



EUROPEAN CENTRAL BANK  
EUROSYSTEM

# Economic Bulletin

Issue 8 / 2022



# Contents

<b>Economic, financial and monetary developments</b>	<b>2</b>
Overview	2
1 External environment	8
2 Economic activity	15
3 Prices and costs	22
4 Financial market developments	30
5 Financing conditions and credit developments	35
6 Fiscal developments	43
<b>Boxes</b>	<b>47</b>
1 Inflation developments in the euro area and the United States	47
2 Croatia adopts the euro	54
3 The impact of higher energy prices on services and goods consumption in the euro area	60
4 Wage dynamics across euro area countries since the start of the pandemic	64
5 Firms' access to finance and the business cycle: evidence from the SAFE	69
6 Liquidity conditions and monetary policy operations from 27 July to 1 November 2022	75
7 What information does the euro area bank lending survey provide on future loan developments?	81
8 Fiscal policy implications of euro area countries' 2023 draft budgetary plans	89
<b>Articles</b>	<b>93</b>
1 The pandemic emergency purchase programme – an initial review	93
2 Wage developments and their determinants since the start of the pandemic	117
<b>Statistics</b>	<b>S1</b>

# Economic, financial and monetary developments

## Overview

On 15 December 2022 the Governing Council decided to raise the three key ECB interest rates by 50 basis points and, based on the substantial upward revision to the inflation outlook, expects to raise them further. In particular, the Governing Council judges that interest rates will still have to rise significantly at a steady pace to reach levels that are sufficiently restrictive to ensure a timely return of inflation to the 2% medium-term target. Keeping interest rates at restrictive levels will over time reduce inflation by dampening demand and will also guard against the risk of a persistent upward shift in inflation expectations. The Governing Council's future policy rate decisions will continue to be data-dependent and follow a meeting-by-meeting approach.

The key ECB interest rates are the Governing Council's primary tool for setting the monetary policy stance. At its December meeting, the Governing Council also discussed principles for normalising the Eurosystem's monetary policy securities holdings. From the beginning of March 2023 onwards, the asset purchase programme (APP) portfolio will decline at a measured and predictable pace, as the Eurosystem will not reinvest all of the principal payments from maturing securities. The decline will amount to €15 billion per month on average until the end of the second quarter of 2023 and its subsequent pace will be determined over time.

At its meeting in February 2023 the Governing Council will announce the detailed parameters for reducing the APP holdings. The Governing Council will regularly reassess the pace of the APP portfolio reduction to ensure it remains consistent with the overall monetary policy strategy and stance, to preserve market functioning, and to maintain firm control over short-term money market conditions. By the end of 2023, the Governing Council will also review its operational framework for steering short-term interest rates, which will provide information regarding the endpoint of the balance sheet normalisation process.

At its December 2022 meeting, the Governing Council decided to raise interest rates, and expects to raise them significantly further, because inflation remains far too high and is projected to stay above the target for too long. According to Eurostat's flash estimate, inflation was 10.0% in November, slightly lower than the 10.6% recorded in October. The decline resulted mainly from lower energy price inflation. Food price inflation and underlying price pressures across the economy have strengthened and will persist for some time. Amid exceptional uncertainty, Eurosystem staff have significantly revised up their inflation projections. They now see average inflation reaching 8.4% in 2022 before decreasing to 6.3% in 2023, with inflation expected to decline markedly over the course of the year. Inflation is then projected to average 3.4% in 2024 and 2.3% in 2025. Inflation excluding energy and food is projected to

be 3.9% on average in 2022 and to rise to 4.2% in 2023, before falling to 2.8% in 2024 and 2.4% in 2025.

The euro area economy may contract in the fourth quarter of 2022 and the first quarter of 2023, owing to the energy crisis, high uncertainty, weakening global economic activity and tighter financing conditions. According to the December 2022 Eurosystem staff macroeconomic projections for the euro area, a recession would be relatively short-lived and shallow. Growth is nonetheless expected to be subdued in 2023 and has been revised down significantly compared with the September 2022 ECB staff projections for the euro area. Beyond the near term, growth is projected to recover as the current headwinds fade. Overall, the December 2022 projections now see the economy growing by 3.4% in 2022, 0.5% in 2023, 1.9% in 2024 and 1.8% in 2025.

## Economic activity

The global economic outlook has deteriorated in the face of elevated geopolitical uncertainty, high and rising inflation and tight financial conditions. According to the December 2022 projections, the global real GDP growth rate (excluding the euro area) is projected to slow to 2.6% in 2023, below its long-term average, before gradually recovering to 3.1% and 3.3% in 2024 and 2025 respectively. This outlook is weaker than that described in the September 2022 projections. The outlook for global trade and euro area foreign demand has also deteriorated compared with the September 2022 projections. Global price pressures remain broad-based and elevated amid still relatively robust demand, tight labour markets and high food prices, but are 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.

Economic growth in the euro area slowed to 0.3% in the third quarter of the year. High inflation and tighter financing conditions are dampening spending and production by reducing real household incomes and pushing up costs for firms. The world economy is also slowing, in a context of continued geopolitical uncertainty, especially owing to Russia's unjustified war against Ukraine and its people, and tighter financing conditions worldwide. The past deterioration in the terms of trade, reflecting the faster rise in import prices than in export prices, continues to weigh on purchasing power in the euro area.

On the positive side, employment increased by 0.3% in the third quarter, and unemployment hit a new historical low of 6.5% in October. Rising wages are set to restore some lost purchasing power, supporting consumption. As the economy weakens, however, job creation is likely to slow, and unemployment could rise over the coming quarters.

The outlook for the euro area has deteriorated somewhat, with weaker growth and higher and more persistent inflation than envisaged in the September 2022 projections. Staff now expects a short-lived and shallow recession in the euro area at

the turn of the year. As the economic consequences of the war in Ukraine unfold and fuel the strong inflationary pressures, consumer and business confidence have remained subdued, while real disposable incomes are being eroded and soaring cost pressures are curtailing production, especially in energy-intensive industries. The negative economic repercussions are expected to be partially mitigated by fiscal policy measures. In addition, high levels of natural gas inventories and ongoing efforts to reduce demand and replace Russian gas with alternative sources imply that the euro area is expected to avoid the need for mandated energy-related production cuts over the projection horizon, although risks of energy supply disruptions remain elevated, in particular for the winter of 2023-24. Over the medium term, as the energy market rebalances, it is expected that uncertainty will decline, and real incomes will improve. As a result, economic growth is expected to rebound, also supported by strengthening foreign demand and the resolution of remaining supply bottlenecks, despite less favourable financing conditions. The labour market is expected to remain relatively resilient to the coming mild recession, reflecting labour hoarding amid still significant labour shortages. Overall, annual average real GDP growth is expected to slow down markedly, from 3.4% in 2022 to 0.5% in 2023, and then to rebound to 1.9% in 2024 and 1.8% in 2025. Compared with the September 2022 projections, the outlook for GDP growth has been revised up by 0.3 percentage points for 2022, owing to positive surprises over the summer, and revised down by 0.4 percentage points for 2023, while it is unchanged for 2024.

According to the December 2022 projections, the euro area budget balance is projected to worsen in 2023 before improving thereafter, while government debt is projected to decline over the full projection horizon. After an estimated improvement for 2022 (from -5.1% of GDP in 2021 to -3.5% in 2022), the budget balance is projected to decline to -3.7% in 2023. Further improvements are expected in 2024 and, to a lesser extent, in 2025, when the budget balance is projected to be -2.6% of GDP. Nonetheless, this is still well below the pre-pandemic level (-0.6%). After the sharp increase in 2020, euro area aggregate government debt is expected to decline over the projection horizon, reaching 88% of GDP in 2025, which is still above its pre-pandemic level (84%). This expected decline is mainly due to favourable interest rate-growth differentials on account of the nominal GDP growth, which more than offsets the persisting, albeit decreasing, primary deficits.

Fiscal support measures to shield the economy from the impact of high energy prices should be temporary, targeted and tailored to preserving incentives to consume less energy. Fiscal measures falling short of these principles are likely to exacerbate inflationary pressures, which would necessitate a stronger monetary policy response. Moreover, in line with the EU's economic governance framework, fiscal policies should be oriented towards making the euro area economy more productive and gradually bringing down high public debt. Policies to enhance the euro area's supply capacity, especially in the energy sector, can help reduce price pressures in the medium term. To that end, governments should swiftly implement their investment and structural reform plans under the Next Generation EU programme. The reform of the EU's economic governance framework should be concluded rapidly.

## Inflation

Inflation declined to 10.0% in November, mainly on the back of lower energy price inflation, while services inflation also edged down. Food price inflation rose further to 13.6%, however, as high input costs in food production were passed through to consumer prices. Price pressures remain strong across sectors, partly as a result of the impact of high energy costs throughout the economy. Inflation excluding energy and food was unchanged in November, at 5.0%, and other measures of underlying inflation are also high.

Fiscal measures to compensate households for high energy prices and inflation are set to dampen inflation over 2023 but will raise it once they are withdrawn. Supply bottlenecks are gradually easing, although their effects are still contributing to inflation, pushing up goods prices in particular. The same holds true for the lifting of pandemic-related restrictions: while weakening, the effect of pent-up demand is still driving up prices, especially in the services sector. The depreciation of the euro in 2022 is also continuing to feed through to consumer prices.

Wage growth is strengthening, supported by robust labour markets and some catch-up in wages to compensate workers for high inflation. As these factors are set to remain in place, the December 2022 projections see wages growing at rates well above historical averages and pushing up inflation throughout the projection period. Most measures of longer-term inflation expectations currently stand at around 2%, although further above-target revisions to some indicators warrant continued monitoring.

Amid exceptional uncertainty, Eurosystem staff have significantly revised up their inflation projections. Inflation is expected to decline from an average of 8.4% in 2022 to 6.3% in 2023, with inflation declining from 10% in the last quarter of 2022 to 3.6% in the last quarter of 2023. Inflation is then expected to decline to an average of 3.4% in 2024 and of 2.3% in 2025. The decline in inflation over the projection horizon reflects strong energy-related downward base effects throughout the course of 2023, the gradual impact of the normalisation of the ECB's monetary policy which started in December 2021, the weaker growth outlook and the assumed decline in energy and food commodity prices, in line with futures prices, as well as the assumption that longer-term inflation expectations will remain anchored. Headline inflation is expected to fall to the ECB's medium-term inflation target of 2% in the second half of 2025, while HICP inflation excluding energy and food will remain above 2% throughout the horizon. This persistence is driven by lagged indirect effects from high energy prices and from the past sharp depreciation of the euro (despite the recent slight appreciation), as well as by robust labour markets and inflation compensation effects on wages, which are expected to grow at rates well above historical averages in nominal terms (although in real terms remaining below the levels seen before the war in Ukraine over the full projection horizon). Compared with the September 2022 projections, headline inflation has been revised up substantially for 2022 (by 0.3 percentage points), 2023 (by 0.8 percentage points) and 2024 (by 1.1 percentage points), reflecting recent data surprises, a reassessment of the strength and persistence of pipeline price pressures and their pass-through, stronger wage growth

and higher food commodity prices. These upward effects more than offset the downward impact of lower oil, gas and electricity price assumptions, a faster easing of supply bottlenecks, the recent appreciation of the euro and the weaker growth outlook. Importantly, new fiscal measures decided since the September 2022 projections, most of which aim at reducing energy price increases in 2023, dampen the upward revision to inflation in 2023, but contribute significantly to the upward revision in 2024 as many of the measures are assumed to expire.

## Risk assessment

Risks to the economic growth outlook are on the downside, especially in the near term. The war against Ukraine remains a significant downside risk to the economy. Energy and food costs could also remain persistently higher than expected. There could be an additional drag on growth in the euro area if the world economy were to weaken more sharply than expected.

The risks to the inflation outlook are primarily on the upside. In the near term, existing pipeline pressures could lead to stronger than expected rises in retail prices for energy and food. Over the medium term, risks stem primarily from domestic factors such as a persistent rise in inflation expectations above the ECB's 2% target or higher than anticipated wage rises. By contrast, a decline in energy costs or a further weakening of demand would lower price pressures.

## Financial and monetary conditions

As the ECB tightens monetary policy, borrowing is becoming more expensive for firms and households. Bank lending to firms remains robust, as firms replace bonds with bank loans and use credit to finance the higher costs of production and investment. Households are borrowing less, because of tighter credit standards, rising interest rates, worsening prospects for the housing market and lower consumer confidence.

In line with the monetary policy strategy, twice a year the Governing Council assesses in depth the interrelation between monetary policy and financial stability. The financial stability environment has deteriorated since the last review in June 2022 owing to a weaker economy and rising credit risk. In addition, sovereign vulnerabilities have risen amid the weaker economic outlook and weaker fiscal positions. Tighter financing conditions would mitigate the build-up of financial vulnerabilities and lower tail risks to inflation over the medium term, at the cost of a higher risk of systemic stress and greater downside risks to growth in the short term. Moreover, the liquidity needs of non-bank financial institutions may amplify market volatility. At the same time, euro area banks have comfortable levels of capital, which helps to reduce the side effects of tighter monetary policy on financial stability. Macroprudential policy remains the first line of defence in preserving financial stability and addressing medium-term vulnerabilities.

## Monetary policy decisions

At its December meeting, the Governing Council decided to raise the three key ECB interest rates by 50 basis points and, based on the substantial upward revision to the inflation outlook, expects to raise them further. 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 2.50%, 2.75% and 2.00% respectively, with effect from 21 December 2022. The Governing Council judges that interest rates will still have to rise significantly at a steady pace to reach levels that are sufficiently restrictive to ensure a timely return of inflation to the 2% medium-term target. Keeping interest rates at restrictive levels will over time reduce inflation by dampening demand and will also guard against the risk of a persistent upward shift in inflation expectations. The Governing Council's future policy rate decisions will continue to be data-dependent and follow a meeting-by-meeting approach.

The Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP until the end of February 2023. Subsequently, the APP portfolio will decline at a measured and predictable pace, as the Eurosystem will not reinvest all of the principal payments from maturing securities. The decline will amount to €15 billion per month on average until the end of the second quarter of 2023 and its subsequent pace will be determined over time. As concerns the pandemic emergency purchase programme (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. The Governing Council will continue applying flexibility in reinvesting redemptions coming due in the PEPP portfolio, with a view to countering risks to the monetary policy transmission mechanism related to the pandemic.

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

The Governing Council stands ready to adjust all of its instruments within its mandate to ensure that inflation returns to 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

*The global economic outlook has deteriorated in the face of elevated geopolitical uncertainty, high and rising inflation and tight financial conditions. According to the December 2022 Eurosystem staff macroeconomic projections for the euro area, global real GDP (excluding the euro area) growth is projected to slow to 2.6% in 2023, below its long-term average, before gradually recovering to 3.1% and 3.3% in 2024 and 2025 respectively. This outlook is weaker than that described in the September 2022 ECB staff macroeconomic projections for the euro area. The outlook for global trade and euro area foreign demand has also deteriorated compared with the September projections. Global price pressures remain broad-based and elevated amid still relatively robust demand, tight labour markets and high food prices, but are 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.*

**In the course of 2022, the world economy has been buffeted by several shocks which have dampened the pace of growth and which will continue to weigh on the global outlook.** The Russian war against Ukraine continues to unsettle energy and food commodity markets and energy prices remain volatile despite having declined since the September 2022 ECB staff macroeconomic projections. In addition, the war is fuelling uncertainty about food security, especially across emerging market economies. In China, the zero-COVID policy implemented so far, at least by the time the December 2022 Eurosystem staff macroeconomic projections were finalised, and the recession in the residential sector are further weighing on activity. Across major advanced economies, the deceleration in economic activity during 2022 has been driven by slowing demand and the start of a tightening cycle in early 2022. The easing of pandemic-related restrictions and supply-chain bottlenecks since spring, together with falling energy prices, supported activity up to the third quarter.

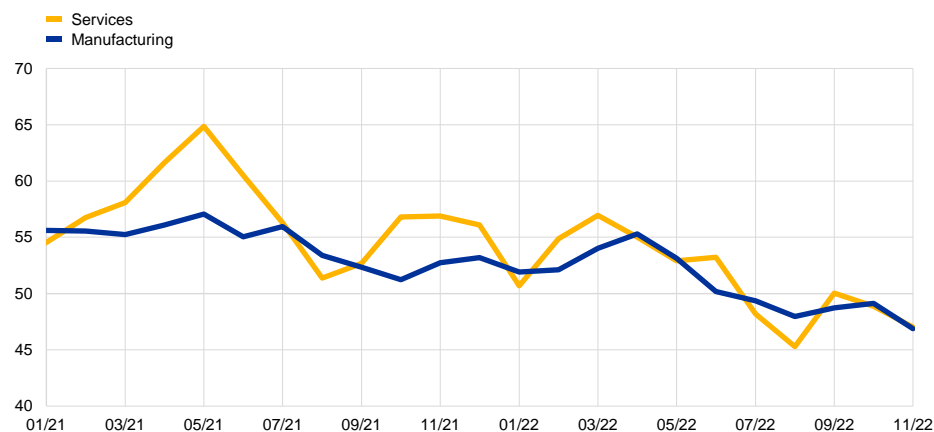
**Survey data continue to point to a broad-based moderation in economic activity at the turn of the year, especially across advanced economies.** The global (excluding the euro area) composite PMI indices peaked in June and have been on a downward trajectory ever since. In November the PMI indices declined further below the neutral threshold in both advanced economies (excluding the euro area) and emerging markets and across the manufacturing and services sectors (Chart 1). For the fourth quarter of 2022 global real GDP growth (excluding the euro area) is estimated to slow to 0.3% quarter on quarter from 1.1% in the third quarter, reflecting still high and persistent inflationary pressures and tight financial conditions which continue to take a toll on household disposable income and savings accumulated during the pandemic. Compared with the September projections, growth in the fourth quarter has been revised down by 0.5 percentage points, reflecting weaker projected growth across both advanced and emerging economies.

## Chart 1

### PMI output by sector across advanced and emerging market economies

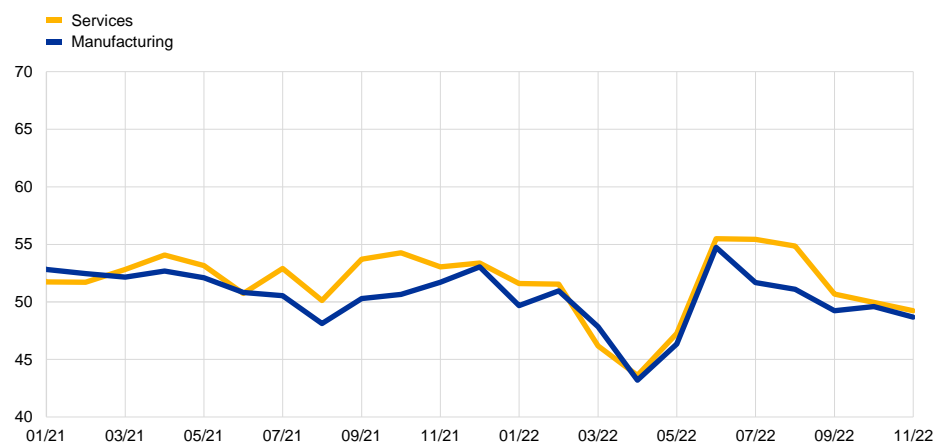
#### a) Advanced economies (excluding the euro area)

(diffusion indices)



#### b) Emerging market economies

(diffusion indices)



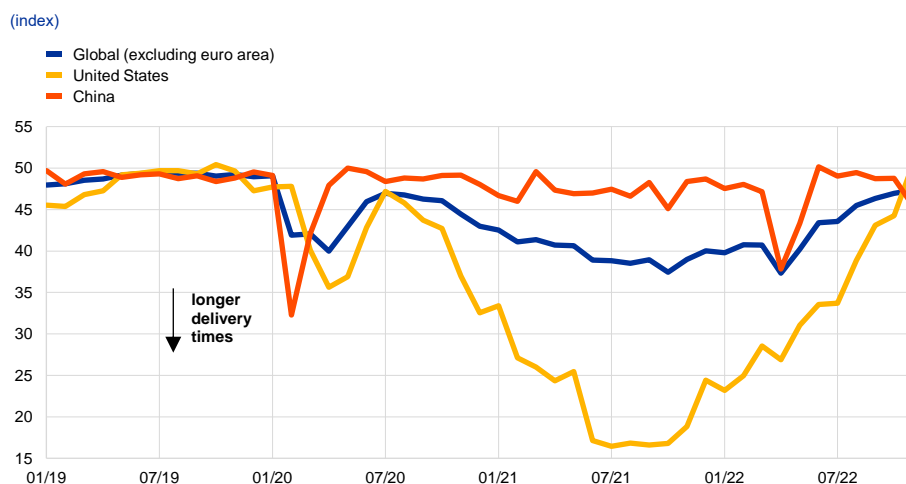
Sources: S&P Global and ECB staff calculations.  
Note: The latest observations are for November 2022.

**Global real GDP (excluding the euro area) growth is projected to decline in 2023 before gradually recovering in 2024 and 2025.** In 2022 global GDP growth decreased to 3.3%. It is projected to slow further to 2.6% in 2023, reflecting a significant decline in growth in advanced economies, including the United States and the United Kingdom. Some emerging market economies (EMEs) are projected to better withstand the current headwinds in view of lower macro-financial vulnerabilities compared with previous tightening cycles, particularly in terms of lower inflation, lower US dollar-denominated debt exposures and reduced exchange rate misalignments. Nonetheless, there is still significant heterogeneity even within this group and the outlook remains fragile for some countries, such as China, owing to its difficulties in the residential sector and the recent resurgence of coronavirus (COVID-19) infections. A slower pace of growth in Latin American countries and a deepening recession in Russia, despite another significant upward growth revision, especially for 2022, are dampening the growth outlook for EMEs. Compared with the September 2022 ECB staff macroeconomic projections, global real GDP growth

(excluding the euro area) has been revised upwards for 2022 (+0.4 percentage points) but downwards for 2023 (-0.4 percentage points) and 2024 (-0.3 percentage points).

**Weakening manufacturing activity is expected to weigh on global trade at the turn of the year.** Global trade remained relatively resilient in the first half of 2022 as the headwinds from the Russian war in Ukraine and lingering supply bottlenecks were partially offset by the recovery in travel and transportation services following the lifting of COVID-19 containment measures. The momentum for global merchandise trade (excluding the euro area; measured by three month-on-three month changes) has been deteriorating since July owing to weak growth in advanced economies. Global PMI new export orders (excluding the euro area), which are a timelier indicator of world trade, also remained in negative territory. Supply chain pressures continue to ease gradually, although developments related to COVID-19 in China represent a potential downside risk, particularly in the near term. In November global PMI supplier delivery times (excluding the euro area) improved further to 47.3 and surged above the expansionary threshold (+50) in the United States, while in China these fell from 48.7 to 45.4 (Chart 2) owing largely to the renewed tightening of containment measures in November in the face of a flare-up in new COVID-19 infections. The situation nevertheless remains highly uncertain as the authorities started to ease containment measures at the beginning of December and are considering the introduction of a new phase of measures to fight the virus.

**Chart 2**  
PMI suppliers' delivery times



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

**The outlook for global trade growth has deteriorated in line with projections for global activity.** World imports (excluding the euro area) expanded by 5.6% in 2022, but growth is projected to slow to 1.9% in 2023 before picking up to 3.3% in 2024 and remaining stable in 2025. Euro area foreign demand is estimated to have expanded by 6.0% in 2022. Growth in foreign demand is projected to decelerate markedly in 2023 to 1.2% owing to weaker growth prospects in some key euro area

trading partners. For 2024 and 2025, it is projected to rise to around 3.0% in line with global import developments. Compared with the September 2022 ECB staff macroeconomic projections, euro area foreign demand has been revised upwards in 2022 to reflect stronger than previously expected trade dynamics in the second quarter in some advanced economies and in central and eastern European countries outside the euro area. Euro area foreign demand has been revised downwards for 2023 and 2024 in line with weaker activity growth. For 2023 this is partially compensated by a stronger trade outlook for Russia despite a sharp downward revision to the weight of Russia in euro area foreign demand.<sup>1</sup>

**Global inflationary pressures remain high and broad-based**, reflecting the still relatively robust level of demand, tight labour markets and high food prices, while energy-related inflationary pressures have started to ease as prices decline. Annual headline inflation in OECD countries (excluding Türkiye) increased to 8.3% in October from 8.2% in September driven by higher food prices.<sup>2</sup> Headline inflation momentum (excluding Türkiye) slowed for the fifth consecutive month to 5.9% (annualised three-month-on-three-month growth), prolonging the trend of softening price pressure (Chart 3). The projected path for euro area competitor export prices remains elevated in the near term but is set to decline thereafter as commodity prices fall and pipeline pressures ease. This path is slightly lower than the short-term outlook foreseen in the September 2022 projections due to the impact of lower commodity price assumptions and declining domestic pipeline pressures in euro area competitor countries.

