gatto, M., Essen, H. et al., [Transport taxes and charges in Europe: an overview study of economic internalisation measures applied in Europe](#), European Commission, 2019.

⁶ See the box entitled “EU emissions allowance prices in the context of the ECB's climate change action plan”, *Economic Bulletin*, Issue 6, ECB, 2021. The jurisdictions participating in the EU ETS are the EU countries, Iceland, Liechtenstein, Norway and the United Kingdom.

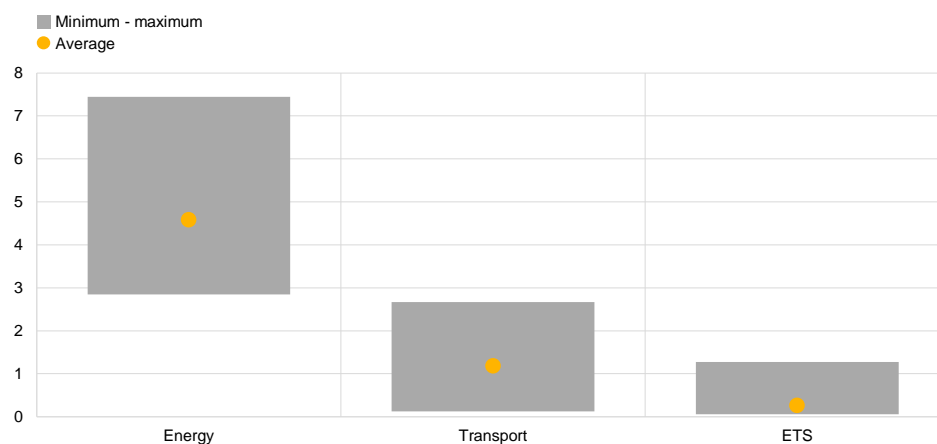
⁷ Carbon leakage refers to the displacement of business to jurisdictions with laxer emissions constraints to avoid costs. This phenomenon reduces the impact of climate policies on global emissions.

Chart 1

The impact of climate policies in terms of government budget revenue

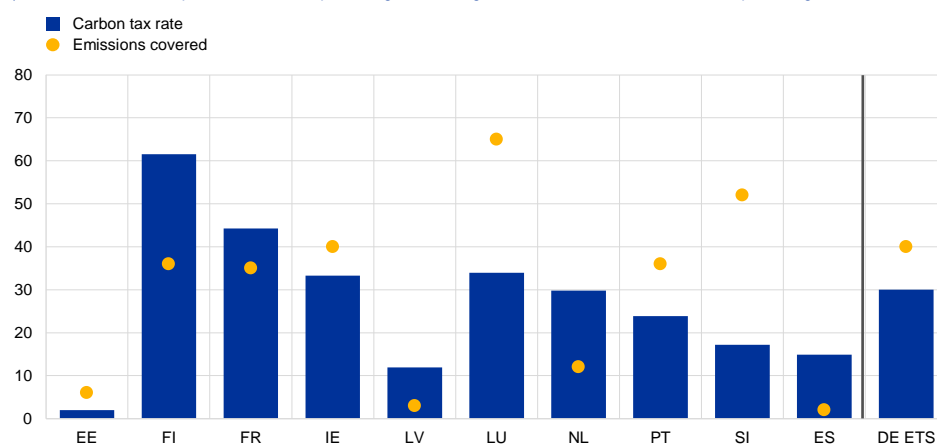
a) Environmental taxes and EU emissions trading system revenues in the euro area

(percentages of total public revenues)



b) Revenues from national carbon taxes and emissions trading schemes by country

(carbon tax rate in EUR per tonne of CO₂ equivalent greenhouse gas emissions; emissions covered as percentages of total emissions)



Sources: Eurostat, World Bank and own calculations.

Notes: Chart 1, panel a shows environmental taxes in 2019 (before the coronavirus (COVID-19) crisis). "Minimum-maximum" represents the euro area country with the lowest and highest share of environmental tax revenues or emissions trading system (ETS) receipts over total revenues. "Average" represents the euro area average share. Chart 1, panel b shows the euro area countries with either an explicit national carbon tax or national emissions trading scheme. Germany's national ETS was implemented in January 2021. In some countries, certain sectors are subject to both national carbon taxes and the EU ETS (the latter is not included in the chart).

Government investment towards clean energy, energy efficiency of buildings and public transport is limited.

Only a quarter of total public investment can be identified as being climate-related (transport, energy and environmental investment), amounting to around 1% of euro area GDP. Transport investment and environmental protection represent the two largest areas of public investment (Chart 2, panel a).

Albeit declining, fossil fuel subsidies still play a role. These subsidies may take the form of tax credits for fossil fuel-producing companies or subsidies to reduce the cost of fossil fuels for the consumer. The IMF distinguishes between explicit and implicit subsidies (Chart 2, panel b). Explicit subsidies occur when there is a negative difference between the fuels' supply cost and the retail price, when this underpricing is due to direct public support to producers. Implicit subsidies are broader, as they

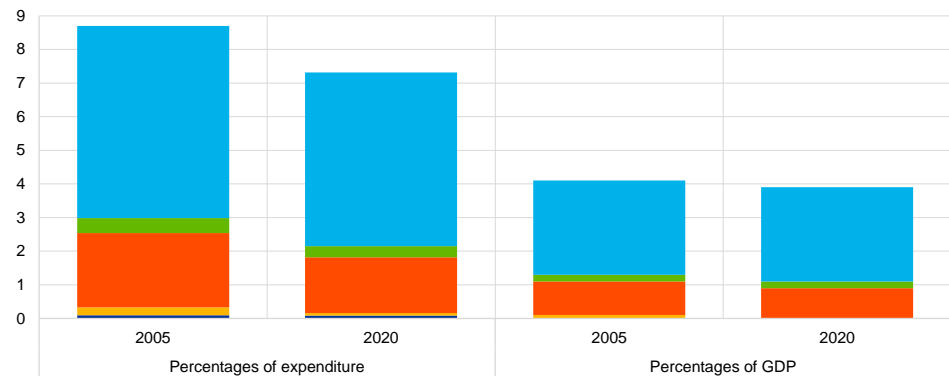
cover externalities related to fossil fuel use, such as climate change, urban pollution and traffic congestion. There are more implicit than explicit subsidies in all euro area countries except Estonia, which presents both the highest level of explicit subsidies and energy tax revenues in the euro area. Several countries continue to explicitly support the use of fossil fuels through fiscal policies, although this amounts to less than 2% of total expenditure.

Chart 2
Climate policies in terms of expenditure

a) Total public investment in the euro area

(percentages of total expenditure and of GDP)

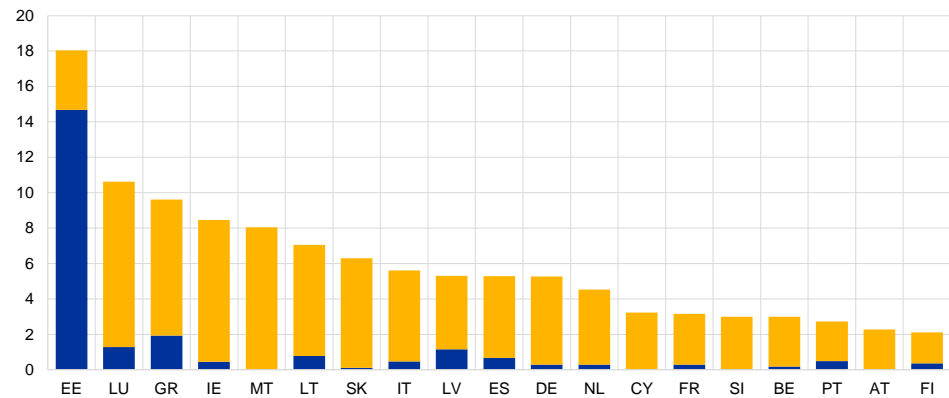
- Fuel and energy
- Mining, manufacturing and construction
- Transport
- Environmental protection
- Other



b) Subsidies for the use of fossil fuel

(percentages of total expenditure in 2019)

- Explicit
- Implicit



Sources: Chart 2, panel a: Eurostat (Data from the Classification of the functions of government – COFOG); Chart 2, panel b: Parry, I., Black, S., Vernon, N., “Still Not Getting Energy Prices Right: A Global and Country Update of Fossil Fuel Subsidies”, International Monetary Fund, September 2021, and own calculations.

Note: In Chart 2, panel a, investment includes total capital formation and investment grants.

Box 1

Policy responses to address high energy prices and ensure energy security

Prepared by Steffen Osterloh, Christoph Zwick and Miles Parker

Russia's war in Ukraine has led governments to take fiscal measures to address increased energy prices and has accelerated legislative activity relating to the green transition at the European level. Member States have implemented temporary fiscal measures that are predominantly aimed at helping households.⁸ In May 2022 the REPowerEU plan was put forward to safeguard European energy security, which will support the EU's climate change targets.⁹

Current national fiscal measures are either targeted to the most vulnerable households or broad-based, and have been taken on both the revenue and expenditure sides. On the revenue side, these are mostly related to cuts to value added tax and excise duties on energy, as well as cuts to other taxes or fees related to energy consumption. As it is difficult to target tax cuts to vulnerable households, the bulk of these measures are broad-based. On the expenditure side, some measures are linked to energy consumption in the form of fuel discounts or energy price caps subsidised by the state, or fuel or electricity vouchers which reduce the energy price for consumers. While fuel discounts are provided to all consumers, spending can be targeted in the form of rebates or vouchers to selected households. To avoid incentivising the increased consumption of fossil fuels, direct support on the spending side can also be given as lump-sum payments unrelated to individual energy consumption. Such income support can be targeted to different groups and be adjusted to the individual's mobility needs. Finally, the state can provide subsidies to substitute energy-consuming activities, such as for the use of public transport.

Energy measures should remain temporary and incentivise energy saving while efficiently addressing the short-term challenges and protecting the most vulnerable households. Both horizontal tax cuts and untargeted transfers are less cost-efficient than spending measures which focus the benefit on the most vulnerable individuals. This is due to the fact that targeted spending measures reduce dead weight losses from subsidising consumers that do not need help. Cost-efficient targeting should account for social criteria and energy needs, as in the case of subsidising individual energy consumption. Finally, measures should incentivise energy saving and be temporary to be consistent with decarbonisation targets. Tax cuts (or exemptions from excise taxes on fossil fuel) and spending to subsidise the use of fossil fuels and carbon-intensive products are problematic, also as they do not incentivise efficient energy use and investment in energy saving. Subsidies should preferably be in the form of lump-sum income support or be linked to individual energy replacements, such as a commuter allowance. Subsidies for public transport or green investments can have a particularly positive impact on energy substitution, but these are difficult to target to vulnerable households.

REPowerEU includes important initiatives to accelerate the green transition. It foresees boosting the roll-out of renewable energies, with the 2030 target for the share of renewables increasing from 40% under the Fit for 55 package to 45%. Actions to reach this higher target include simplifying the permitting procedures for renewable energy projects and frontloading investment to install solar panels on buildings. Moreover, the European Commission proposes to raise the 2030 energy

⁸ See the box entitled “Euro area fiscal policy response to the war in Ukraine and its macroeconomic impact”, *Economic Bulletin*, Issue 5, ECB, 2022.

⁹ See [REPowerEU plan](#), Communication and Annexes, European Commission, May 2022.

efficiency target from 9% under the Fit for 55 package to 13% and has proposed concrete measures to reach this, such as an accelerated roll-out of high-efficiency heating systems.

This drive for energy independence is likely to change the timeline of carbon emission reduction. Shifting away from Russian fossil fuels will probably involve some of the existing coal capacities in the euro area being used for longer than previously foreseen. This, together with the envisaged sale of additional emission allowances from the market stability reserve – worth €20 billion in total, spread equally over four years – will likely mean that REPowerEU will be detrimental to emission reduction targets in the near term. But, if the proposed measures to promote energy efficiency and renewable energy are fully implemented and become increasingly effective, emissions could fall faster towards the end of the decade.

Improved permitting procedures for renewable energies could give an important boost to the share of clean energy in the total energy supply. Currently, slow and complex permit-granting processes are a key obstacle to the roll-out of renewables. The proposed acceleration of permitting procedures under REPowerEU will be essential for speeding up the energy transition. This includes introducing designated “go-to areas” in which permit-granting deadlines would be limited to a maximum of one year, instead of the current nine years for wind energy projects. This is even more important given that over the past decade the costs of renewable energy technologies have fallen by around 85% for solar panels and by over 50% for wind power, making those technologies a competitive alternative to fossil fuel.

3 Reducing the policy gap and fiscal consequences

To meet the goals of the Paris Agreement, euro area countries need to significantly accelerate their efforts to reduce greenhouse gas emissions. On average, the 2020 EU targets for emission reduction, renewable energy and energy consumption were met, with the economic impact of the coronavirus (COVID-19) pandemic playing a major part. However, considerable additional efforts will be needed to meet the more ambitious 2030 targets, which are the next milestones under the EU Green Deal.¹⁰ Carbon pricing and green investment will have to play a key role to reduce the policy gap and accelerate the green transition.

The role of carbon pricing

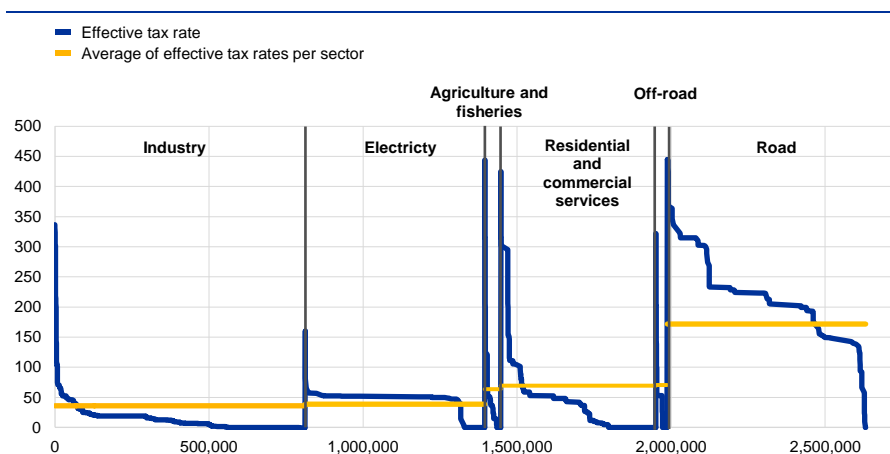
Carbon pricing can be a very effective and efficient tool to mitigate climate change. Well-designed and sufficiently high carbon pricing should underpin a successful climate change policy. It provides a continuous incentive for reducing emissions – including through innovation in green technologies – while generating revenues that can be reinvested and used for social transfers. With carbon pricing, in contrast to regulation, companies can make a choice on the level and type of additional efforts they make to cut emissions, which ensures that emissions are cut in the most efficient way and that innovation is incentivised. These advantages of

¹⁰ [Trends and projections in Europe 2021](#), European Environment Agency, October 2021.

carbon pricing are magnified the larger and more uniform the carbon pricing is across the economy, since more economic agents will then determine their carbon emissions based on carbon pricing.

Effective carbon rates, which provide a useful indicator for the carbon pricing gap, vary widely in the euro area. Effective carbon rates are based on a concept by the OECD that reflects the price of carbon emissions resulting from three different sources: tradeable emission permit prices, carbon taxes and fuel excise taxes. They are calculated for six sectors, covering almost the entire economy.¹¹ As a consequence of the large heterogeneity in national tax rates and the partial coverage of the EU ETS (Section 2), effective carbon rates vary widely in and between economic sectors in euro area countries (Chart 3) and across countries. While the highest effective carbon rate in some sectors exceeds €300 per tonne of CO₂, a large share of carbon emissions is priced at a very low level or not taxed at all. The euro area average effective carbon rate of €77 per tonne of CO₂ is above rates in many other countries, but is well below the rate of €120 per tonne of CO₂ that would be needed in 2030 to decarbonise by 2050, according to recent estimates.¹²

Chart 3
Effective carbon tax rates in the euro area in 2021



Sources: OECD and own calculations.

Notes: Effective carbon tax rates reflect the price on carbon emissions that results from three different sources, i.e. from tradeable emission permit prices, carbon taxes and fuel excise taxes, and are calculated based on the energy content of different fuel sources. They are calculated for six sectors: road transportation; off-road transportation (excluding international aviation and shipping); industry; agriculture and fisheries; residential and commercial services and electricity generation, based on tax rates on 1 April 2021 and the auction-weighted EU ETS price for 2021. The horizontal axis represents the cumulative total emissions (based on data from 2018, with an adjustment for the German emissions trading system introduced in 2021), divided into the six sectors for which the effective carbon tax is calculated.

Reaching net-zero emissions by 2050 effectively requires a higher level and broader coverage of carbon pricing. The European Commission has made a number of proposals to support this, primarily in the Fit for 55 package. These include extending the scope of the ETS, creating a separate ETS for the buildings and transport sectors, reducing the number of allowances and gradually phasing out

¹¹ These sectors comprise industry; electricity; agriculture and fisheries; residential and commercial services; off-road transportation and road transportation.

¹² See OECD, *Taxing Energy Use 2022*, forthcoming. In earlier studies, the OECD considered €30 per tonne of CO₂ as the historic low-end benchmark and €60 per tonne of CO₂ as the low-end estimate for carbon costs in 2030. The IMF has advocated for a carbon price floor of USD 75 per tonne of CO₂ for advanced economies. See *IMF Fiscal Monitor*, IMF, April 2022.

the number of freely allocated emissions permits. The package also includes a proposal to revise the Energy Taxation Directive that aims to promote clean technologies and introduce higher levels of taxation for fossil fuels. If adopted, these proposals will likely increase the effective carbon rates and their coverage. On average, an increase of effective carbon rates by €10 per tonne of CO₂ is estimated to reduce emissions by 7.3% in the long term.¹³ However, this effectiveness also depends on the availability of green technologies and the timeline for tax increases. The short-term effects of a higher effective carbon rate on output and inflation depend on the speed of increase, which sectors see an increase in carbon pricing and how additional tax revenues are used (Box 2).

Box 2

Model-based analysis of the short-term impact of increasing the effective carbon tax on euro area output and inflation

Prepared by Marien Ferdinandusse, Friderike Kuik, Georg Müller and Carolin Nerlich

This box presents a model-based analysis of the short-term impact of increasing effective carbon rates on euro area output and inflation in two scenarios.¹⁴ The “gradual carbon pricing” scenario assumes a steady and linear increase of the average effective carbon rates to €120 per tonne of CO₂ by 2030 in all sectors except road transportation, for which an increase to €200 per tonne of CO₂ is assumed.¹⁵ The “frontloaded carbon pricing” scenario assumes a steeper increase in effective carbon rates, which is equal across all sectors (around €18 per tonne of CO₂ per year), reaching levels consistent with the net-zero target by 2024.

The macroeconomic implications of the increase in the effective carbon rates are considered through two transmission channels: taxation of household consumption and firms’ energy inputs. The macroeconomic implications are evaluated using the ECB’s New Multi-Country Model (NMCM), which is well-suited to analysing short-term developments around the three-year baseline projection horizon.¹⁶ While the NMCM neither features an explicit role for the energy input into production nor the taxation of energy input, it is still possible to map the effective rate instrument onto two different channels. First, consumption taxation is modelled as a conventional value added tax shock directly affecting household consumer prices. The second channel, which represents carbon pricing for firms, is modelled as a shock on imported energy,¹⁷ which indirectly feeds into final consumer

¹³ D’Arcangelo, F., Pisu, M., Raj, A. and Van Dender, K., “Estimating the CO₂ emission and revenue effects of carbon pricing: new evidence from a large cross-country dataset”, *OECD Economics Department Working Paper Series*, forthcoming.

¹⁴ This exercise gauges inflationary pressures which abstracts from endogenous monetary policy responses by the central bank.

¹⁵ See Section 3.1. and footnote 12. A higher tax floor is considered for the road sector, as the effective carbon rate is already above €120 per tonne of CO₂ and because some of the EU policy proposals imply further increases.

¹⁶ Dieppe, A., González Pandiella, A., Hall, S. and Willman, A., “Limited information minimal state variable learning in a medium-scale multi-country model”, *Economic Modelling*, Vol. 33, Issue C, 2013.