---

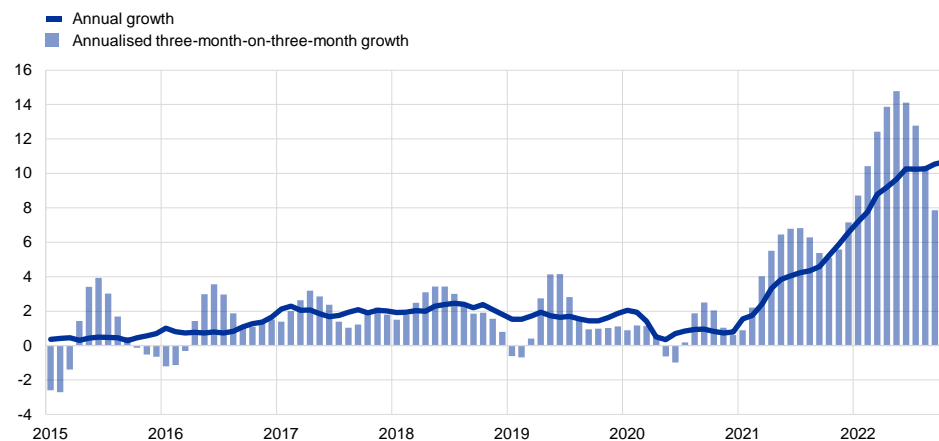
<sup>1</sup> Although euro area foreign demand weights are typically updated using multi-year moving averages, an ad hoc downscaling of the weight of Russia from 2.9% to 1.5% as of the first quarter of 2023 has been implemented, based on trade data from the second quarter of 2022, to account for the sharply reduced trading relationship with the euro area and the fact that the baseline assumes that sanctions will remain in place over the full projection horizon.

<sup>2</sup> We report inflation data for the OECD area excluding Türkiye because with an annual headline consumer price inflation of 85.5% in October 2022, the country is an outlier among OECD countries.

### Chart 3 OECD consumer price inflation

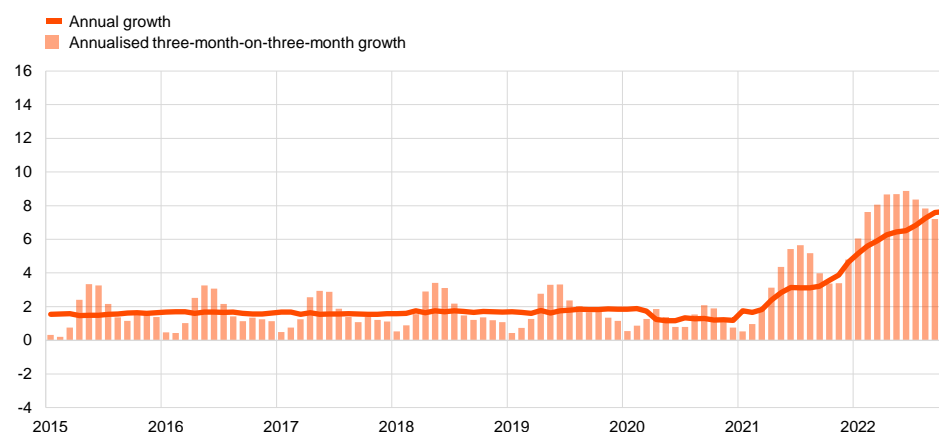
#### a) Headline inflation

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



#### b) Core 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 Türkiye. Annual headline and core inflation in October for OECD countries including Türkiye (not shown in the panels) were 10.7% and 7.6% respectively compared with 10.5% and 7.6% in September. Core inflation excludes energy and food. The latest observations are for October 2022.

#### Oil and gas prices have declined compared with the September 2022

**projections.** The downward pressure on oil prices was related to lower demand for oil against the backdrop of the global economic slowdown and lockdowns in China. Lower demand outweighed the reduction in OPEC+ production targets in November, while there is still considerable uncertainty regarding the effects of the EU's embargo and the G7's price cap on Russian oil implemented on 5 December. The drop in European gas prices reflected very mild weather conditions in October and early November, which together with lower demand for industrial gas and efforts to replace Russian gas throughout 2022 left the EU with near-full storage tanks in mid-November. However, in line with the previous futures prices, gas prices saw a partial rebound from the second half of November onwards owing to colder weather in Europe, and elevated futures prices throughout 2023 signal significant supply risks. Food commodity prices have also declined, driven mainly by lower coffee prices

amid an improved supply forecast for Brazil in 2023, while wheat and corn prices have been volatile due to uncertainty about Russia's willingness to keep the Black Sea corridor for Ukrainian grain exports open. Metal prices increased as supply concerns outweighed the effects of the global economic slowdown, while the gradual easing of some COVID-19 related containment measures in China boosted metal prices towards the end of the review period despite still high uncertainty about the Chinese growth outlook.

**Global financial conditions are broadly unchanged from the previous projections and remain tight.** Initially, financial conditions tightened in advanced and emerging economies. Further upside surprises to inflation led central banks to maintain a rapid pace of monetary policy tightening, leading to higher bond yields and continued declines in the price of risky assets. However, following a lower than expected headline US Consumer Price Index, market sentiment shifted as the Federal Reserve System's more gradual path of interest rate hikes was priced in, which boosted risk sentiment globally. This caused financial conditions to loosen somewhat as long-term bond yields declined, spreads narrowed and equity prices rebounded. On the whole, financial conditions over the review period are little changed as a result but remain tight.

**After two quarters of moderate contraction, the US economy saw a return to growth but underlying domestic demand remained weak.** Net exports and non-residential investment were the main sources of growth in the third quarter. Looking ahead, domestic demand is projected to remain subdued as high inflation and tighter financial conditions continue to erode household real disposable income and restrain private consumption, while a steep drop in housing starts associated with lower housing affordability and rising mortgage rates is expected to weigh on residential investment. In October headline inflation eased by more than expected to 7.7%. Although still high by historical standards, headline inflation is seen to have peaked as energy and food indices continued to moderate. Annual core inflation fell to 6.3% but is expected to remain more persistent in 2023 due to upward pressure from services inflation (e.g. high rents).

**In China, changing COVID-19 policies and ongoing weakness in the residential sector are affecting economic activity.** Initially, the economy rebounded in the third quarter of 2022 as COVID-19 containment measures were gradually lifted following a wave of infections in April and May. Economic growth in the third quarter was supported by a recovery in both consumption and investment which, despite the prolonged weakness in the property sector, recovered on the back of fiscal stimulus. However, in December the Chinese Government unexpectedly reversed its zero-COVID policy and lifted most of the pandemic restrictions. As a result, infections have increased rapidly and in the near term activity is likely to have slowed. Going forward, activity is projected to remain subdued over the projection horizon amid a more prolonged contraction in residential investment and the uncertain evolution of the pandemic. Real GDP growth in 2022 is expected to miss the authorities' target of 5.5% by a significant margin. Compared with the September 2022 projections, the growth outlook for China has been revised down markedly for 2023 and 2024. Consumer price pressures remain moderate.

**In Japan, real GDP contracted unexpectedly in the third quarter of 2022 and is expected to return to growth in the fourth quarter.**

Real GDP contracted unexpectedly in the third quarter due to strong imports, while domestic demand remained relatively firm, supported by the lifting of pandemic-related containment measures. Real GDP is expected to grow in the final quarter of 2022 amid the continued reopening of the economy, including increased spending on services and ongoing policy support. Growth is projected to moderate slightly over the forecast period as the contribution of external demand is expected to ease significantly amid softening global demand. Annual headline inflation increased considerably over the course of 2022 amid higher food and energy prices and the end of negative base effects. While inflation is likely to stay around current levels in the near term, it is projected to decline gradually into 2023 owing to lower commodity prices and limited domestic pipeline pressures.

**In the United Kingdom, the outlook for real activity has weakened further following the GDP contraction in the third quarter.**

High consumer price inflation, rising mortgage costs and tight financial conditions are putting a strong drag on consumption and private investment. The fiscal measures announced in November will slightly increase the budget deficit in the near term, but over the medium term they will contribute to fiscal consolidation. The economy is now expected to contract from the third quarter of 2022 until the second quarter of 2023. At the same time, the labour market remains tight and broadening wage pressures are contributing to the persistence in domestic inflation. Rising energy prices are projected to fuel consumer price inflation until the fourth quarter of 2022. Inflation is expected to peak around 11%, substantially below the level expected in the September 2022 ECB staff macroeconomic projections owing to the energy price guarantee adopted by the government.

**In Russia, the economy entered a severe recession in 2022.** With real GDP falling markedly in the second quarter and remaining almost 5% below the pre-invasion level in the third quarter, a severe recession is now under way in Russia. The economy has registered a more moderate fall in exports than previously expected, while imports have declined significantly especially from sanctioning countries. The economy is expected to contract further at the end of 2022 and into 2023 as sanctions have an increasingly negative impact on Russia's production capacity, international trade and domestic demand. Following a gradual decline in recent months, inflation is expected to remain high in the near term, with only a gradual return towards the Bank of Russia's target of 4% towards the end of the projection horizon.

## 2 Economic activity

*GDP growth slowed to 0.3% quarter on quarter in the third quarter of 2022, following strong rates of growth in the first half of the year as the economy reopened and supply bottlenecks started to ease. Since then, elevated uncertainty about additional consequences of the war in Ukraine for the economy, ongoing concerns regarding potential energy supply disruptions and high price pressures have increasingly dampened domestic spending and production. These factors, coupled with rising financing costs and a slowdown in global growth, are expected to constrain euro area activity further in the fourth quarter and to continue to do so in the first part of 2023. Nevertheless, a contraction in activity is likely to be relatively short-lived and shallow, curbed by the ongoing resilience of labour markets, high levels of household savings accumulated during the pandemic and additional fiscal measures to cushion the impact of higher energy prices on consumers and firms in the short term. Beyond the near term, as uncertainty declines, the energy market rebalances, supply bottlenecks are resolved and real incomes start to improve, euro area economic growth is expected to gradually recover from the second half of 2023.*

*The December 2022 Eurosystem staff macroeconomic projections for the euro area expect annual real GDP growth to stand at 3.4% in 2022, 0.5% in 2023, 1.9% in 2024 and 1.8% in 2025. Compared with the September 2022 ECB staff macroeconomic projections for the euro area, the outlook has been revised upwards for 2022 (largely reflecting positive data surprises over the summer), downwards for 2023 and remains unchanged for 2024.*

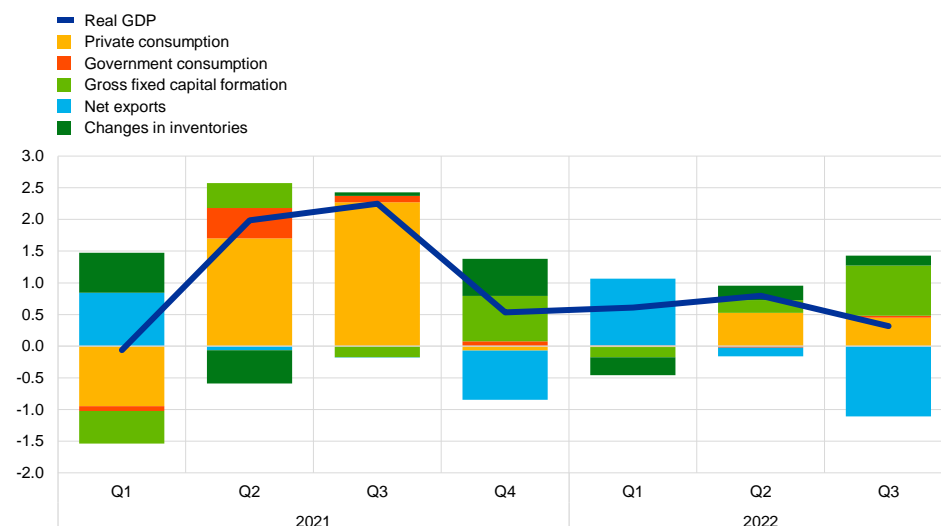
**Economic activity slowed markedly in the third quarter of 2022, following strong growth in the first half of the year.** Quarter-on-quarter real GDP growth slowed to 0.3% in the third quarter after averaging 0.7% in the first and second quarters of the year. The deceleration was driven mainly by a large drag from net trade, while domestic demand and output, which had benefited from changes in inventories, contributed positively to third-quarter growth (Chart 4). Consumption remained on a solid footing, owing to buoyant private consumption of services, which more than offset the negative contribution from goods consumption, and a further modest contribution from government consumption. Investment appeared to be rising strongly, reaching 3.6% quarter on quarter, although this was largely due to extraordinary growth in Irish intellectual property products (IPP). The momentum of business investment in fixed assets clearly slowed and construction investment declined further. Net exports contributed negatively to headline real GDP growth, as import growth – again driven in part by Irish dynamics – exceeded export growth. A breakdown of value added shows continued solid growth in industry excluding construction and services, while construction production declined further. Survey data and anecdotal evidence for the third quarter of 2022 suggest that, given the fall in new orders, much of the apparent strength in industry is likely due to the easing of supply bottlenecks, which has helped manufacturers to tackle the large backlogs of work (particularly in the vehicle sector) rather than a strengthening of demand. For services, the breakdown of value added shows considerable heterogeneity across subsectors, with previously constrained consumer-facing subsectors (such as retail, transport, accommodation, food and, in particular, recreational services) continuing



to grow strongly in the third quarter, while the more business-oriented subsectors (such as information and communication services, finance and insurance, real estate and professional and administrative services) grew at best modestly or contracted slightly.

**Chart 4**  
Euro area real GDP and its components

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



Sources: Eurostat and ECB calculations.  
Note: The latest observations are for the third quarter of 2022.

**Incoming data point to a further slowdown in economic activity in the fourth quarter of 2022, against the background of high inflation and ongoing uncertainty about the war in Ukraine and the risk of disruptions to energy supplies.** Survey data point to a further and broadening weakening of growth momentum, as slowing demand, which has been evident in industry for some months, has now spread to services following the strong growth linked to the reopening. The composite output Purchasing Managers' Index (PMI) for the euro area fell to a 21-month low in October before rising slightly in November. The figures for both months are further below the theoretical no-growth threshold than in the third quarter (Chart 5, panel a). The latest dynamics indicate that manufacturing output is stabilising at a low level, as the strong contribution from vehicle production seen earlier in the year appears to be levelling off. The European Commission's Economic Sentiment Indicator fell further in the fourth quarter, reflecting the ongoing deterioration in industrial confidence in October and November (Chart 5, panel b), as outstanding business and stocks of finished goods declined, and new orders dropped further below their third-quarter average. Responses to the Commission's quarterly survey questions on factors limiting production suggest that labour shortages are moderating and constraints owing to a lack of materials and equipment have been easing since the summer. By contrast, financial limitations increased significantly in October, although these still played less of a role than other factors. These indicators point to a weak outlook for investment in the coming months. At the same time, consumer confidence showed some relative resilience, as

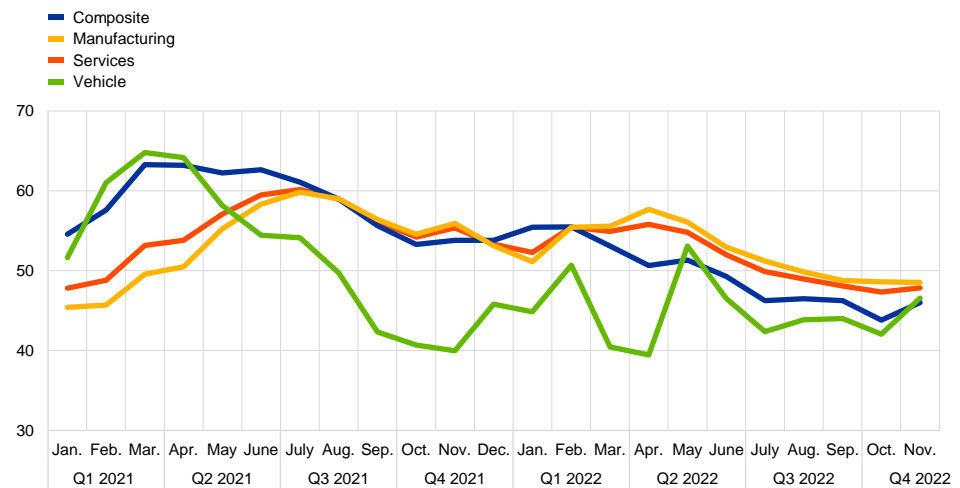
it recovered from the record lows seen in September on the back of labour market and fiscal measures introduced to support households' disposable income.

### Chart 5

#### Survey-based indicators across sectors of the economy

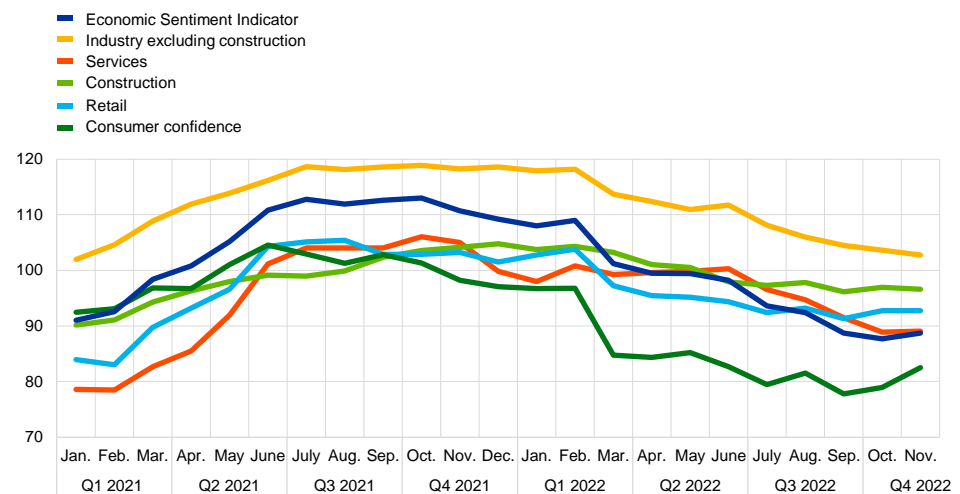
##### a) PMI output indicators

(diffusion indicators)



##### b) Business and consumer confidence

(diffusion indicators)



Sources: S&P Global Market Intelligence (panel a), European Commission and ECB calculations (panel b).  
Note: The latest observations are for October 2022 for vehicle output and November 2022 for all other items.

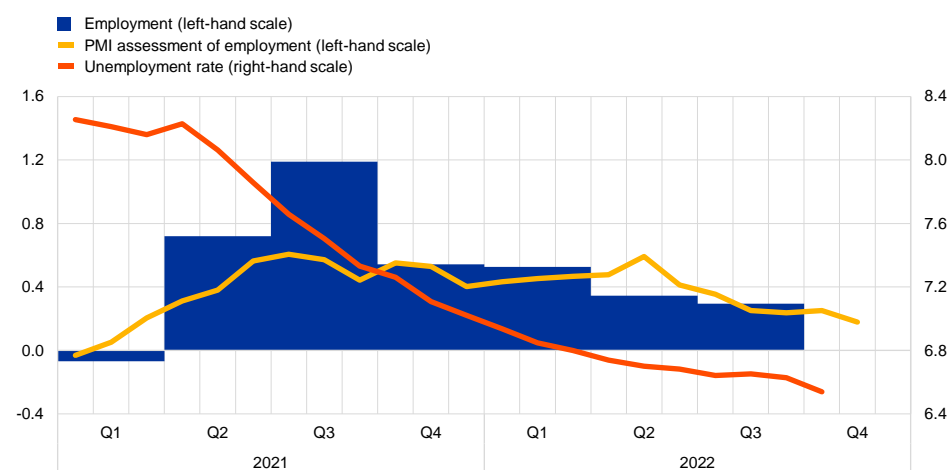
**The labour market has remained robust and continued to support economic activity.** Total employment rose by 0.3% quarter on quarter in the third quarter of 2022. This implies that between the fourth quarter of 2019 and the third quarter of 2022 the number of people in employment increased by 3.1 million. By contrast, hours worked decreased by 0.1% in the third quarter of 2022 but remain 0.2% above their pre-pandemic level in the fourth quarter of 2019. The difference between the growth in employment and hours worked implies a substantial decline in average hours worked since the fourth quarter of 2019, which can be attributed mainly to the public sector. The unemployment rate fell to 6.5% in October 2022, which is around

0.8 percentage points lower than the pre-pandemic level observed in February 2020 and a historical low (Chart 6). The labour force has grown significantly compared with the fourth quarter of 2019, and the number of workers on job retention schemes is estimated to have continued to decline in recent months. Similarly, labour demand has strengthened considerably since the onset of the pandemic and is showing some signs of stabilisation in recent months. Notably, in the third quarter of 2022 the job vacancy rate stood at 3.2%, 1 percentage point higher than in the fourth quarter of 2019.

### Chart 6

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

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



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

Notes: The two lines indicate monthly developments, while the bars show quarterly data. The PMI is expressed in terms of the deviation from 50 divided by 10. The latest observations are for the third quarter of 2022 for employment, November 2022 for the PMI assessment of employment and October 2022 for the unemployment rate.

#### Short-term labour market indicators point to a deceleration in employment growth.

The monthly composite PMI employment indicator declined to 51.8 in November 2022, down from 52.5 in October, but was still above the threshold level of 50 that indicates an expansion in employment. The PMI employment indicator has been in expansionary territory since February 2021 but has fallen significantly since May 2022. Looking at developments across different sectors, this indicator points to continued, albeit weaker, employment growth in the industry and services sectors, and to a decrease in employment in the construction sector.

#### Private consumption continued to increase in the third quarter of 2022, but developments varied across components.

Private consumption grew by 0.9% in the third quarter, after 1.0% in the second quarter. The positive dynamics were underpinned mainly by consumption of services, which rose sharply for two consecutive quarters as the economy reopened. By contrast, consumption of non-durable goods declined for the third quarter in a row, reflecting recent developments in retail sales, which fell by 0.7% in the third quarter. At the same time, durable goods consumption, which had fallen significantly over previous quarters owing to rising energy prices (see Box 3), began to improve in the third quarter of 2022,

probably owing to easing supply disruptions in the vehicle sector. Accordingly, new passenger car registrations increased by 12.8% in the third quarter. Incoming economic soft data suggest some relative resilience in spending at the turn of the year, despite persistent headwinds. In October and November, the European Commission's consumer confidence indicator rose to slightly above its level in the third quarter (when it hit a record low in September), driven mainly by an improvement in households' economic and financial expectations. The Commission's latest consumer and business surveys also indicate that expected demand for accommodation, food and travel services increased in November, alongside some recovery in expected major purchases by households from their record low. Against the background of continuing downbeat consumer sentiment and the squeeze on real disposable income, the latest positive signals suggest that households' spending during the holiday season might show some resilience. Nevertheless, as inflation and uncertainty remain high, households' real disposable income is likely to decline further at the turn of the year, dampening consumer spending. Moreover, the ongoing tightening of household loan conditions is likely to curb household borrowing. Evidence from the ECB's Consumer Expectations Survey in October suggests that over the next three months households expect to face increasing liquidity constraints. It is therefore likely that they will need to dip into their savings to pay utility bills and meet loan repayments and, as a result, they revised downwards their perceptions and expectations regarding precautionary savings (according to the October Consumer Expectations Survey). The use of savings should help to smooth consumption to some extent in the face of weak real disposable income.

**Business investment slowed in the third quarter of 2022 and is expected to decline further around the turn of the year.** Non-construction investment (the closest proxy for business investment in the national accounts) grew by 7.7% in the third quarter, although this was due largely to the extraordinary growth in IPP mainly as a result of developments in the Irish multinational sector.<sup>3</sup> Excluding this volatile component, business investment moderated to 1.2% quarter on quarter in the third quarter, down from its average quarterly growth rate of 1.7% in the first half of the year, but with considerable heterogeneity across asset classes. Within the - machinery and equipment sector, non-transport investment in fixed assets slowed markedly (down to 0.3% quarter on quarter), while the transport investment segment grew by 7.1%, as supply bottlenecks eased and facilitated completion of a still high number of back orders. Elsewhere, growth in IPP investment (excluding Ireland) remained unchanged from the second quarter, at 1.1% quarter on quarter. The first signals for the fourth quarter point to a contraction at the turn of the year. Incoming PMI survey data show that stocks of finished goods are starting to pile up in the capital goods sector, with new orders falling sharply and outstanding business and capacity utilisation declining from the high levels induced by pandemic-related disruptions. The latest ECB Survey on the Access to Finance of Enterprises in the euro area reports a marked decline in the net balances of firms seeking financing for investment purposes. In addition, the European Commission's October biannual

---

<sup>3</sup> Occasionally, the high statistical volatility of intangible investment in Ireland considerably affects euro area investment dynamics (see Box 1 entitled "Non-construction investment in the euro area and the United States" in the article "The recovery in business investment – drivers, opportunities, challenges and risks", *Economic Bulletin*, No 5, ECB, 2022).

investment survey finds that the number of firms planning to increase investment in 2023 had declined markedly compared with 2022 levels, despite expansion plans for 2022 being reduced since the previous survey in April. For the time being, the survey suggests that financial factors are playing only a secondary role in investment decisions, but these are expected to become a greater constraint in 2023. Meanwhile, the November S&P Global Business Outlook Survey reported expectations of a sharp deterioration in profitability in 2023 amid rocketing input costs and a drop in its capital expenditure indicator to a ten-year low (leaving aside the exceptional developments in 2020).<sup>4</sup> Looking ahead, business investment can be expected to rebound into growth territory as energy markets rebalance, as supply bottlenecks ease further and as uncertainty declines, alongside potentially strong “crowding in” effects from further allocations of Next Generation EU funds over the coming quarters.

**Housing investment declined in the third quarter of 2022 and is likely to contract further in the near term.** Housing investment fell by 0.7% in the third quarter, which is slightly less than the 0.8% quarter-on-quarter decline seen in the second quarter. The Commission’s indicator of construction activity over the past three months continued to decline on average in October and November compared with the third quarter average, and the PMI for residential construction slipped further into contractionary territory. Construction order books still appear to be well filled, as indicated by data up to October from the European Commission’s quarterly business survey. This should support construction activity in the months ahead, especially against a backdrop of gradually easing supply constraints. The Commission’s monthly survey of limits to production for the construction sector in November also showed a continued decline in the share of construction firms pointing to material and/or equipment shortages, while the percentage indicating labour shortages remained at a high level. However, the share of managers specifying insufficient demand as a factor limiting their building activity rose again in November, indicating weaker demand. This is also reflected in the further decline in households’ short-term intentions to renovate, buy or build a home in the fourth quarter, as well as in the low levels of the new orders component of the construction PMI. This weakening of demand is taking place against a backdrop of a significant deterioration in financing conditions, heightened uncertainty and substantially higher construction costs, and is likely to weigh on housing investment in the future.

**Foreign trade had a negative impact on GDP growth in the third quarter of 2022, and the outlook points to further weakness in euro area exports as global activity slows.** In the third quarter of 2022 exports of goods and services picked up by 1.7% quarter on quarter in volume terms. Import volumes increased sharply, by 4.3% quarter on quarter, driven mainly by services imports in Ireland. As a result, net trade made a negative contribution (-1.1 percentage points) to real GDP growth. Monthly data show that in September extra-euro area goods import values fell by 2% for the first time since January 2021, while exports rose by 1.6%, resulting in a narrowing of the goods trade balance to €37.7 billion from the record high seen in August. As euro area import prices declined – driven by lower energy prices – and

---

<sup>4</sup> The 2022 European Investment Bank Investment Survey reported 82% of euro area firms citing energy costs as a major constraint on longer-term investment in the summer of 2022.

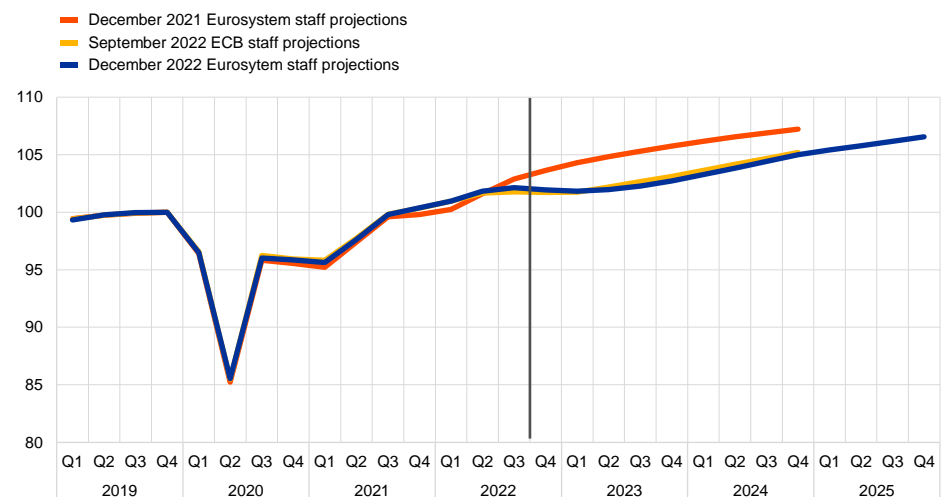
export prices increased, the euro area's terms of trade index improved in September. The underlying momentum of euro area export growth remains subdued as global demand weakens. The short-term outlook points to further weakness in euro area goods trade as indicators for export orders, such as the PMI, remained in contractionary territory in November. Forward-looking travel-related indicators are also signalling a moderation in services trade in the coming months.

**Beyond the near term there is still much uncertainty surrounding the outlook but euro area economic activity is expected to start to recover from the middle of 2023, as the current headwinds dissipate.** Growth is expected to be subdued in 2023, before strengthening as headwinds fade. The December 2022 Eurosystem staff macroeconomic projections for the euro area foresee annual real GDP growth at 3.4% in 2022, 0.5% in 2023, 1.9% in 2024 and 1.8% in 2025, following the annual extension of the projection horizon (Chart 7). Compared with the September 2022 ECB staff macroeconomic projections, the euro area growth outlook has been revised upwards for 2022 – in part reflecting positive data surprises over the summer – and downwards for 2023, while it remains unchanged for 2024. The current projections show that the level of GDP is expected to remain below what was predicted in the (pre-war) December 2021 projections, and they anticipate a mild contraction in GDP around the turn of the year, with a rebound into positive territory expected from the middle of 2023.

### Chart 7

#### Euro area real GDP (including projections)

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



Sources: Eurostat and Eurosystem staff macroeconomic projections for the euro area, December 2022.

Note: The vertical line indicates the start of the December 2022 Eurosystem staff macroeconomic projections for the euro area.

### 3 Prices and costs

*Inflation in the euro area declined to 10.0% in November according to the flash estimate, primarily reflecting lower energy inflation.<sup>5</sup> However, food price inflation rose further, with energy and food inflation continuing to explain the bulk of the high headline inflation rate. Price pressures remained strong, mainly due to the indirect effects of energy costs. Supply bottlenecks and the impact of the post-pandemic recovery eased, but still contributed to inflation, as did the previous depreciation of the exchange rate. Inflation is projected to decline gradually over the course of 2023 as the current drivers of inflation fade over time and normalisation of monetary policy works its way through the economy and price setting. Inflation is expected to average 8.4% in 2022, according to the December 2022 Eurosystem staff macroeconomic projections for the euro area, before falling back to 6.3% in 2023, 3.4% in 2024 and 2.3% in 2025. Inflation excluding energy and food is expected to amount to 4.2% in 2023, 2.8% in 2024 and 2.4% in 2025. Most measures of longer-term inflation expectations currently stand at around 2.0%, although recent above-target revisions to some indicators warrant continued monitoring.*

**According to Eurostat’s flash estimate for November, headline inflation, as measured by the Harmonised Index of Consumer Prices (HICP), declined to 10.0%, down from 10.6% in October.** The main HICP component driving this decrease in November was the sharp drop in the annual growth rate of energy prices (34.9% in November, down from 41.5% in October). A strong downward base effect coupled with a sharp month-on-month fall in energy prices in November accounted for the decline in the annual inflation rate for energy in November compared with October. The fall in energy prices also reflects the pass-through of the recent contraction in crude oil prices, refining and distribution margins and wholesale gas prices since August. By contrast, HICP food inflation continued to rise, to 13.6% in November from 13.1% in October, reflecting a further increase in the annual growth rate for processed food prices, which stands in contrast to the fall in the rate for unprocessed food prices. Accumulated price pressures continued to affect food prices, but the impact of the summer drought on the unprocessed component has been fading and energy producer price growth has eased (Chart 8).

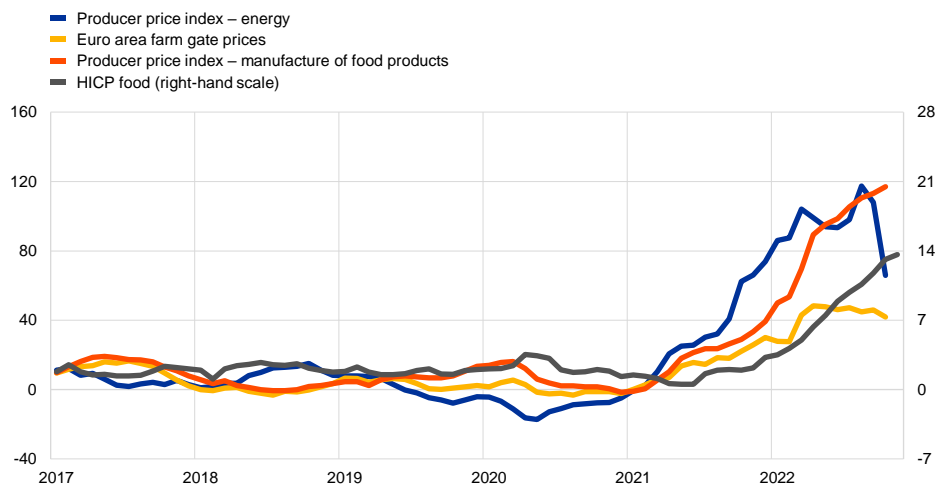
---

<sup>5</sup> For a detailed discussion of inflation dynamics, see also “[Inflation Diagnostics](#)”.

## Chart 8

### Energy and food input cost pressure

(annual percentage changes)



Source: Eurostat.

Notes: HICP stands for Harmonised Index of Consumer Prices. The latest observations are for November 2022 for HICP food (flash estimate) and October 2022 for the remaining items.

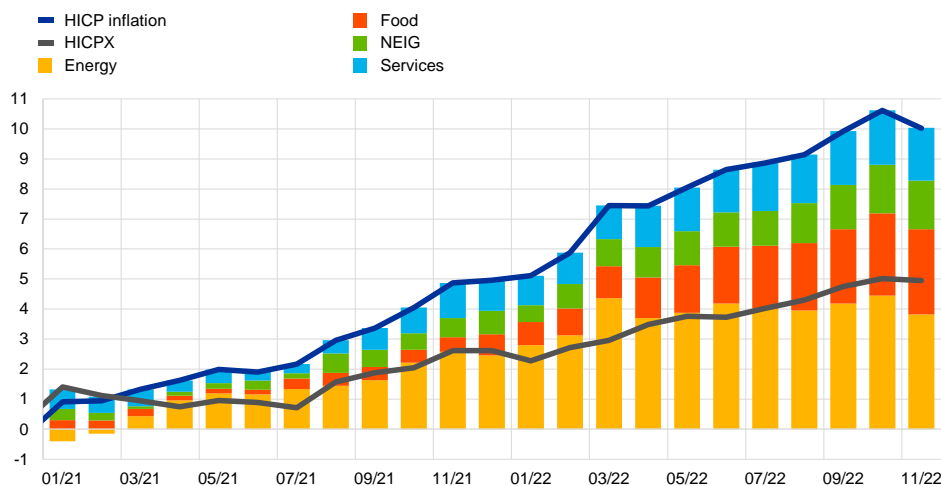
**HICP inflation excluding energy and food (HICPX) was unchanged according to the flash estimate, standing at 5.0% in November. The annual growth rate for non-energy industrial goods (NEIG) remained unchanged, while the rate for services inflation edged down in November (Chart 9).** Higher input costs stemming from the surge in energy prices continued to be a key factor, despite some signs of easing. NEIG inflation stabilised in November to stand at 6.1%. The main drivers of NEIG inflation were accumulated upward pipeline price pressures from supply bottlenecks and high energy costs. Services inflation declined slightly to 4.2% (down from 4.3% in October), reflecting a month-on-month fall in services prices, albeit somewhat less pronounced than is usual for November. This change in November is likely to have been driven by the indirect effects of high energy prices and high producer food prices (a major input cost for restaurant services).



## Chart 9

### Headline inflation and its main components

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: HICP stands for Harmonised Index of Consumer Prices. HICPX stands for HICP inflation excluding energy and food. NEIG stands for non-energy industrial goods. The latest observations are for November 2022 (flash estimate).

#### Measures of underlying inflation remained at elevated levels, although showing some signs of flattening (Chart 10).<sup>6</sup>

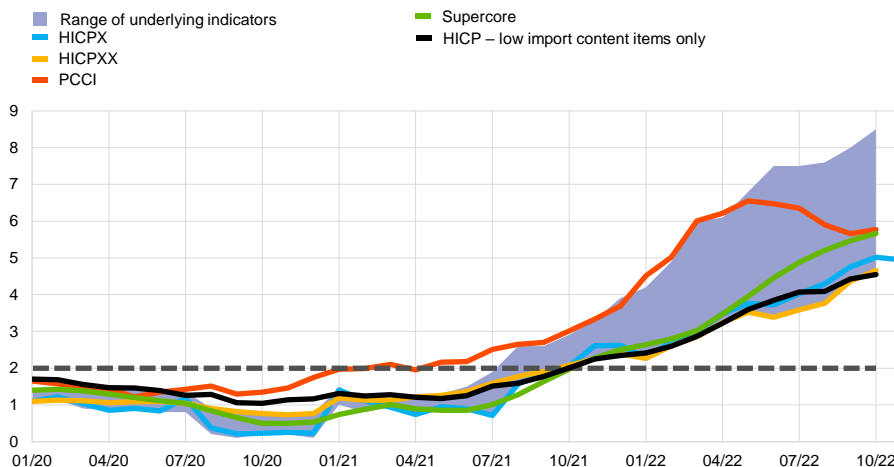
This reflected widespread price pressures across more sectors and HICP items, partly as a result of the impact of high energy costs on the euro area as a whole. Looking at the wide range of indicators, most exclusion-based measures continued to rise. HICPX inflation remained unchanged at 5.0% in November. Data for other measures were only available up to October. HICP inflation excluding energy, food, travel-related items, and clothing and footwear (HICPXX) increased to 4.7% in October (up from 4.4% in the previous month). The Supercore indicator, which comprises cyclically sensitive HICP items, rose to 5.7%, up from 5.5% in September, while the model-based Persistent and Common Component of Inflation (PCCI) edged up from 5.7% in September to 5.8% in October. Month-on-month PCCI rates moved broadly sideways. Nevertheless, the persistently high month-on-month PCCI rates continued to indicate strong upward pressure on underlying inflation up to October. The indicator of domestic inflation, which represents price developments in HICP items with a lower import content, also rose further.<sup>7</sup> It is still unclear how persistent the high levels of these different measures and indicators will be. Much of the upward pressure on underlying inflation can be attributed to the indirect effects of the surge in energy and food prices and to exceptional supply and demand imbalances related to the pandemic and the Russian invasion of Ukraine.

<sup>6</sup> For a detailed review of measures of underlying inflation, see "Inflation Diagnostics".

<sup>7</sup> 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 for the indicators of underlying inflation includes HICP excluding energy, HICP excluding energy and unprocessed food, HICPX, HICPXX, the 10% and 30% trimmed means and the weighted median. HICP stands for Harmonised Index of Consumer Prices. HICPX stands for HICP excluding energy and food. HICPXX stands for HICP excluding energy, food, travel-related items, clothing and footwear. PCCI stands for Persistent and Common Component of Inflation. The latest observations are for November 2022 (flash estimate) for the HICPX and October 2022 for the remaining items.

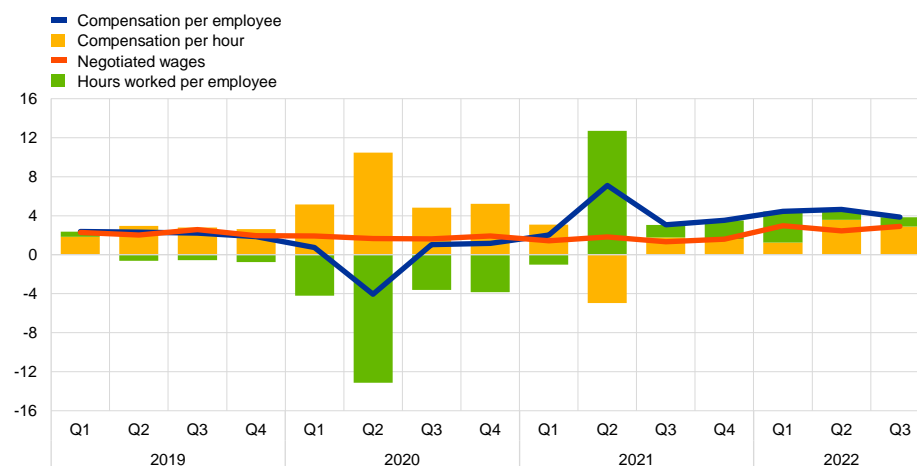
**Negotiated wage growth pointed to strengthening wage pressures, while growth in compensation per employee moderated, but was still distorted by pandemic-related measures (Chart 11).** Growth in negotiated wages increased to 2.9% in the third quarter of 2022, up from 2.5% in the previous quarter. This reflects the increasing role played by compensation in inflation, whether through formal wage indexation clauses or otherwise. It also reflects the impact of one-off payments. For example, negotiated wage growth in Germany was lower in the second quarter because of base effects associated with pandemic-related one-off payments, and higher in the third quarter as a result of one-off payments to compensate for inflation. The latest available information on wage agreements since the start of 2022 points to a further strengthening of wage growth. Actual wage growth, as measured by compensation per employee, eased in the third quarter of 2022 to 3.9%, down from 4.6% in the previous quarter. This was partially the result of base effects in year-on-year growth rates; looking through such effects, quarter-on-quarter growth increased to 1.1% in the third quarter, up from 0.8% in the previous quarter. In turn, year-on-year growth in compensation per hour decreased to 2.9%, down from 3.6% in the previous quarter. The year-on-year growth rates of compensation per hour and per employee both declined in the third quarter, while that of hours worked per employee stood broadly unchanged relative to the previous quarter. Indicators of wage growth were still affected to some extent by pandemic-related distortions, albeit to a moderating degree.<sup>8</sup>

<sup>8</sup> For more about these distortions and wage developments since the start of the pandemic, see the article entitled “Wage developments and their determinants since the start of the pandemic” and Box 4 “Wage dynamics across euro area countries since the start of the pandemic” in this issue.

### Chart 11

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

(annual percentage changes)



Sources: Eurostat and ECB calculations.

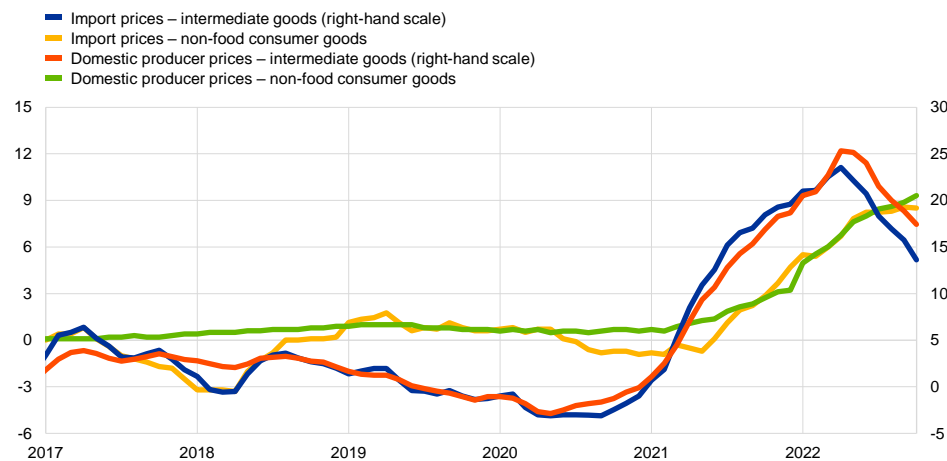
Note: The latest observations are for the third quarter of 2022.

#### Pipeline pressures on goods inflation continued to be strong, despite some early signs of easing (Chart 12).

The month-on-month growth in non-energy industrial goods (NEIG) inflation was higher than is usual for November, but to a lesser extent than in previous months. This is possibly a sign that upward price pressures from supply bottlenecks and high energy costs may have started to moderate. Data for October showed that pipeline pressures were still strong, in particular at the later stages of the pricing chain. The annual growth rates for domestic producer prices for non-food consumer goods continued to rise, reaching 9.3% in October, up from 8.9% in September. For import prices and domestic producer prices for intermediate goods, annual growth fell over the same period, from 15.7% to 13.6% and from 18.9% to 17.4% respectively. Despite the easing, intermediate goods price inflation (both import and domestic) stood at over 10.0%, well above NEIG inflation. Import producer price inflation of non-food consumer goods also contracted in October, standing at 8.5%, down from 8.6% in the previous month, the first decrease seen since March 2022.

**Chart 12**  
Indicators of pipeline pressures

(annual percentage changes)



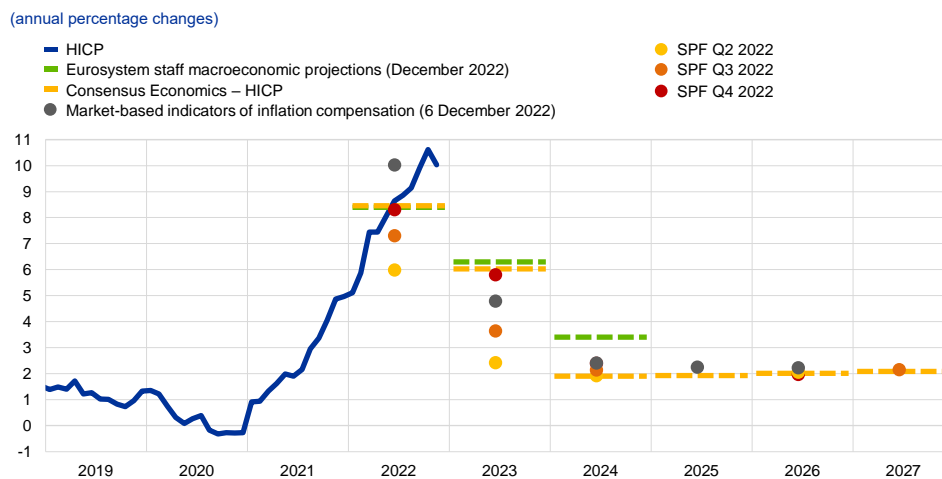
Sources: Eurostat and ECB calculations.  
Note: The latest observations are for October 2022.

**Evidence from surveys and markets shows that forecasters continue to expect inflation to peak soon, with longer-term expectations remaining at around the ECB 2.0% target. However, close monitoring is warranted given the further above-target revisions of some indicators (Chart 13).** In the most recent

Consensus Economics survey, inflation expectations for 2023 were revised upwards by 0.3 percentage points to 6.0%. The long-term inflation expectations for 2026 set out in the December ECB Survey of Monetary Analysts remained unchanged at 2.0%, in line with the October expectations and with recent rounds of other surveys (for 2027, 2.2% in the ECB's Survey of Professional Forecasters and 2.1% in the October Consensus Economic Survey). The market-based measures of inflation compensation (based on HICP excluding tobacco) on 6 December suggested that euro area inflation will peak at around 10.0% in 2022, falling to 5.0% during 2023 and ultimately returning to 2.0% over the course of 2024. Longer-term measures of inflation compensation increased, albeit only modestly, with the five-year forward inflation-linked swap rate five years ahead standing at 2.34% on 6 December. Importantly, however, 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. By contrast, survey-based measures of long-term inflation expectations, which are free of inflation risk premia, have been relatively stable. This relative stability suggests that the current volatility in long-term market-based measures predominantly reflects variations in inflation risk premia.

### Chart 13

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



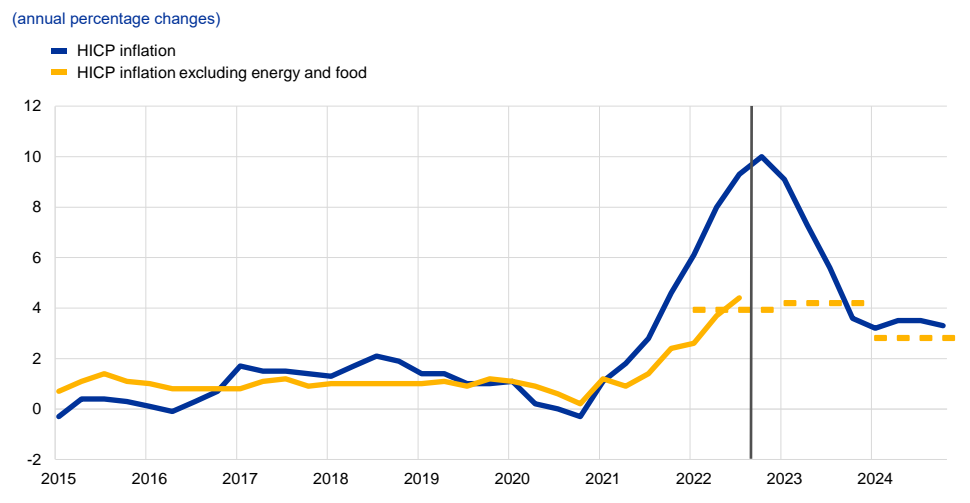
Sources: Eurostat, Refinitiv, Consensus Economics, [Survey of Professional Forecasters](#) (Fourth quarter of 2022), [Eurosystem staff macroeconomic projections for the euro area](#) (December 2022) and ECB calculations.