¹⁷ The carbon price in this sense can be thought of as a tax on the value of fossil resources, where the euro area is assumed to be fully reliant on imports. In the model, fossil resources trigger a pricing effect alone: higher import prices then lead to a loss of households’ purchasing power and therefore a decrease in the consumption of goods.

prices. The mapping of the channels is based on the six sectors for which the effective carbon tax rates are calculated.¹⁸

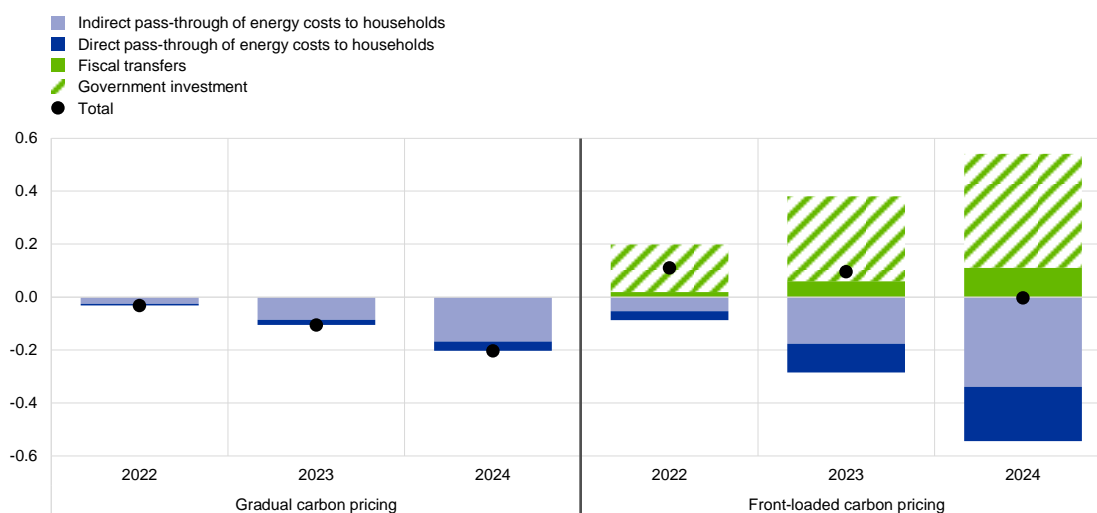
The results point to limited but non-negligible macroeconomic effects from a gradual increase in effective carbon rates, and considerably stronger effects under the second scenario with a more frontloaded increase in carbon pricing. Because households already face relatively high implicit carbon taxes (mostly on road transport), the gradual carbon pricing scenario largely means additional input pricing costs for firms. The simulations imply a pass-through from producer costs and prices onto final consumer prices, which results in HICP inflation being around 0.15 percentage point higher per year (Chart A, panel b). The increased energy costs are transmitted towards HICP excluding energy inflation as well. The second scenario, however, shows more sizeable increases in HICP inflation of over 0.4 percentage point in 2022-23 and 0.3 percentage point in 2024.¹⁹ This is partly owing to the input channel playing a stronger role compared with the first scenario, but also due to a stronger increase in the consumption taxation paid by households than in the first scenario. The more sizeable nominal impact in the second scenario, which triggers real income losses and therefore a decline in consumption, translates into a strong GDP decrease of 0.5% by 2024 without fiscal measures (Chart A, panel a).

Chart A

Impact of an increase in effective carbon taxes on the euro area economy

a) GDP level

(percentage point deviations from baseline level)

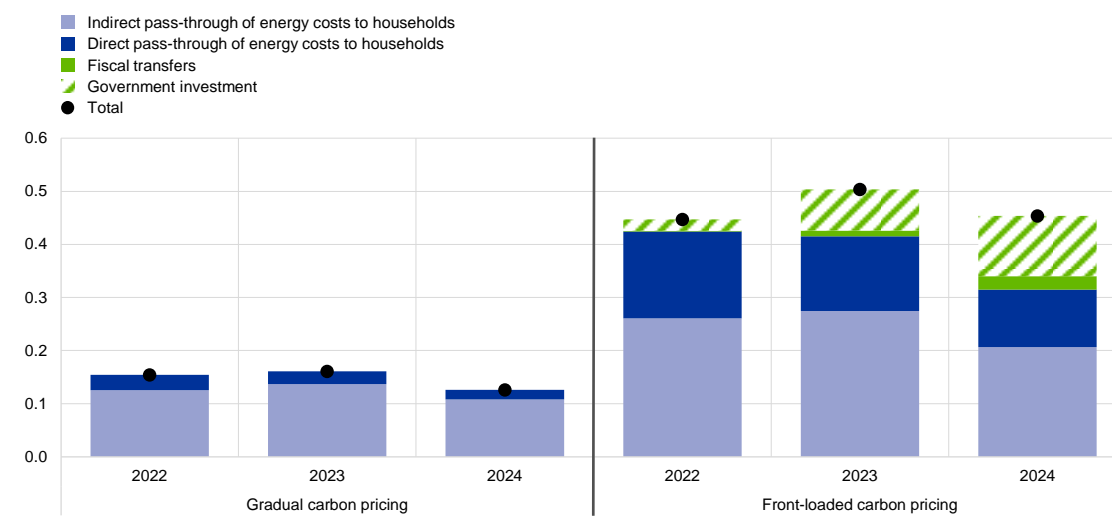


¹⁸ The industry, agriculture and fisheries and off-road transportation sectors are considered relevant for firms' taxation, and the road transportation sector is linked to household consumption. The tax increase from residential and commercial services and electricity production is split between households and firms, based on their relative energy consumption in these sectors, with households accounting for 75% of emissions from residential and commercial services, and 25% of emissions from electricity production.

¹⁹ These figures do not include the impact of fiscal measures such as fiscal transfers or government investment.

b) HICP inflation

(percentage point deviations from baseline growth rates)



Sources: OECD and ECB calculations.

Notes: The simulations are based on the ECB's New Multi-Country Model (NMCM). In the "frontloaded carbon pricing" scenario, the amount of transfers to households equals the revenues collected from taxes paid by consumers. The amount of government investment equals the revenues collected from the carbon taxes paid by firms. The simulations are conducted under exogenous monetary policy, without automatic fiscal stabilisers, and without additional trade spillovers.

Recycling the additional revenues could mitigate the output effects but would increase the inflationary impact of increasing effective carbon taxes. Instead of debt reduction, as simulated in the first scenario, governments could use the additional carbon tax revenues to reduce other taxes or to increase other expenditures. We simulate the recycling of fiscal revenues in the second scenario in the form of transfer payments back to the household sector and as government investment. This would counteract the negative impact on output but would amplify inflationary effects through additional demand (Chart A, panel a). If the tax revenues from higher effective carbon rates were used to lower other indirect taxes on goods and services, this would reduce the upward pressure on inflation and the downward pressure on output.

These results can be considered as an upper bound for the short-term impact on output and inflation of increasing effective carbon rates. The exercise relies on several assumptions. First, the exercise strongly simplifies the complexity of actual energy cost transmission through the production chain and to households, with possibly strong heterogeneity across countries and sectors.²⁰ Second, the exercise assumes that the policies are introduced during the relatively short period analysed here. However, there is currently uncertainty regarding the timing of the implementation of EU policy proposals to reach net zero by 2050 and the stringency of carbon prices. In particular, the "frontloaded carbon pricing" scenario is more ambitious than current policy proposals. Third, while the scenarios assume a decline in emissions that is in line with meeting EU targets, potential responses of economic agents to the increase in carbon prices are not explicitly modelled. Finally, this analysis does not consider the potential impact of global climate policies on energy commodity prices.

²⁰ Cross-country differences in the pass-through depend on differing shares of primary energy sources, the importance of different industries across regions and the legal and contractual frameworks around pricing in the electricity market.

The role of public investment

To support the transition to a low-carbon economy, substantial additional green investment will be needed. The European Commission estimated the additional public and private green investment needs in the EU at around €520 billion per year (around 3.7% of 2019 GDP) over the period 2021-30.²¹ This includes annual additional investment in energy systems of around €390 billion, which corresponds to an increase of 57% compared with the average annual investment spending between 2011 and 2020 (Chart 4, panel a).²² These estimates are based on the assumption of higher carbon pricing and a moderate increase in energy efficiency, renewable energy and green transport policies to reach the CO₂ emission reduction target of 55% by 2030. The total investment needs also include €130 billion per year to meet wider environmental objectives such as environmental protection and resource management.

The largest energy investment gaps are found in the building and transport sectors. The European Commission identified most of the additional annual investment needs to foster energy efficiency in the transport sector (€175 billion) and in the residential buildings sectors (€92 billion) (Chart 4, panel a).²³ The additional investment needs identified in the renewable energy sector (power grid and plants) amount to €54 billion, while this will need to be scaled up further to account for the more ambitious renewable energy target under REPowerEU.²⁴

Green investment needs differ across countries. Based on countries' self-reported National Energy and Climate Plans (NECPs) for the period 2021-30, the annual investment gap ranges from 7% of GDP in Portugal to well below 1% of GDP in Finland (Chart 4, panel b). However, the investment needs set out in the NECPs would need to be scaled up to account for the more ambitious 55% emission reduction target by 2030, as they were made before the target was revised.

²¹ See [The EU economy after COVID-19: implications for economic governance](#), European Commission, October 2021 and [Impact assessment for the revision of the Renewable Energy Directive](#), European Commission, July 2021.

²² These estimates may underestimate the investment needs, as they do not include further investment in adaptation (for example, due to a higher frequency of extreme weather events). Also, they do not include the investment needs for decreasing dependence on fossil fuels as part of REPowerEU.

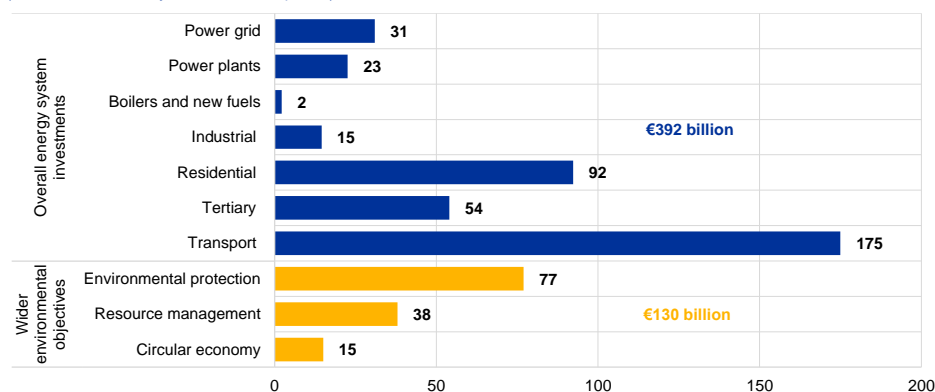
²³ See European Commission (2021b), *op. cit.*

²⁴ For more details on REPowerEU, see Box 1.

Chart 4 Green investment gap

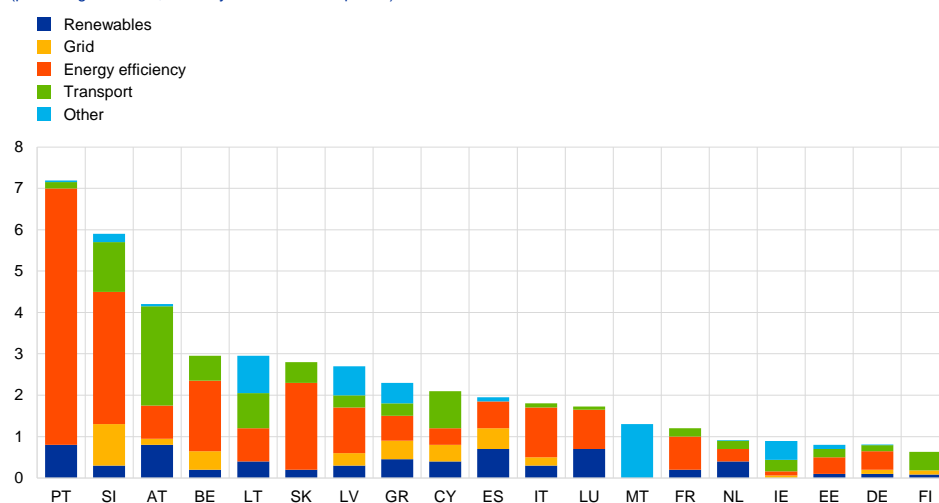
a) Sectoral breakdown of energy system investment gap in the EU

(EUR billions, annually for the 2021-30 period)



b) Green investment needs by category in euro area countries

(percentages of GDP, annually for the 2021-30 period)



Sources: Chart 4, panel a: European Commission (2021a and 2021b); Chart 4, panel b: European Investment Bank and the 2019 euro area National Energy and Climate Plans (NECPs).

Notes: The additional investment needs for energy systems are projected compared to the 2011-20 average investment levels and for the wider environmental objectives compared to 2016 levels. REPowerEU investment plans are not included. Panel b is based on the 2019 National Energy and Climate Plans (NECPs).

The public sector has a crucial role to play in supporting these investment

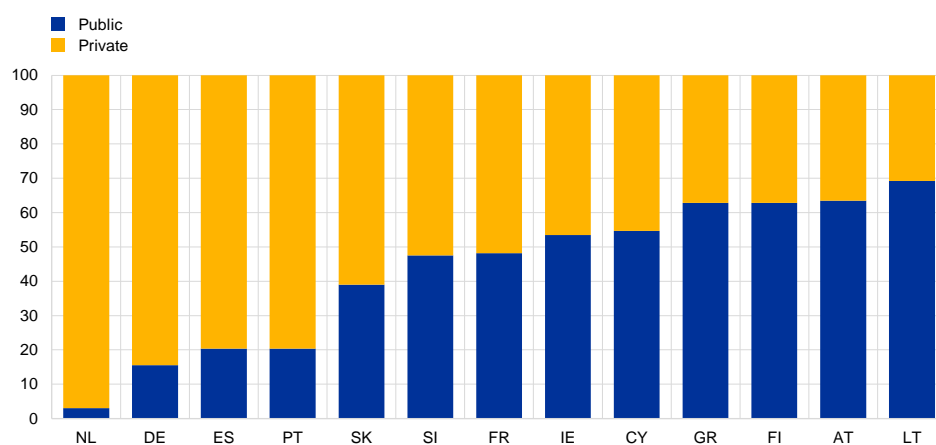
needs. Although the largest share of the additional green investment will need to be provided by the private sector, the public sector will have to act as a catalyst for the transition. This could either be through direct public investment or through other means such as co-financing, private-public partnerships or state guarantees. Moreover, investing in research and development would facilitate innovation in clean technologies.²⁵ Based on the NECPs, the unweighted share of public green investment amounts to 45% of total additional green investment needs in the EU on

²⁵ See Aghion, P., Boneva, L., Breckenfelder, J., Laeven, L., Olovsson, C., Popov, A., and Rancoita, E., "Financial markets and green innovation", *Working Paper Series*, ECB, July 2022.

average, but there are large discrepancies across countries (Chart 5).²⁶ Based on this share and if adjusted for the more ambitious 2030 target, between 1% and 1.8% of EU GDP would be required in annual additional green public expenditure in the period 2021-30. One proposal to incentivise governments to increase green investment spending is to implement a green golden rule (Box 3). Ways of mobilising additional private resources would involve advancing the EU's sustainable finance framework and pushing for a green capital markets union.

Chart 5
Public and private sources of additional green investment needs

(percentages of total, averages for the 2021-30 period)



Source: European Investment Bank

Notes: The data are based on the euro area National Energy and Climate Plans (NECPs) from 2019 to reach the 40% emission reduction target by 2030. No data are available for the more ambitious 55% target. Data on the breakdown between public and private investment are not available for all euro area countries.

While NextGenerationEU (NGEU) will contribute to the financing of green investment needs, its share is limited in scope and duration. Green investment financed through NGEU will account for around 5% of the estimated total green investment required to meet the EU's 2030 climate target.²⁷ Based on the recovery and resilience plans (RRPs), the total amount requested for climate measures is €159 billion for the euro area countries (i.e. 1.3% of euro area GDP in 2019 and slightly below 40% of the recovery and resilience facility funds requested so far).²⁸ There are large differences across Member States in GDP terms, ranging from more than 5% in Greece to less than 0.5% in Germany (Chart 6, panel a). As regards policy areas, on average around 75% of available resources will be devoted to sustainable mobility, energy efficiency and clean energy and networks (Chart 6, panel b).

²⁶ The GDP-weighted share of public green investment amounts to around 25%. This is similar to the estimates for additional public green investment of between 0.5% and 1% of EU GDP, which assume that only 28% of green investment will be supplied by the public sector, in Darvas, Z. and Wolff, G., "A green fiscal pact: climate investment in times of budget consolidation", *Policy Contribution*, Vol. 18, Bruegel, 2021.

²⁷ It is assumed that the amount is distributed linearly over the course of the six-year programme (2021-26).

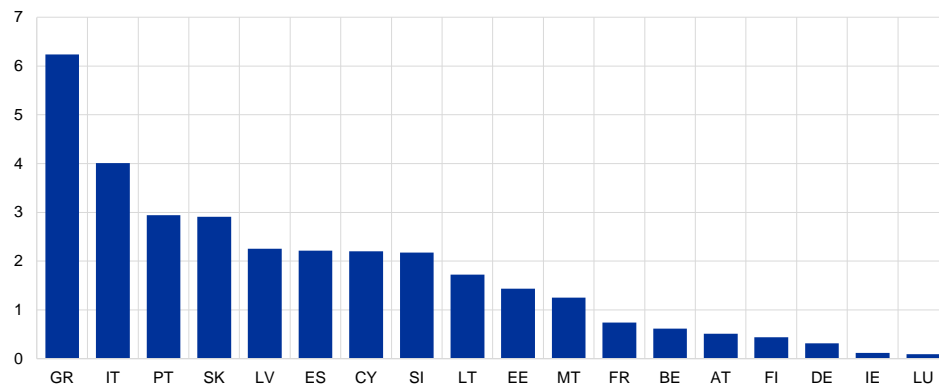
²⁸ This is well above the required 37% of the total allocation to support the climate objectives.

Chart 6

Green elements of the recovery and resilience plans

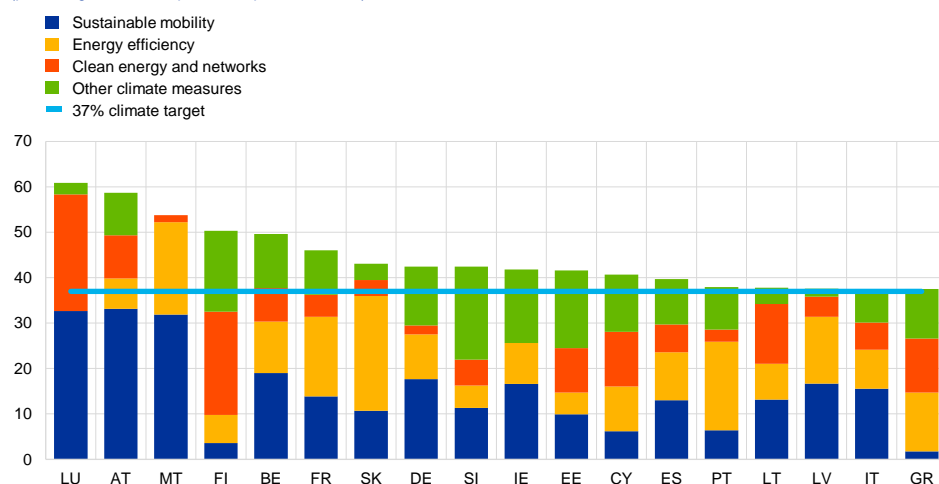
a) Amount requested in the RRP for climate measures per country

(percentages of GDP in 2019, period 2021-26)



b) Expenditure towards climate objectives in the RRP per policy area and country

(percentages of total expenditure, period 2021-26)



Source: European Commission.

Notes: The recovery and resilience plans (RRPs) are shown for all euro area countries, except for the Netherlands, where it had not been endorsed by early August 2022. "Other climate measures" includes expenditures on, for example, research and development, transitioning to a circular economy and green skills and jobs.

Box 3

Can green golden rules help to close the green investment gap?