Notes: HICP stands for Harmonised Index of Consumer Prices. SPF stands for Survey of Professional Forecasters. The market-based indicators of inflation compensation series are based on the one-year spot inflation rate, the one-year forward rate one year ahead, the one-year forward rate two years ahead, the one-year forward rate three years ahead and the one-year forward rate four years ahead. The latest observation for the HICP was for November 2022 (flash estimate). The cut-off date for data included in the Eurosystem staff macroeconomic projections for the euro area was 30 November 2022. The cut-off date for the Consensus Economics long-term forecasts was October 2022 for 2024, 2025, 2026 and 2027, and November 2022 for 2022 and 2023. The latest observations for market-based indicators of inflation compensation are for 6 December 2022. The SPF for the fourth quarter of 2022 was conducted in October.

**The December 2022 Eurosystem staff macroeconomic projections for the euro area foresee headline inflation remaining high in the near term, averaging 8.4% in 2022, before falling back to averages of 6.3% in 2023, 3.4% in 2024 and 2.3% in 2025 (Chart 14).** Headline inflation is expected to stay very high between the end of 2022 and the beginning of 2023, as pipeline price pressures related to past increases in commodity prices, the depreciation of the euro, supply shortages and tight labour markets continue to feed through to consumer prices. Nevertheless, inflation is expected to decline from an average of 8.4% in 2022 to 6.3% in 2023, falling from 10% in the last quarter of 2022 to 3.6% in the last quarter of 2023. Inflation is then projected to ease further to an average of 3.4% in 2024 and of 2.3% in 2025. The expected decline in inflation mainly reflects strong energy-related downward base effects through the course of 2023, the gradual impact of monetary policy normalisation and the weaker growth outlook, an assumed decline in energy and food commodity prices, in line with futures prices, and the assumption that longer-term inflation expectations will remain anchored. Headline inflation is expected to remain above the ECB's target of 2.0% until mid-2025, while HICPX inflation will remain above 2% throughout the horizon. This is due to lagged effects from high energy prices on the non-energy components of inflation, the past depreciation of the euro, robust labour markets and the effects of inflation compensation on wages, which are expected to grow at rates well above historical averages. Compared with the September 2022 projections, headline inflation has been revised up substantially for 2022 (by 0.3 percentage points), 2023 (by 0.8 percentage points) and 2024 (by 1.1 percentage points). This reflects recent data surprises, a reassessment of the strength and persistence of pipeline price

pressures and their pass-through, stronger wage growth and higher food commodity prices, which more than offset the downward impact of lower oil, gas and electricity price assumptions, a faster easing of supply bottlenecks, the recent appreciation of the euro and the weaker growth outlook. Fiscal measures to compensate for high energy prices and inflation also play an important role for the inflation outlook over the projection horizon. They are estimated to have dampened headline HICP inflation by 1.1 percentage points in 2022 and should again dampen inflation by 0.5 percentage points in 2023. Thereafter, however, the withdrawal of these measures is expected to put significant upward pressure on inflation, amounting to 0.7 percentage points in 2024 and 0.4 percentage points in 2025.<sup>9</sup>

**Chart 14**  
Euro area HICP and HICPX inflation



Sources: Eurostat and Eurosystem staff macroeconomic projections for the euro area (December 2022).  
Notes: HICP stands for Harmonised Index of Consumer Prices. HICPX stands for HICP inflation excluding energy and food. The vertical line indicates the start of the projection horizon. The latest observations are for the third quarter of 2022 for the data and the fourth quarter of 2024 for the projections. The cut-off date for data included in the projections was 30 November 2022. Historical data for HICP and HICPX inflation are at quarterly frequency. Forecast data are at quarterly frequency for HICP inflation and annual frequency for HICPX inflation.

<sup>9</sup> See also the Eurosystem staff macroeconomic projections for the euro area (December 2022).

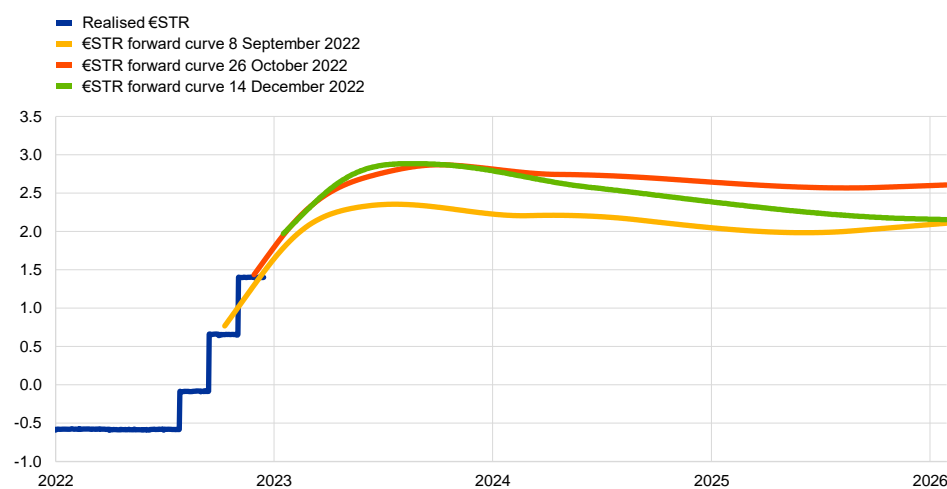
## 4 Financial market developments

Over the review period (8 September to 14 December 2022) financial markets were influenced by expectations of a faster and more pronounced monetary policy tightening in the euro area. While euro area short-term risk-free rates rose markedly over the period, longer-term interest rates edged up only slightly on balance, despite high market volatility. Euro area sovereign bond yields broadly followed long-term risk-free rates, with sovereign spreads moving closer together. Despite higher risk-free interest rates and in contrast to developments in the United States, European corporate bond spreads decreased and equity prices rose, with a particularly strong performance from euro area bank stocks. In foreign exchange markets, the euro broadly strengthened in trade-weighted terms.

**Over the review period euro area short-term risk-free rates rose on market expectations of a faster and more pronounced tightening of monetary policy, with the €STR forward curve subsequently stabilising at the very short end and becoming markedly inverted at the longer maturities.** The benchmark euro short-term rate (€STR) closely followed the changes in the deposit facility rate, which the Governing Council raised from 0.00% to 0.75% at its September monetary policy meeting and then by a further 75 basis points to 1.50% at its October meeting. The €STR averaged around -8.5 basis points at the beginning of the review period in early September, and around 140 basis points from early November. The overnight index swap (OIS) forward curve, based on the €STR, increased significantly at the short end following both rate hikes and at the end of the review period priced in additional hikes of around 80 basis points for 2023, implying a peak rate of approximately 2.8% in the early part of the third quarter of that year. At the same time, it ended the review period displaying a pronounced inversion beyond the very short term, pricing in about three rate cuts during 2024 and 2025.

**Chart 15**  
€STR forward rates

(percentages per annum)



Sources: Thomson Reuters and ECB calculations.

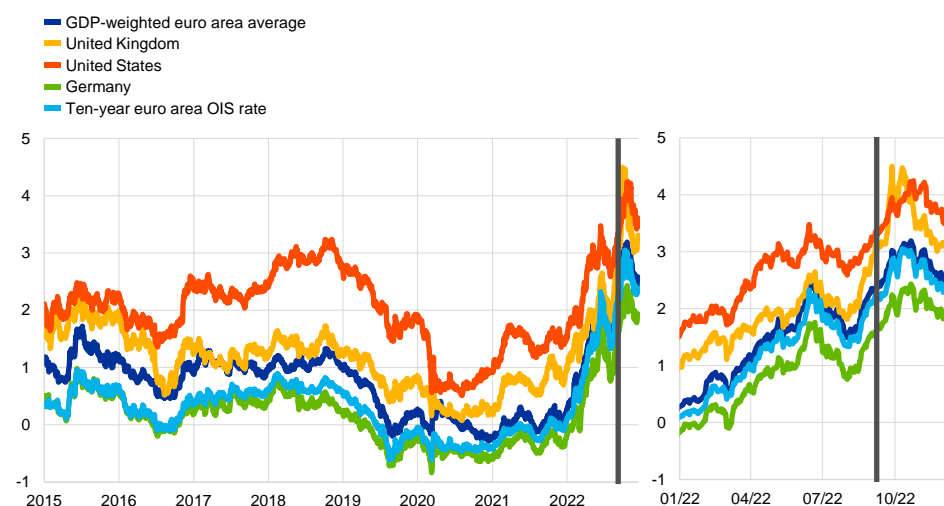
Note: The forward curve is estimated using spot OIS (€STR) rates.

**Long-term yields initially increased in the review period as market participants reassessed their expectations for the monetary policy path, before returning towards their September levels, alongside similar developments in the United States (Chart 16).** Over the review period long-term risk-free interest rates remained volatile and very sensitive to macroeconomic news. They initially continued to climb on the back of higher than expected inflation readings before falling back towards levels reached in early September. For instance, the ten-year euro area risk-free rate – as measured by the OIS rate – temporarily increased by about 80 basis points to around 3%. It then fell back to 2.3% at the end of the review period as market participants speculated that in the United States and the euro area rate hikes could slow and monetary policy could change direction sooner than expected, which was followed by yield declines globally. Overall, global sovereign bond yields increased modestly towards the end of the period, despite high volatility, with ten-year US, UK and German bond yields rising by 16, 15 and 22 basis points to reach 3.48%, 3.31% and 1.94% 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 8 September 2022. The latest observations are for 14 December 2022.

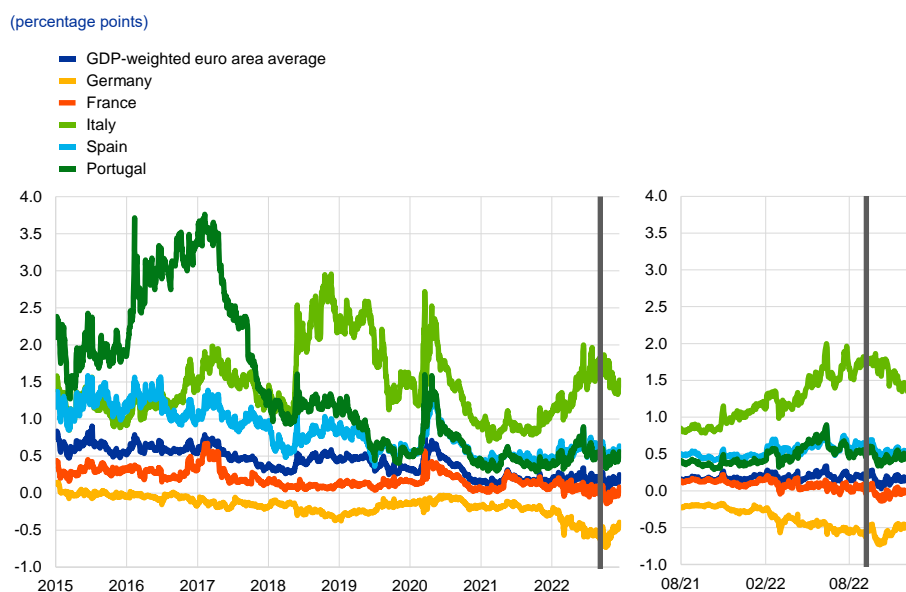
### **Euro area sovereign bond yields moved broadly in line with risk-free rates in the review period, with sovereign spreads moving closer together (Chart 17).**

While long-term risk-free rates showed sizeable fluctuations over the review period, the ten-year GDP-weighted euro area sovereign spread over the OIS rate remained overall relatively stable, ending the review period 7 basis points higher than in early September. This masked different developments across countries as individual sovereign spreads tightened. For instance, the Italian and Greek ten-year sovereign bond spreads declined by 18 and 22 basis points respectively, while the ten-year German Bund spread became less negative by 14 basis points.



**Chart 17**

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



Sources: Refinitiv and ECB calculations.

Notes: The vertical grey line denotes the start of the review period on 8 September 2022. The latest observations are for 14 December 2022.

**Corporate bond spreads decreased during the review period on the back of improved risk sentiment, with declines most pronounced in the high-yield segment.**

Notwithstanding higher short-term rates and economic headwinds, corporate bond spreads decreased over the review period on the back of improved risk sentiment, with supply side bottlenecks continuing to ease gradually and Purchasing Managers' Indices (PMIs) showing some resilience (see Sections 1 and 2). This was particularly the case for spreads on high-yield corporate bonds, which fell 35 basis points, while spreads on investment-grade corporate bonds declined by 19 basis points.

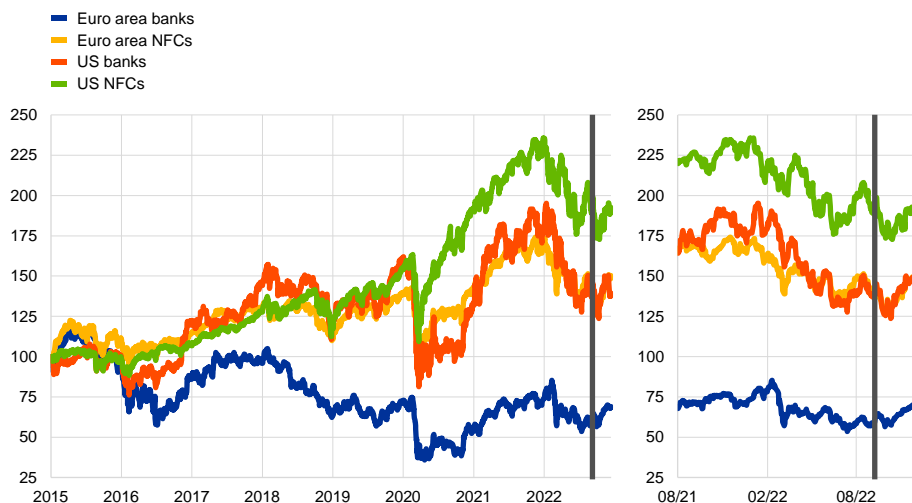
**European equity markets rebounded, with euro area banks performing particularly strongly.**

Despite some drag from higher risk-free rates, equity markets rebounded, with European equities outperforming their global peers, including in the United States. Overall, equities of non-financial corporations (NFCs) increased by 7.7% in the euro area, against a decline of 0.8% in the United States. The difference was even stronger for the banking sector, with euro area banks gaining as much as 14.2% against a fall of 4.0% in the United States. This rebound reflected positive earnings surprises for euro area banks in the third quarter and expectations of more robust earnings ahead, with realised and expected increases in the ECB's key interest rates perceived as helping to bolster banks' interest margins and hence profits.

## Chart 18

### Euro area and US equity price indices

(index: 1 January 2015 = 100)



Sources: Refinitiv and ECB calculations.

Notes: The vertical grey line denotes the start of the review period on 8 September 2022. The latest observations are for 14 December 2022.

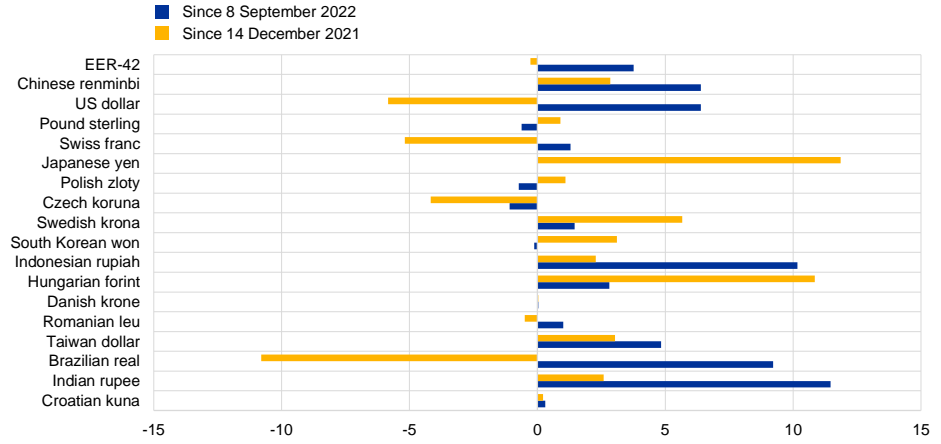
#### **In foreign exchange markets, the euro broadly strengthened in trade-weighted terms (Chart 19).**

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 – strengthened by 3.8%. In terms of bilateral exchange rate developments, the euro appreciated strongly against the US dollar (by 6.4%), reflecting speculation that the pace of rate hikes in the United States could slow and monetary policy could change its direction sooner than expected. It also strengthened against the currencies of most other major advanced economies, including the Swiss franc (by 1.3%), although it remained broadly unchanged vis-à-vis the Japanese yen. The euro also appreciated against most currencies of major emerging market economies, notably the Chinese renminbi (by 6.4%). It weakened slightly against some European currencies, including the pound sterling (by 0.6%), the Czech koruna (by 1.1%) and the Polish zloty (by 0.7%), while it continued to appreciate against the Hungarian forint (by 2.8%).

### 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 14 December 2022.

## 5 Financing conditions and credit developments

*Bank lending rates have increased further, reflecting higher bank funding costs as monetary policy normalisation continues. Bank lending to firms remained robust in October, while lending to households moderated further. Over the period from 8 September to 14 December, the cost of equity financing declined significantly while the cost of market-based debt financing increased slightly. The October 2022 Survey on the Access to Finance of Enterprises (SAFE) indicates a broad-based tightening of financing conditions for firms. Meanwhile, firms were rather pessimistic about the availability of most sources of external financing. The moderation in monetary dynamics resumed in October, reflecting developments in credit to firms and households.*

**The funding costs of euro area banks are higher, reflecting changes in risk-free and market rates as monetary policy normalisation continues.** In October the composite cost of debt financing of euro area banks continued on an upward trend, reaching its highest level since 2014 (Chart 20, panel a). As central bank funding conditions tighten and monetary policy normalises, the overall funding costs of banks initially increased over the review period but then fell again somewhat, reflecting a downward correction in bank bond yields in November (Chart 20, panel b). The ECB's recent interest rate hikes are also passing through to deposit rates. In keeping with historical regularities, the pass-through of recent monetary policy measures to deposits has been more gradual compared with the more immediate response of bank bond yields. In October the deposit rate increased to 0.35%, which was 22 basis points above the level recorded before the first hike in July and 28 basis points above the level at the start of 2022. These still moderate increases reflect the progressive recovery of spreads between deposit and policy rates towards levels observed in the past that are typical in periods of positive interest rates. The recent recalibration of the third series of targeted longer-term refinancing operations (TLTRO III) also contributes to the normalisation of bank funding costs.<sup>10</sup> In November and December, following the recalibration of TLTRO III, banks accelerated their voluntary repayments, thereby reducing excess liquidity in the banking sector. In terms of balance sheet strength, euro area banks are well capitalised overall, exceeding regulatory requirements and capital targets, but the risks stemming from a weakening economic environment may lower asset quality and increase credit risk.

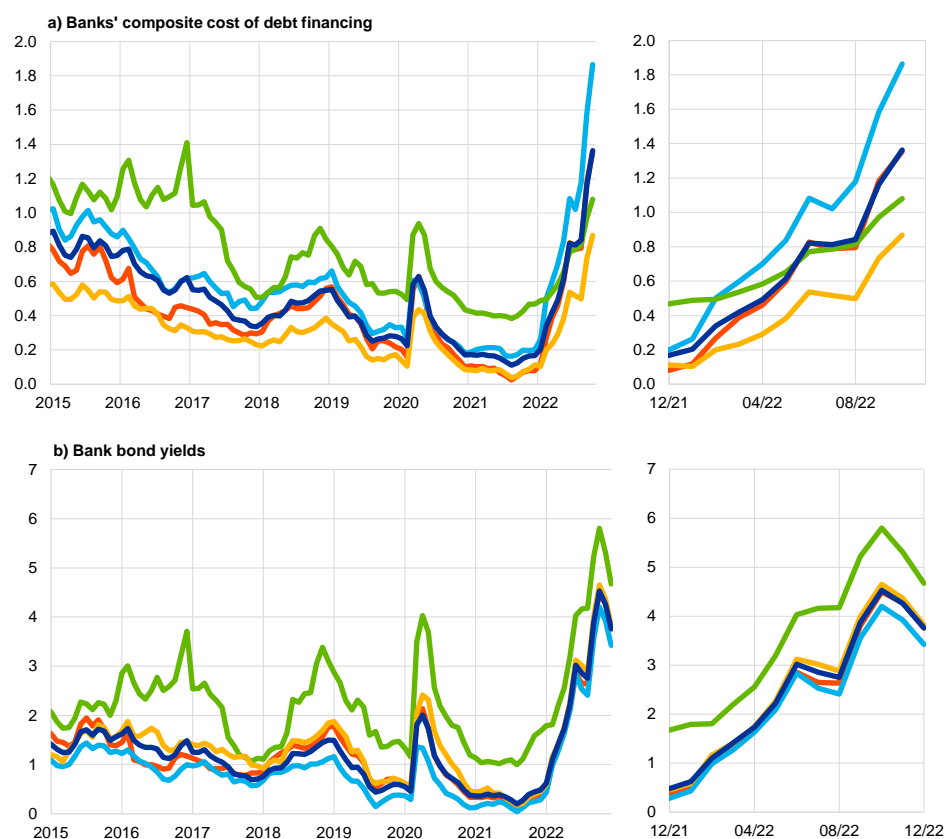
---

<sup>10</sup> See ECB press release "[ECB recalibrates targeted lending operations to help restore price stability over the medium term](#)", 27 October 2022.

**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 October 2022 for composite bank funding rates and 14 December 2022 for bank bond yields.

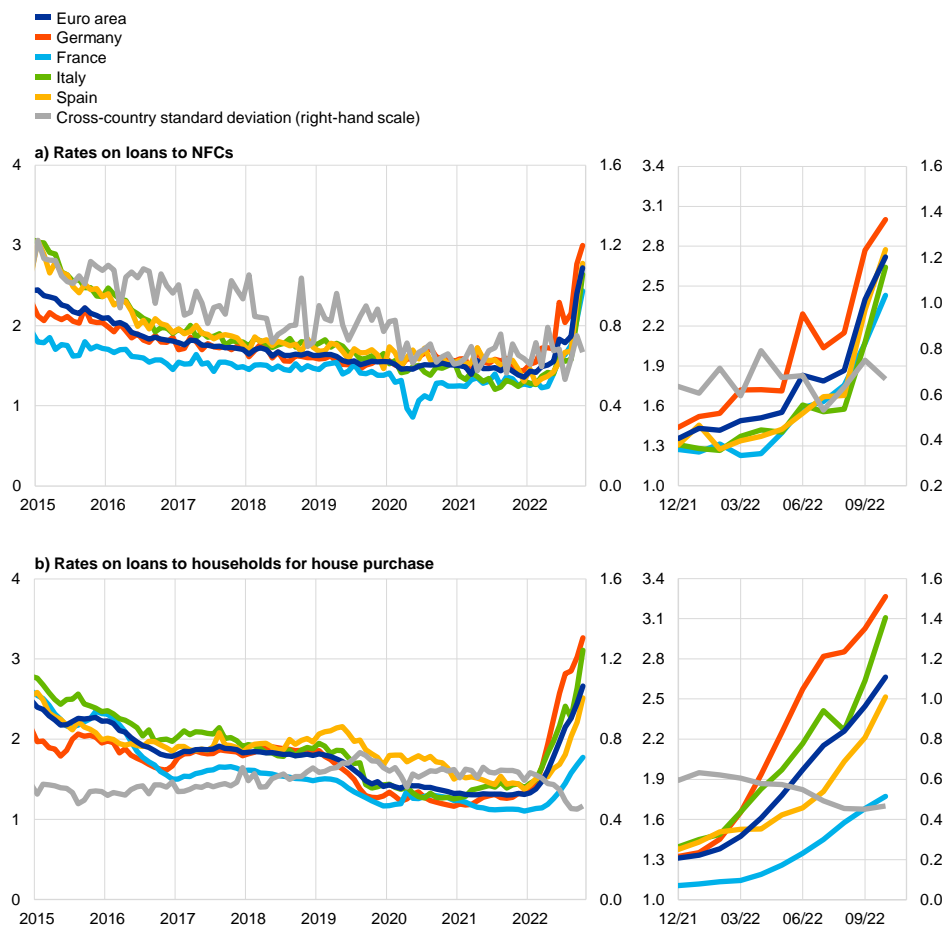
**Bank lending rates for firms and households have increased further, reflecting monetary policy normalisation.** Since February 2022, increases in bank funding costs have pushed up lending rates in all euro area countries, reaching levels last seen in 2015 (Chart 21), while credit standards have tightened. These loan rate increases are in line with past tightening cycles. Bank lending rates to non-financial corporations (NFCs) increased to 2.72% in October. The monthly increase of 32 basis points has brought lending rates for firms up by a cumulative 136 basis points since the end of 2021. Meanwhile, bank lending rates for loans to households for house purchase increased further by 21 basis points to 2.66% in October, a 135 basis point increase from the level recorded at the end of 2021. The increases observed in lending rates were substantially larger than for deposit rates, which is also characteristic of a tightening cycle. The stronger repricing of bank loans relative to deposits is supporting the net interest income of banks via increased loan-deposit margins on new business. The spread between bank lending rates on very small

loans and on large loans increased somewhat and was close to the average level of the past two years, but was still much lower than the spread observed before the financial crisis. Meanwhile, the cross-country dispersion of lending rates to firms and households remained contained, suggesting that the transmission of the ECB's monetary policy tightening is working smoothly (Chart 21, panels a and b).

### Chart 21

#### Composite bank lending rates for NFCs and households in selected countries

(annual percentages; standard deviation)



Source: ECB.