Prepared by Marien Ferdinandusse, Carolin Nerlich and Steffen Osterloh

Proposals for green golden rules aim to stimulate green public investment in the EU while respecting fiscal sustainability.²⁹ Under a green golden rule, green public investment spending would be exempted from the fiscal rules under the Stability and Growth Pact (SGP).³⁰ This box

²⁹ See for example Claeys, G., Tagliapietra, S., and Zachmann, G., "How to make the European Green Deal work", *Policy Contribution*, Vol. 13, 2019 and Darvas, Z. and Wolff, G., op. cit.

³⁰ The SGP does not include a golden rule, as the practical drawbacks of having a general exception of public investment from the fiscal rules were considered greater than its benefits. For a discussion of implementing a golden rule, see Balassone, F. and Franco, D., Public Investment, the Stability Pact and the 'Golden Rule', *Fiscal Studies*, Vol. 21, No 2, 2000.

reviews the main arguments for and against introducing green golden rules to foster green public investment.

Several arguments have been raised in favour of the proposal. First, excluding green investment expenditures from the SGP framework may incentivise countries to invest more in green projects. While climate change is a global phenomenon, green public investment spending is undertaken on the national level. Governments may have little incentive to internalise the negative externalities of climate change, which may result in underinvestment in green projects. This may be particularly pertinent for countries with limited fiscal space. Second, green golden rules may help to address a time inconsistency problem: the economic losses of inaction today will rise exponentially and may fully materialise only decades later, although their magnitude is uncertain.³¹ Yet, incentives to frontload green public investment, if financed by taxing today's voters for the benefit of those of tomorrow, risk receiving little electoral support.³² Third, green public investment can stimulate green private investment, for example through network effects such as charging points for electric cars. It can therefore help to overcome the financing gaps for green innovation.³³ Fourth, green investment could ultimately facilitate fiscal sustainability if it contributes to higher growth in the medium to long term and reduce the economic losses resulting from climate change.³⁴

However, several factors speak against using golden rules for green public investment. First, identifying green investment projects relies on an effective green taxonomy. This would be crucial to limit the risk that governments declare current spending as green investment ("greenwashing"). Second, it is difficult to determine the optimal level of green public investment, which depends on the interplay between private investment and other fiscal instruments, such as carbon pricing or green subsidies. Green golden rules may even limit incentives for policymakers to foster carbon pricing. Third, green golden rules may reduce incentives for governments to make efforts to reprioritise spending within the available budgetary space, including the need to cut spending that is environmentally harmful.³⁵ This then may pose risks to debt sustainability. Fourth, a green golden rule would make the SGP framework more complex, as exceptions from the fiscal rules would need to be specified.

On balance, green golden rules would need to be carefully designed. While they may stimulate additional green investment, they may pose challenges for fiscal sustainability.³⁶ The rules are

³¹ See Intergovernmental Panel on Climate Change, [Impacts, adaptation and vulnerability](#), February 2022.

³² The welfare gains from debt-financed green investment are modelled in Kotlikoff, L., Kubler, F., Polbin, A., Sachs, J., and Scheidegger, S., "[Making carbon taxation a generational win win](#)", *National Bureau of Economic Research Working Paper*, No 25760, 2019.

³³ See Aghion, E. et al., op. cit., in which it is argued that the green transition depends on green innovation, venture capital and government support.

³⁴ Studies that compare green versus conventional investments find comparable fiscal multipliers (see Batini, N., Melina, G., di Serio, M. and Fragetta, M., "[Building Back Better: How Big Are Green Spending Multipliers?](#)", *IMF Working Papers*, Vol. 87, 2021). To the extent that green investment replaces rather than expands the existing capital stock, the long-term effect on output would be less significant. The green transition may also have a dampening impact on economic growth in the case of substantial stranded assets. See Pisani-Ferry, J., "[Climate policy is macroeconomic policy, and the implications will be significant](#)", *Policy Brief*, No 21-20, August 2021.

³⁵ According to the European Commission, fossil fuel subsidies in the EU amounted to 0.4% of GDP in 2019. See the [Annex to the Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - 2021 report on the State of the Energy Union - Contribution to the European Green Deal and the Union's recovery](#), European Commission, October 2021.

³⁶ Green golden rules are seen as equivalent to the proposal of a central green investment fund providing loans to finance green investment. See Darvas, Z., "[A European climate fund or a green golden rule: not as different as they seem](#)", *Bruegel Blog*, February 2022.

unlikely to be implemented quickly and a number of conditions would need to be met for them to be successful.³⁷ First, green public investment will need to be accurately identified and quantified. Besides better green budgeting, it also requires a common and precise definition of investment categories (e.g. house insulation, charging points for electric cars) to be acknowledged up to a certain limit under the fiscal rules. Second, green golden rules should go hand-in-hand with cutting environmentally harmful subsidies. Third, to incentivise the frontloading of green public investment while maintaining fiscal sustainability, green golden rules should be time-limited. Finally, independent experts should assess the design and application of green golden rules to limit the risk of greenwashing.

4 Distributional aspects of carbon pricing

When designing climate policies it is important to also consider their distributional effects.³⁸ While carbon pricing policies are widely seen as being environmentally effective and economically efficient, their distributional implications are not straightforward.³⁹ In fact, different channels are at play, with direct and indirect distributional consequences. Carbon pricing affects households through higher purchase costs of carbon-intensive products. This has direct distributional effects depending on the extent to which households' consumption baskets and their marginal propensity to consume differ across income groups.⁴⁰ Low-income households will be disproportionately affected in case of a regressive carbon tax, as they tend to dedicate a larger share of their disposable income to carbon-intensive products.⁴¹ At the same time, higher-income groups tend to have a larger carbon footprint per capita than low-income groups. This is often labelled “carbon inequality” and concerns in particular consumption related to transport and housing (Chart 7).⁴²

³⁷ For a discussion about the legal feasibility of green golden rules, see Corti, F., Alcidi, C., Gros, D., Liscai, A. and Shamsfakhr, F., “[A qualified treatment for green and social investments within a revised EU fiscal framework](#)”, *CEPS Research Report*, No 2022-02, May 2022.

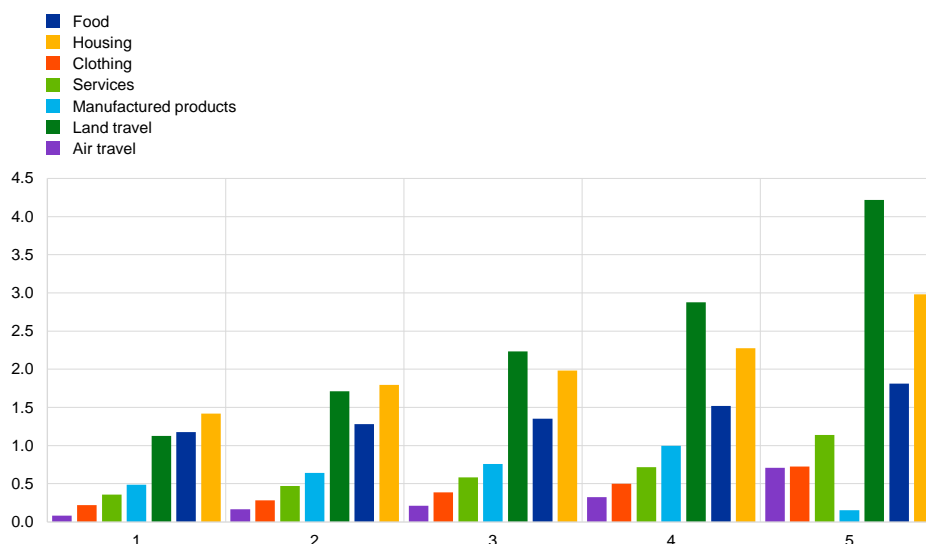
³⁸ Climate change also has distributional effects. Climate vulnerability was found to affect income distribution in developing countries seven times more strongly than in advanced economies, as the former tend to have weaker capacities for adapting to the consequences of climate change. See Cevik, S. and Jalles, J., “[For Whom the Bell Tolls: Climate Change and Inequality](#)”, *IMF Working Paper*, Vol. 103, May 2022.

³⁹ This relates to the concept of a “triple dividend”, in which climate-related policies should not only be effective in reducing carbon emissions and be efficient for the economy, but their impact should be equitable across income groups.

⁴⁰ For a discussion on the distributional effects of higher energy prices, see Battistini, N., Di Nino, V., Dossche, M. and Kolndrekaj, A., “[Energy prices and private consumption: what are the channels?](#)”, *Economic Bulletin*, Issue 3, ECB, 2022.

⁴¹ See Andersson, J. and Atkinson, G., “[The distributional effects of a carbon tax: The role of income inequality](#)”, *Centre for Climate Change Economics and Policy Working Paper*, No 378, September 2020, in which it is found, for example, that the carbon tax on transport fuel introduced in Sweden in 1991 is regressive when measured against annual income. The regressive impact is stronger in rural areas compared to urban areas.

⁴² See Ivanova, D. and Wood, R., “[The unequal distribution of household carbon footprints in Europe and its link to sustainability](#)”, *Global Sustainability*, Vol. 3, Cambridge, 2020.

Chart 7**Carbon footprint in the EU by income group**(tonnes of CO₂ per capita, 2019)

Sources: Ivanova and Wood (2020), op. cit. and own calculations

Notes: Data are shown for income quintiles in the EU countries, with "1" being the lowest and "5" the highest income group. The sequence of the consumption items is based on the carbon footprint of the lowest income group.

The overall distributional impact of carbon pricing also depends on indirect

effects. The effects on employment and economic wealth (via labour income, transfers or savings) vary by income group. Low-income groups may experience a stronger fall in their income as they tend to work in sectors that are more affected by changes in demand. One study finds that indirect effects account for 80% of the regressive impact of a carbon tax.⁴³ Other studies, however, point to indirect effects having a progressive impact in Europe.⁴⁴

Introducing carbon tax rebates for vulnerable groups can mitigate the regressive impact, while being budget-neutral.

Redistributing carbon revenues can mitigate the regressive impact without compromising on emission reductions. There are several ways of rebating carbon revenues, each with different effects. Research analysing the welfare effects in the United States of lump-sum rebates as well as cuts in payroll taxes, personal income taxes and corporate income taxes shows that recycling via lump-sum can be very progressive for low-income households.⁴⁵ Others argue that using carbon revenues for public investment may be preferable to lump-sum redistribution, as it has a more positive impact on

⁴³ See Känzig, D., "The unequal economic consequences of carbon pricing", London Business School, January 2022.

⁴⁴ See, for example, Landis, F., Fredriksson, G. and Rausch, S., "Between- and within-country distributional impacts from harmonizing carbon prices in the EU", *Energy Economics*, Vol. 103, 2021.

⁴⁵ See, for example, the discussion in Goulder, L., Hafstead, M., Kim, G. and Long, X., "Impacts of a carbon tax across US household income groups: What are the equity-efficiency trade-offs?", *Journal of Public Economics*, Vol. 175, July 2019 and in Rausch, S., Metcalf, G., and Reilly, J., "Distributional impacts of carbon pricing: a general equilibrium approach with micro-data for households", *NBER Working Paper*, No 17087, May 2011.

economic efficiency.⁴⁶ Overall, compensatory measures ought to be efficient, well targeted and temporary to limit distortions.

Compensatory measures may ensure broader public support towards climate change policies. Such public support may help to decarbonise the economy indirectly. To further support public acceptance of carbon pricing, the European Commission proposed a Social Climate Fund that aims for a socially just transition.⁴⁷ In addition, accompanying structural policies may be supportive to manage the short-term adjustment costs related to the green transition.

5 Concluding remarks

Additional policy measures are needed in the euro area to mitigate the impact of climate change. Climate change will have lasting and serious environmental and economic consequences for the whole world. The long-term global social, economic and fiscal costs of a delayed transition are likely to exceed the potential short-term costs of efficient and effective climate change policies today by a large degree. To be effective in mitigating climate change, all regions, including Europe, will need to make progress in the green transition.

Euro area countries have set ambitious Paris-aligned climate targets within the framework of the EU Green Deal. Many of the measures needed to achieve this goal will involve a fiscal approach. Adopting an efficient and effective mix of climate-related fiscal policies will be necessary to ensure energy security and accelerate the green transition. Moreover, the current geopolitical situation has demonstrated how important it is for Europe to reduce its dependence on fossil fuel.

The choice of the climate policy mix determines the impact on public finances. This impact depends firstly on what kind of fiscal and other climate policies are chosen. In this regard, carbon pricing and public or private green investment, regulation and permission processes for private investment in renewable energies are particularly important.

Within fiscal policies, the balance between revenue and expenditure policy is pertinent. Carbon pricing is a very effective and efficient way to reduce carbon emissions while also providing additional revenues that can be used for public debt reduction, targeted compensatory social measures or alternative expenditure, including supporting the green transition. Expenditure-based policies – such as green public investment, subsidies for private investment and green research and development – increase countries' deficits, at least in the short term, unless this is covered by additional revenues or by offsetting expenditure cuts, including to environmentally harmful subsidies. Given the magnitude of the climate crisis, the

⁴⁶ See Vona, F., "Managing the Distributional Effects of Environmental and Climate Policies: The Narrow Path for a Triple Dividend", *OECD Environmental Working Paper*, No 188, December 2021.

⁴⁷ The EU Social Climate Fund, as part of the proposed Fit for 55 package, aims to support vulnerable households directly through temporary income support and indirectly through measures and investment that help to strengthen energy efficiency and decarbonisation in the building and transport sectors. The Fund will be financed by 25% of the ETS revenues stemming from the proposed ETS for the buildings and transport sectors over the period 2026-32, with an estimated total amount of €72 billion.

limited scope of current green technologies and the distributional impact of carbon pricing, a mix of revenue and expenditure policies will be needed.

Successful mitigation policies affect tax bases. The more successful carbon pricing is in reducing carbon emissions, the more the carbon tax base will shrink over time. Therefore, temporarily higher carbon or environmental tax-related revenues should not be earmarked for permanent spending measures. Similarly, expenditure policies such as investment programmes or green subsidies should be frontloaded and match the time needed to speed up the green transition, rather than be open-ended.

Statistics

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Further information

ECB statistics can be accessed from the Statistical Data Warehouse (SDW):	http://sdw.ecb.europa.eu/
Data from the statistics section of the Economic Bulletin are available from the SDW:	http://sdw.ecb.europa.eu/reports.do?node=1000004813
A comprehensive Statistics Bulletin can be found in the SDW:	http://sdw.ecb.europa.eu/reports.do?node=1000004045
Methodological definitions can be found in the General Notes to the Statistics Bulletin:	http://sdw.ecb.europa.eu/reports.do?node=10000023
Details on calculations can be found in the Technical Notes to the Statistics Bulletin:	http://sdw.ecb.europa.eu/reports.do?node=10000022
Explanations of terms and abbreviations can be found in the ECB's statistics glossary:	http://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)						
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	OECD countries		United States	United Kingdom (HICP)	Japan	China	Memo item: euro area ²⁾ (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	2.8	2.3	1.7	-0.4	6.0	1.6	2.1	2.1	1.8	1.8	0.5	2.9	1.2
2020	-3.2	-3.4	-9.3	-4.6	2.2	-6.1	1.4	1.7	1.2	0.9	0.0	2.5	0.3
2021	6.1	5.6	7.4	1.7	8.1	5.2	4.0	2.9	4.7	2.6	-0.3	0.9	2.6
2021 Q3	1.9	0.6	0.9	-0.5	0.4	2.2	4.4	3.1	5.3	2.8	-0.2	0.8	2.8
Q4	1.3	1.7	1.3	1.0	1.4	0.5	5.9	4.0	6.7	4.9	0.5	1.8	4.6
2022 Q1	0.7	-0.4	0.8	0.0	1.4	0.7	7.9	5.5	8.0	6.2	0.9	1.1	6.1
Q2	-	-0.1	-0.1	0.5	-2.6	0.8	9.7	6.5	8.6	9.2	2.5	2.2	8.0
2022 Mar.	-	-	-	-	-	-	8.8	5.9	8.5	7.0	1.2	1.5	7.4
Apr.	-	-	-	-	-	-	9.2	6.3	8.3	9.0	2.5	2.1	7.4
May	-	-	-	-	-	-	9.7	6.4	8.6	9.1	2.5	2.1	8.1
June	-	-	-	-	-	-	10.3	6.7	9.1	9.4	2.4	2.5	8.6
July	-	-	-	-	-	-	.	.	8.5	10.1	2.6	2.7	8.9
Aug. ³⁾	-	-	-	-	-	-	9.1

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.

3) The figure for the euro area is an estimate based on provisional national data, as well as on early information on energy prices.

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					Memo item: euro area	Global Purchasing Managers' Index ²⁾			Global	Advanced economies	Emerging market economies
	Global ²⁾	United States	United Kingdom	Japan	China		Manufacturing	Services	New export orders			
	1	2	3	4	5	6	7	8	9	10	11	12
2019	51.7	52.5	50.2	50.5	51.8	51.3	50.3	52.2	48.8	-0.5	-0.4	-0.6
2020	47.5	48.8	46.5	42.4	51.4	44.0	48.5	46.3	45.3	-4.1	-4.3	-3.8
2021	54.9	59.6	55.9	49.4	52.0	54.9	53.7	55.2	52.1	11.1	9.6	12.7
2021 Q3	53.0	56.8	56.3	47.4	50.6	58.4	51.8	53.4	50.3	-0.4	-0.1	-0.7
Q4	54.6	57.3	56.3	52.1	51.9	54.3	52.2	55.5	50.4	2.2	2.4	1.9
2022 Q1	52.2	54.9	58.3	48.7	48.0	54.2	51.0	52.6	49.1	1.9	3.5	0.1
Q2	51.6	54.0	55.0	52.1	44.9	54.2	50.2	52.1	48.8	0.3	-0.3	0.9
2022 Mar.	52.4	57.7	60.9	50.3	43.9	54.9	50.6	53.0	47.9	1.9	3.5	0.1
Apr.	50.5	56.0	58.2	51.1	37.2	55.8	48.4	51.1	48.2	-0.5	0.3	-1.3
May	50.7	53.6	53.1	52.3	42.2	54.8	49.3	51.1	48.0	-0.6	0.4	-1.7
June	53.8	52.3	53.7	53.0	55.3	52.0	52.9	54.0	50.1	0.3	-0.3	0.9
July	50.9	47.7	52.1	50.2	54.0	49.9	50.7	51.0	48.6	.	.	.
Aug.	49.3	44.6	49.6	49.4	53.0	49.0	49.8	49.1	47.5	.	.	.

Sources: Markit (col. 1-9); CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations (col. 10-12).

1) Global and advanced economies exclude the euro area. Annual and quarterly data are period-on-period percentages; monthly data are 3-month-on-3-month percentages. All data are seasonally adjusted.

2) Excluding the euro area.

2 Economic activity

2.1 GDP and expenditure components

(quarterly data seasonally adjusted; annual data unadjusted)

	GDP											
	Total	Domestic demand								External balance ¹⁾		
		Total	Private consumption	Government consumption	Gross fixed capital formation			Changes in inventories ²⁾	Total	Exports ¹⁾	Imports ¹⁾	
					Total construction	Total machinery	Intellectual property products					
1	2	3	4	5	6	7	8	9	10	11	12	
<i>Current prices (EUR billions)</i>												
2019	11,984.5	11,578.4	6,381.0	2,455.3	2,657.0	1,253.1	771.7	625.5	85.1	406.1	5,767.7	5,361.6
2020	11,448.1	11,040.4	5,918.7	2,565.3	2,511.2	1,221.9	684.4	598.0	45.3	407.6	5,181.8	4,774.1
2021	12,301.1	11,821.4	6,276.2	2,714.1	2,702.6	1,367.7	766.3	561.1	128.5	479.7	6,057.2	5,577.5
2021 Q3	3,124.6	2,992.9	1,617.1	681.2	674.7	346.6	189.3	136.9	20.0	131.7	1,549.1	1,417.4
Q4	3,170.9	3,087.8	1,639.9	691.5	706.8	353.9	195.3	155.7	49.6	83.1	1,630.0	1,546.8
2022 Q1	3,231.2	3,155.2	1,676.5	700.5	718.6	372.4	201.1	143.2	59.6	76.0	1,702.2	1,626.2
Q2	3,292.1	3,238.9	1,728.1	710.9	742.4	385.0	208.7	146.7	57.5	53.2	1,802.4	1,749.2
<i>as a percentage of GDP</i>												
2021	100.0	96.1	51.0	22.1	22.0	11.1	6.2	4.6	1.0	3.9	-	-
<i>Chain-linked volumes (prices for the previous year)</i>												
<i>quarter-on-quarter percentage changes</i>												
2021 Q3	2.2	2.1	4.4	0.1	-0.6	-0.6	-1.6	0.7	-	-	2.3	2.1
Q4	0.5	1.4	0.0	0.7	3.7	0.3	2.0	14.2	-	-	2.4	4.7
2022 Q1	0.7	0.0	0.0	0.2	-0.8	2.2	1.5	-10.4	-	-	1.2	-0.2
Q2	0.8	1.0	1.3	0.6	0.9	0.0	1.8	2.0	-	-	1.3	1.8
<i>annual percentage changes</i>												
2019	1.6	2.4	1.4	1.7	6.9	3.2	1.9	22.7	-	-	2.8	4.8
2020	-6.1	-5.8	-7.7	1.1	-6.4	-4.1	-11.8	-4.4	-	-	-9.0	-8.6
2021	5.2	4.1	3.7	4.2	4.1	6.2	10.5	-7.7	-	-	10.3	8.1
2021 Q3	3.7	3.3	2.9	2.8	2.5	3.3	2.9	0.2	-	-	10.3	9.9
Q4	4.6	4.9	5.9	2.6	2.7	1.9	3.5	3.3	-	-	8.1	9.0
2022 Q1	5.4	5.8	8.1	3.0	3.9	4.5	2.7	4.1	-	-	8.7	9.9
Q2	4.1	4.5	5.6	1.6	3.1	2.0	3.8	5.2	-	-	7.4	8.6
<i>contributions to quarter-on-quarter percentage changes in GDP; percentage points</i>												
2021 Q3	2.2	2.0	2.2	0.0	-0.1	-0.1	-0.1	0.0	-0.1	0.2	-	-
Q4	0.5	1.4	0.0	0.1	0.8	0.0	0.1	0.6	0.4	-0.9	-	-
2022 Q1	0.7	0.0	0.0	0.1	-0.2	0.2	0.1	-0.5	0.1	0.7	-	-
Q2	0.8	0.9	0.6	0.1	0.2	0.0	0.1	0.1	0.0	-0.2	-	-
<i>contributions to annual percentage changes in GDP; percentage points</i>												
2019	1.6	2.3	0.7	0.4	1.4	0.3	0.1	1.0	-0.2	-0.7	-	-
2020	-6.1	-5.6	-4.1	0.2	-1.4	-0.4	-0.8	-0.2	-0.3	-0.5	-	-
2021	5.2	4.1	2.0	1.0	1.0	0.7	0.7	-0.4	0.2	1.4	-	-
2021 Q3	3.7	3.1	1.5	0.6	0.5	0.4	0.2	0.0	0.4	0.6	-	-
Q4	4.6	4.6	3.0	0.6	0.6	0.2	0.2	0.2	0.5	0.0	-	-
2022 Q1	5.4	5.6	4.1	0.7	0.9	0.5	0.2	0.2	0.0	-0.1	-	-
Q2	4.1	4.4	2.8	0.4	0.7	0.2	0.2	0.2	0.5	-0.2	-	-

Sources: Eurostat and ECB calculations.

1) Exports and imports cover goods and services and include cross-border intra-euro area trade.

2) Including acquisitions less disposals of valuables.

2 Economic activity

2.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											Taxes less subsidies on products
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services	
	1	2	3	4	5	6	7	8	9	10	11	12
Current prices (EUR billions)												
2019	10,742.1	178.2	2,104.2	555.1	2,041.3	531.8	480.7	1,203.5	1,251.6	2,026.1	369.5	1,242.5
2020	10,318.1	177.4	1,993.3	544.5	1,803.9	544.6	478.7	1,207.0	1,182.2	2,064.8	321.5	1,130.0
2021	11,029.6	189.5	2,170.3	595.2	2,004.1	585.9	489.5	1,240.5	1,265.3	2,158.4	331.0	1,271.4
2021 Q3	2,799.2	48.0	546.3	149.3	524.9	146.5	122.2	310.1	320.7	543.6	87.6	325.4
Q4	2,833.7	50.0	557.6	152.5	537.5	149.7	122.6	312.1	326.2	541.8	83.7	337.3
2022 Q1	2,888.5	51.2	579.3	157.5	547.3	149.9	124.3	315.1	329.9	548.6	85.5	342.7
Q2	2,948.3	53.3	598.6	161.8	568.1	153.8	124.6	316.6	335.8	546.1	89.5	343.8
<i>as a percentage of value added</i>												
2021	100.0	1.7	19.7	5.4	18.2	5.3	4.4	11.2	11.5	19.6	3.0	-
Chain-linked volumes (prices for the previous year)												
<i>quarter-on-quarter percentage changes</i>												
2021 Q3	2.5	-0.5	0.9	-0.3	7.5	1.2	0.1	0.6	2.3	1.3	11.2	-0.5
Q4	0.2	-0.1	0.2	0.6	0.3	2.5	0.1	0.3	1.2	-0.8	-2.6	3.2
2022 Q1	0.9	-1.2	0.4	2.3	1.1	0.3	0.4	1.3	0.7	0.9	2.1	-1.4
Q2	0.7	-0.5	0.5	-0.7	1.6	2.2	0.1	0.1	1.0	-0.3	4.4	1.6
<i>annual percentage changes</i>												
2019	1.6	1.5	0.4	0.9	2.5	5.7	0.6	1.4	1.8	1.0	1.7	2.0
2020	-6.0	-0.3	-6.2	-5.5	-13.9	2.0	0.2	-0.6	-7.0	-2.6	-18.0	-6.5
2021	5.1	-0.9	7.2	5.5	7.7	7.0	3.0	1.6	5.7	3.5	2.6	6.2
2021 Q3	3.8	-1.2	4.7	2.5	7.2	4.6	2.0	0.9	5.9	1.3	3.6	3.2
Q4	4.5	-1.9	1.9	1.0	11.4	8.4	2.3	1.6	5.4	2.1	13.3	5.5
2022 Q1	5.3	-1.5	1.6	4.8	13.9	6.0	0.9	3.1	6.1	2.0	17.1	6.8
Q2	4.3	-2.2	2.0	1.9	10.8	6.3	0.8	2.3	5.4	1.1	15.4	2.9
<i>contributions to quarter-on-quarter percentage changes in value added; percentage points</i>												
2021 Q3	2.5	0.0	0.2	0.0	1.3	0.1	0.0	0.1	0.3	0.3	0.3	-
Q4	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	-0.2	-0.1	-
2022 Q1	0.9	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.2	0.1	-
Q2	0.7	0.0	0.1	0.0	0.3	0.1	0.0	0.0	0.1	-0.1	0.1	-
<i>contributions to annual percentage changes in value added; percentage points</i>												
2019	1.6	0.0	0.1	0.0	0.5	0.3	0.0	0.2	0.2	0.2	0.1	-
2020	-6.0	0.0	-1.2	-0.3	-2.6	0.1	0.0	-0.1	-0.8	-0.5	-0.6	-
2021	5.1	0.0	1.5	0.3	1.4	0.4	0.1	0.2	0.7	0.7	0.1	-
2021 Q3	3.8	0.0	0.9	0.1	1.3	0.2	0.1	0.1	0.7	0.3	0.1	-
Q4	4.5	0.0	0.4	0.1	2.0	0.4	0.1	0.2	0.6	0.4	0.4	-
2022 Q1	5.3	0.0	0.3	0.3	2.4	0.3	0.0	0.4	0.7	0.4	0.5	-
Q2	4.3	0.0	0.4	0.1	1.9	0.3	0.0	0.3	0.6	0.2	0.4	-

Sources: Eurostat and ECB calculations.

2 Economic activity

2.3 Employment ¹⁾

(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity									
		Employees	Self-employed	Agriculture, forestry and fishing	Manufacturing, energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
<i>as a percentage of total persons employed</i>													
2019	100.0	86.0	14.0	3.0	14.6	6.1	25.0	2.9	2.4	1.0	14.0	24.3	6.7
2020	100.0	86.0	14.0	3.0	14.5	6.2	24.4	3.0	2.4	1.0	13.9	24.9	6.6
2021	100.0	86.1	13.9	3.0	14.3	6.3	24.1	3.1	2.4	1.0	14.1	25.1	6.6
<i>annual percentage changes</i>													
2019	1.3	1.5	0.3	-2.4	1.1	2.6	1.5	3.4	-0.1	1.7	1.5	1.4	0.4
2020	-1.5	-1.5	-1.3	-2.2	-2.0	0.9	-3.8	1.8	-0.6	-0.4	-2.4	0.9	-3.0
2021	1.3	1.5	0.1	0.0	-0.3	3.2	0.2	4.8	0.7	1.1	2.8	2.2	0.1
2021 Q3	2.3	2.6	0.8	-0.2	0.6	3.2	2.2	5.7	1.4	0.9	4.7	2.4	1.1
Q4	2.3	2.7	0.2	-1.4	1.2	3.1	3.1	6.3	0.9	0.5	3.7	1.8	1.0
2022 Q1	3.0	3.4	1.0	-1.5	1.5	3.5	5.1	6.0	-0.2	2.5	4.3	1.8	3.0
Q2	2.7	3.0	0.6	-0.7	1.3	3.1	4.6	6.0	0.3	2.3	3.4	1.5	1.8
Hours worked													
<i>as a percentage of total hours worked</i>													
2019	100.0	81.3	18.7	4.1	14.9	6.8	25.9	3.1	2.4	1.0	13.8	21.7	6.1
2020	100.0	81.9	18.1	4.3	14.9	6.9	24.1	3.3	2.6	1.1	13.8	23.2	5.8
2021	100.0	81.7	18.3	4.1	14.8	7.2	24.4	3.4	2.5	1.1	14.0	22.8	5.8
<i>annual percentage changes</i>													
2019	0.9	1.2	-0.2	-3.4	0.4	2.5	1.1	3.1	0.2	1.8	1.2	1.2	0.3
2020	-7.9	-7.2	-10.8	-2.8	-7.8	-6.4	-14.2	-1.5	-3.0	-6.8	-8.3	-1.7	-12.4
2021	5.4	5.2	6.5	1.4	4.5	8.8	6.5	7.3	2.7	6.5	7.3	3.6	4.8
2021 Q3	3.5	3.9	1.7	-1.2	2.3	2.7	5.0	7.8	1.6	3.3	7.0	1.9	1.0
Q4	4.7	4.6	4.8	-1.3	2.0	3.5	10.8	6.3	0.7	2.7	5.6	0.7	7.2
2022 Q1	6.5	6.5	6.5	-1.8	2.5	4.8	15.6	6.2	-0.6	7.2	6.6	1.2	13.0
Q2	3.9	4.1	2.8	-2.0	1.0	2.7	10.1	5.3	-1.2	4.4	4.1	0.1	7.1
Hours worked per person employed													
<i>annual percentage changes</i>													
2019	-0.4	-0.3	-0.5	-1.0	-0.7	-0.2	-0.5	-0.2	0.3	0.1	-0.3	-0.2	-0.1
2020	-6.4	-5.7	-9.7	-0.7	-5.9	-7.2	-10.9	-3.3	-2.4	-6.4	-6.0	-2.6	-9.8
2021	4.0	3.6	6.4	1.5	4.8	5.4	6.3	2.4	2.0	5.4	4.4	1.4	4.7
2021 Q3	1.1	1.3	0.9	-0.9	1.7	-0.5	2.8	1.9	0.2	2.4	2.2	-0.5	-0.2
Q4	2.3	1.9	4.6	0.0	0.9	0.4	7.5	0.0	-0.2	2.2	1.8	-1.1	6.1
2022 Q1	3.3	3.0	5.4	-0.2	1.0	1.3	10.0	0.2	-0.4	4.6	2.2	-0.6	9.8
Q2	1.2	1.1	2.3	-1.3	-0.3	-0.4	5.3	-0.7	-1.5	2.1	0.7	-1.5	5.3

Sources: Eurostat and ECB calculations.

1) Data for employment are based on the ESA 2010.

2 Economic activity

2.4 Labour force, unemployment and job vacancies

(seasonally adjusted, unless otherwise indicated)

	Labour force, millions	Under-employment, % of labour force	Unemployment ¹⁾											Job vacancy rate ³⁾
			Total		Long-term unemployment, % of labour force ²⁾	By age				By gender				
			Millions	% of labour force		Adult		Youth		Male		Female		
						Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
% of total in 2020			100.0		80.1		19.9		51.3		48.7			
2019	163.509	3.5	12.428	7.6	3.3	10.060	6.8	2.368	16.3	6.348	7.3	6.080	8.0	2.2
2020	160.958	3.5	12.833	8.0	3.0	10.280	7.0	2.552	18.1	6.581	7.7	6.252	8.3	1.8
2021	163.318	3.4	12.635	7.7	3.2	10.183	6.8	2.452	16.8	6.431	7.4	6.204	8.1	2.4
2021 Q3	164.060	3.3	12.376	7.5	3.1	9.944	6.7	2.432	16.3	6.296	7.2	6.080	7.9	2.6
Q4	164.569	3.3	11.778	7.2	3.0	9.600	6.4	2.177	14.7	6.045	6.9	5.732	7.5	2.8
2022 Q1	165.410	3.3	11.339	6.9	2.9	9.213	6.1	2.126	14.1	5.736	6.5	5.603	7.3	3.1
Q2	.	.	11.071	6.7	.	8.896	5.9	2.175	14.2	5.575	6.3	5.496	7.1	3.3
2022 Feb.	-	-	11.275	6.8	-	9.153	6.1	2.123	14.2	5.640	6.4	5.635	7.3	-
Mar.	-	-	11.211	6.8	-	9.064	6.0	2.147	14.2	5.632	6.4	5.579	7.2	-
Apr.	-	-	11.101	6.7	-	8.919	5.9	2.182	14.3	5.585	6.3	5.516	7.1	-
May	-	-	11.053	6.7	-	8.917	5.9	2.136	14.0	5.562	6.3	5.491	7.1	-
June	-	-	11.060	6.7	-	8.852	5.9	2.208	14.4	5.577	6.3	5.482	7.1	-
July	-	-	10.983	6.6	-	8.810	5.8	2.173	14.2	5.564	6.3	5.419	7.0	-

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						Construction production	Retail sales				Services turnover ¹⁾	New passenger car registrations
	Total (excluding construction)		Main Industrial Groupings					Total	Food, beverages, tobacco	Non-food	Fuel		
	1	2	Manufacturing	Intermediate goods	Capital goods	Consumer goods								Energy
3	4	5	6	7	8	9	10	11	12	13			
% of total in 2015	100.0	88.7	32.1	34.5	21.8	11.6	100.0	100.0	40.4	52.5	7.1	100.0	100.0
annual percentage changes													
2019	-0.7	-0.6	-2.6	0.0	1.4	-1.8	2.2	2.4	0.9	3.7	0.8	2.9	1.8
2020	-7.7	-8.2	-7.2	-11.3	-4.3	-4.4	-5.7	-0.8	3.7	-2.3	-14.4	-8.8	-25.1
2021	8.0	8.8	9.7	9.1	7.8	1.6	5.3	5.1	0.9	7.8	9.4	13.3	-3.1
2021 Q3	5.9	6.8	7.8	5.0	8.8	-0.9	0.8	2.5	0.0	4.1	3.5	12.8	-23.6
Q4	0.2	0.1	2.2	-4.0	4.0	2.1	0.7	4.0	-0.5	6.3	13.8	16.9	-25.0
2022 Q1	-0.3	-0.1	1.1	-5.0	5.7	-0.7	5.2	5.0	-2.2	9.9	12.0	.	-13.0
Q2	0.5	0.8	-0.3	-0.4	3.3	-0.6	1.6	0.4	-3.3	2.4	7.1	.	-16.3
2022 Feb.	1.7	2.0	3.1	-3.4	8.7	-0.8	8.6	5.1	-2.2	9.9	12.2	-	-7.1
Mar.	-1.1	-0.8	-0.3	-3.5	2.6	-1.6	2.9	1.9	-2.7	4.5	10.9	-	-19.9
Apr.	-2.5	-2.4	-0.5	-9.0	4.0	0.0	2.7	4.2	-3.4	9.2	15.7	-	-18.3
May	1.6	2.0	0.0	0.9	6.4	-1.7	2.3	0.6	-3.9	3.0	5.8	-	-17.4
June	2.4	2.7	-0.5	7.6	-0.3	0.0	0.1	-3.2	-2.7	-3.9	1.2	-	-13.5
July	.	.	.	.	.	.	.	-0.9	-2.4	-0.9	0.6	-	.
month-on-month percentage changes (s.a.)													
2022 Feb.	0.5	0.7	0.9	-0.2	2.2	-2.5	1.5	0.4	-0.6	1.2	2.5	-	7.0
Mar.	-1.7	-1.8	-1.8	-2.5	-2.5	0.9	-0.4	0.6	0.9	-0.2	-1.0	-	-11.7
Apr.	0.5	0.0	0.5	-0.1	2.0	2.6	-0.9	-1.2	-2.0	-0.7	1.5	-	2.5
May	2.1	1.8	0.2	3.6	2.4	-3.4	-0.3	0.5	-0.8	1.7	0.0	-	-0.3
June	0.7	1.0	-0.1	2.6	-2.8	0.6	-1.3	-1.0	0.0	-1.5	-1.2	-	2.5
July	.	.	.	.	.	.	.	0.3	0.1	-0.4	0.4	-	.

Sources: Eurostat, ECB calculations and European Automobile Manufacturers Association (col. 13).

1) Including wholesale trade.

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
1999-15	98.8	-5.2	80.6	-11.6	-15.4	-8.6	7.3	-	51.2	52.5	53.0	52.8
2019	103.6	-4.8	81.9	-6.8	6.8	-0.2	10.9	90.5	47.4	47.8	52.7	51.3
2020	88.3	-13.3	74.4	-14.2	-6.8	-12.6	-15.9	86.4	48.6	48.0	42.5	44.0
2021	110.8	9.3	81.8	-7.4	4.3	-1.8	8.3	87.7	60.2	58.3	53.6	54.9
2021 Q3	117.5	13.6	82.8	-4.2	6.0	4.8	17.4	89.0	60.9	58.6	58.4	58.4
Q4	115.8	13.8	82.5	-7.6	9.9	3.1	16.3	88.8	58.2	53.6	54.5	54.3
2022 Q1	111.1	11.9	82.5	-13.6	9.5	1.9	12.5	88.9	57.8	54.7	54.1	54.2
Q2	104.2	7.0	82.5	-22.3	5.5	-4.5	13.5	90.3	54.1	50.4	55.6	54.2
2022 Mar.	106.3	9.0	-	-21.7	9.0	-2.2	12.6	-	56.5	53.1	55.6	54.9
Apr.	104.6	7.7	82.5	-22.1	6.8	-4.0	13.0	89.7	55.5	50.7	57.7	55.8
May	104.6	6.2	-	-21.2	6.3	-4.3	13.4	-	54.6	51.3	56.1	54.8
June	103.5	7.0	-	-23.7	3.6	-5.1	14.0	-	52.1	49.3	53.0	52.0
July	98.9	3.4	82.4	-27.0	3.2	-7.1	10.4	90.9	49.8	46.3	51.2	49.9
Aug.	97.6	1.2	-	-24.9	3.9	-6.3	8.7	-	49.6	46.5	49.8	49.0

Sources: European Commission (Directorate-General for Economic and Financial Affairs) (col. 1-8) and Markit (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	
2019	13.2	93.2	2.0	2.7	3.7	6.3	4.1	47.5	24.1	74.7	2.1	8.0	1.9	
2020	19.5	96.1	-0.6	4.1	-3.4	4.7	3.8	46.0	24.8	81.6	3.2	-13.9	2.0	
2021	17.4	96.5	1.3	3.5	19.8	7.3	7.8	48.8	26.8	79.5	5.2	8.0	3.0	
2021 Q2	19.2	96.5	4.0	4.2	31.3	6.8	5.3	48.6	27.0	79.9	4.4	20.9	2.3	
Q3	18.6	96.7	0.8	4.0	18.5	7.6	7.0	48.7	27.3	79.3	4.5	12.7	2.4	
Q4	17.4	96.5	0.5	3.5	18.8	7.3	7.8	48.8	26.8	79.5	5.2	13.6	3.0	
2022 Q1	15.8	96.2	0.2	3.1	17.5	5.6	8.3	48.5	26.3	78.8	5.1	14.4	3.2	

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
	Credit	Debit	Balance	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit		
1	2	3	4	5	6	7	8	9	10	11	12	13	
2021 Q3	1,112.8	1,043.0	69.8	625.1	553.9	252.7	238.4	195.1	172.6	39.9	78.2	27.3	13.4
Q4	1,180.9	1,154.4	26.6	648.7	621.4	278.0	248.7	213.5	201.9	40.7	82.5	59.8	46.9
2022 Q1	1,224.4	1,201.9	22.5	683.3	674.7	294.5	253.8	207.4	204.0	39.1	69.4	27.8	20.5
Q2	1,278.8	1,285.7	-7.0	744.6	744.9	297.8	254.4	200.6	204.1	35.7	82.2	19.2	11.1
2022 Jan.	407.2	390.4	16.8	226.8	217.0	97.4	81.8	70.5	67.3	12.4	24.3	7.9	5.9
Feb.	410.3	401.5	8.7	230.2	227.7	98.8	86.5	68.8	65.9	12.5	21.4	7.3	4.4
Mar.	406.9	410.0	-3.0	226.3	230.0	98.3	85.5	68.1	70.8	14.2	23.7	12.7	10.2
Apr.	422.4	426.7	-4.3	243.2	243.3	98.7	87.5	67.9	69.1	12.6	26.8	6.9	4.5
May	425.9	432.9	-6.9	248.6	248.4	99.7	85.9	65.5	71.3	12.2	27.2	5.4	3.3
June	430.4	426.1	4.2	252.9	253.2	99.4	81.0	67.2	63.7	10.9	28.2	6.9	3.4
<i>12-month cumulated transactions</i>													
2022 June	4,796.9	4,685.0	111.9	2,701.8	2,594.9	1,123.1	995.2	816.5	782.6	155.5	312.2	134.1	91.9
<i>12-month cumulated transactions as a percentage of GDP</i>													
2022 June	37.4	36.5	0.9	21.1	20.2	8.8	7.8	6.4	6.1	1.2	2.4	1.0	0.7

1) The capital account is not seasonally adjusted.