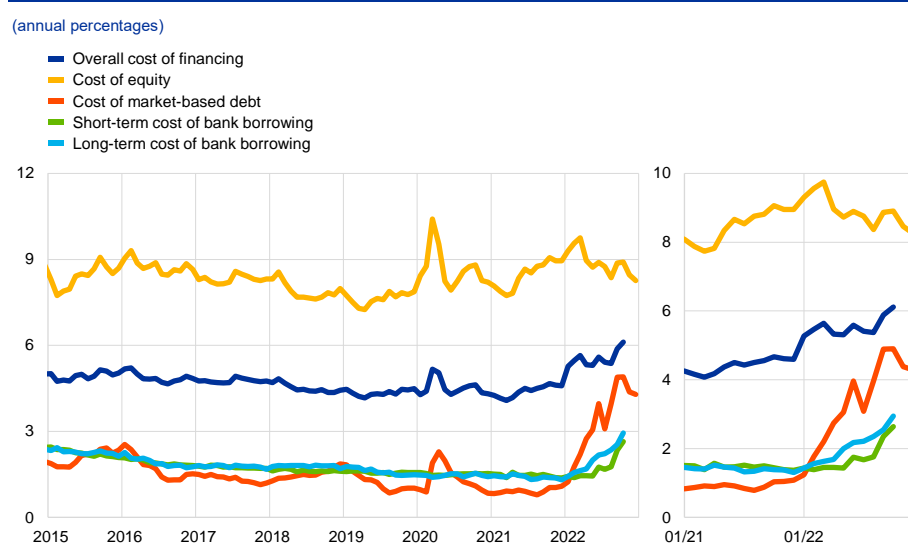
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for October 2022.

**Over the period from 8 September to 14 December 2022 the cost of equity financing for NFCs declined substantially while the cost of market-based debt issuance increased slightly.** Due to lags in the data available on 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 October 2022, when it stood at 6.1%, which is around 20 basis points above its level in the previous month (Chart 22). This was the result of an increase in the cost of both short and long-term bank debt financing as well as of market-based debt financing. The cost of equity financing did not change significantly in October compared with the previous month, as a decline in the equity risk premium

compensated for the impact of higher risk-free rates on the cost of equity. The cost of market-based debt increased due to higher risk-free rates and wider corporate bond spreads. The overall cost of financing in October 2022 reached a multi-year historical peak, standing at levels last seen at the end of 2010. Since 8 September, over the review period the cost of market-based debt has declined marginally due to lower corporate bond spreads in both the investment grade and the high-yield segments, amply compensating for a slight increase in the risk-free rates. The cost of equity declined sharply on account of the sizeable fall in the equity risk premium, which overshadowed the marginal impact of the slightly higher risk-free rates.

## Chart 22

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



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

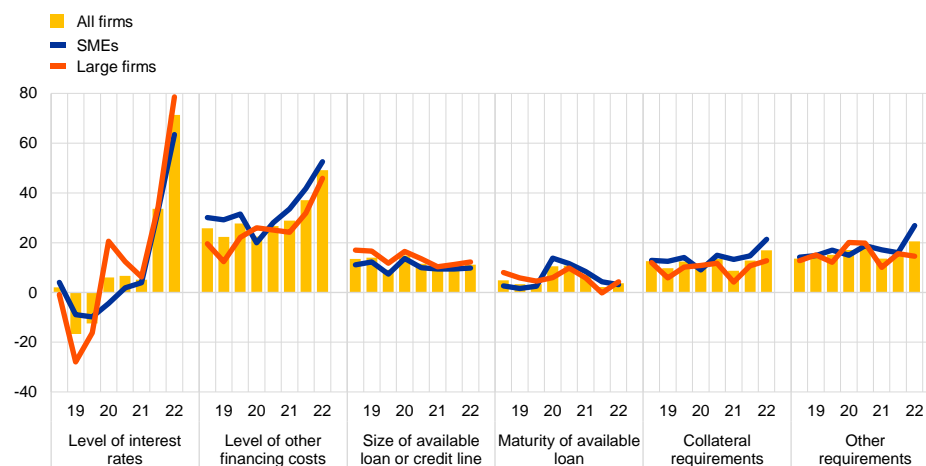
Notes: The overall cost of financing for NFCs is calculated as a weighted average of the cost of borrowing from banks, market-based debt and equity, based on their respective outstanding amounts. The latest observations are for 14 December 2022 for the cost of market-based debt (monthly average of daily data), 9 December 2022 for the cost of equity (weekly data) and October 2022 for the overall cost of financing and the cost of borrowing from banks (monthly data).

### Firms signalled a tightening of financing conditions across firm sizes and countries in the October 2022 Survey on the Access to Finance of Enterprises (SAFE).

The net percentage of firms reporting higher bank rates jumped to 71% (up from 34% in the previous round), with no comparable percentage observed since the survey began in 2009 (Chart 23). At the same time, a net 49% of firms (up from 37%) also reported increases in other costs of financing such as charges, fees and commissions. The rises in bank interest rates and other costs appear to be broadly similar across small and medium-sized enterprises (SMEs) and large firms. The survey also indicated stricter collateral requirements and found more firms indicating increases in the maturity and size of loans. At the same time, few firms reported obstacles to obtaining a bank loan (7%, as in the previous survey round), mainly supported by banks' unchanged willingness to provide credit.

**Chart 23****Changes in the terms and conditions of bank financing for euro area enterprises**

(net percentages of respondents)



Source: ECB Survey on the Access to Finance of Enterprises (SAFE).

Notes: The figures are based on enterprises that had applied for bank loans (including subsidised bank loans), credit lines, or bank or credit card overdrafts. Net percentages are the difference between the percentage of enterprises reporting an increase for a given factor and the percentage reporting a decrease. The figures refer to rounds 20-27 of the survey (October 2018-March 2019 to April 2022-September 2022).

**Firms reported a widening of their financing gaps and became more****pessimistic about the availability of most sources of external financing.**

The external financing gap – the difference between the change in demand for and the change in the supply of external financing – reached 9% (compared with 1% in the previous round) in the euro area. This was the result of increased needs of firms for external finance, mainly to cope with higher production costs, combined with slightly lower reported actual financing availability. Looking forward, a relatively high percentage of firms signalled a deterioration in the expected availability of bank loans and credit lines (31% and 25% respectively) for the period October 2022-March 2023. Historically, the dynamics of these indicators are related to current and future business activity, with increasing financing gaps and lower expected availability of finance implying headwinds to euro area GDP growth.<sup>11</sup>

**Bank lending to firms remained robust in October, while lending to households****moderated again.**

The annual growth rate of loans to NFCs remained unchanged at 8.9% in October while a smaller inflow was recorded than in the preceding months (Chart 24, panel a). The strong growth rate of loans to firms still reflects robust demand for bank loans as firms use credit to finance the higher costs of production and investment and replace bonds with bank loans, while market-based funding costs are exceeding those of bank-based funding. In terms of maturity composition, longer-term loan flows made the largest contribution to firms' loan growth in October, reflecting high investment borrowing needs in nominal terms due to inflation and the substitution of debt securities. The sharp drop in the contribution of short-term loan flows in October could be related to a turning point in inventory accumulation by firms, in line with signals from survey indicators of inventory changes which have

<sup>11</sup> For more details, see the box entitled "Firms' access to finance and the business cycle: evidence from the SAFE" in this issue of the Economic Bulletin.

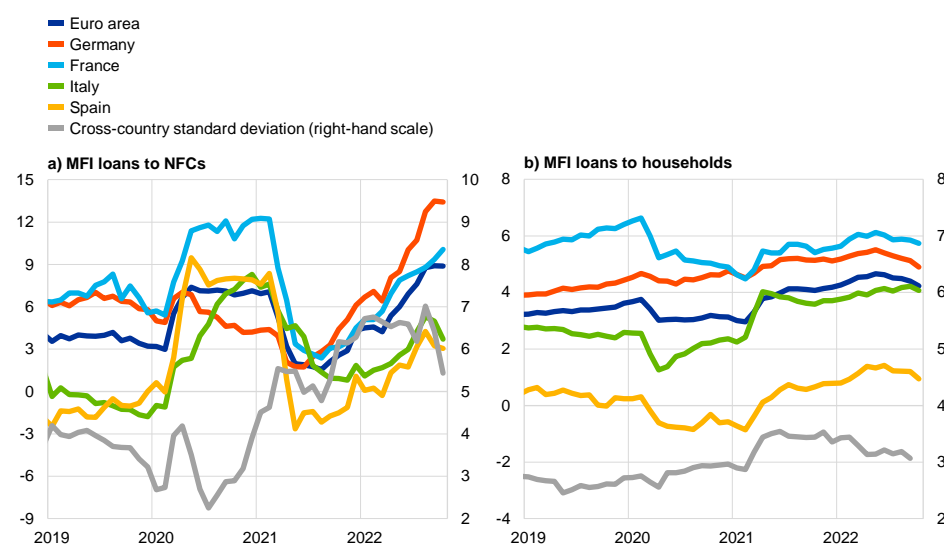


leading indicator properties. The annual growth rate of loans to households moderated to 4.2% in October from 4.4% in September (Chart 24, panel b). This development is explained by the moderation in housing loans through a combination of demand and supply forces, with banks tightening lending standards and demand weakening on the back of a worsening economic outlook, higher mortgage rates and deteriorating housing market prospects. Information from the [euro area bank lending survey \(BLS\)](#), which has leading indicator properties for future growth of loans to firms and households, suggests that loan dynamics is expected to moderate over the coming quarters.<sup>12</sup> This assessment is in line with the expected slowdown of the euro area economy and the normalisation of monetary policy.

### Chart 24

#### MFI loans in selected euro area countries

(annual percentage changes; standard deviation)



Source: ECB.

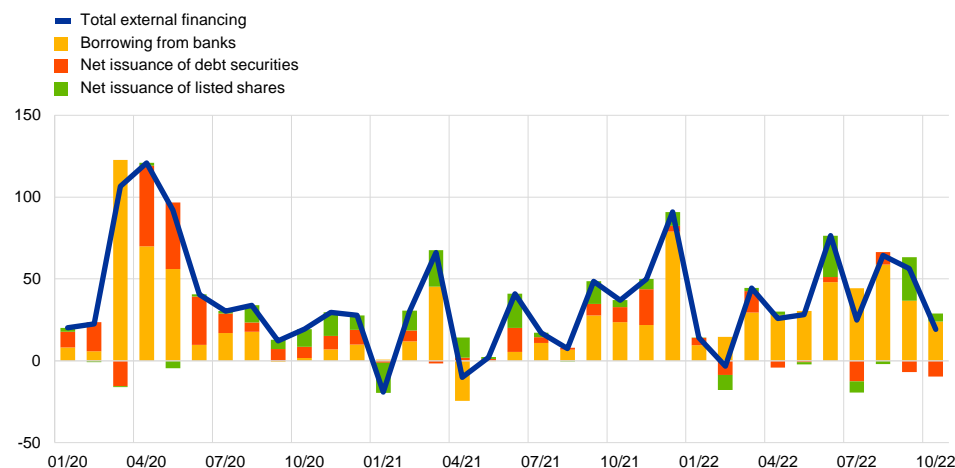
Notes: Loans from monetary financial institutions (MFIs) are adjusted for loan sales and securitisation; in the case of NFCs, loans are also adjusted for notional cash pooling. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are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

**The total volume of external financing for firms moderated amid support from bank borrowing.** The annual growth rate of external financing declined from 3.6% in September to 3.4% in October, reflecting tighter lending rates and credit standards amid robust nominal investment growth and the ongoing needs of firms for working capital. 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 and listed shares has been weaker overall (Chart 25). Increased bank borrowing by firms and the decreased issuance of market-based debt reflect the increase in the relative cost of market-based debt financing. The temporary pick-up in the issuance of listed shares in September is explained by the exceptionally large listing of a single firm.

<sup>12</sup> For details, see the box entitled “[What information does the euro area bank lending survey provide on future loan developments](#)” in this issue of the Economic Bulletin.

**Chart 25****Net external financing flows for euro area NFCs**

(monthly flows; 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 October 2022.

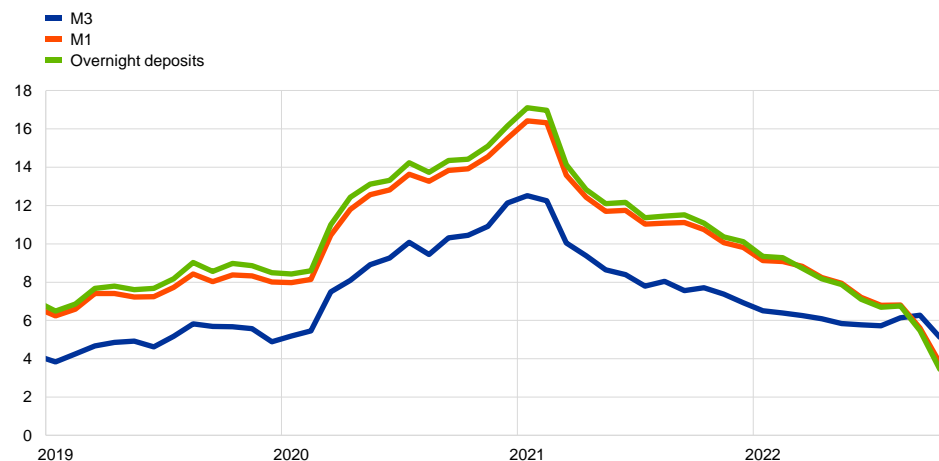
**The reallocation of funds from overnight deposits to time deposits continued in October amid monetary policy normalisation.**

The annual growth rate of overnight deposits showed another strong decrease to 3.4% in October from 5.5% in September (Chart 26). The decline is explained by the large-scale substitution of overnight deposits with time deposits. This portfolio reallocation has been triggered by the progressively higher remuneration of time deposits relative to overnight deposits, in line with historical patterns that are typical for tightening cycles. The strong interest in time deposits is mainly observed for firms and other financial institutions (OFIs), which have been shifting funds since the summer of 2022, when time deposits started to receive relatively higher remuneration. Households had previously preferred overnight deposits – reflecting precautionary motives and the small spread between the remuneration of time and overnight deposits – but have recently shown more interest in time deposits as the spread increased, though portfolio substitution was much less pronounced than for the other two sectors. At the same time, growth in the deposit holdings of firms and households has varied across countries.

## Chart 26

### M3, M1 and overnight deposits

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



Source: ECB.

Note: The latest observations are for October 2022.

**The moderation in monetary dynamics resumed in October, reflecting developments in credit to firms and households.** Annual broad money (M3) growth decreased to 5.1% in October from 6.3% in September (Chart 26). The strong decrease is related to the reversal of a one-off technical factor and developments in credit to firms and households.<sup>13</sup> On the components side, the shift away from overnight deposits in October led to a strong decline in the narrow aggregate M1, thus reducing its contribution to annual M3 growth. Meanwhile, time deposits included in the broad monetary aggregate M3 made a larger contribution to M3 growth compared with previous months. On the counterparts side, credit to the private sector continued to be the main contributor to annual M3 growth. The contribution from the Eurosystem's purchases of government securities under the asset purchase programme and the pandemic emergency purchase programme declined further, reflecting the end of net asset purchases as of July 2022. Meanwhile, annual net monetary outflows to the rest of the world continued to dampen broad money growth, as high energy prices are exerting a negative impact on the euro area trade balance.

<sup>13</sup> The September 2022 M3 figures include a large temporary position of the Eurosystem vis-à-vis a clearing house, classified within the "non-monetary financial corporations excluding insurance corporations and pension funds" sector. In September, all the aggregates to which these deposits belong were inflated by this one-off technical factor.

## 6 Fiscal developments

*The euro area general government budget balance in 2022 continued to improve from the large deficits registered during the pandemic, as reflected in the December 2022 Eurosystem staff macroeconomic projections. However, the budget balance is expected to deteriorate slightly in 2023 before improving again in 2024. The temporary deterioration is largely shaped by significant levels of discretionary government support aimed at countering rising energy prices and the increased cost of living for households. In the previous projections, these measures were expected to be largely limited to 2022, resulting in a continuous improvement in the deficit outlook. However, governments have since budgeted or made other announcements indicating that a similar level of support as in 2022, of around 2% of GDP, will be in place in 2023. The fiscal projections continue to be surrounded by high levels of uncertainty, mainly in relation to the war in Ukraine and developments in energy markets that could lead governments to adopt additional fiscal support measures. From a policy perspective, fiscal support measures to shield the economy from the impact of high energy prices should be temporary, targeted and tailored to preserving incentives to consume less energy. Fiscal measures falling short of these principles are likely to exacerbate inflationary pressures, which would necessitate a stronger monetary policy response. Moreover, in line with the EU's economic governance framework, fiscal policies should be oriented towards making our economy more productive and gradually bringing down high public debt. The reform of the EU's economic governance framework should be concluded rapidly.*

**The euro area general government budget balance will deteriorate slightly in 2023 but improve in 2024, as reflected in the December 2022 Eurosystem staff macroeconomic projections.**<sup>14</sup> The ratio of general government deficit to GDP for the euro area declined to 5.1% in 2021, after reaching an unprecedented 7.1% in 2020 (Chart 27). It is estimated to have fallen further to 3.5% of GDP in 2022 but is forecast to increase slightly to 3.7% in 2023. However, the decline in the deficit ratio is expected to resume in 2024, when it should reach 2.7%. The deficit ratio is projected to stay at broadly that level until the end of the forecast horizon in 2025. The improvement in the budget balance in 2022 is estimated to have been driven by the economic cycle and a higher cyclically adjusted primary balance following the start of the expiry of a large part of the pandemic emergency measures. The measures adopted in response to high inflation and the war in Ukraine in 2022 are less sizeable than those adopted during the pandemic, although still very significant, at around 2% of GDP. Support measures of a similar magnitude are expected to be in place in 2023 (Chart 28). However, their composition will shift towards subsidies, in particular to underpin price caps for energy, and away from social transfers, such as the income support to households that largely dominated the initial government response to the energy price shock. Nonetheless, non-discretionary factors, such as lower windfall revenues, should contribute to a small and temporary deterioration in the deficit in 2023. The expected improvement in the overall government budget

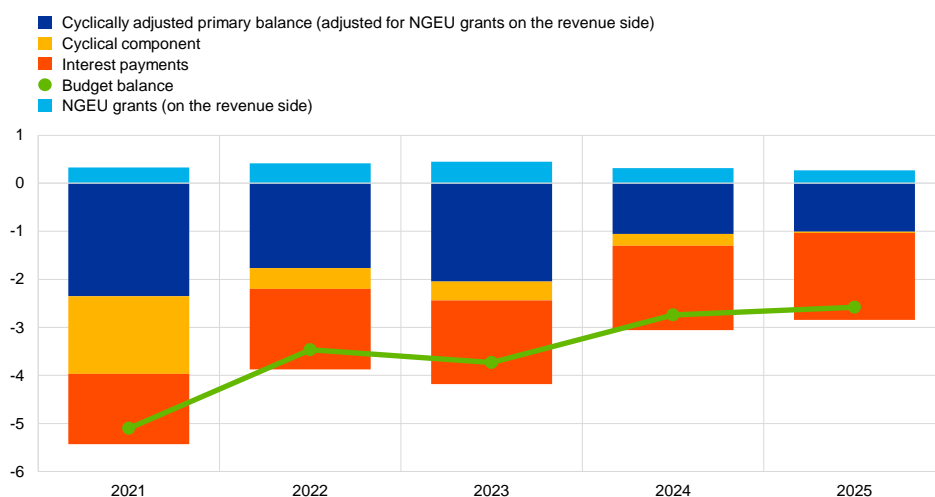
<sup>14</sup> See “Eurosystem staff macroeconomic projections for the euro area, December 2022”, published on the ECB's website on 15 December 2022.

balance in 2024 can be fully explained by a better cyclically adjusted primary balance, premised on the assumption that energy-related government support measures expire.

### Chart 27

#### Budget balance and its components

(percentages of GDP)

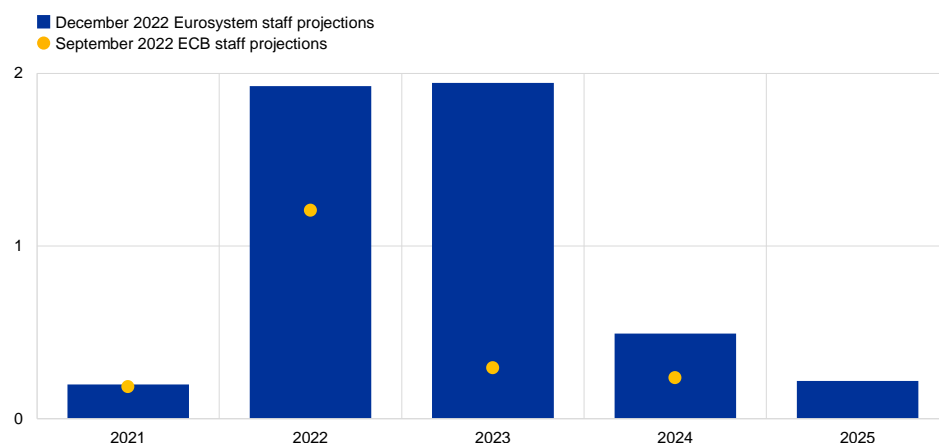


Sources: ECB calculations and December 2022 Eurosystem staff macroeconomic projections.  
Note: The data refer to the aggregate general government sector of euro area countries.

### Chart 28

#### Euro area budget support in response to high energy prices and inflation

(percentages of GDP, level per year)



Sources: ECB calculations and staff macroeconomic projections.

**The euro area fiscal stance is estimated to have tightened in 2022 and, although it is projected to loosen moderately in 2023, a significant tightening**

**is expected in 2024 unless further discretionary measures are adopted.**<sup>15</sup> In 2022 the tightening as captured in this measure of the fiscal stance can be attributed to significant non-discretionary factors, mainly reflecting a continuation of strong revenue windfalls that had already started the year before. The expected loosening of the fiscal stance in 2023 is explained by a partial projected reversal of these revenue windfalls, which more than offsets some tightening in the overall discretionary measures. This tightening reflects the withdrawal of part of the extensive pandemic and recovery stimulus measures enacted since the onset of the coronavirus (COVID-19) crisis. Nevertheless, a significant tightening of the fiscal stance is expected in 2024, when most of the inflation support measures are expected to expire, although this is surrounded by significant uncertainty. This is expected to be followed by a broadly neutral stance at the end of the forecast horizon in 2025.<sup>16</sup>

**Compared with the September 2022 ECB staff macroeconomic projections, the overall euro area budget balance for 2022 has been revised upwards somewhat, but a significantly more adverse outcome is expected for 2023.** In particular, the ratio of the euro area budget balance to GDP has been revised upwards by 0.3 percentage points owing to better than expected contributions from both the economic cycle and the cyclically adjusted primary balance. However, the projected budget balance for 2023 has worsened very markedly by 0.9 percentage points of GDP. This is mainly due to a more negative cyclically adjusted primary balance, reflecting the expectation of continued government support measures related to high inflation and the war in Ukraine.<sup>17</sup>

**Following a large increase in 2020, the ratio of euro area government debt to GDP is expected to fall slowly to just below 90% in 2024 and 2025, but to remain above its pre-crisis level.** After the debt ratio increased by approximately 13 percentage points to around 97% in 2020, a 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. This led to a moderate reduction in the debt-to-GDP ratio, which is projected to continue to decline slowly but steadily throughout the period from 2022 to 2025. This decline is expected to result from still favourable contributions from interest rate growth differentials that outweigh debt-increasing primary deficits, while deficit-debt adjustments should be broadly neutral in cumulative terms over the whole horizon (Chart 29). At the end of the projection

---

<sup>15</sup> 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 Next Generation EU (NGEU) grants from the EU budget do not have a contractionary impact on demand, in this context the cyclically adjusted primary balance is adjusted to exclude those revenues. For more details on the euro area fiscal stance, see the article entitled “[The euro area fiscal stance](#)”, *Economic Bulletin*, Issue 4, ECB, 2016.

<sup>16</sup> The euro area aggregate fiscal stance, adjusted for revenues related to NGEU grants (as of 2021), is estimated at +1.0 percentage points of GDP in 2021 and +0.5 percentage points of GDP in 2022. It is projected to stand at -0.3, +1.0 and +0.1 percentage points of GDP in 2023, 2024 and 2025 respectively. Compared with the September 2022 projections, it has been revised by +0.4 percentage points for 2022 and by -1.0 and +1.1 percentage points in 2023 and 2024 respectively.