2.9 Euro area external trade in goods¹⁾, values and volumes by product group²⁾

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
	Exports	Imports	Total			Memo item: Manu- facturing	Total			Memo items:			
			Intermediate goods	Capital goods	Consumption goods		Intermediate goods	Capital goods	Consumption goods	Manu- facturing	Oil		
1	2	3	4	5	6	7	8	9	10	11	12	13	
<i>Values (EUR billions; annual percentage changes for columns 1 and 2)</i>													
2021 Q3	13.7	23.0	607.4	305.5	119.0	171.0	501.7	581.4	346.6	94.2	135.0	415.5	58.3
Q4	12.1	32.3	636.6	322.7	115.9	187.8	524.7	654.0	400.5	97.5	148.5	450.8	71.2
2022 Q1	17.0	40.3	674.9	342.4	123.6	196.3	553.4	715.6	451.3	104.0	151.3	478.6	85.7
Q2	20.5	45.4	715.0	.	.	.	572.9	805.4	.	.	.	513.1	.
2022 Jan.	19.9	45.6	222.7	112.1	42.5	65.2	183.7	232.1	144.2	34.6	50.0	159.1	24.9
Feb.	17.2	40.0	224.8	114.2	40.8	65.8	186.9	237.2	148.9	34.6	50.2	159.4	29.4
Mar.	14.5	36.5	227.3	116.1	40.2	65.3	182.8	246.3	158.2	34.7	51.1	160.1	31.3
Apr.	12.8	40.0	231.1	116.3	41.1	70.1	186.9	263.5	170.4	35.6	53.2	166.7	33.6
May	28.7	52.9	242.1	122.2	41.4	73.5	193.6	269.2	173.1	37.1	55.2	173.7	34.3
June	20.1	43.5	241.8	.	.	.	192.3	272.7	.	.	.	172.7	.
<i>Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)</i>													
2021 Q3	4.4	5.5	103.5	110.2	101.0	96.2	102.1	108.0	109.6	112.6	104.8	110.6	85.2
Q4	0.9	9.4	105.4	112.7	96.1	102.9	104.3	115.6	120.2	109.8	110.8	115.1	93.7
2022 Q1	2.5	10.8	106.3	111.7	101.2	103.5	105.6	115.6	118.9	114.6	110.5	117.9	93.1
Q2	.	.	.	.	.	.	.	.	.	.	.	.	.
2021 Dec.	2.5	15.9	104.8	113.4	94.7	101.9	104.0	119.6	125.0	114.4	112.6	118.8	93.1
2022 Jan.	5.7	15.0	106.5	111.3	104.5	104.8	105.8	114.7	117.8	113.6	109.5	117.8	92.7
Feb.	3.1	11.9	106.7	112.8	100.7	103.8	107.3	116.1	119.3	115.6	110.4	118.4	97.9
Mar.	-0.5	6.4	105.6	111.0	98.3	102.0	103.7	116.0	119.7	114.6	111.6	117.6	88.7
Apr.	-2.5	7.3	105.4	108.9	99.1	107.5	104.1	120.0	123.6	116.0	114.2	120.6	93.9
May	10.1	18.1	108.7	112.6	99.1	110.9	107.0	122.5	125.6	121.8	117.3	124.2	93.8

Sources: ECB and Eurostat.

1) Differences between ECB's b.o.p. goods (Table 2.8) and Eurostat's trade in goods (Table 2.9) are mainly due to different definitions.

2) Product groups as classified in the Broad Economic Categories.

3 Prices and costs

3.1 Harmonised Index of Consumer Prices ¹⁾

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) ²⁾						Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unprocessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Administered prices
		1	2											Total excluding food and energy	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	100.0	68.7	58.2	41.8	100.0	16.7	5.1	26.9	9.5	41.8	86.7	13.3
2019	104.8	1.2	1.0	1.0	1.5	-	-	-	-	-	-	1.1	1.9
2020	105.1	0.3	0.7	-0.4	1.0	-	-	-	-	-	-	0.2	0.6
2021	107.8	2.6	1.5	3.4	1.5	-	-	-	-	-	-	2.5	3.1
2021 Q3	108.0	2.8	1.4	4.1	1.2	1.1	0.6	0.8	1.0	4.3	0.5	2.7	3.5
Q4	109.9	4.6	2.4	6.2	2.4	1.7	1.0	1.4	0.3	9.1	1.0	4.6	5.1
2022 Q1	112.3	6.1	2.7	8.8	2.5	2.7	1.8	3.1	1.5	14.4	0.8	6.0	6.9
Q2	116.1	8.0	3.7	11.4	3.4	2.3	3.4	4.1	1.2	7.1	1.0	8.2	7.1
2022 Mar.	114.5	7.4	3.0	10.9	2.7	1.8	0.6	1.5	0.1	12.2	0.3	7.3	8.1
Apr.	115.1	7.4	3.5	10.4	3.3	0.1	1.4	2.3	0.4	-4.0	0.5	7.4	8.0
May	116.1	8.1	3.8	11.4	3.5	0.7	1.4	0.0	0.5	1.9	0.4	8.1	7.6
June	117.0	8.6	3.7	12.5	3.4	0.8	1.3	1.4	0.5	3.4	-0.1	9.1	5.6
July	117.1	8.9	4.0	12.6	3.7	0.7	1.4	0.4	0.8	0.3	0.5	9.3	5.9
Aug. ³⁾	117.8	9.1	4.3	.	3.8	0.5	1.2	0.7	0.7	0.0	0.3	.	.

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing	Transport	Communication	Recreation and personal care	Miscellaneous	
	Total	Processed food	Unprocessed food	Total	Non-energy industrial goods	Energy	Rents					
14	15	16	17	18	19	20	21	22	23	24	25	
% of total in 2021	21.8	16.7	5.1	36.4	26.9	9.5	12.2	7.5	6.5	2.7	11.4	9.0
2019	1.8	1.9	1.4	0.5	0.3	1.1	1.4	1.3	2.0	-0.7	1.7	1.5
2020	2.3	1.8	4.0	-1.8	0.2	-6.8	1.4	1.3	0.5	-0.6	1.0	1.4
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
2021 Q3	1.9	1.7	2.5	5.4	1.8	15.8	1.4	1.1	2.4	0.7	1.1	1.6
Q4	2.5	2.4	2.7	8.4	2.4	25.7	1.6	1.1	4.0	1.2	3.1	1.7
2022 Q1	4.2	3.6	6.4	11.5	2.9	35.1	1.8	1.2	3.3	0.1	4.1	1.6
Q2	7.6	6.9	9.8	13.7	4.1	39.6	2.2	1.4	4.5	0.1	5.9	1.7
2022 Mar.	5.0	4.1	7.8	14.4	3.4	44.3	1.9	1.2	3.5	0.3	4.4	1.7
Apr.	6.3	5.4	9.2	12.9	3.8	37.5	2.1	1.3	5.4	0.5	5.2	1.7
May	7.5	7.0	9.0	13.6	4.2	39.1	2.3	1.5	5.2	-0.1	5.9	1.8
June	8.9	8.2	11.2	14.5	4.3	42.0	2.4	1.6	2.7	0.0	6.7	1.7
July	9.8	9.4	11.1	14.3	4.5	39.6	2.6	1.8	3.7	-0.2	7.0	1.8
Aug. ³⁾	10.6	10.5	10.9	.	5.0	38.3	.	.	.	.	.	.

Sources: Eurostat and ECB calculations.

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

2) In May 2016 the ECB started publishing enhanced seasonally adjusted HICP series for the euro area, following a review of the seasonal adjustment approach as described in Box 1, *Economic Bulletin*, Issue 3, ECB, 2016 (<https://www.ecb.europa.eu/pub/pdf/ecbu/eb201603.en.pdf>).

3) Flash estimate.

3 Prices and costs

3.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction ¹⁾										Con- struction ²⁾	Residential property prices ³⁾	Experimental indicator of commercial property prices ³⁾
	Total (index: 2015 = 100)	Total	Industry excluding construction and energy							Energy			
			Manu- facturing	Total	Intermedi- ate 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 2015	100.0	100.0	77.3	72.1	28.9	20.7	22.5	16.5	5.9	27.9			
2019	104.7	0.6	0.6	0.8	0.1	1.5	1.0	1.1	0.9	-0.1	3.1	4.2	4.5
2020	102.0	-2.6	-1.7	-0.1	-1.6	0.9	1.0	1.1	0.6	-9.7	2.0	5.3	1.6
2021	114.5	12.3	7.4	5.8	10.9	2.5	2.1	2.0	1.8	32.3	5.3	8.0	0.8
2021 Q3	115.6	14.0	9.3	7.5	14.1	3.0	2.8	2.9	2.1	34.3	7.0	9.0	1.5
Q4	127.3	24.0	12.3	9.7	18.0	4.3	4.0	3.9	3.0	67.5	7.2	9.4	3.2
2022 Q1	140.9	33.1	15.5	12.7	21.4	6.1	7.4	.	5.5	92.6	.	9.8	.
Q2	149.2	36.5	20.0	15.8	24.8	7.4	11.6	.	7.4	95.4	.	.	.
2022 Feb.	138.9	31.5	14.6	12.3	20.9	6.0	7.0	.	5.5	87.4	-	-	-
Mar.	146.3	36.9	17.8	13.7	22.7	6.5	8.7	.	6.0	104.1	-	-	-
Apr.	148.0	37.2	19.4	15.7	25.3	7.2	11.0	.	6.8	99.1	-	-	-
May	148.9	36.2	19.9	16.0	25.1	7.5	11.7	.	7.5	94.0	-	-	-
June	150.8	36.0	20.6	15.7	24.0	7.6	12.2	.	8.0	93.2	-	-	-
July	156.8	37.9	18.7	15.1	21.6	7.9	13.2	.	8.3	97.2	-	-	-

Sources: Eurostat, ECB calculations, and ECB calculations based on MSCI data and national sources (col. 13).

1) Domestic sales only.

2) Input prices for residential buildings.

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

3.3 Commodity prices and GDP deflators

(annual percentage changes, unless otherwise indicated)

	GDP deflators								Oil prices (EUR per barrel)	Non-energy commodity prices (EUR)					
	Total (s.a.; index: 2015 = 100)	Total	Domestic demand				Exports ¹⁾	Imports ¹⁾		Import-weighted ²⁾			Use-weighted ²⁾		
			Total	Private consump- tion	Govern- ment consump- tion	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
% of total									100.0	45.4	54.6	100.0	50.4	49.6	
2019	105.4	1.7	1.5	1.1	1.9	2.3	0.7	0.2	57.2	2.0	4.4	-0.1	3.0	8.2	-2.3
2020	107.2	1.7	1.2	0.6	3.4	1.0	-1.3	-2.7	37.0	1.4	3.3	-0.3	-1.0	-0.3	-1.8
2021	109.4	2.0	2.8	2.2	1.5	3.4	5.8	8.0	59.8	29.5	21.3	37.2	28.8	21.7	37.1
2021 Q3	109.8	2.9	3.7	2.6	2.7	4.7	7.6	10.0	61.9	31.0	26.1	35.4	32.3	28.2	36.7
Q4	110.8	3.1	4.6	3.8	2.4	5.5	10.1	14.1	69.4	30.7	30.0	31.3	33.7	33.4	34.0
2022 Q1	112.2	3.6	5.6	4.8	2.6	7.0	11.4	16.5	88.7	32.2	35.0	29.7	35.5	38.5	32.5
Q2	113.4	4.3	6.9	6.4	3.1	8.2	13.8	20.0	106.1	22.6	39.8	9.2	24.3	38.3	10.8
2022 Mar.	-	-	-	-	-	-	-	-	104.6	37.4	43.1	32.6	40.4	45.7	35.0
Apr.	-	-	-	-	-	-	-	-	98.2	30.9	42.0	22.0	32.6	41.7	23.7
May	-	-	-	-	-	-	-	-	106.2	19.8	39.5	4.9	22.0	38.3	6.6
June	-	-	-	-	-	-	-	-	113.7	17.4	38.0	1.6	18.5	35.0	2.8
July	-	-	-	-	-	-	-	-	106.9	12.2	31.6	-3.1	15.0	32.1	-1.2
Aug.	-	-	-	-	-	-	-	-	97.4	16.3	30.7	4.2	16.1	26.6	5.1

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 balances)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 12 months	Input prices		Prices charged	
	Manu- facturing	Retail trade	Services	Construction		Manu- facturing	Services	Manu- facturing	Services
	1	2	3	4	5	6	7	8	9
1999-15	4.3	5.7	-	-4.4	32.4	56.7	56.3	-	49.7
2019	4.4	7.4	9.1	7.7	18.1	48.8	57.1	50.4	52.4
2020	-0.3	2.0	-0.6	-5.0	11.4	49.0	52.1	48.7	47.2
2021	31.6	24.0	10.3	20.1	30.3	84.0	61.9	66.8	53.4
2021 Q3	36.9	29.1	13.5	27.1	37.5	87.7	63.8	70.3	55.1
Q4	46.4	41.9	19.8	36.6	52.4	88.4	69.5	72.1	56.9
2022 Q1	50.4	48.9	23.6	39.2	59.9	84.2	74.2	72.9	59.8
Q2	54.9	56.2	28.3	48.8	71.6	84.0	78.0	74.8	64.4
2022 Mar.	56.0	55.3	25.4	44.4	62.1	87.0	79.6	74.2	62.6
Apr.	59.3	56.0	29.2	51.9	68.5	87.7	78.7	77.3	65.2
May	55.2	56.1	28.2	49.1	71.6	84.2	77.4	76.2	64.6
June	50.1	56.4	27.6	45.4	74.8	80.0	77.9	70.9	63.2
July	45.3	55.0	26.9	41.5	75.9	74.8	74.7	67.9	62.1
Aug.	43.7	53.3	26.2	38.3	77.0	71.7	72.5	65.9	59.9

Sources: European Commission (Directorate-General for Economic and Financial Affairs) and Markit.

3.5 Labour cost indices

(annual percentage changes, unless otherwise indicated)

	Total (index: 2016 = 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 2018	100.0	100.0	75.3	24.7	69.0	31.0	
2019	106.9	2.4	2.6	2.0	2.4	2.4	2.2
2020	110.2	3.1	3.8	0.9	2.8	3.8	1.8
2021	111.7	1.3	1.3	1.4	1.2	1.6	1.5
2021 Q3	107.5	2.4	2.3	2.6	2.4	2.1	1.3
Q4	118.7	1.9	1.4	3.3	2.1	1.4	1.6
2022 Q1	108.5	3.8	3.3	5.3	4.1	3.0	3.0
Q2	.	.	.	.	.	.	2.4

Sources: Eurostat and ECB calculations.

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

3 Prices and costs

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

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

	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 labour costs												
2019	105.4	1.9	-1.5	2.1	3.1	0.7	1.0	1.6	2.6	2.4	2.7	2.1
2020	109.9	4.3	-1.6	2.3	5.0	6.6	0.4	-0.2	1.5	4.8	6.0	14.7
2021	110.0	0.1	4.2	-3.1	2.3	-1.2	1.7	0.5	4.8	1.5	0.4	2.1
2021 Q3	110.2	1.8	4.5	-0.4	2.3	0.1	4.4	1.9	3.9	1.9	2.9	0.9
Q4	111.0	1.3	4.2	2.0	4.2	-0.5	1.1	2.4	3.9	2.0	1.2	-5.7
2022 Q1	112.2	2.0	3.6	4.0	2.7	-0.5	2.3	2.2	5.1	2.8	2.4	-4.2
Q2	112.4	3.1	5.3	3.4	5.1	2.3	1.3	3.4	6.0	3.8	2.9	-5.1
Compensation per employee												
2019	107.4	2.1	2.5	1.4	1.4	1.7	3.3	2.3	2.4	2.7	2.3	3.4
2020	106.8	-0.6	0.3	-2.2	-1.6	-4.6	0.5	0.6	1.2	-0.1	2.3	-3.0
2021	111.0	3.9	3.3	4.2	4.5	6.2	3.9	2.9	5.3	4.3	1.7	4.6
2021 Q3	112.0	3.2	3.5	3.6	1.6	5.1	3.3	2.5	3.9	3.1	1.8	3.4
Q4	112.9	3.6	3.7	2.8	2.0	7.5	3.1	3.8	5.1	3.7	1.4	5.8
2022 Q1	114.1	4.4	3.6	4.2	4.0	7.9	2.3	3.3	5.7	4.6	2.6	8.9
Q2	114.7	4.6	3.7	4.1	3.9	8.3	1.6	3.9	6.0	5.8	2.5	7.6
Labour productivity per person employed												
2019	101.9	0.3	4.0	-0.7	-1.7	1.0	2.3	0.7	-0.3	0.3	-0.4	1.3
2020	97.2	-4.7	2.0	-4.4	-6.3	-10.5	0.1	0.8	-0.3	-4.7	-3.5	-15.5
2021	100.9	3.9	-0.9	7.5	2.2	7.5	2.1	2.3	0.5	2.8	1.2	2.5
2021 Q3	101.7	1.4	-0.9	4.1	-0.7	4.9	-1.0	0.6	0.0	1.2	-1.0	2.5
Q4	101.7	2.2	-0.5	0.8	-2.1	8.1	2.0	1.4	1.2	1.7	0.3	12.2
2022 Q1	101.7	2.3	0.1	0.1	1.3	8.4	0.0	1.1	0.6	1.7	0.3	13.7
Q2	102.1	1.5	-1.5	0.7	-1.2	5.9	0.3	0.5	0.0	1.9	-0.4	13.4
Compensation per hour worked												
2019	107.5	2.4	3.2	2.1	1.6	2.1	3.4	1.8	2.3	3.0	2.5	3.8
2020	113.4	5.5	3.0	3.5	4.6	6.4	3.1	2.5	6.2	5.2	4.5	6.1
2021	113.7	0.3	0.6	-0.2	-0.2	0.5	1.6	1.0	1.2	0.4	0.5	0.7
2021 Q3	114.9	1.9	3.0	1.9	2.0	1.8	1.2	2.5	0.5	0.8	2.4	3.1
Q4	115.4	1.6	2.0	2.2	2.1	0.2	3.4	4.5	2.6	2.2	2.7	1.3
2022 Q1	115.7	1.3	3.0	3.4	2.9	-1.9	2.2	3.6	3.3	2.1	3.4	0.8
Q2	115.8	3.4	4.5	4.2	4.8	2.4	2.5	5.2	5.1	5.1	4.3	3.2
Hourly labour productivity												
2019	102.6	0.7	5.1	0.0	-1.5	1.4	2.5	0.4	-0.3	0.6	-0.2	1.4
2020	104.5	1.9	2.6	1.6	1.0	0.4	3.5	3.3	6.6	1.4	-1.0	-6.3
2021	104.4	-0.2	-2.3	2.6	-3.0	1.1	-0.3	0.3	-4.6	-1.5	-0.2	-2.1
2021 Q3	105.1	0.3	0.0	2.3	-0.2	2.1	-2.9	0.4	-2.4	-1.0	-0.5	2.7
Q4	104.8	0.0	-0.6	-0.1	-2.5	0.6	2.1	1.6	-1.0	-0.2	1.4	5.7
2022 Q1	103.8	-1.0	0.3	-0.8	-0.1	-1.5	-0.2	1.5	-3.8	-0.5	0.8	3.6
Q2	103.9	0.3	-0.3	1.0	-0.7	0.6	1.0	2.0	-2.0	1.2	1.1	7.7

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) ²⁾	Overnight deposits (EONIA) ³⁾	1-month deposits (EURIBOR)	3-month deposits (EURIBOR)	6-month deposits (EURIBOR)	12-month deposits (EURIBOR)	3-month deposits (LIBOR)	3-month deposits (LIBOR)
	1	2	3	4	5	6	7	8
2019	-0.48	-0.39	-0.40	-0.36	-0.30	-0.22	2.33	-0.08
2020	-0.55	-0.46	-0.50	-0.43	-0.37	-0.31	0.64	-0.07
2021	-0.57	-0.48	-0.56	-0.55	-0.52	-0.49	0.16	-0.08
2022 Feb.	-0.58	-	-0.55	-0.53	-0.48	-0.34	0.43	-0.02
Mar.	-0.58	-	-0.54	-0.50	-0.42	-0.24	0.84	-0.01
Apr.	-0.58	-	-0.54	-0.45	-0.31	0.01	1.10	-0.01
May	-0.58	-	-0.55	-0.39	-0.14	0.29	1.47	-0.02
June	-0.58	-	-0.52	-0.24	0.16	0.85	1.97	-0.03
July	-0.51	-	-0.31	0.04	0.47	0.99	2.61	-0.02
Aug.	-0.08	-	0.02	0.39	0.84	1.25	2.95	-0.01

Source: Refinitiv and ECB calculations.

1) Data refer to the changing composition of the euro area, see the General Notes.

2) The ECB published the euro short-term rate (€STR) for the first time on 2 October 2019, reflecting trading activity on 1 October 2019. Data on previous periods refer to the pre-€STR, which was published for information purposes only and not intended for use as a benchmark or reference rate in any market transactions.

3) The European Money Markets Institute discontinued EONIA on 3 January 2022.

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), 2)}					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	
2019	-0.68	-0.66	-0.62	-0.45	-0.14	0.52	0.34	0.24	-0.62	-0.52	-0.13	0.41
2020	-0.75	-0.76	-0.77	-0.72	-0.57	0.19	0.80	0.32	-0.77	-0.77	-0.60	-0.24
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 Feb.	-0.73	-0.68	-0.54	-0.11	0.22	0.90	0.81	0.44	-0.56	-0.21	0.42	0.59
Mar.	-0.70	-0.49	-0.09	0.42	0.62	1.11	0.73	0.35	-0.05	0.58	0.81	0.81
Apr.	-0.59	-0.26	0.21	0.74	0.94	1.20	0.85	0.42	0.30	0.94	1.13	1.14
May	-0.38	-0.08	0.36	0.97	1.22	1.30	0.78	0.58	0.40	1.10	1.47	1.47
June	-0.42	0.31	0.64	1.11	1.50	1.19	0.21	0.38	0.86	1.07	1.72	1.95
July	0.04	0.16	0.25	0.55	0.93	0.77	-0.30	0.09	0.27	0.44	1.05	1.44
Aug.	-0.19	0.66	1.08	1.36	1.57	0.91	-0.33	0.00	1.36	1.53	1.65	1.84

Source: ECB calculations.

1) Data refer to the changing composition of the euro area, see the General Notes.

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										Standard & Poor's 500	Nikkei 225
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
2018	375.5	3,386.6	766.3	264.9	172.6	115.8	173.1	629.5	502.5	278.8	292.9	800.5	2,746.2	22,310.7
2019	373.6	3,435.2	731.7	270.8	183.7	111.9	155.8	650.9	528.2	322.0	294.2	772.7	2,915.5	21,697.2
2020	360.0	3,274.3	758.9	226.8	163.2	83.1	128.6	631.4	630.2	347.1	257.6	831.9	3,217.3	22,703.5
2022 Feb.	452.7	4,084.1	978.2	285.0	180.8	107.8	185.6	805.7	823.6	374.5	286.1	863.7	4,436.0	27,066.5
Mar.	422.1	3,796.6	942.7	253.7	172.5	103.1	160.8	762.7	791.8	351.9	279.7	858.7	4,391.3	26,584.1
Apr.	428.9	3,837.3	984.0	255.1	179.2	106.2	164.1	751.7	772.3	370.6	298.1	912.6	4,391.3	27,043.3
May	413.5	3,691.8	974.9	238.2	172.6	113.1	158.1	725.8	724.2	369.5	298.3	864.5	4,040.4	26,653.8
June	399.6	3,587.6	929.8	235.5	165.6	113.4	153.0	693.6	694.0	350.4	293.7	833.3	3,898.9	26,958.4
July	390.4	3,523.3	866.4	238.1	170.9	104.4	142.4	683.1	692.9	335.4	294.7	841.0	3,911.7	26,986.7
Aug.	408.5	3,701.1	913.9	256.5	172.9	110.0	149.0	721.6	750.2	353.8	291.5	806.7	4,158.6	28,351.7

Source: Refinitiv.

4 Financial market developments

4.4 MFI interest rates on loans to and deposits from households (new business) ^{1), 2)}

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

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase				Composite cost-of-borrowing indicator		
	Over-night	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation	APRC ³⁾	Floating rate and up to 1 year		Over 1 year	By initial period of rate fixation				APRC ³⁾	
			Up to 2 years	Over 2 years								Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years			Over 10 years
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
2021 Aug.	0.01	0.34	0.17	0.59	4.83	16.01	5.75	5.31	5.92	2.04	1.34	1.47	1.24	1.28	1.60	1.32	
Sep.	0.01	0.34	0.18	0.57	4.90	15.93	5.50	5.25	5.88	1.93	1.31	1.45	1.25	1.29	1.59	1.30	
Oct.	0.01	0.34	0.19	0.58	4.82	15.91	5.61	5.21	5.85	2.00	1.32	1.47	1.26	1.30	1.60	1.31	
Nov.	0.01	0.34	0.19	0.57	4.82	15.86	5.11	5.20	5.83	2.06	1.32	1.48	1.30	1.32	1.61	1.32	
Dec.	0.01	0.35	0.17	0.60	4.74	15.89	5.11	5.05	5.66	1.87	1.34	1.46	1.30	1.30	1.60	1.31	
2022 Jan.	0.01	0.35	0.20	0.56	4.76	15.82	5.58	5.28	5.87	1.95	1.35	1.46	1.31	1.32	1.61	1.33	
Feb.	0.01	0.46	0.19	0.56	4.81	15.78	5.28	5.27	5.87	2.09	1.35	1.49	1.39	1.38	1.66	1.38	
Mar.	0.01	0.47	0.19	0.52	4.81	15.76	5.45	5.24	5.81	2.08	1.40	1.53	1.54	1.47	1.75	1.47	
Apr.	0.01	0.47	0.20	0.56	4.75	15.78	5.82	5.38	5.97	2.24	1.43	1.72	1.77	1.58	1.89	1.61	
May	0.01	0.47	0.20	0.64	4.80	15.84	5.87	5.58	6.20	2.48	1.52	1.87	2.02	1.74	2.05	1.78	
June	0.01	0.47	0.22	0.71	4.80	15.87	5.70	5.56	6.15	2.51	1.68	2.06	2.28	1.87	2.21	1.97	
July ⁶⁾	0.01	0.46	0.30	0.87	4.83	15.86	6.10	5.74	6.32	2.80	1.83	2.26	2.53	1.99	2.35	2.15	

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
	Over-night	With an agreed maturity of:			up to EUR 0.25 million			over EUR 0.25 and up to 1 million			over EUR 1 million			
		Up to 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
2021 Aug.	-0.03	-0.35	0.17	1.75	1.78	1.93	2.02	1.55	1.45	1.36	1.23	1.12	1.14	1.44
Sep.	-0.03	-0.35	0.15	1.77	1.79	1.99	1.99	1.51	1.43	1.34	1.27	1.25	1.28	1.49
Oct.	-0.03	-0.36	0.17	1.71	1.79	2.09	1.99	1.54	1.42	1.32	1.15	1.19	1.24	1.43
Nov.	-0.03	-0.35	0.16	1.68	1.78	2.01	2.03	1.49	1.43	1.36	1.07	1.11	1.23	1.38
Dec.	-0.03	-0.33	0.17	1.67	1.84	1.96	1.95	1.51	1.43	1.32	1.14	0.97	1.19	1.36
2022 Jan.	-0.04	-0.32	0.20	1.67	1.91	1.94	2.00	1.52	1.41	1.37	1.13	1.24	1.29	1.43
Feb.	-0.04	-0.32	0.41	1.67	1.77	1.93	2.08	1.50	1.43	1.42	1.07	1.08	1.46	1.42
Mar.	-0.04	-0.30	0.64	1.69	1.77	1.96	2.11	1.50	1.45	1.52	1.25	1.17	1.54	1.49
Apr.	-0.04	-0.30	0.44	1.67	1.88	1.98	2.24	1.52	1.46	1.67	1.19	1.12	1.57	1.51
May	-0.04	-0.27	0.52	1.69	1.81	2.02	2.40	1.52	1.50	1.79	1.14	1.22	1.95	1.55
June	-0.04	-0.14	1.05	1.72	1.83	2.18	2.56	1.60	1.56	1.94	1.81	1.55	2.14	1.83
July ⁶⁾	-0.01	0.04	1.19	1.74	1.89	2.43	2.75	1.68	1.86	2.13	1.39	1.77	2.08	1.77

Source: ECB.

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

2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector.

4 Financial market developments

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

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

	Outstanding amounts							Gross issues ¹⁾						
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Non-MFI corporations			General government	
			Financial corporations other than MFIs	FVCs	Non-financial corporations	of which central government	Financial corporations other than MFIs			FVCs	Non-financial corporations	of which central government		
													1	2	3	4	5	6	7	8	9	10	11	12	13	14
Short-term														
2019	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	1,499.1	429.0	141.7	54.5	96.5	832.0	718.4	.	.	.	.	.	.	.
2021	1,419.6	428.4	142.1	53.4	87.7	761.4	671.7	387.3	138.6	79.5	25.9	31.8	137.3	104.6
2022 Feb.	1,405.4	419.1	149.0	55.4	96.2	741.0	643.7	381.9	131.4	86.5	27.6	31.6	132.5	96.3
Mar.	1,450.3	430.0	155.5	54.7	105.0	759.9	653.1	503.7	170.4	116.6	43.8	48.1	168.6	114.4
Apr.	1,443.7	439.9	159.9	54.6	107.4	736.5	638.3	456.4	164.0	102.2	36.0	43.1	147.1	97.4
May	1,385.7	418.5	160.3	49.8	106.9	700.1	613.4	438.3	157.9	110.3	41.1	42.5	127.6	86.7
June	1,367.2	414.4	142.4	46.1	104.9	705.5	622.0	448.2	151.4	116.7	51.8	48.5	131.6	87.5
July	1,304.8	413.7	138.8	44.8	97.9	654.4	599.8	475.3	187.3	112.0	51.5	49.3	126.6	85.9
Long-term														
2019	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	19,439.5	4,079.5	3,285.1	1,331.4	1,541.9	10,533.0	9,752.1	.	.	.	.	.	.	.
2021	20,109.4	4,174.7	3,603.3	1,388.3	1,598.5	10,732.8	9,912.4	316.3	66.2	83.0	32.5	23.3	143.8	130.4
2022 Feb.	19,776.9	4,139.8	3,549.5	1,388.3	1,528.7	10,559.0	9,753.4	308.0	79.2	76.0	34.0	11.8	141.1	130.4
Mar.	19,594.8	4,120.3	3,552.7	1,392.5	1,514.0	10,407.7	9,617.3	401.4	100.6	117.4	54.2	26.8	156.5	147.2
Apr.	19,193.2	4,081.0	3,570.1	1,401.3	1,482.6	10,059.6	9,286.3	288.2	65.2	81.8	27.4	14.3	126.9	118.1
May	19,015.5	4,092.3	3,556.3	1,372.6	1,464.1	9,902.8	9,129.3	332.7	98.0	67.9	13.1	26.8	140.0	125.0
June	18,737.0	4,027.9	3,519.2	1,363.3	1,404.1	9,785.7	9,029.2	307.4	82.9	66.9	17.0	13.6	143.8	135.5
July	19,266.8	4,128.2	3,594.0	1,357.3	1,462.3	10,082.3	9,301.3	226.3	51.9	51.6	14.9	8.8	113.9	107.8

Source: ECB.

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

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

(EUR billions and percentage changes; market values)

	Debt securities							Listed shares					
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations		
			Financial corporations other than MFIs	FVCs	Non-financial corporations	of which central government							
							1					2	3	4	5	6	7	8	9	10	11
Outstanding amount													
2019	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	20,938.6	4,508.4	3,426.8	1,385.9	1,638.4	11,365.0	10,470.5	8,486.7	468.9	1,357.8	6,658.9	.	.
2021	21,528.9	4,603.1	3,745.4	1,441.8	1,686.2	11,494.2	10,584.0	10,343.6	609.3	1,558.7	8,174.6	.	.
2022 Feb.	21,182.3	4,558.9	3,698.5	1,443.7	1,624.9	11,300.0	10,397.1	9,382.6	565.1	1,424.0	7,392.5	.	.
Mar.	21,045.2	4,550.3	3,708.2	1,447.2	1,619.0	11,167.6	10,270.4	9,393.8	550.7	1,436.1	7,405.9	.	.
Apr.	20,636.9	4,520.8	3,729.9	1,455.9	1,590.0	10,796.1	9,924.6	9,221.1	521.1	1,392.0	7,307.0	.	.
May	20,401.2	4,510.8	3,716.5	1,422.5	1,571.0	10,602.9	9,742.7	9,084.5	536.9	1,355.5	7,191.1	.	.
June	20,104.2	4,442.2	3,661.6	1,409.5	1,509.0	10,491.3	9,651.2	8,305.8	474.0	1,266.1	6,564.8	.	.
July	20,571.6	4,541.8	3,732.8	1,402.1	1,560.2	10,736.8	9,901.2	8,904.1	482.2	1,330.3	7,090.8	.	.
Growth rate ¹⁾													
2019	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	.	.	.	.	.	.	.	.	.	.	.	.	.
2021	.	.	.	.	.	.	.	.	.	.	.	.	.
2022 Feb.	4.9	3.3	8.0	4.4	3.8	4.8	4.9	1.7	0.5	5.1	1.1	.	.
Mar.	4.9	2.9	8.2	4.3	4.7	4.7	4.8	1.2	0.2	3.7	0.8	.	.
Apr.	4.4	2.7	8.2	4.2	4.3	3.9	4.1	1.1	0.0	3.7	0.7	.	.
May	4.4	3.8	8.1	3.5	4.1	3.5	3.7	1.0	0.0	3.2	0.6	.	.
June	4.0	2.8	7.5	4.1	3.6	3.5	3.8	1.0	-0.7	3.2	0.7	.	.
July	3.3	2.3	6.8	3.0	2.1	2.8	3.3	0.9	-0.7	2.8	0.6	.	.

Source: ECB.

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

4 Financial market developments

4.8 Effective exchange rates ¹⁾

(period averages; index: 1999 Q1=100)

	EER-19						EER-42	
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM	Real ULCT	Nominal	Real CPI
	1	2	3	4	5	6	7	8
2019	98.1	93.1	92.9	88.7	77.5	87.1	115.4	92.4
2020	99.6	93.5	94.1	89.4	76.9	87.7	119.4	93.9
2021	99.6	93.4	94.5	88.6	72.8	86.1	120.8	94.2
2021 Q3	99.5	93.2	94.5	88.7	72.7	85.7	120.5	93.9
Q4	97.7	91.8	93.4	86.5	71.8	84.3	119.1	92.7
2022 Q1	96.4	91.4	94.7	84.6	70.6	83.1	118.6	92.6
Q2	95.6	90.2	96.0	.	.	.	116.4	90.3
2022 Mar.	95.9	91.3	95.3	-	-	-	118.4	92.8
Apr.	95.2	89.9	95.2	-	-	-	116.4	90.4
May	95.6	90.3	96.2	-	-	-	116.2	90.3
June	95.9	90.5	96.6	-	-	-	116.5	90.3
July	94.1	89.0	96.1	-	-	-	114.6	89.0
Aug.	93.6	88.7	96.3	-	-	-	114.1	88.7
	<i>Percentage change versus previous month</i>							
2022 Aug.	-0.6	-0.4	0.3	-	-	-	-0.5	-0.3
	<i>Percentage change versus previous year</i>							
2022 Aug.	-5.8	-4.7	2.1	-	-	-	-5.2	-5.5

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
2019	7.735	7.418	25.670	7.466	325.297	122.006	4.298	0.878	4.7453	10.589	1.112	1.119
2020	7.875	7.538	26.455	7.454	351.249	121.846	4.443	0.890	4.8383	10.485	1.071	1.142
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
2021 Q3	7.626	7.497	25.500	7.437	353.871	129.763	4.566	0.855	4.9319	10.195	1.083	1.179
Q4	7.310	7.518	25.374	7.438	364.376	130.007	4.617	0.848	4.9489	10.128	1.054	1.144
2022 Q1	7.121	7.544	24.653	7.441	364.600	130.464	4.623	0.836	4.9465	10.481	1.036	1.122
Q2	7.043	7.539	24.644	7.440	385.826	138.212	4.648	0.848	4.9449	10.479	1.027	1.065
2022 Mar.	6.992	7.571	25.007	7.440	376.640	130.711	4.752	0.836	4.9482	10.546	1.025	1.102
Apr.	6.960	7.558	24.435	7.439	374.865	136.606	4.649	0.837	4.9442	10.318	1.021	1.082
May	7.083	7.536	24.750	7.441	384.454	136.241	4.648	0.850	4.9460	10.496	1.035	1.058
June	7.073	7.525	24.719	7.439	396.664	141.569	4.647	0.858	4.9444	10.601	1.024	1.057
July	6.854	7.519	24.594	7.443	404.098	139.174	4.768	0.850	4.9396	10.575	0.988	1.018
Aug.	6.888	7.514	24.568	7.439	402.097	136.855	4.723	0.845	4.8943	10.502	0.969	1.013
	<i>Percentage change versus previous month</i>											
2022 Aug.	0.5	-0.1	-0.1	0.0	-0.5	-1.7	-0.9	-0.5	-0.9	-0.7	-1.9	-0.5
	<i>Percentage change versus previous year</i>											
2022 Aug.	-9.6	0.2	-3.5	0.0	14.3	5.9	3.4	-0.9	-0.6	2.8	-10.0	-14.0

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
<i>Outstanding amounts (international investment position)</i>												
2021 Q2	30,370.3	30,636.0	-265.7	11,452.5	9,464.6	12,014.7	14,001.3	-132.2	6,166.3	7,170.0	869.0	15,355.3
Q3	31,110.8	31,299.4	-188.6	11,679.4	9,453.6	12,221.4	14,320.8	-101.1	6,308.8	7,525.0	1,002.4	15,751.1
Q4	32,052.2	32,154.3	-102.1	11,830.2	9,718.7	12,838.5	14,644.5	-92.1	6,418.5	7,791.1	1,057.0	15,990.0
2022 Q1	32,080.1	32,085.7	-5.6	11,902.4	9,882.7	12,315.5	14,048.4	-55.9	6,815.3	8,154.5	1,102.8	16,415.9
<i>Outstanding amounts as a percentage of GDP</i>												
2022 Q1	255.2	255.2	0.0	94.7	78.6	98.0	111.7	-0.4	54.2	64.9	8.8	130.6
<i>Transactions</i>												
2021 Q3	382.7	299.5	83.2	44.6	-62.3	126.2	70.2	24.1	64.7	291.6	123.1	-
Q4	168.9	141.7	27.2	-16.0	-68.6	140.6	22.4	44.6	-3.2	187.9	2.9	-
2022 Q1	364.4	350.5	13.9	48.4	22.5	-21.0	11.6	-5.3	342.7	316.4	-0.4	-
Q2	-55.9	-63.8	8.0	55.3	-14.5	-110.7	-159.1	0.1	-2.9	109.7	2.3	-
2022 Jan.	262.0	232.9	29.1	53.5	54.7	48.3	-25.3	2.7	159.6	203.5	-2.1	-
Feb.	114.8	114.8	0.0	13.7	-17.7	-26.4	6.8	-3.8	129.5	125.8	1.7	-
Mar.	-12.3	2.8	-15.1	-18.8	-14.5	-43.0	30.1	-4.3	53.6	-12.9	0.1	-
Apr.	-13.3	25.6	-39.0	48.5	18.7	-52.0	-64.7	12.8	-21.9	71.6	-0.7	-
May	17.6	4.4	13.1	26.1	-16.0	-45.2	-98.0	-2.7	38.2	118.5	1.2	-
June	-60.1	-93.9	33.8	-19.3	-17.2	-13.5	3.6	-9.9	-19.2	-80.3	1.8	-
<i>12-month cumulated transactions</i>												
2022 June	860.2	727.9	132.3	132.3	-123.0	135.1	-54.8	63.5	401.3	905.7	128.0	-
<i>12-month cumulated transactions as a percentage of GDP</i>												
2022 June	6.7	5.7	1.0	1.0	-1.0	1.1	-0.4	0.5	3.1	7.1	1.0	-

Source: ECB.