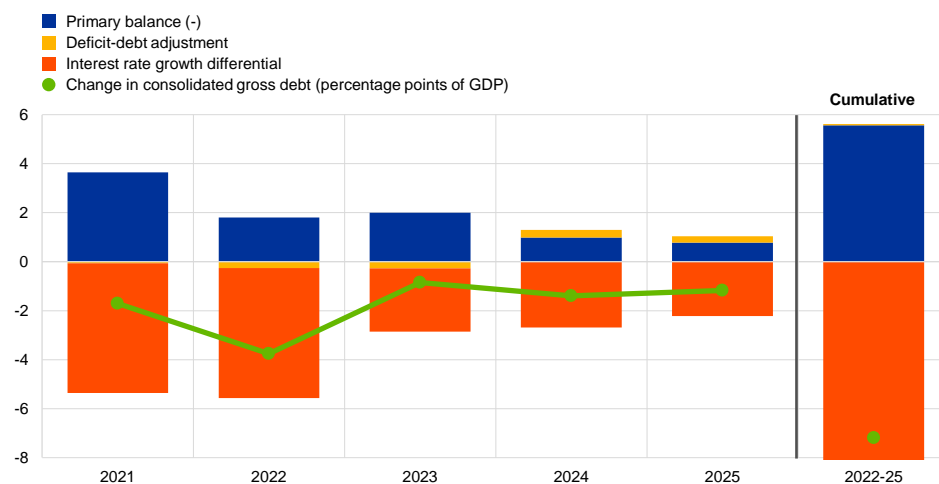
<sup>17</sup> Additional government support to compensate for higher energy prices and other spending in response to the war in Ukraine is estimated to amount to 0.9% of euro area GDP in 2022.

horizon in 2025, the debt-to-GDP ratio is forecast to stand at 88%, i.e. 4 percentage points above its pre-crisis level in 2019.

### Chart 29

#### Drivers of change in euro area government debt

(percentages of GDP, unless otherwise indicated)



Sources: ECB calculations and December 2022 Eurosystem 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 high energy prices and the inflationary environment and possible policy responses.** In terms of fiscal assumptions, risks to the current baseline are tilted towards additional fiscal stimulus in 2023-24 and a further postponement of the unwinding of the discretionary fiscal support that is already incorporated in the forecast.

**From a policy perspective, fiscal support measures to shield the economy from the impact of high energy prices should be temporary, targeted and tailored to preserving incentives to consume less energy.** Fiscal measures falling short of these principles are likely to exacerbate inflationary pressures, which would necessitate a stronger monetary policy response. Moreover, in line with the EU's economic governance framework, fiscal policies should be oriented towards making our economy more productive and gradually bringing down high levels of public debt. Continuous effective policy coordination in the euro area will be important to ensure that fiscal policies do not add to inflationary pressures while safeguarding debt sustainability and supporting the growth-friendliness of public finances.<sup>18</sup> The reform of the EU's economic governance framework should be concluded rapidly.

<sup>18</sup> The latest Eurosystem assessment of the impact of energy-related support measures for 2023 suggests that their magnitude could be significantly larger than projected by the Commission in its Autumn 2022 forecast based on the information contained in Member States draft budgetary plans. This suggests that the risks that the Commission has identified in this regard are likely to materialise. See Box 8 entitled "Fiscal policy implications of euro area countries' 2023 draft budgetary plans" in this issue of the Economic Bulletin for further details.

# Boxes

## 1 Inflation developments in the euro area and the United States

Prepared by Gerrit Koester, Eduardo Gonçalves, Ramon Gomez-Salvador, Julia Doleschel, Malin Andersson, Belén González Pardo and Laura Lebastard

**Headline inflation has increased sharply in the euro area and in the United States since the start of 2021.** An earlier and stronger increase had been recorded in the United States, but headline inflation has been higher in the euro area since July 2022.<sup>1</sup> In November inflation in the euro area Harmonised Index of Consumer Prices (HICP) stood at 10.1%, after 10.6% in October, while inflation in the US Consumer Price Index (CPI) peaked at 9.1% in June and then moderated somewhat, standing at 7.1% in November.

---

<sup>1</sup> For earlier developments, see the box entitled “[Comparing recent inflation developments in the United States and the euro area](#)”, *Economic Bulletin*, Issue 6, ECB, 2021, and the box entitled “[Recent inflation developments in the United States and the euro area – an update](#)”, *Economic Bulletin*, Issue 1, ECB, 2022.

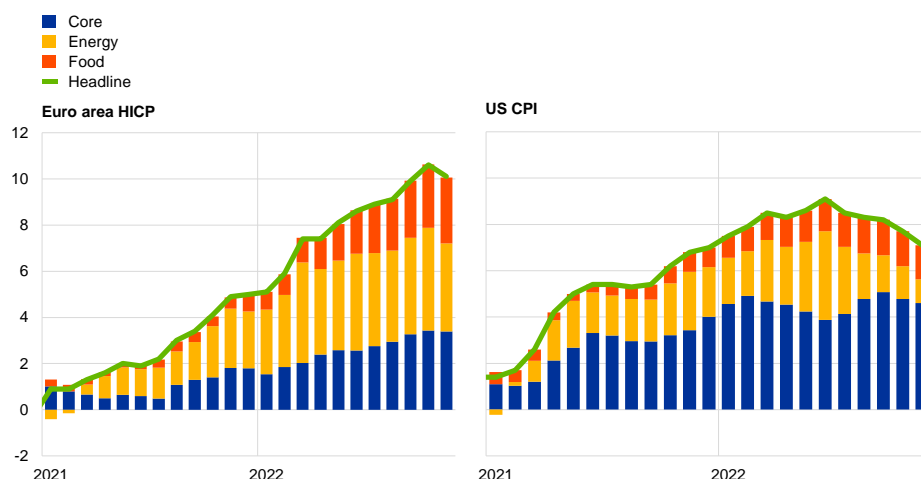


## Chart A

### Headline inflation and components

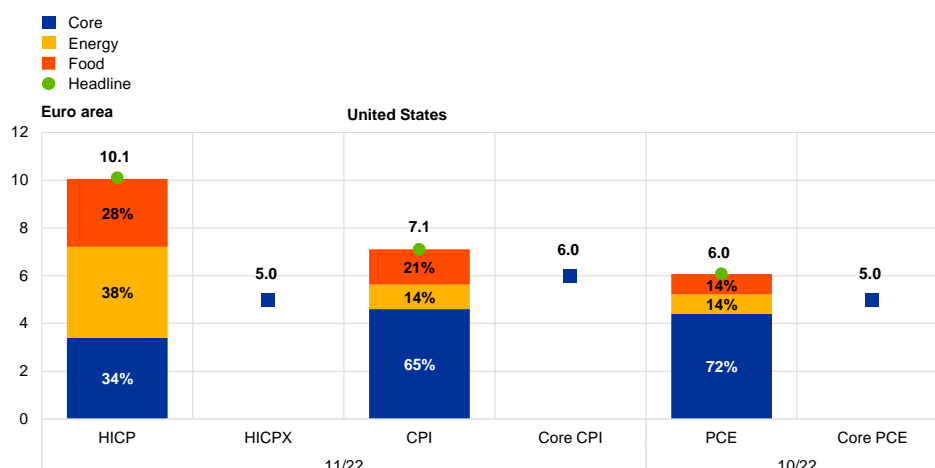
#### a) Inflation developments

(annual percentage changes and percentage point contributions)



#### b) Contributions of the main components of inflation

(annual percentage changes and percentage point contributions)



Sources: Eurostat, US Bureau of Labor Statistics and ECB calculations.

Notes: The HICPX is the euro area HICP excluding food and energy (i.e. core inflation). The PCE is the US personal consumption expenditure price index. The latest observations are for November for the HICP and CPI, and October for the PCE.

**Energy and food price inflation have played a key role as drivers of the higher headline inflation recorded in the euro area.** In November energy inflation alone accounted for 38% of headline inflation in the euro area – but only for 14% in the United States. Together, energy and food inflation make up around two-thirds of headline inflation in the euro area, but only around one-third of headline inflation in the United States (Chart A). A key reason for higher energy inflation in the euro area is the much higher natural gas prices – resulting from the important role Russian gas had played for the euro area before Russia’s war against Ukraine – and the knock-on effects on electricity prices.<sup>2</sup> HICP inflation excluding food and energy stood at

<sup>2</sup> See the box entitled “Natural gas dependence and risks to euro area activity”, *Economic Bulletin*, Issue 1, ECB, 2022, and the box entitled “The impact of the war in Ukraine on euro area energy markets”, *Economic Bulletin*, Issue 4, ECB, 2022.

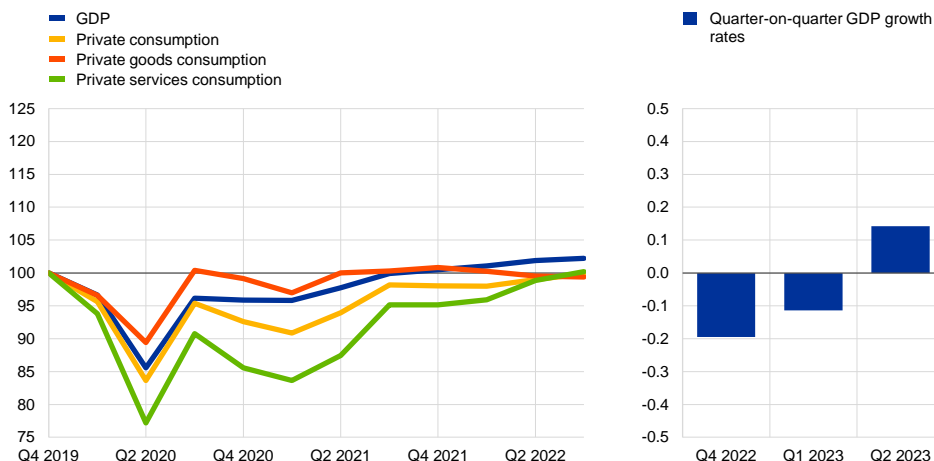
5.0% in November in the euro area. This was still lower than inflation in the US CPI excluding food and energy (core inflation), which stood at 6.0% in the same month. However, the HICP excluding food and energy moved sideways at a high level in November, whereas the US CPI excluding food and energy declined slightly.

**A stronger consumption-driven recovery in the United States has been a key driver of differences between underlying inflation developments in the two economies.** Real GDP in the United States returned to its pre-pandemic level about two quarters ahead of euro area real GDP (Chart B), primarily as a result of stronger recoveries in US private consumption and investment. In particular, private consumption of both goods and services has only very recently returned to the level recorded in the fourth quarter of 2019 in the euro area, whereas it had already surpassed its pre-pandemic level in the United States in early 2021. Stronger consumer spending together with a faster easing of supply bottlenecks in the United States also supported a return of US private non-residential investment to its pre-pandemic level in the first half of 2021. By contrast, such investment in the euro area, adjusted for particularly volatile intangible investment, only surpassed its pre-pandemic level in late 2021.

## Chart B Real GDP and consumption

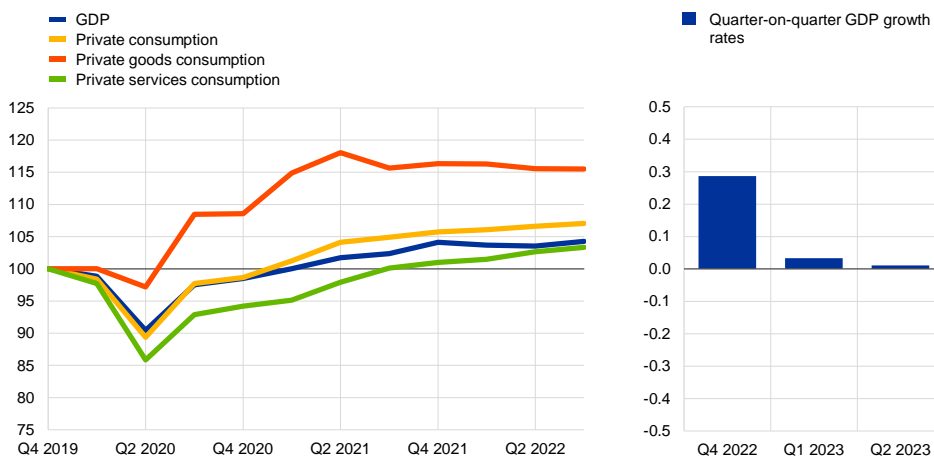
### a) Euro area

(Q4 2019 = 100; quarter-on-quarter percentage changes)



### b) United States

(Q4 2019 = 100; quarter-on-quarter percentage changes)



Sources: Eurostat, US Bureau of Economic Analysis, December 2022 Eurosystem staff macroeconomic projections database and ECB calculations.

Notes: The latest observations for the left-hand panels are for the third quarter of 2022. The right-hand panels show projected GDP growth.

### Discrepancies in consumption growth between the two economies can largely be explained by two factors – fiscal policy design and terms-of-trade dynamics.

First, a very fast and strong recovery in goods consumption in the United States was spurred by general and relatively large household income support during the pandemic, including stimulus checks and enhanced unemployment benefits.<sup>3</sup> In the euro area, government support was more targeted towards those most exposed to the pandemic, either through compensation of income losses or through job retention schemes.<sup>4</sup> Second, the rise in energy prices since the spring of 2021,

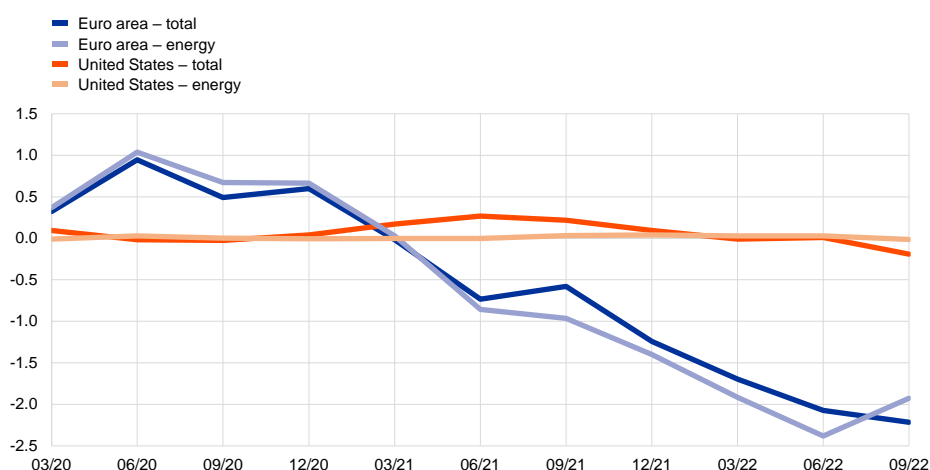
<sup>3</sup> See also the box entitled “Economic developments in the euro area and the United States in 2020”, *Economic Bulletin*, Issue 2, ECB, 2021, and “The EA and the US in the COVID-19 crisis: Implications for the 2022-2023 policy stance”, OECD, January 2022.

<sup>4</sup> See Licchetta, M et al. (2022), “Economic adjustment in the euro area and the United States during the COVID-19 crisis”, *European Economy Discussion Paper*, 160, European Commission, March.

which was significantly exacerbated a year later by the war in Ukraine, resulted in a terms-of-trade shock which hit the euro area far harder than the United States, as the euro area was heavily dependent on gas imports from Russia (Chart C).<sup>5</sup> This impact was intensified by exchange rate developments, with the US dollar appreciating strongly while the euro depreciated not only vis-à-vis the US dollar but also in effective terms. In the euro area, the estimated impact was equivalent to a transfer of around 2.2% of GDP to the rest of the world, cumulated over four quarters up to the third quarter of 2022. In the United States, the income effect was broadly neutral, as the country is self-sufficient in terms of energy. The terms-of-trade losses significantly reduced household disposable income in the euro area, with a particularly strong impact on demand for durable goods.<sup>6</sup> Income losses through this channel may increase further and hence dampen activity in the euro area in the coming quarters.

**Chart C**  
Income effects of terms of trade

(impact on year-on-year GDP growth in percentage points)



Sources: Haver analytics, Eurostat and ECB calculations.

Notes: The income effect of terms of trade is calculated by weighting export and import price changes by their respective past values (one-year lag) and is expressed as a percentage share of GDP. The latest observations are for September 2022.

**In line with last year’s slower recovery in the euro area, the importance of demand as a driver of core inflation has increased more gradually and later than in the United States (Chart D).** In the United States, the contribution of demand to core inflation had already reached levels of around 1.5 percentage points in mid-2021 and has increased further to nearly 2 percentage points recently, while in the euro area it increased much more gradually and has reached levels above 1.5 percentage points only in recent months. Focusing on goods inflation, the contribution of supply remains higher than the contribution of demand in both the United States and the euro area. For services, supply factors have played a more important role in the United States, while in the euro area demand factors have been more prominent. In services inflation, where labour is usually by far the biggest input,

<sup>5</sup> For more details, see the box entitled “[Implications of the terms-of-trade deterioration for real income and the current account](#)”, *Economic Bulletin*, Issue 3, ECB, 2022.

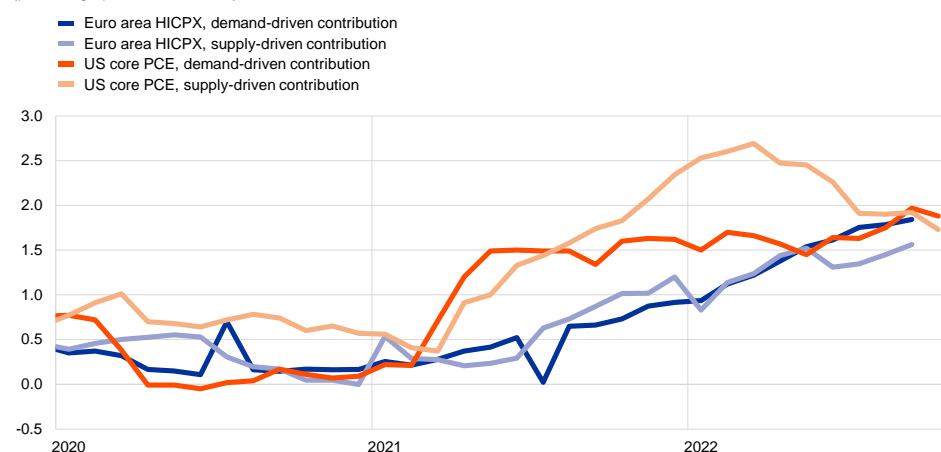
<sup>6</sup> See the box entitled “[The impact of higher energy prices on services and goods consumption in the euro area](#)”, in this issue of the *Economic Bulletin*.

the higher absolute and relative importance of supply factors in the United States can in part be linked to the tighter labour market and the more sizeable impact of labour shortages on wages than in the euro area.<sup>7</sup>

### Chart D

#### Decomposition of core inflation into demand and supply components

(percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: The measures for core inflation are the HICP excluding energy and food (HICPX) for the euro area and the personal consumption expenditure deflator excluding food and energy (core PCE) for the United States. The series are seasonally adjusted. The data are based on an application of Shapiro, A.H., "How Much Do Supply and Demand Drive Inflation?", *FRBSF Economic Letters*, No 2022-15, Federal Reserve Bank of San Francisco, 21 June 2022; and Shapiro, A.H., "Decomposing Supply and Demand Driven Inflation", *Working Papers*, No 2022-18, Federal Reserve Bank of San Francisco, October 2022. For euro area results, see the box entitled "The role of demand and supply in underlying inflation – decomposing HICPX inflation into components", *Economic Bulletin*, Issue 7, ECB, 2022. The latest observations are for September 2022 for the euro area and October 2022 for the United States.

**Looking ahead, the near-term growth outlook is weaker for the euro area than for the United States, which implies that the impetus from economic activity for inflation will remain smaller in the euro area.** Real GDP is expected to contract slightly in the fourth quarter of 2022 and the first quarter of 2023 in the euro area, while it is foreseen to continue to record positive, although modest, growth in the United States according to the December 2022 Eurosystem staff macroeconomic projections (Chart B). The December 2022 Eurosystem staff projections foresee headline HICP inflation to be 6.3% in 2023 and 3.4% in 2024, while HICP inflation excluding food and energy is expected to be 4.2% in 2023 and 2.8% in 2024. While headline inflation is expected to remain higher in the euro area than in the United States in the short term, as a result of the euro area's greater exposure to energy price shocks related to the war in Ukraine, underlying inflation is foreseen to remain somewhat lower than in the United States in a context of continuing terms-of-trade losses and a less tight labour market.

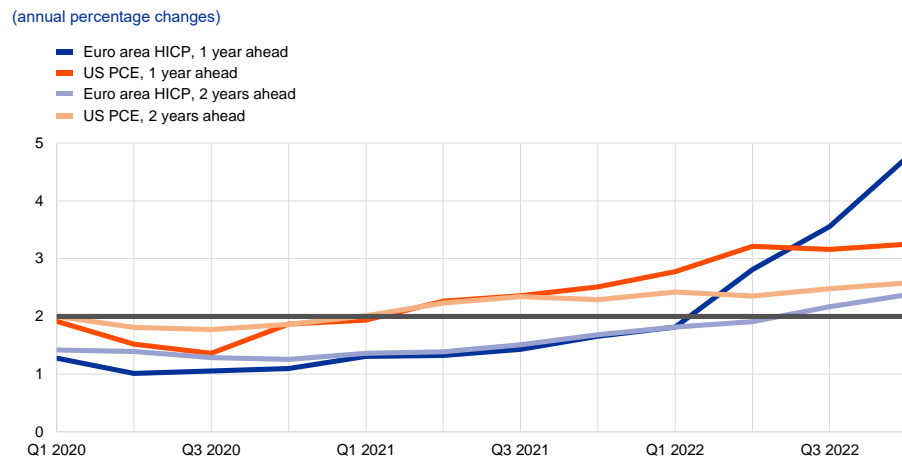
**Professional forecasters expect inflation two years ahead to be slightly higher in the United States than in the euro area.** One-year ahead HICP inflation in the euro area is expected to stand at 4.8% according to the ECB Survey of Professional Forecasters (SPF). This is considerably higher than inflation in the personal

<sup>7</sup> For details on wage developments, see the box entitled "Comparing labour market developments in the euro area and the United States and their impact on wages" in the article entitled "Wage developments and their determinants since the start of the pandemic" in this issue of the Economic Bulletin.

consumption expenditure (PCE) price index in the United States, which is expected to stand at 3% one year ahead according to the survey conducted by the Federal Reserve Bank of Philadelphia in the fourth quarter of 2022 (Chart E). At the same time, inflation expectations two years ahead for the United States stand at 2.6% for the PCE and 2.8% for the CPI, while two-year ahead inflation expectations for the euro area HICP stand at 2.4% (Chart E). These results suggest that levels of inflation above the central bank target are seen to be somewhat more persistent in the United States. This could reflect the stronger domestic component of inflation in the United States, together with overall more optimistic expectations regarding US labour market dynamism.

### Chart E

#### Short and medium-term inflation expectations and forecasts



Sources: ECB Survey of Professional Forecasters (EA SPF) for the fourth quarter of 2022, Federal Reserve Bank of Philadelphia Survey of Professional Forecasters for the fourth quarter of 2022 (US SPF).

Notes: The US SPF is conducted one month later than the EA SPF. For the US SPF, one-year ahead expectations are calculated as the average expected inflation rate over the four quarters after the SPF round (i.e. for the survey conducted in the fourth quarter of 2022, this means the average from the first quarter of 2023 to the fourth quarter of 2023) and two-year ahead inflation expectations are the expectations in the quarter the survey is conducted regarding the calendar year after next. For the EA SPF, expectations one year ahead are calculated as the expected inflation rate one year ahead of the latest available data (i.e. in the fourth quarter of 2022 data for September 2022 were available and the one-year ahead expectation refers to the annual inflation rate expected in September 2023) and expectations two years ahead are calculated as the expected inflation rate two years ahead of the latest available data (i.e. in the fourth quarter of 2022 data for September 2022 were available and the two-year ahead expectation refers to the annual inflation rate expected in September 2024).

## 2 Croatia adopts the euro

Prepared by Matteo Falagiarda and Christine Gartner

**On 1 January 2023 Croatia adopted the euro and became the 20th member of the euro area.** The assessments set out in the 2022 convergence reports of the [European Commission](#) and the [European Central Bank](#) paved the way for the first enlargement of the euro area since Lithuania joined in 2015.<sup>1</sup> On 12 July 2022 the Council of the European Union formally approved Croatia's accession to the euro area and determined a Croatian kuna conversion rate of 7.53450 per euro.<sup>2</sup> This was the central rate of the kuna for the duration of the country's participation in the exchange rate mechanism (ERM II).<sup>3</sup>

**Croatia is a small economy that is well integrated with the euro area through trade and financial linkages.** It has a population of around 4 million and its GDP accounts for about 0.5% of euro area GDP. The composition of Croatia's gross value added is broadly similar to that of the euro area as a whole, with industry (including construction) and services contributing around 25% and 72% respectively (Chart A, panel a). Tourism dominates Croatia's services sector, with revenues accounting for around 19% of GDP in 2019. This share dropped significantly in 2020 owing to the coronavirus (COVID-19) pandemic, but increased again in 2021 and 2022. It is by far the largest among the EU Member States (Chart A, panel b). Tourism also has sizeable spillovers to other sectors of the economy.