1) Net financial derivatives are included in total assets.

5 Financing conditions and credit developments

5.1 Monetary aggregates ¹⁾

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

	M3											
	M2						M3-M2					
	M1		M2-M1				Repos	Money market fund shares	Debt securities with a maturity of up to 2 years			
	Currency in circulation	Overnight deposits	Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months								
1	2	3	4	5	6	7	8	9	10	11	12	
Outstanding amounts												
2019	1,222.4	7,721.9	8,944.3	1,069.7	2,364.2	3,433.9	12,378.2	79.3	528.8	-1.4	606.6	12,984.8
2020	1,360.8	8,886.2	10,247.0	1,034.9	2,450.1	3,485.0	13,731.9	101.5	636.5	-0.7	737.2	14,469.2
2021	1,464.8	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.6	12.1	788.2	15,484.8
2021 Q3	1,444.6	9,617.8	11,062.4	903.2	2,493.4	3,396.6	14,459.0	120.6	600.9	38.6	760.1	15,219.1
Q4	1,464.8	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.6	12.1	788.2	15,484.8
2022 Q1	1,525.0	9,938.9	11,463.9	936.3	2,519.9	3,456.2	14,920.2	123.0	593.2	32.2	748.4	15,668.6
Q2	1,530.4	10,040.2	11,570.6	970.8	2,528.0	3,498.8	15,069.5	113.6	606.7	60.0	780.2	15,849.7
2022 Feb.	1,494.0	9,913.6	11,407.6	931.8	2,520.3	3,452.1	14,859.7	131.1	590.7	24.7	746.4	15,606.1
Mar.	1,525.0	9,938.9	11,463.9	936.3	2,519.9	3,456.2	14,920.2	123.0	593.2	32.2	748.4	15,668.6
Apr.	1,524.4	9,965.2	11,489.7	954.6	2,519.0	3,473.6	14,963.3	115.3	602.3	49.6	767.1	15,730.4
May	1,528.7	10,007.6	11,536.2	935.3	2,524.7	3,460.0	14,996.2	124.2	600.2	43.7	768.2	15,764.4
June	1,530.4	10,040.2	11,570.6	970.8	2,528.0	3,498.8	15,069.5	113.6	606.7	60.0	780.2	15,849.7
July ^(p)	1,534.2	10,088.4	11,622.6	1,005.5	2,536.3	3,541.9	15,164.4	126.7	585.3	60.4	772.5	15,936.9
Transactions												
2019	57.7	604.8	662.5	-61.6	62.4	0.8	663.3	4.2	-4.1	-58.5	-58.3	605.0
2020	138.4	1,250.1	1,388.5	-28.9	86.7	57.8	1,446.3	19.5	113.7	0.1	133.4	1,579.7
2021	105.3	901.6	1,006.8	-118.5	67.2	-51.3	955.5	12.0	22.7	10.0	44.7	1,000.3
2021 Q3	25.1	254.5	279.6	-34.4	11.7	-22.6	257.0	5.7	-12.8	9.9	2.8	259.8
Q4	21.2	190.9	212.1	16.9	14.4	31.3	243.4	-3.5	57.7	-29.7	24.5	267.9
2022 Q1	60.2	134.5	194.7	12.1	9.9	22.0	216.7	5.1	-65.2	20.1	-40.0	176.7
Q2	5.4	82.2	87.6	28.8	8.4	37.2	124.7	-10.7	13.3	24.8	27.4	152.2
2022 Feb.	12.0	83.4	95.4	-13.1	7.6	-5.5	89.9	1.5	-24.5	-4.4	-27.4	62.5
Mar.	31.0	24.0	55.0	4.6	-0.9	3.7	58.7	-8.2	2.6	7.5	2.0	60.7
Apr.	-0.5	10.1	9.5	13.4	-0.6	12.8	22.3	-8.7	8.9	15.5	15.7	38.0
May	4.2	47.9	52.2	-17.5	5.7	-11.7	40.4	9.3	-2.1	-5.4	1.8	42.2
June	1.7	24.2	25.9	32.8	3.2	36.1	62.0	-11.2	6.5	14.7	9.9	71.9
July ^(p)	3.7	37.7	41.4	31.2	8.2	39.4	80.8	12.1	-21.4	0.1	-9.2	71.6
Growth rates												
2019	5.0	8.5	8.0	-5.4	2.7	0.0	5.7	5.5	-0.8	-	-8.8	4.9
2020	11.3	16.2	15.6	-2.7	3.7	1.7	11.7	24.4	21.6	-	22.0	12.2
2021	7.7	10.1	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2021 Q3	8.5	11.5	11.1	-15.5	3.2	-2.5	7.6	12.7	1.0	-	7.5	7.6
Q4	7.7	10.1	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2022 Q1	9.6	8.7	8.8	-6.0	2.0	-0.3	6.6	9.4	-3.9	74.3	-0.2	6.2
Q2	7.9	7.1	7.2	2.5	1.8	2.0	5.9	-2.8	-1.1	77.3	2.0	5.7
2022 Feb.	7.8	9.3	9.1	-6.8	2.3	-0.3	6.8	17.1	-4.2	-9.3	-1.3	6.4
Mar.	9.6	8.7	8.8	-6.0	2.0	-0.3	6.6	9.4	-3.9	74.3	-0.2	6.2
Apr.	8.8	8.1	8.2	-2.8	1.7	0.4	6.3	1.3	-1.8	71.8	1.3	6.1
May	8.4	7.8	7.9	-3.7	1.8	0.3	6.1	10.5	-2.2	16.5	0.6	5.8
June	7.9	7.1	7.2	2.5	1.8	2.0	5.9	-2.8	-1.1	77.3	2.0	5.7
July ^(p)	7.5	6.6	6.7	6.3	2.1	3.3	5.9	3.9	-5.3	37.5	-1.4	5.5

Source: 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 corporations other than MFIs and ICPFs 2)	Insurance corporations and pension funds	Other general government 4)
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2019	2,483.9	2,070.3	256.7	150.5	6.4	7,044.4	4,399.1	492.0	2,152.4	1.0	1,026.5	215.7	464.7
2020	2,976.1	2,522.8	309.9	140.1	3.2	7,663.7	4,965.2	437.3	2,260.4	0.9	1,097.0	234.6	501.2
2021	3,244.4	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.9	228.4	551.6
2021 Q3	3,155.5	2,731.4	283.8	130.8	9.6	8,025.8	5,319.1	388.9	2,317.2	0.7	1,210.6	227.4	515.6
Q4	3,244.4	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.9	228.4	551.6
2022 Q1	3,269.8	2,841.9	287.3	129.8	10.8	8,189.8	5,480.1	358.0	2,350.6	1.1	1,272.4	230.5	555.7
Q2	3,296.4	2,851.5	303.1	130.5	11.2	8,243.9	5,532.0	353.2	2,358.0	0.6	1,305.4	230.1	576.8
2022 Feb.	3,265.6	2,842.6	284.7	126.6	11.6	8,170.2	5,457.7	360.8	2,350.8	1.0	1,280.5	234.8	545.7
Mar.	3,269.8	2,841.9	287.3	129.8	10.8	8,189.8	5,480.1	358.0	2,350.6	1.1	1,272.4	230.5	555.7
Apr.	3,278.5	2,841.6	297.9	129.5	9.6	8,202.8	5,495.4	357.2	2,349.3	1.0	1,282.3	224.4	566.1
May	3,280.8	2,853.7	286.3	130.3	10.4	8,235.3	5,524.4	354.5	2,355.6	0.7	1,275.9	231.1	568.7
June	3,296.4	2,851.5	303.1	130.5	11.2	8,243.9	5,532.0	353.2	2,358.0	0.6	1,305.4	230.1	576.8
July (p)	3,326.4	2,867.8	318.6	130.1	9.9	8,294.1	5,572.6	353.5	2,367.3	0.7	1,333.1	242.6	560.8
Transactions													
2019	149.5	167.0	-18.9	1.8	-0.4	396.1	361.2	-26.3	61.7	-0.5	25.1	9.8	29.3
2020	515.9	469.8	55.8	-6.8	-2.9	611.8	560.4	-53.8	105.3	0.0	142.6	20.4	36.7
2021	254.4	279.6	-21.3	-6.9	3.0	423.5	411.2	-65.1	77.5	-0.2	144.3	-8.2	48.2
2021 Q3	60.8	69.0	-8.0	-1.2	0.9	108.6	111.6	-18.3	15.4	-0.1	44.3	1.9	21.9
Q4	85.1	84.8	5.7	-2.3	-3.1	60.4	59.3	-16.1	17.2	0.1	38.1	2.4	32.7
2022 Q1	19.7	18.3	-3.9	1.1	4.2	100.3	98.5	-11.0	12.3	0.4	35.0	2.3	4.3
Q2	14.3	0.4	13.2	0.6	0.1	51.7	50.0	-5.6	7.8	-0.5	22.2	-0.6	21.0
2022 Feb.	25.2	33.9	-9.5	-0.5	1.4	37.0	32.6	-3.4	7.6	0.2	12.4	-3.8	8.5
Mar.	-3.8	-6.5	2.4	1.2	-0.9	19.3	22.1	-2.8	-0.2	0.2	-3.3	-2.8	10.2
Apr.	-0.1	-6.6	8.4	-0.5	-1.5	10.2	12.8	-1.5	-0.9	-0.2	0.5	-6.8	10.3
May	4.1	13.0	-10.6	0.9	0.9	34.4	30.7	-2.4	6.4	-0.3	-2.7	7.0	2.6
June	10.3	-6.0	15.4	0.2	0.7	7.1	6.5	-1.6	2.3	-0.1	24.3	-0.8	8.0
July (p)	25.6	13.5	14.0	-0.4	-1.4	46.7	37.4	0.0	9.2	0.1	21.4	11.6	-16.1
Growth rates													
2019	6.4	8.8	-6.8	1.2	-6.5	6.0	8.9	-5.1	3.0	-35.6	2.5	4.8	6.7
2020	20.8	22.7	21.6	-4.5	-47.0	8.7	12.7	-10.9	4.9	-5.2	14.3	9.4	7.9
2021	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.1	-3.5	9.6
2021 Q3	7.1	10.3	-12.1	-5.4	38.0	7.0	10.2	-13.1	4.0	-31.8	15.0	-6.8	9.1
Q4	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.1	-3.5	9.6
2022 Q1	6.8	8.6	-5.1	-4.2	40.4	4.6	7.1	-14.3	2.6	27.6	13.4	5.7	12.7
Q2	5.8	6.5	2.4	-1.2	23.1	4.1	6.1	-12.6	2.3	-15.9	12.0	2.8	16.1
2022 Feb.	8.0	9.9	-4.1	-4.9	96.1	5.1	7.7	-14.6	2.9	1.6	14.5	2.0	10.0
Mar.	6.8	8.6	-5.1	-4.2	40.4	4.6	7.1	-14.3	2.6	27.6	13.4	5.7	12.7
Apr.	6.9	8.3	-0.8	-4.1	22.0	4.4	6.9	-13.8	2.2	8.1	12.3	-1.1	14.3
May	6.5	8.1	-4.4	-2.5	40.5	4.4	6.7	-13.2	2.4	-13.6	10.7	0.4	15.1
June	5.8	6.5	2.4	-1.2	23.1	4.1	6.1	-12.6	2.3	-15.9	12.0	2.8	16.1
July (p)	6.1	6.1	9.3	-1.0	16.5	4.2	6.2	-10.8	2.5	-5.1	11.7	5.8	11.8

Source: ECB.

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

2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).

3) Including non-profit institutions serving households.

4) Refers to the general government sector excluding central government.

5 Financing conditions and credit developments

5.3 Credit to euro area residents ¹⁾

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

	Credit to general government			Credit to other euro area residents								
	Total	Loans	Debt securities	Total	Loans					Debt securities	Equity and non-money market fund investment fund shares	
					Total	To non-financial corporations ³⁾	To households ⁴⁾	To financial corporations other than MFIs and ICPFs ³⁾	To insurance corporations and pension funds			
	1	2	3	4	5	Adjusted loans ²⁾	6	7	8	9	10	11	12
Outstanding amounts												
2019	4,654.5	989.2	3,653.5	13,856.8	11,446.4	11,835.1	4,474.3	5,930.1	891.0	151.0	1,560.5	849.9
2020	5,914.6	998.8	4,903.9	14,333.2	11,919.8	12,299.4	4,708.3	6,132.0	911.7	167.8	1,548.2	865.3
2021	6,552.1	997.2	5,553.1	14,813.8	12,341.5	12,726.4	4,863.8	6,372.5	943.7	161.5	1,583.3	889.0
2021 Q3	6,364.7	999.2	5,363.9	14,611.0	12,182.5	12,536.2	4,769.9	6,316.1	951.8	144.7	1,531.9	896.6
Q4	6,552.1	997.2	5,553.1	14,813.8	12,341.5	12,726.4	4,863.8	6,372.5	943.7	161.5	1,583.3	889.0
2022 Q1	6,553.9	1,002.7	5,548.5	15,022.6	12,562.1	12,691.8	4,917.1	6,471.9	1,020.0	153.0	1,593.7	866.8
Q2	6,513.6	1,002.0	5,487.5	15,182.0	12,791.5	12,930.4	5,017.9	6,555.0	1,054.2	164.3	1,561.1	829.4
2022 Feb.	6,562.2	996.5	5,563.0	14,946.5	12,507.7	12,656.5	4,885.9	6,444.2	1,007.4	170.2	1,560.3	878.5
Mar.	6,553.9	1,002.7	5,548.5	15,022.6	12,562.1	12,691.8	4,917.1	6,471.9	1,020.0	153.0	1,593.7	866.8
Apr.	6,526.0	1,004.2	5,497.0	15,072.0	12,631.8	12,780.0	4,943.8	6,491.5	1,035.7	160.8	1,600.8	839.5
May	6,507.2	999.8	5,482.6	15,112.1	12,704.9	12,842.3	4,974.3	6,522.2	1,045.2	163.3	1,556.8	850.4
June	6,513.6	1,002.0	5,487.5	15,182.0	12,791.5	12,930.4	5,017.9	6,555.0	1,054.2	164.3	1,561.1	829.4
July ^(p)	6,539.7	998.4	5,517.1	15,247.0	12,851.3	12,987.1	5,067.6	6,577.8	1,046.5	159.4	1,565.5	830.2
Transactions												
2019	-88.4	-23.2	-65.6	449.6	376.1	422.9	115.0	200.3	40.6	20.2	30.2	43.4
2020	1,042.0	13.5	1,028.3	737.1	538.1	559.0	288.2	209.1	23.9	16.9	170.8	28.2
2021	667.2	-0.5	677.3	563.2	474.5	507.7	176.7	261.6	45.5	-9.4	79.4	9.3
2021 Q3	152.2	-4.7	156.9	130.5	116.5	119.5	40.3	65.7	17.5	-7.0	9.2	4.8
Q4	201.1	-1.1	202.0	228.9	174.9	225.4	98.5	60.5	-0.4	16.4	62.7	-8.7
2022 Q1	94.0	4.8	89.2	190.6	183.6	169.4	45.2	72.8	74.1	-8.5	23.6	-16.5
Q2	76.5	-0.7	77.2	206.9	231.1	249.6	96.9	87.0	35.8	11.3	-19.9	-4.3
2022 Feb.	52.0	4.1	47.9	47.7	48.6	59.3	13.5	18.4	19.3	-2.6	2.7	-3.5
Mar.	29.2	5.9	23.3	80.1	55.9	41.9	25.0	28.8	18.7	-16.6	36.0	-11.8
Apr.	16.8	1.6	14.6	68.0	63.2	82.9	23.5	20.6	11.6	7.5	10.0	-5.1
May	21.5	-4.5	25.9	54.7	84.3	72.9	30.6	31.9	18.9	2.9	-42.2	12.6
June	38.2	2.2	36.7	84.2	83.7	93.8	42.9	34.6	5.3	0.9	12.3	-11.8
July ^(p)	-23.5	-3.7	-19.8	45.7	51.8	51.7	46.7	20.5	-9.9	-5.6	-4.7	-1.3
Growth rates												
2019	-1.9	-2.3	-1.8	3.4	3.4	3.7	2.6	3.5	4.8	16.0	2.0	5.5
2020	22.2	1.4	27.8	5.4	4.7	4.7	6.4	3.5	2.7	10.3	11.4	3.4
2021	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	5.0	-4.5	5.3	1.1
2021 Q3	11.0	0.0	13.5	3.4	3.2	3.2	1.7	4.3	5.7	-10.1	3.0	7.3
Q4	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	5.0	-4.5	5.3	1.1
2022 Q1	10.1	0.8	11.9	4.2	4.3	4.6	3.5	4.4	8.5	-1.1	6.6	-1.7
Q2	8.5	-0.2	10.1	5.2	5.8	6.2	5.9	4.6	13.6	8.0	5.0	-2.8
2022 Feb.	10.7	0.0	12.8	4.3	4.6	4.8	3.9	4.4	8.2	11.1	4.5	-0.1
Mar.	10.1	0.8	11.9	4.2	4.3	4.6	3.5	4.4	8.5	-1.1	6.6	-1.7
Apr.	9.6	0.4	11.4	4.7	4.8	5.3	4.5	4.3	10.1	3.7	7.5	-1.7
May	8.9	-0.2	10.7	4.8	5.2	5.7	5.0	4.4	12.0	2.4	4.8	-1.1
June	8.5	-0.2	10.1	5.2	5.8	6.2	5.9	4.6	13.6	8.0	5.0	-2.8
July ^(p)	7.0	-0.9	8.5	5.2	5.9	6.3	6.6	4.5	12.2	4.8	4.4	-2.7