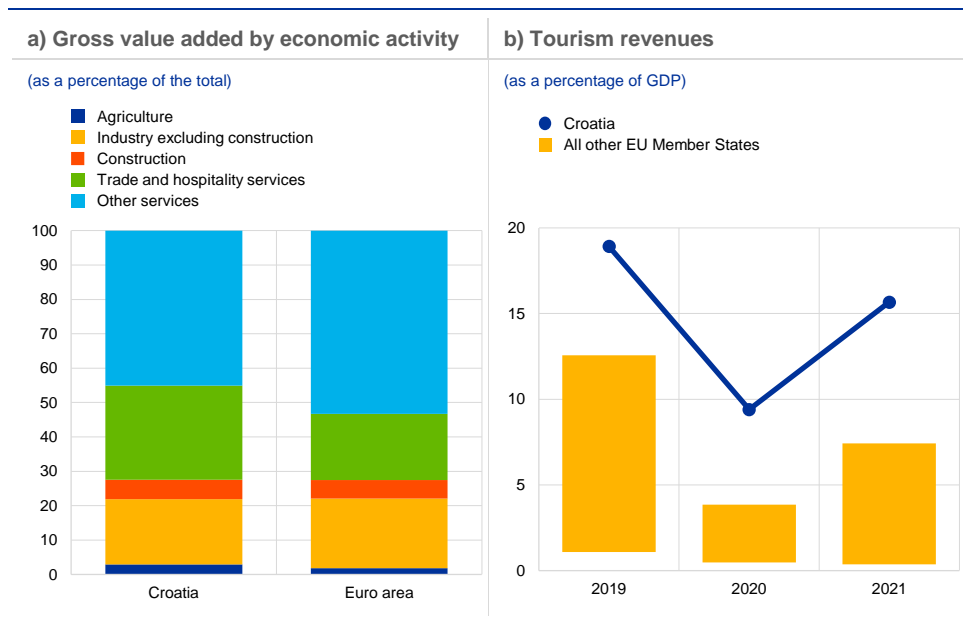
---

<sup>1</sup> The convergence reports of the European Commission and the ECB are prepared in accordance with Article 140(1) of the Treaty on the Functioning of the European Union.

<sup>2</sup> See "[Croatia to join euro area on 1 January 2023](#)", *press release*, ECB, 12 July 2022.

<sup>3</sup> See the box entitled "[The Bulgarian lev and the Croatian kuna in the exchange rate mechanism \(ERM II\)](#)", *Economic Bulletin*, Issue 6, ECB, 2020, and the article entitled "[The European exchange rate mechanism \(ERM II\) as a preparatory phase on the path towards euro adoption – the cases of Bulgaria and Croatia](#)", *Economic Bulletin*, Issue 8, ECB, 2020.

**Chart A**  
Structure of the Croatian economy



Sources: Eurostat, ECB and authors' calculations.

Notes: Panel a) is based on gross value added at current prices in the second quarter of 2022. "Trade and hospitality services" includes trade, transportation, accommodation and food service activities. Panel b) is based on travel credits in the balance of payments statistics, which measure non-residents' expenditures on goods and services when visiting the country. The yellow bars indicate the minimum-maximum range across all other EU Member States.

The euro area is Croatia's main trading and financial partner (Chart B). In addition, banks owned by financial institutions domiciled in other euro area countries play a dominant role in the Croatian banking system. Prior to formally adopting the euro, Croatia's economy was also characterised by a high degree of euroisation. A significant share of public and private debt was issued in euro, reflecting the currency composition of household savings and of liquid assets of non-financial corporates (Chart C).<sup>4</sup> Overall, the business cycle of the Croatian economy was highly synchronised with that of the euro area over the ten years up to euro adoption.

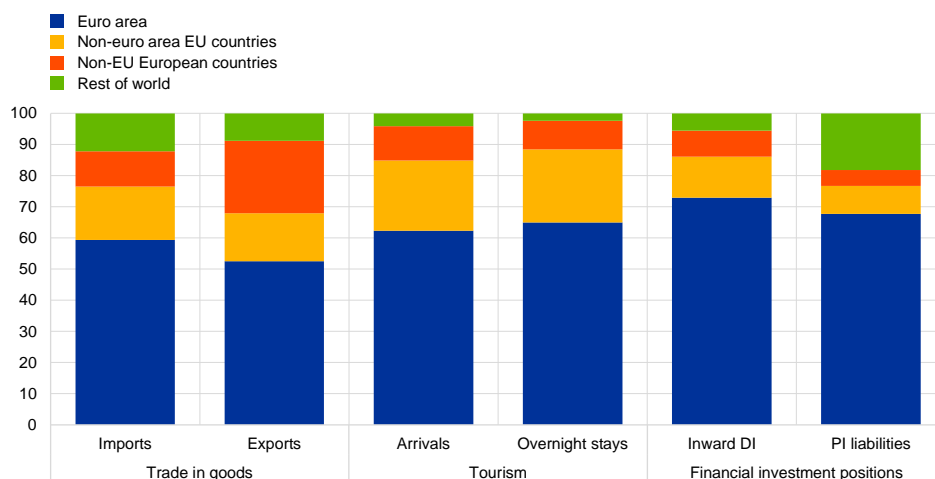
<sup>4</sup> However, for non-euro area countries a high degree of euroisation can also entail risks and limit the degree of flexibility for domestic economic policies.



## Chart B

### Croatia's trade and financial linkages with the euro area

(as a percentage of the total)

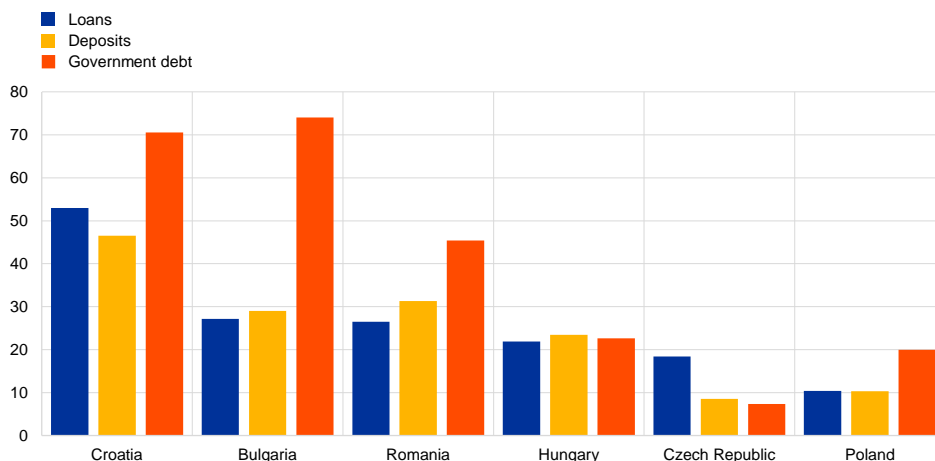


Sources: Croatian Bureau of Statistics, International Monetary Fund (CDIS and CPIS) and authors' calculations.  
Notes: "DI" stands for direct investment and "PI" stands for portfolio investment. "CDIS" refers to the Coordinated Direct Investment Survey and "CPIS" refers to the Coordinated Portfolio Investment Survey. Data refer to 2021 for trade in goods, tourism and PI liabilities. Data refer to 2020 for DI positions. For tourist arrivals and overnight stays, domestic tourists are not considered. Shares for PI liabilities were computed using mirror data on bilateral assets vis-à-vis Croatia.

## Chart C

### Share of euro-denominated loans, deposits and government debt

(as a percentage of the total)



Sources: ECB and authors' calculations.  
Notes: Data refer to outstanding amounts of loans to and deposits of non-monetary financial institutions excluding general government at the end of August 2022 and to the stock of general government debt at the end of 2021.

### The Croatian economy is expected to benefit from the elimination of currency risk, as well as lower transaction and borrowing costs.

In view of Croatia's already deep integration with the euro area, and assuming that it pursues sound fiscal, structural and financial policies going forward, it is expected to gain from having adopted the euro. The benefits include (i) the elimination of currency risk vis-à-vis the euro, which has recently been one of the main sources of vulnerability in the Croatian economy; (ii) a positive impact on foreign trade (including tourism) and investment as a result of lower transaction costs and greater transparency and

comparability of prices;<sup>5</sup> and (iii) lower borrowing costs for the economy owing to well-anchored inflation expectations alongside reduced regulatory costs and currency risk. Any costs and risks associated with euro adoption are expected to be relatively small and mainly one-off, such as changeover costs or the risk of unjustified price increases (against which the Croatian authorities have implemented several measures). Given Croatia's already high level of economic and financial integration with the euro area and the previous stability of the HRK/EUR exchange rate, the cost of losing the ability to adjust the exchange rate as a macroeconomic policy tool in the event of asymmetric shocks is likely to be low. However, in order to limit the materialisation of such costs, the Croatian authorities need to conduct sound economic and fiscal policies, while respecting the inevitable constraints associated with a common currency and a single monetary policy.

**After joining the EU in 2013, Croatia made significant progress in addressing macroeconomic imbalances and achieving convergence towards the euro area.**

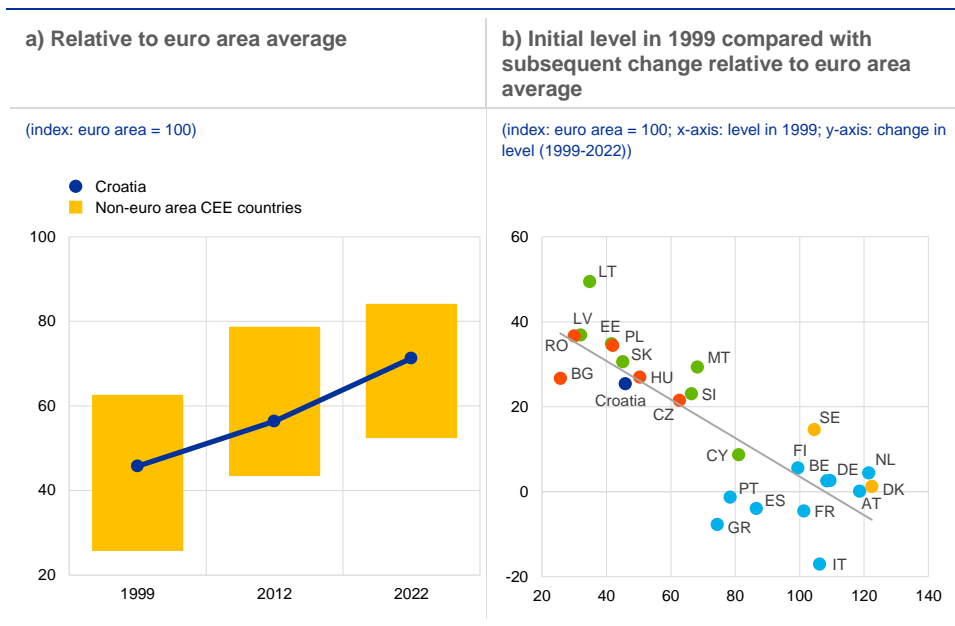
The macroeconomic imbalances that came to the fore in the period of the prolonged recession from 2009 to 2014 were gradually corrected. They related to high levels of external, private and government debt in the context of low potential growth. The subsequent economic recovery and credible policy actions, such as a prudent fiscal stance and reforms in the labour market and business environment drove the steady reduction of those vulnerabilities. At the same time, Croatia achieved a significant degree of real convergence towards the euro area. Its GDP per capita, which was around 55% of the euro area average in 2012 (just before EU accession), reached slightly over 70% in 2022 (Chart D, panel a). Croatia's real growth performance followed the typical catching-up process observed in countries that adopted the euro after 2002 and in other non-euro area countries (Chart D, panel b). Furthermore, it achieved convergence in banking supervision in 2020 with the entry into force of the close cooperation framework, an entryway to the banking union for non-euro area countries.<sup>6</sup> This framework ensured the application of uniform supervisory standards, thus contributing to safeguarding financial stability and fostering the process of financial integration.

---

<sup>5</sup> Trade and tourism are also expected to benefit from Croatia having joined the Schengen area on 1 January 2023.

<sup>6</sup> For more details, see "[ECB establishes close cooperation with Croatia's central bank](#)", *press release*, ECB, 10 July 2020.

**Chart D**  
Real GDP per capita



Sources: European Commission (AMECO database) and authors' calculations.  
Notes: Based on real GDP per capita in purchasing power standard (PPS) terms. For more details, see Box 2 in Diaz del Hoyo, J.L., Dorrucchi, E., Heinz, F.F. and Muzikarova, S., "Real convergence in the euro area: a long-term perspective", *Occasional Paper Series*, No 203, ECB, December 2017. Data for 2022 are taken from the European Commission's Autumn 2022 Economic Forecast. "CEE" stands for "central and eastern European". In panel a) the yellow bars indicate the minimum-maximum range across non-euro area CEE countries (Bulgaria, Czech Republic, Hungary, Poland and Romania). In panel b) the red dots indicate non-euro area CEE countries (Bulgaria, Czech Republic, Hungary, Poland and Romania); the yellow dots indicate Denmark and Sweden; the green dots indicate countries that joined the euro area after 2002 (Cyprus, Malta, Slovenia, Slovakia, Latvia, Lithuania and Estonia); and the light-blue dots indicate countries that joined the euro area before 2002 (Belgium, Germany, Greece, Spain, France, Italy, Netherlands, Austria, Portugal and Finland). Ireland is excluded because of the exceptional GDP revision made for 2015, which did not reflect an actual increase in economic activity. Luxembourg is excluded because GDP per capita computations are distorted by the high number of cross-border workers.

**The Croatian economy rebounded strongly from the significant drop in output in 2020 and remained resilient to the economic fallout from the Russian invasion of Ukraine.** Reflecting Croatia's high dependence on tourism, the pandemic took a severe toll on the economy, with real GDP contracting by 8.6% in 2020. While policy support helped to mitigate the economic impact of the crisis, the downturn temporarily reversed the progress that had been made with correcting macroeconomic imbalances prior to the pandemic. In 2021 progress picked up again when the economy recorded double-digit growth (13.1%) on the back of a successful tourist season alongside strong private consumption and investment dynamics. Croatia's economy also remained one of the fastest-growing EU Member States in 2022, owing to the continued sound performance of the tourism sector and the country's relatively limited direct trade and financial exposure to Russia.<sup>7</sup> As a result of sharp increases in energy and food prices, consumer price inflation rose further in 2022, significantly outpacing that in the euro area. Fiscal measures, such as reductions in the value added tax rate and price caps for gas, electricity and basic groceries, cuts in fuel excise duties and the freezing of margins on petroleum products, helped to temporarily mitigate the inflationary pressures. Overall, the multiple shocks emanating from the COVID-19 crisis and the war in Ukraine had a limited impact on Croatia's capacity to fulfil the convergence criteria for euro

<sup>7</sup> In its [2022 in-depth review](#), the European Commission found that Croatia, which was identified with imbalances in 2021, to be experiencing no imbalances.

adoption. Nevertheless, there are concerns about the sustainability of inflation convergence, for example if fiscal measures to support aggregate demand add to inflation.

**In order to fully reap the benefits of the euro and to allow adjustment mechanisms to operate efficiently within the enlarged currency area, it is important for Croatia to ensure the sustainability of economic convergence.**

Economic policies should be geared towards supporting potential growth and resilience to prevent the emergence of macroeconomic imbalances. Croatia's economic growth potential still seems subdued for a catching-up economy. In this context, it needs to implement structural policies aimed at raising potential growth and enhancing the competitiveness and resilience of its economy. Priority could be given to improving the quality and efficiency of the institutional and business environment, the public administration and the judicial system, and to modernising the country's infrastructure. Overall, policies should focus on supporting innovation and investment in new technologies, also with a view to broadening sources of economic growth beyond tourism. In order to boost labour productivity, it would be essential to implement policy measures aimed at (i) reducing mismatches in the labour market, (ii) enhancing the quantity and quality of the labour supply, (iii) pushing up the low participation rate, and (iv) aligning the education system with the needs of the economy. An efficient absorption of EU funds allocated to the country will also be of utmost importance to ensure the successful completion of the reform agenda.<sup>8</sup>

---

<sup>8</sup> The recent reform agenda was also driven by a number of policy commitments made by the Croatian authorities upon joining ERM II so that Croatia could achieve a high degree of sustainable economic convergence by the time it adopted the euro. These commitments relate to the country's anti-money-laundering (AML) framework, the business environment, public sector governance and the insolvency framework. For more details, see "[Communiqué on Croatia](#)", *press release*, ECB, 10 July 2020.

### 3 The impact of higher energy prices on services and goods consumption in the euro area

Alina Bobasu and Johannes Gareis

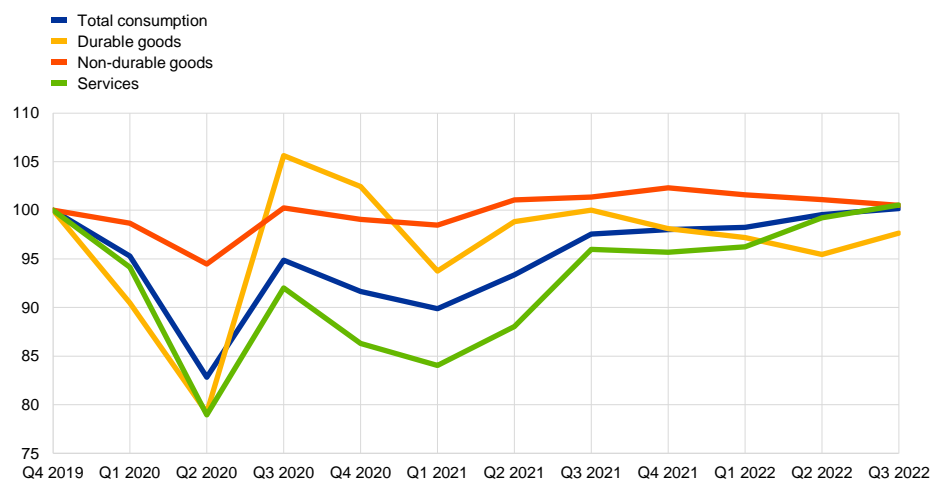
#### The recent increase in real consumer spending in the euro area masks heterogeneous developments in individual consumption components.

Total private consumption in the euro area increased significantly in the second and third quarters of 2022, mainly supported by consumption of services, which rose sharply after subdued growth at the beginning of the year (Chart A).<sup>1</sup> By contrast, consumption of non-durable goods fell for the third quarter in a row. Moreover, consumption of durable goods continued its downward trend (which began in the last quarter of 2021) up until the second quarter of 2022, after which it began to improve in the third quarter. While the recovery in total private consumption reflected several factors, including the widespread loosening of pandemic-related restrictions and the gradual easing of supply bottlenecks, the strong rise in energy prices created significant headwinds to consumption growth through its effect on households' purchasing power.<sup>2</sup> This box aims to quantify the impact of the recent increase in energy prices on real consumer spending in the euro area. It focuses on energy supply shocks that have become increasingly significant since mid-2021, particularly with the Russian invasion of Ukraine in early 2022.<sup>3</sup>

#### Chart A

##### Developments in real private consumption in the euro area

(Q4 2019 = 100)



Sources: Eurostat and ECB calculations.

Note: Non-durable goods include semi-durable goods.

<sup>1</sup> Real consumer spending and its components for the euro area are based on the aggregation of available data at the country level.

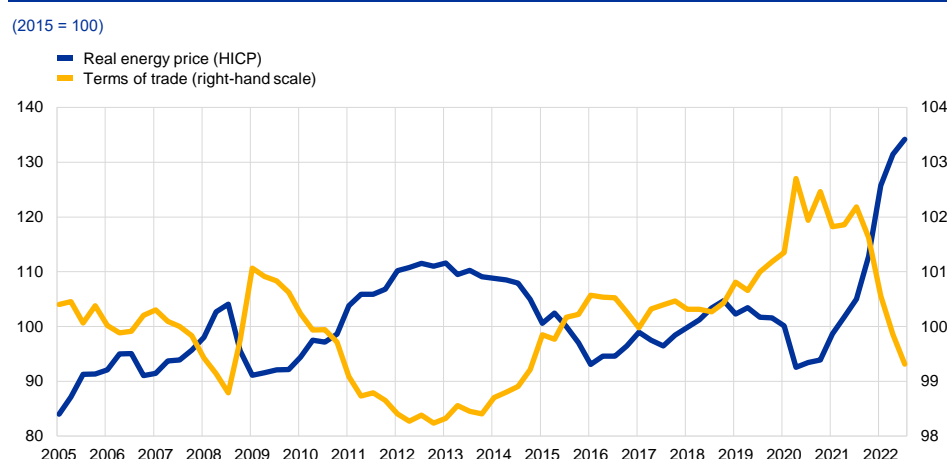
<sup>2</sup> See, for example, the article entitled “Energy prices and private consumption: what are the channels?”, *Economic Bulletin*, Issue 3, ECB, 2022.

<sup>3</sup> See the article entitled “Energy price developments in and out of the COVID-19 pandemic – from commodity prices to consumer prices”, *Economic Bulletin*, Issue 4, ECB, 2022.

**The recent sharp increase in energy prices has had a significant impact on households' real disposable income.** When assessing the impact of energy price changes on real private consumption, the ratio between the GDP deflator and the private consumption deflator (or between the income and the expenditure deflator) is a useful indicator. This measure of the terms of trade is well founded from a theoretical perspective and captures both direct channels (e.g. consumer prices) and indirect channels (e.g. wages) through which energy prices affect households' purchasing power.<sup>4</sup> In the euro area, this indicator is negatively correlated with real energy prices and has been declining sharply since the end of 2021, weighing significantly on households' real disposable income and affecting private consumption (Chart B).<sup>5</sup>

### Chart B

#### Real energy prices and the terms of trade



Sources: Eurostat, ECB and ECB calculations.

Notes: The "real energy price" indicates the ratio between the energy component of the HICP and the overall HICP index. The terms of trade are proxied by the ratio between the GDP deflator and the private consumption deflator.

**A structural vector autoregression (SVAR) model can be used to derive the impact of energy supply shocks on consumer spending.** The SVAR model includes the ratio between the GDP deflator and the private consumption deflator as an indicator of the terms of trade, the HICP, real GDP, the three-month EURIBOR and either total private consumption or consumption of durable goods, non-durable goods, or services. Sign restrictions on the impact responses of the model variables are used to identify structural economic drivers. In determining the energy supply shock, an unexpected deterioration in the supply of energy is modelled by assuming that an unexpected deterioration in the terms of trade (i.e. an increase in real energy

<sup>4</sup> For a detailed discussion, see the box entitled "Oil prices, the terms of trade and private consumption", *Economic Bulletin*, Issue 6, ECB, 2018.

<sup>5</sup> The terms of trade can also be affected by other factors (e.g. the nominal exchange rate, the prices of goods and services other than energy). Empirically, however, most of the variation in the euro area terms of trade is explained by energy prices. For a breakdown of the dynamics of household real disposable income into different sources of income and the terms of trade in periods when energy prices fluctuate sharply, see the article entitled "Energy prices and private consumption: what are the channels?", *Economic Bulletin*, Issue 3, ECB, 2022.

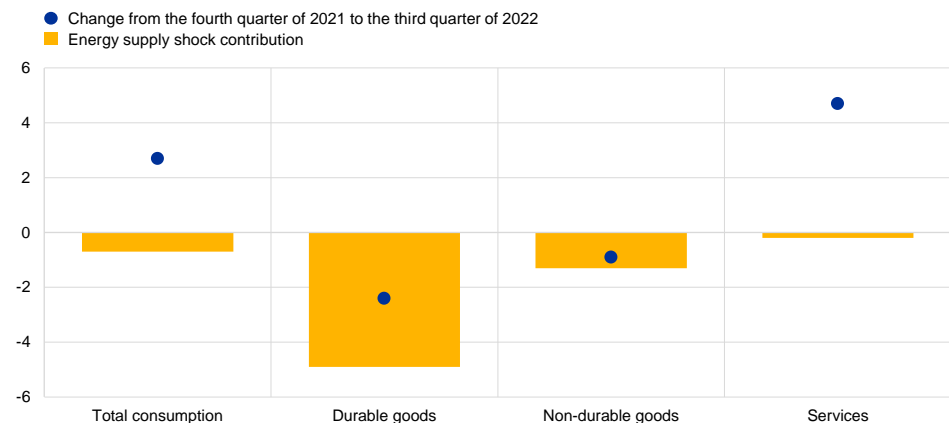
prices) leads to an immediate positive impact on inflation and an immediate negative effect on real economic activity and consumer spending.<sup>6</sup>

**Energy supply shocks have weighed considerably on real consumer spending in recent quarters, particularly on durable goods.** Total private consumption was significantly affected by energy supply shocks in recent quarters (Chart C). However, the individual consumption components were affected to varying degrees. Energy supply shocks only had a negligible negative impact on services consumption, meaning that this component increased substantially following the reopening of the economy in spring 2022. However, these shocks had a clear, larger negative effect on the consumption of non-durable goods, and in particular durable goods, reflecting weaknesses observed in recent quarters. The relatively strong reaction of durable goods consumption in response to the increase in energy prices is likely due to the fact that households are able to use their existing stock of durable goods without an immediate impact on their welfare.<sup>7</sup> Moreover, given the heightened uncertainty due to the energy price fluctuations, households may have decided to postpone irreversible purchases of durable goods.<sup>8</sup>

### Chart C

#### Impact of energy supply shocks on real consumer spending in the euro area

(percentage changes and percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: The results are based on four individual structural vector autoregression (SVAR) models identified with sign restrictions. Each model includes the ratio between the GDP deflator and the private consumption deflator as an indicator of the terms of trade, the HICP, real GDP, the three-month EURIBOR and either total private consumption or consumption of durable goods, non-durable goods, or services. The models are estimated using quarterly data (expressed as percentage changes against the previous quarter, except for the three-month EURIBOR). The sample covers the first quarter of 1999 to the fourth quarter of 2019 to prevent the extraordinary economic fluctuations during the COVID-19 pandemic from affecting the estimated model coefficients. Non-durable goods include semi-durable goods.