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	Adjusted loans ⁴⁾	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total	Adjusted loans ⁴⁾	Loans for consumption	Loans for house purchase	Other loans
	1					2					6	7	8	9	10
Outstanding amounts										
2019	4,474.3	4,576.5	966.7	877.5	2,630.1	5,930.1	6,221.7	720.1	4,523.5	686.5
2020	4,708.3	4,829.7	897.2	1,009.7	2,801.4	6,132.0	6,400.5	700.6	4,724.7	706.7
2021	4,863.8	4,994.8	888.7	1,006.4	2,968.6	6,372.5	6,635.8	698.2	4,970.9	703.5
2021 Q3	4,769.9	4,884.9	834.3	971.1	2,964.4	6,316.1	6,574.4	696.6	4,914.4	705.0
Q4	4,863.8	4,994.8	888.7	1,006.4	2,968.6	6,372.5	6,635.8	698.2	4,970.9	703.5
2022 Q1	4,917.1	4,891.5	911.4	1,002.2	3,003.6	6,471.9	6,671.8	701.0	5,063.2	707.7
Q2	5,017.9	4,994.1	948.7	1,027.7	3,041.5	6,555.0	6,745.8	707.4	5,140.2	707.5
2022 Feb.	4,885.9	4,858.5	899.5	998.8	2,987.6	6,444.2	6,643.9	701.0	5,036.3	706.9
Mar.	4,917.1	4,891.5	911.4	1,002.2	3,003.6	6,471.9	6,671.8	701.0	5,063.2	707.7
Apr.	4,943.8	4,922.3	924.0	1,012.0	3,007.8	6,491.5	6,697.1	702.8	5,082.1	706.6
May	4,974.3	4,944.7	934.5	1,016.1	3,023.6	6,522.2	6,725.0	705.6	5,109.7	706.9
June	5,017.9	4,994.1	948.7	1,027.7	3,041.5	6,555.0	6,745.8	707.4	5,140.2	707.5
July ⁶⁾	5,067.6	5,039.4	959.6	1,041.9	3,066.1	6,577.8	6,765.4	708.2	5,162.8	706.8
Transactions										
2019	115.0	142.5	-13.0	44.8	83.2	200.3	216.2	41.0	168.5	-9.2
2020	288.2	325.3	-54.1	138.7	203.6	209.1	193.0	-11.8	210.7	10.2
2021	176.7	208.6	-1.3	2.8	175.2	261.6	266.6	10.7	255.0	-4.0
2021 Q3	40.3	44.6	4.1	2.0	34.2	65.7	67.4	4.1	64.0	-2.3
Q4	98.5	127.6	55.9	37.1	5.5	60.5	71.0	6.5	55.7	-1.7
2022 Q1	45.2	53.7	18.8	-4.7	31.2	72.8	83.0	5.1	65.2	2.5
Q2	96.9	104.6	37.5	22.9	36.5	87.0	78.2	7.8	76.9	2.3
2022 Feb.	13.5	13.2	8.7	-1.4	6.2	18.4	29.5	3.8	13.7	0.8
Mar.	25.0	32.9	9.8	3.3	11.9	28.8	29.4	0.3	27.0	1.5
Apr.	23.5	27.3	11.4	7.8	4.3	20.6	25.0	2.4	18.5	-0.3
May	30.6	22.8	12.2	4.6	13.8	31.9	29.6	3.2	28.1	0.5
June	42.9	54.6	13.9	10.6	18.4	34.6	23.6	2.2	30.3	2.0
July ⁶⁾	46.7	44.2	8.7	14.4	23.7	20.5	18.1	1.0	22.2	-2.6
Growth rates										
2019	2.6	3.2	-1.3	5.3	3.2	3.5	3.6	6.0	3.9	-1.3
2020	6.4	7.1	-5.7	15.9	7.8	3.5	3.1	-1.6	4.7	1.5
2021	3.8	4.3	-0.1	0.3	6.3	4.3	4.2	1.6	5.4	-0.6
2021 Q3	1.7	2.1	-8.6	-3.5	6.9	4.3	4.1	0.5	5.6	-0.2
Q4	3.8	4.3	-0.1	0.3	6.3	4.3	4.2	1.6	5.4	-0.6
2022 Q1	3.5	4.2	2.4	-0.8	5.4	4.4	4.5	2.6	5.4	-0.2
Q2	5.9	6.9	14.0	5.9	3.7	4.6	4.6	3.4	5.4	0.1
2022 Feb.	3.9	4.6	1.5	0.1	6.0	4.4	4.4	2.3	5.4	-0.3
Mar.	3.5	4.2	2.4	-0.8	5.4	4.4	4.5	2.6	5.4	-0.2
Apr.	4.5	5.4	5.7	1.9	5.1	4.3	4.6	3.1	5.2	-0.2
May	5.0	6.0	7.2	4.6	4.5	4.4	4.6	3.4	5.3	-0.2
June	5.9	6.9	14.0	5.9	3.7	4.6	4.6	3.4	5.4	0.1
July ⁶⁾	6.6	7.7	15.4	7.5	3.8	4.5	4.5	3.3	5.3	-0.2

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			
	Central government holdings ²⁾	Longer-term financial liabilities vis-à-vis other euro area residents					Net external assets	Other		
		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		Total		
								Repos with central counterparties ³⁾	Reverse repos to central counterparties ³⁾	
1	2	3	4	5	6	7	8	9	10	
Outstanding amounts										
2019	363.4	7,055.1	1,944.5	50.2	2,155.2	2,905.3	1,474.7	417.4	178.9	187.2
2020	744.6	6,961.4	1,914.8	42.1	1,991.8	3,012.7	1,437.6	489.8	130.1	139.2
2021	797.1	6,889.8	1,838.8	37.1	1,998.1	3,015.9	1,363.8	441.9	118.8	136.8
2021 Q3	690.8	6,856.6	1,850.7	38.6	1,975.9	2,991.4	1,375.6	415.2	139.0	146.0
Q4	797.1	6,889.8	1,838.8	37.1	1,998.1	3,015.9	1,363.8	441.9	118.8	136.8
2022 Q1	740.4	6,875.1	1,847.5	35.8	1,986.0	3,005.8	1,359.4	348.2	153.0	164.4
Q2	757.6	6,803.7	1,848.1	31.6	2,005.7	2,918.3	1,302.5	412.9	159.3	157.3
2022 Feb.	731.5	6,888.7	1,844.9	36.5	2,005.4	3,001.9	1,374.3	343.4	166.0	159.4
Mar.	740.4	6,875.1	1,847.5	35.8	1,986.0	3,005.8	1,359.4	348.2	153.0	164.4
Apr.	768.6	6,894.2	1,845.5	35.6	2,014.9	2,998.2	1,358.3	436.8	180.7	171.7
May	725.3	6,803.4	1,847.3	32.2	1,985.9	2,937.9	1,240.6	433.1	178.3	170.8
June	757.6	6,803.7	1,848.1	31.6	2,005.7	2,918.3	1,302.5	412.9	159.3	157.3
July ^(p)	735.1	6,848.8	1,837.1	31.2	1,998.4	2,982.1	1,316.2	417.9	169.7	159.1
Transactions										
2019	-25.0	107.2	-5.5	-2.9	28.0	87.6	311.8	14.2	-2.7	-2.5
2020	316.3	-34.8	-14.9	-8.0	-101.1	89.1	-60.2	142.3	-48.8	-48.0
2021	53.1	-36.1	-74.8	-5.0	-39.8	83.5	-120.5	-92.6	-11.3	-2.3
2021 Q3	10.8	0.6	-18.6	-1.5	8.2	12.5	-43.6	32.1	15.3	11.5
Q4	106.7	10.0	-13.5	-1.6	6.1	18.9	-71.3	25.9	-20.2	-9.2
2022 Q1	-53.2	-42.2	-21.6	-1.3	-28.7	9.3	-25.7	-177.6	34.0	34.7
Q2	17.1	29.8	-3.2	-4.1	-16.2	53.4	-70.3	-13.9	7.6	-7.1
2022 Feb.	7.9	-21.1	-13.9	-0.3	-6.3	-0.7	-9.3	-41.1	0.5	0.7
Mar.	8.4	-11.8	2.3	-0.7	-25.4	11.9	-14.4	-37.8	-12.9	5.0
Apr.	28.1	26.9	-5.1	-0.2	1.5	30.6	-32.1	40.3	27.7	7.3
May	-43.3	-13.4	2.9	-3.4	-19.9	7.0	-72.4	-18.3	-1.1	-0.9
June	32.3	16.4	-1.1	-0.6	2.3	15.8	34.1	-35.9	-19.0	-13.5
July ^(p)	-22.4	-11.3	-12.9	-0.5	-16.4	18.4	-12.7	28.4	10.4	1.8
Growth rates										
2019	-6.4	1.6	-0.3	-5.3	1.3	3.1	-	-	-1.5	-1.5
2020	87.4	-0.5	-0.8	-15.9	-4.7	3.0	-	-	-27.3	-25.7
2021	7.1	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2021 Q3	-12.9	-0.7	-3.6	-9.9	-4.4	3.8	-	-	-0.6	-0.9
Q4	7.1	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2022 Q1	5.7	-0.7	-4.0	-13.1	-1.9	2.3	-	-	20.1	31.9
Q2	12.0	0.0	-3.0	-21.3	-1.5	3.2	-	-	29.6	22.2
2022 Feb.	6.2	-0.6	-4.6	-11.9	-0.8	2.3	-	-	14.0	14.3
Mar.	5.7	-0.7	-4.0	-13.1	-1.9	2.3	-	-	20.1	31.9
Apr.	7.4	-0.1	-3.3	-13.3	-1.7	3.1	-	-	35.9	36.7
May	4.5	0.0	-3.1	-20.8	-1.8	3.5	-	-	34.5	36.4
June	12.0	0.0	-3.0	-21.3	-1.5	3.2	-	-	29.6	22.2
July ^(p)	7.6	-0.2	-3.3	-21.0	-2.7	3.9	-	-	28.0	24.8

Source: 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: Primary deficit (-)/ surplus (+)
	Total	Central government	State government	Local government	Social security funds	
	1	2	3	4	5	6
2018	-0.4	-1.0	0.1	0.2	0.3	1.4
2019	-0.7	-1.0	0.0	0.0	0.3	1.0
2020	-7.1	-5.8	-0.4	0.0	-0.9	-5.6
2021	-5.1	-5.0	-0.1	0.0	-0.1	-3.6
2021 Q2	-6.8	.	.	.	.	-5.3
Q3	-6.1	.	.	.	.	-4.7
Q4	-5.1	.	.	.	.	-3.6
2022 Q1	-3.9	.	.	.	.	-2.4

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

6.2 Revenue and expenditure

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

	Revenue						Expenditure						
	Total	Current revenue				Capital revenue	Total	Current expenditure				Capital expenditure	
		Direct taxes	Indirect taxes	Net social contributions				Compensation of employees	Intermediate consumption	Interest	Social benefits		
1	2	3	4	5	6	7	8	9	10	11	12	13	
2018	46.4	45.9	12.9	13.0	15.2	0.5	46.9	43.2	9.9	5.3	1.8	22.3	3.7
2019	46.3	45.8	12.9	13.0	15.0	0.5	46.9	43.2	9.9	5.3	1.6	22.4	3.8
2020	46.5	46.1	12.9	12.7	15.6	0.5	53.6	49.1	10.7	5.9	1.5	25.5	4.5
2021	47.3	46.6	13.3	13.2	15.3	0.7	52.4	47.7	10.3	6.0	1.5	24.2	4.8
2021 Q2	46.5	46.0	12.8	12.9	15.5	0.6	53.3	48.6	10.5	6.0	1.5	24.9	4.7
Q3	46.8	46.1	13.0	13.0	15.4	0.7	52.9	48.2	10.4	6.0	1.4	24.6	4.7
Q4	47.4	46.6	13.3	13.2	15.3	0.7	52.5	47.7	10.3	6.0	1.5	24.2	4.8
2022 Q1	47.3	46.6	13.3	13.3	15.2	0.7	51.2	46.5	10.1	5.9	1.5	23.8	4.7

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 deposits	Loans	Debt securities	Resident creditors	Non-resident creditors	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 currencies	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2018	85.8	3.1	13.7	69.0	48.2	32.5	37.6	8.2	77.7	16.1	28.3	41.4	84.4	1.5
2019	83.8	3.0	12.9	67.9	45.5	30.7	38.3	7.7	76.1	15.7	27.7	40.5	82.5	1.3
2020	97.2	3.2	14.2	79.9	54.5	39.1	42.7	11.3	85.9	19.1	31.5	46.6	95.5	1.7
2021	95.6	3.0	13.6	79.0	55.7	41.8	39.8	10.0	85.6	17.9	31.0	46.6	94.2	1.4
2021 Q2	98.2	3.1	13.9	81.2	.	.	.	.	.	.	.	.	.	.
Q3	97.6	3.0	13.9	80.6	.	.	.	.	.	.	.	.	.	.
Q4	95.7	3.0	13.7	79.0	.	.	.	.	.	.	.	.	.	.
2022 Q1	95.6	3.0	13.4	79.2	.	.	.	.	.	.	.	.	.	.

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

6 Fiscal developments

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

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

	Change in debt-to-GDP ratio 2)	Primary deficit (+)/surplus (-)	Deficit-debt adjustment							Interest-growth differential	Memo item: Borrowing requirement	
			Total	Transactions in main financial assets				Revaluation effects and other changes in volume	Other			
				Total	Currency and deposits	Loans	Debt securities					Equity and investment fund shares
	1	2	3	4	5	6	7	8	9	10	11	12
2018	-2.0	-1.4	0.4	0.4	0.4	-0.1	0.0	0.2	0.0	-0.1	-1.0	0.8
2019	-2.0	-1.0	0.1	0.2	0.1	-0.1	0.0	0.2	-0.2	0.0	-1.1	0.9
2020	13.4	5.6	2.1	2.5	2.0	0.4	-0.1	0.1	-0.4	0.0	5.7	9.6
2021	-1.6	3.6	0.0	0.7	0.4	0.1	0.1	0.1	-0.1	-0.5	-5.3	5.2
2021 Q2	3.4	5.3	-1.3	-0.5	-1.0	0.4	0.0	0.2	-0.3	-0.5	-0.5	5.7
Q3	0.6	4.7	-1.2	-0.4	-0.8	0.2	0.0	0.2	-0.3	-0.5	-2.9	5.2
Q4	-1.7	3.6	0.0	0.7	0.4	0.1	0.1	0.1	-0.1	-0.5	-5.3	5.2
2022 Q1	-4.4	2.4	0.5	0.9	0.5	0.1	0.1	0.2	-0.1	-0.3	-7.3	4.5

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

1) Intergovernmental lending in the context of the financial crisis is consolidated except in quarterly data on the deficit-debt adjustment.

2) Calculated as the difference between the government debt-to-GDP ratios at the end of the reference period and a year earlier.

6.5 Government debt securities 1)

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

	Debt service due within 1 year 2)					Average residual maturity in years 3)	Average nominal yields 4)						
	Total	Principal		Interest			Outstanding amounts				Transactions		
		Maturities of up to 3 months	Maturities of up to 3 months	Total	Floating rate		Zero coupon	Fixed rate	Maturities of up to 1 year	Issuance	Redemption		
	1											2	3	4	5	6	7	8	9	10	11	12	13
2019	12.2	10.8	3.6	1.4	0.4	7.5	2.2	1.3	-0.1	2.5	2.1	0.3	1.1
2020	14.9	13.6	4.2	1.4	0.3	7.6	1.9	1.1	-0.2	2.2	2.3	0.0	0.8
2021	14.2	12.9	4.2	1.3	0.3	7.9	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5
2021 Q2	14.5	13.1	4.8	1.4	0.3	7.9	1.7	0.5	-0.3	2.0	2.1	-0.1	0.5
Q3	14.6	13.2	4.4	1.4	0.3	7.9	1.7	1.1	-0.3	2.0	1.8	-0.1	0.5
Q4	14.2	12.9	4.2	1.3	0.3	7.9	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5
2022 Q1	14.7	13.5	5.0	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.7	-0.1	0.4
2022 Feb.	14.1	12.9	5.2	1.2	0.3	8.0	1.6	1.1	-0.3	1.9	1.7	-0.1	0.5
Mar.	14.7	13.5	5.0	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.7	-0.1	0.4
Apr.	14.3	13.1	4.5	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.8	-0.1	0.5
May	14.5	13.3	4.0	1.3	0.3	8.1	1.6	1.1	-0.3	1.9	1.8	0.0	0.5
June	14.7	13.4	4.8	1.3	0.3	8.0	1.6	1.0	-0.2	1.9	1.7	0.1	0.4
July	14.3	13.0	4.5	1.3	0.3	8.1	1.6	1.1	-0.2	1.9	1.7	0.2	0.5

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 1	Germany 2	Estonia 3	Ireland 4	Greece 5	Spain 6	France 7	Italy 8	Cyprus 9	
Government deficit (-)/surplus (+)										
2018	-0.9	1.9	-0.6	0.1	0.9	-2.6	-2.3	-2.2	-3.6	
2019	-2.0	1.5	0.1	0.5	1.1	-3.1	-3.1	-1.5	1.3	
2020	-9.0	-4.3	-5.6	-5.1	-10.2	-10.3	-8.9	-9.6	-5.8	
2021	-5.5	-3.7	-2.4	-1.9	-7.4	-6.9	-6.5	-7.2	-1.7	
2021 Q2	-6.5	-5.0	-4.3	-4.3	-11.0	-8.4	-8.2	-8.9	-6.4	
Q3	-6.9	-4.3	-3.9	-3.1	-9.8	-7.8	-7.9	-8.0	-4.7	
Q4	-5.5	-3.7	-2.4	-1.7	-7.4	-6.9	-6.4	-7.2	-1.7	
2022 Q1	-5.5	-2.6	-1.7	-0.1	-5.0	-5.4	-5.0	-6.4	-0.1	
Government debt										
2018	99.8	61.2	8.2	63.1	186.4	100.5	97.8	134.4	98.4	
2019	97.7	58.9	8.6	57.2	180.7	98.3	97.4	134.1	91.1	
2020	112.8	68.7	19.0	58.4	206.3	120.0	114.6	155.3	115.0	
2021	108.2	69.3	18.1	56.0	193.3	118.4	112.9	150.8	103.6	
2021 Q2	113.8	69.6	19.6	58.9	207.5	122.7	113.7	155.7	111.4	
Q3	111.5	69.3	19.7	57.4	201.6	121.7	115.0	154.6	109.0	
Q4	108.4	69.3	18.1	55.3	193.3	118.4	112.5	150.8	103.6	
2022 Q1	107.9	68.2	17.6	53.1	189.3	117.7	114.4	152.6	104.9	
	Latvia 10	Lithuania 11	Luxembourg 12	Malta 13	Netherlands 14	Austria 15	Portugal 16	Slovenia 17	Slovakia 18	Finland 19
Government deficit (-)/surplus (+)										
2018	-0.8	0.5	3.0	2.1	1.4	0.2	-0.3	0.7	-1.0	-0.9
2019	-0.6	0.5	2.3	0.6	1.7	0.6	0.1	0.4	-1.3	-0.9
2020	-4.5	-7.3	-3.4	-9.5	-3.7	-8.0	-5.8	-7.8	-5.5	-5.5
2021	-7.3	-1.0	0.9	-8.0	-2.5	-5.9	-2.8	-5.2	-6.2	-2.6
2021 Q2	-7.7	-5.4	-0.5	-7.7	-3.9	-9.3	-5.9	-6.6	-6.5	-5.0
Q3	-6.3	-3.5	-0.2	-8.0	-3.6	-7.9	-4.0	-6.5	-5.9	-4.4
Q4	-7.3	-1.0	0.9	-7.9	-2.6	-5.9	-2.8	-5.2	-6.2	-2.7
2022 Q1	-5.1	0.0	0.8	-8.0	-1.5	-3.9	-1.5	-4.1	-5.4	-2.0
Government debt										
2018	37.1	33.7	20.8	43.7	52.4	74.1	121.5	70.3	49.6	59.8
2019	36.7	35.9	22.3	40.7	48.5	70.6	116.6	65.6	48.1	59.6
2020	43.3	46.6	24.8	53.4	54.3	83.3	135.2	79.8	59.7	69.0
2021	44.8	44.3	24.4	57.0	52.1	82.8	127.4	74.7	63.1	65.8
2021 Q2	43.2	44.6	26.1	58.8	54.5	86.4	135.3	80.1	61.1	74.5
Q3	43.5	45.1	25.3	56.3	52.8	84.5	130.6	79.7	61.2	73.8
Q4	44.8	44.3	24.3	56.4	52.4	83.0	127.4	74.7	63.1	72.3
2022 Q1	42.8	40.4	22.3	57.6	50.7	84.1	127.0	75.1	62.4	71.9

Source: Eurostat.

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