<sup>6</sup> The model also identifies an aggregate demand shock, an aggregate supply shock, a monetary policy shock and a residual shock to ensure that all other shocks in the model do not act like the energy price shock. The restrictions imposed are in line with the literature on identifying energy price shocks versus other structural shocks, see, for instance, Conti, A.M., Neri, S. and Nobili, A., “Low inflation and monetary policy in the euro area”, *Working Paper Series*, No 2005, ECB, 2017.

<sup>7</sup> See Browning, M. and Crossley, T.F., “Shocks, stocks, and socks: smoothing consumption over a temporary income loss”, *Journal of the European Economic Association*, Vol. 7, No 6, 2009.

<sup>8</sup> See Edelstein, P. and Kilian, L., “How sensitive are consumer expenditures to retail energy prices?”, *Journal of Monetary Economics*, Vol. 56, No 6, 2009, pp. 766-779. For an overview of the role played by durable goods as a cyclical driver of euro area consumption, see the article entitled “Consumption of durable goods in the euro area”, *Economic Bulletin*, Issue 5, ECB, 2020.

**Increased energy prices will continue to weigh on real consumer spending over the next quarters.** As energy prices and uncertainty have remained high, households' real disposable income is likely to wane further at the turn of the year, with negative effects on consumer spending, and particularly on durable goods, notwithstanding the likely positive impact of a further easing of supply bottlenecks. Despite its relative resilience to energy price increases, services consumption is also likely to weaken as reopening effects gradually fade. Overall, this points to significantly weaker consumption dynamics in the near term, in line with the December 2022 Eurosystem staff macroeconomic projections for the euro area.



## 4 Wage dynamics across euro area countries since the start of the pandemic

Prepared by Katalin Bodnár and Julien Le Roux

**The coronavirus (COVID-19) pandemic and the responses to it have heavily affected wage growth indicators in all euro area countries.**<sup>1</sup> This box examines cross-country developments in compensation per employee and per hour since the start of the pandemic. While the type of shock was the same across countries, it differed in its impact. This related to, among other things, the effects of the pandemic on different sectors, such as contact-intensive services (notably tourism). Similarly, while the type of response was the same across countries in that job protection schemes were put in place, these schemes differed strongly both in the way they were set up and in the share of workers participating in them. In general, at the start of the pandemic, the ensuing economic downturn caused a strong downward adjustment in labour input across countries, which, however, manifested itself largely in fewer hours worked per person rather than reductions in employment. In turn, against the partial compensation of hours not worked, this implies that compensation per employee generally decreased, while compensation per hour worked even increased temporarily.<sup>2</sup>

**Cross-country differences in job retention schemes contributed to the heterogeneity of labour market and wage developments.** The schemes differed in their set-up, coverage and the degree of subsidisation. In most countries, they took the form of short-time work or furlough schemes.<sup>3</sup> The main difference among the schemes was that in short-time work schemes, employees worked less than their contractually agreed hours, while in furlough schemes, employees did not work, but maintained their employment contract (“temporary lay-offs”).<sup>4</sup> In both instances, the compensation loss that would normally come with the reduction of hours worked per employee was fully or partially buffered by the respective national government. Most schemes envisaged compensation of only part of the full monthly salary, and the degree of support changed with the reduction of hours worked. Under short-time work schemes, financial support was paid to employers on the basis of the hours not worked by their employees, and employees received a percentage of their compensation independently of the hours they actually worked. These transfers were

<sup>1</sup> See also the article entitled “[Wage developments and their determinants since the start of the pandemic](#)” in this issue of the Economic Bulletin.

<sup>2</sup> See “[The impact of the COVID-19 pandemic on the euro area labour market](#)”, *Economic Bulletin*, Issue 8, ECB, 2020.

<sup>3</sup> For the classification of job retention schemes, see Drahokoupil, J. and Müller, T., “[Job retention schemes in Europe, A lifeline during the Covid-19 pandemic](#)”, *Working paper*, No 07, 2021, European Trade Union Institute, 2021, and Eurofound, “[COVID-19: Implications for employment and working life](#)”, COVID-19 series, Publications Office of the European Union, 2021. It is worth noting, however, that the classification of job retention schemes may vary slightly across publications. We use the system established by Drahokoupil and Müller. For the impact of the different types of job retention schemes on labour cost statistics, see Eurostat’s *Methodological note: Labour cost statistics - guidance note on the recording of government schemes related to the COVID-19 crisis*, 24 April 2020.

<sup>4</sup> “Temporary lay-off” refers to the situation wherein workers are considered unemployed but keep their employment contract with the company and can thus return to their previous position on unchanged terms.

therefore counted as part of the compensation of employees. By contrast, under furlough schemes, firms could use temporary lay-offs, and benefits were paid to the employees for their hours not worked, either directly by governments or through employers. These transfers were not counted as part of the compensation of employees.<sup>5</sup> Only a small number of countries used wage subsidy schemes, whereby the subsidies received by employers were not linked to changes in hours worked per employee.<sup>6</sup> Some euro area countries also ran different schemes in parallel, or changed their scheme during the pandemic crisis.

**Two and a half years after the pandemic started, the strong initial impact of hours worked per person on compensation per employee largely eased.** Chart A shows the percentage change in compensation per employee, comparing the pre-crisis level with the second quarter of 2020 (the trough of the crisis for most countries) and the third quarter of 2022 (the latest data point) respectively. The initial change was predominantly on the downside, ranging from -10.9% in Italy to 3.1% in the Netherlands (Chart A, panel a). Given the strongly reduced hours, compensation per hour generally increased. The change recorded in the third quarter of 2022 ranged between 2.9% in Greece and 29.3% in Estonia (Chart A, panel b). Comparing the most recent data with pre-pandemic data, compensation per hour was the main driver of the cumulative increases in compensation per employee across all countries. In some countries, this was accompanied by fewer hours worked per employee. This aggregate picture does not necessarily mean that the compensation per hour of individual workers has always increased. It might, among other factors, reflect the changing composition of employment. Neither the cumulative change of compensation per employee nor the decomposition of wages by compensation per hour and hours worked per employee are clearly linked to the type of job retention scheme put in place. Other factors, such as the specific conditions of the schemes (in terms of eligibility criteria, sectoral coverage, duration, etc.) were more important for the degree of adjustment of labour input and wages. For example, the adjustment in hours worked per employee after the start of the pandemic tended to be larger when the scheme included the option or the requirement to work zero hours.<sup>7</sup>

---

<sup>5</sup> See “[Short-time work schemes and their effects on wages and disposable income](#)”, *Economic Bulletin*, Issue 4, ECB, 2020.

<sup>6</sup> The Netherlands had a hybrid system where the size of the subsidy was proportional to the decline in revenue. See also, “[Job retention schemes during the COVID-19 lockdown and beyond](#)”, OECD, 2020.

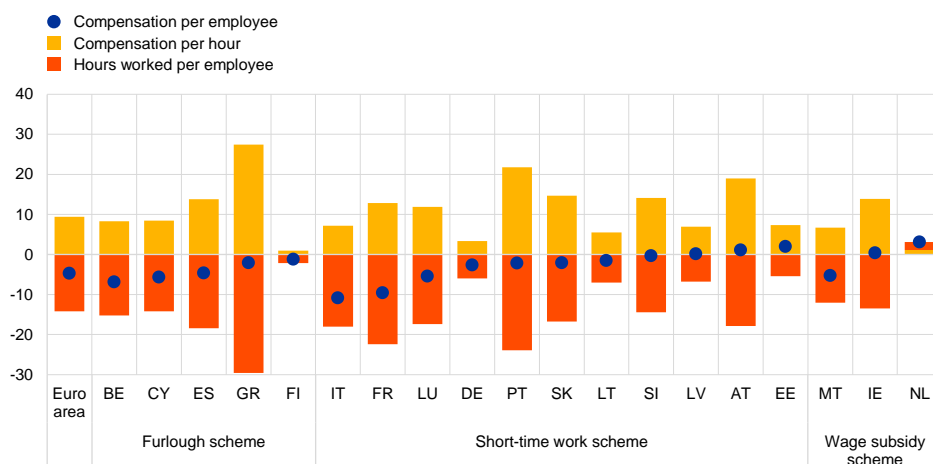
<sup>7</sup> Other factors also affected the adjustment of labour input; for example, employment was relatively large in Spain where the share of temporary contracts is large.

## Chart A

### Compensation per employee and its decomposition during the pandemic

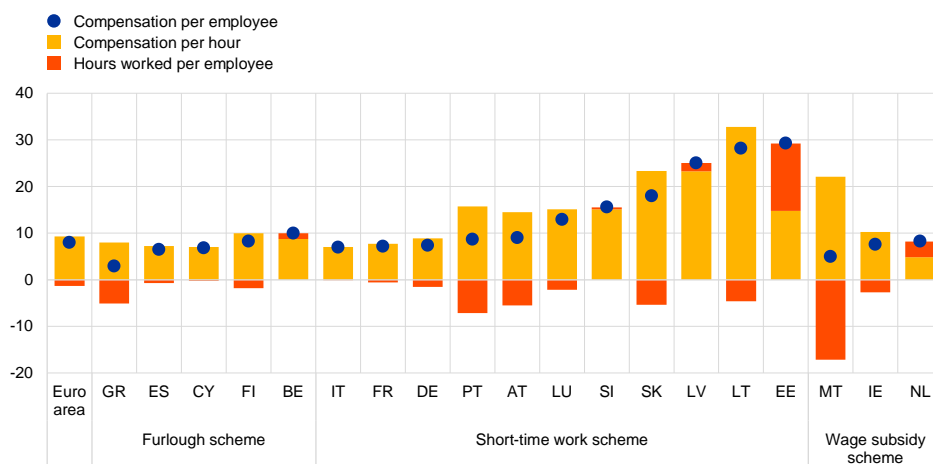
#### a) Change in the second quarter of 2020 compared with the fourth quarter of 2019

(percentage growth and percentage point contributions)



#### b) Change in the third quarter of 2022 compared with the fourth quarter of 2019

(percentage growth and percentage point contributions)



Sources: Eurostat and ECB staff calculations.

Note: The latest observations are for the first quarter of 2022 for Ireland, the second quarter for Italy and the Netherlands and the third quarter for the other countries.

**Despite the size of the pandemic shock and the different impact it is likely to have had across sectors, sectoral compositional changes in wage growth in fact appear limited across countries.** Given that the shock was historical in size, it might have been expected that the changes in the composition of the workforce would affect aggregate wage growth. This is the case, for instance, whenever a shock hits higher and lower wage sectors to different degrees. Given the lack of detailed comparable microdata across countries for the pandemic period, these changes can only be examined at the broad sectoral levels available in national accounts. These show that in most countries, the implied compositional effects on overall wage growth remained small (Chart B).<sup>8</sup> They led to an increase in wage

<sup>8</sup> This is also in line with the findings for the global financial crisis. See “The effects of changes in the composition of employment on euro area wage growth”, *Economic Bulletin*, Issue 8, ECB, 2019.

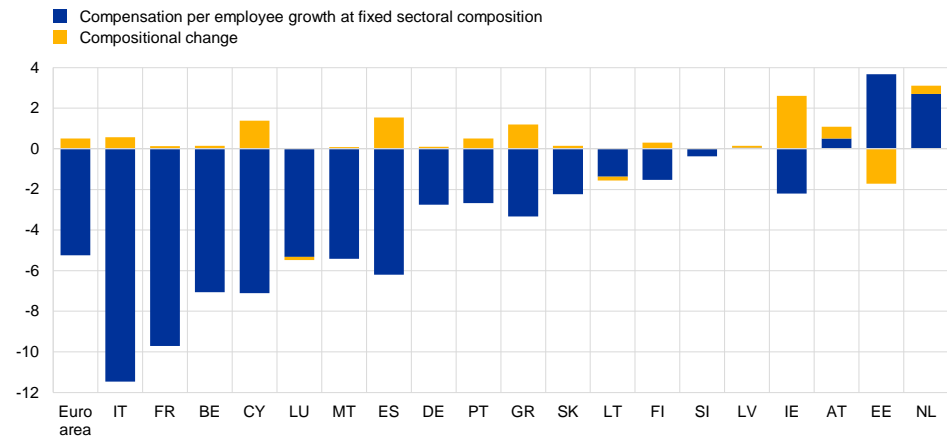
growth as the employment share of sectors with lower wage levels – primarily in contact-intensive services – decreased, while that of higher-level wage sectors – more often non-contact intensive sectors – increased.<sup>9</sup>

### Chart B

#### Sectoral compositional effects in compensation per employee growth

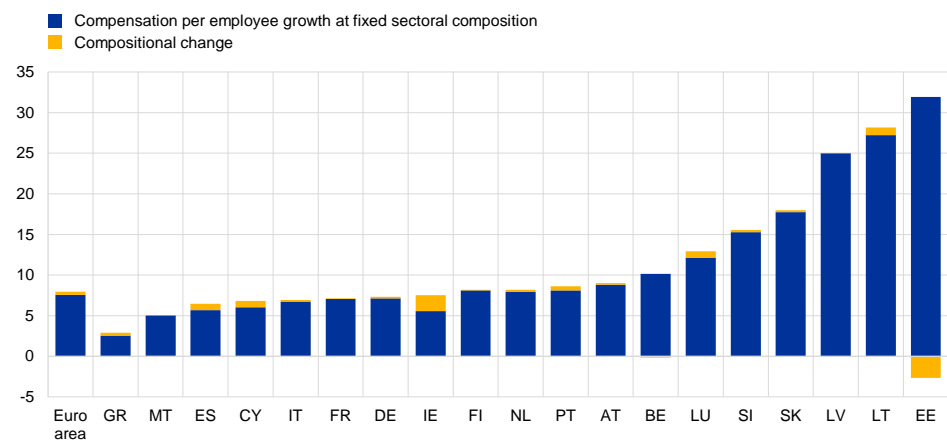
##### a) Second quarter of 2020 compared with fourth quarter of 2019

(percentage change)



##### b) Third quarter of 2022 compared with fourth quarter of 2019

(percentage change)



Sources: Eurostat and ECB staff calculations.

Notes: The latest observations are for the first quarter of 2022 for Ireland, the second quarter for Italy and the Netherlands and the third quarter for the other countries. Compensation per employee growth at fixed sectoral composition is calculated using the sectoral employment weights unchanged in the fourth quarter of 2019. NACE 10 sectors are used for this calculation.

**The impact of job retention schemes masked that of the typical determinants of wage inflation, such as productivity growth or the degree of labour market tightness.** Nevertheless, these factors were still operating in the background and may help explain the different magnitudes of wage growth.<sup>10</sup> For instance, the strong

<sup>9</sup> Similarly, compositional changes in compensation per hour growth remained limited, albeit they were, on balance, larger than those for compensation per employee.

<sup>10</sup> See “The impact of the COVID-19 pandemic on labour productivity growth”, *Economic Bulletin*, Issue 7, ECB, 2021. The capital deepening – and investment – which is a determinant of labour productivity contrasted somewhat across countries during the COVID-19 pandemic, see, for instance the article entitled “The recovery in business investment – drivers, opportunities, challenges and risks”, *Economic Bulletin*, Issue 5, ECB, 2022.

productivity gains observed in the Baltic States may have supported strong wage increases once the immediate pandemic effects subsided.<sup>11</sup> Similarly, different labour market situations – due, for example, to some sectoral specialisation or demographic factors – may have led to different wage changes. As such, in the countries with the highest unemployment rates, wage growth has also been the most moderate over the entire post-pandemic period. However, establishing a robust relationship between wages, productivity and labour market slack is challenging given the distortions at play, as well as differing pre-pandemic labour market institutions and conditions.

**Amid the pandemic recovery, the distorting impact that job retention schemes have had on wage growth has started to fade across euro area countries.** While workers under job retention schemes made up more than 15% of the euro area labour force in the second quarter of 2020, this share is now assessed to be less than 1% in the third quarter of 2022, thereby contributing to a smaller distortion in wage measurement. However, as the pandemic has receded, the surge in inflation has come into play in all countries as a factor affecting wage growth, with strong heterogeneity in the magnitudes of inflation and pass-through to wages across countries. These differences stem from wage setting and other structural features, different government measures affecting inflation, wages and the differing cyclical positions of countries. Those factors could again be a renewed source of cross-country differences in wage developments in the future.

---

<sup>11</sup> See, for example, “Diagnostic of Estonia, Latvia and Lithuania”, European Bank for Reconstruction and Development, April 2022.

## 5 Firms' access to finance and the business cycle: evidence from the SAFE

Prepared by Giada Durante, Annalisa Ferrando, Asger Munch Gronlund and Timo Reinelt

**This box explores how financing gaps faced by euro area firms and these firms' expectations about the future availability of finance relate to current and future macroeconomic outcomes.** The ongoing monetary policy normalisation is gradually tightening financing conditions and influencing the supply of external finance as part of the standard transmission of monetary policy. A key question is the impact of changes in financing conditions and access to finance on firm-specific and aggregate growth. The [Survey on the Access to Finance of Enterprises \(SAFE\)](#) provides detailed information about the financing conditions for euro area firms. The SAFE has been conducted biannually since 2009 and surveys around ten thousand firms across the euro area. This box analyses the link between macroeconomic developments and two key indicators in the SAFE: the change in the external financing gap, defined as the difference between the change in demand for and the change in the availability of external financing, and the change in firms' expectations about the availability of bank loans.<sup>1</sup>

**At the current juncture, euro area firms report a widening of their financing gaps and expect a decline in the future availability of bank loans (Chart A).** Since the inception of the SAFE in 2009, there has generally been an inverse relation between changes in the financing gap and expectations about the future availability of bank loans. Moreover, an expansion of euro area activity (i.e. positive real GDP growth rates) has usually coincided with declining financing gaps for firms, as well as greater optimism on the part of firms about the future availability of bank loans. The evolution of these indicators has in the past been influenced by the euro area business cycle as well as by the ECB's monetary policy. During the 2011-2013 sovereign debt crisis the financing gaps of euro area firms increased markedly, indicating the difficulties faced by firms in covering their external financing needs. Subsequently, supported by monetary policy easing by the ECB, financing gaps gradually decreased and expectations about the availability of bank loans improved. After the outbreak of the coronavirus (COVID-19) pandemic in 2020, financing conditions deteriorated sharply but were again stabilised by monetary policy and public sector support. The deterioration was therefore only temporary. Most recently, against the backdrop of weakening economic growth, rising inflation and monetary policy normalisation, firms have started to signal widening financing gaps and expect a reduced availability of bank loans for the period from October 2022 to March 2023.

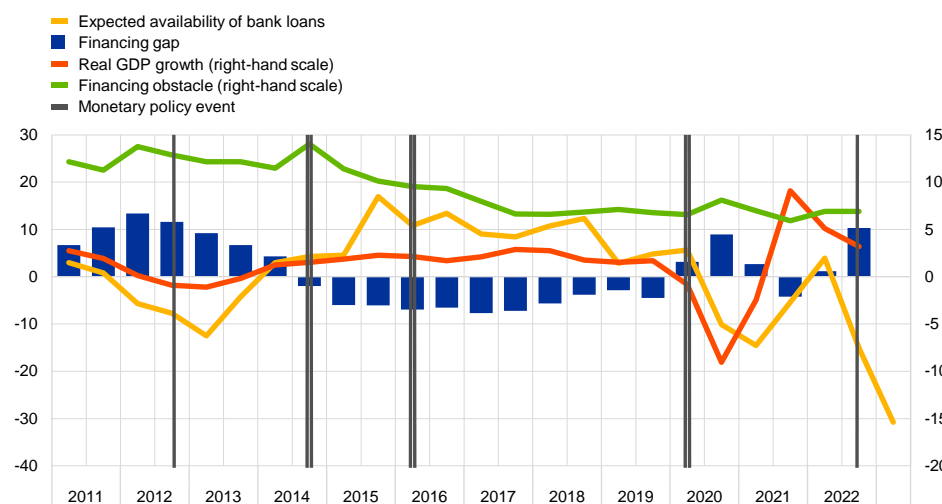
---

<sup>1</sup> Bank loans are the most widely used source of external finance for euro area firms.

## Chart A

### Changes in the financing gap, expected availability of bank loans and financing obstacles as reported by euro area enterprises and development of euro area real GDP growth

(weighted net balances of external financing gap, net percentage changes in the expected availability of finance, annualised percentage changes)



Sources: ECB and European Commission Survey on the Access to Finance of Enterprises (SAFE) and Eurostat.

Notes: The financing gap indicator combines both financing needs and the availability of bank loans at firm level. For each of the five financing instruments, the indicator of the perceived change in the financing gap takes a value of 1 (-1) if the need increases (decreases) and availability decreases (increases). If enterprises perceive only a one-sided increase (decrease) in the financing gap, the variable is assigned a value of 0.5 (-0.5). A positive value for the indicator points to an increase in the financing gap. Values are multiplied by 100 to obtain weighted net balances in percentages. The first vertical grey line denotes the announcement of the Outright Monetary Transactions; the second vertical grey line denotes the start of the first series of targeted longer-term refinancing operations (TLTRO I) and the negative interest rate policy; the third vertical grey line denotes the start of TLTRO II and the corporate sector purchase programme; the fourth one denotes the start of the pandemic emergency purchase programme and TLTRO III; and the last vertical grey vertical line denotes the rise of the three key ECB interest rates by 50 basis points and approval of the Transmission Protection Instrument (TPI) in July 2022.

**However, despite the recent increases in the cost of borrowing, euro area firms were still not particularly concerned about access to finance (Chart A).** In the latest survey round, the percentage of firms reporting obstacles to obtaining bank loans remained broadly unchanged compared to previous survey rounds, mainly supported by banks' unchanged willingness to provide credit.<sup>2</sup>

**A tightening of monetary policy increases firms' financing gaps and lowers their expectations about the future availability of bank loans (Chart B).** An econometric exercise allows for a more quantitative assessment of the transmission of monetary policy to firms' financing conditions. This is done using local projections<sup>3</sup>, which estimate the response of firms' financing gaps and their expectations about the future availability of bank loans (measured at the aggregate level by net balances

<sup>2</sup> The financing obstacles indicator is the sum of the percentages of firms reporting the rejection of loan applications, loan applications for which only a partial amount was granted, and loan applications which resulted in an offer that was declined by the firms because the borrowing costs were too high, as well as the percentage of firms that did not apply for a loan for fear of rejection. See [Survey on the Access to Finance of Enterprises in the euro area – October 2021 to March 2022](#), ECB, June 2022.

<sup>3</sup> See Jorda, Oscar, "Estimation and inference of impulse responses by local projections," *American Economic Review*, Vol. 95, No 1, March 2005, pp. 161–182.

across firms) to identified monetary policy shocks<sup>4</sup>. Monetary policy shocks are measured here by the target factor of Altavilla et al. (2019), which captures surprises in interest rates at the short end of the yield curve around ECB monetary policy announcements.<sup>5</sup> Chart B shows that monetary policy shocks have a significant effect on firms' financing gaps and expectations about the future availability of bank loans within a two-year horizon. Specifically, a monetary policy shock of one standard deviation, which is equivalent to a 4 basis point shock to the one-month OIS rate, is estimated to increase the average firm's financing gap by around 3 percentage points over six months.<sup>6</sup> In comparison, the standard deviation of the change in the financing gap has been 7% since 2009. The same shock results in a 5-percentage-point drop in the net share of firms expecting an increase in the availability of bank loans. The effects are persistent until up to two years after the shock, indicating how monetary policy affects financing conditions of firms through the supply of credit. These findings confirm those of previous studies that funding expectations play an important role in the bank lending channel of monetary policy.<sup>7</sup> Once actual credit conditions change, the interplay between changes in the availability and demand for bank loans is affected as well.

---

<sup>4</sup> The local projection is executed by performing a sequence of regressions specified by  $y_{t+h} - y_{t-1} = \alpha^h + b^h \varepsilon_t^{MP} + u_t^h$  for  $h = 0, \dots, 4$ , where  $y_t$  are changes in the financing gap or expectations about finance, respectively, based on SAFE in wave  $t$ . The coefficients  $\{b^h\}$  reflect the impulse-response function of the financing gap or expectations of future bank loan availability to an identified monetary policy shock  $\varepsilon_t^{MP}$ .

<sup>5</sup> The shock is suitable in this context, as non-financial corporations typically rely on bank funding with interest rates fixed for less than one year. In our sample, the target factor ranges from -8.6 to 10.4 basis points. See Altavilla, C., Brugnolini, L., Gurkaynak, R. S., Motto, R., and Ragusa, G., "[Measuring euro area monetary policy](#)", *Journal of Monetary Economics*, Vol. 108, December 2019, pp. 162–179.

<sup>6</sup> To put this into perspective, the largest monetary policy shock to the one-month OIS is around 10 basis points over the sample considered.

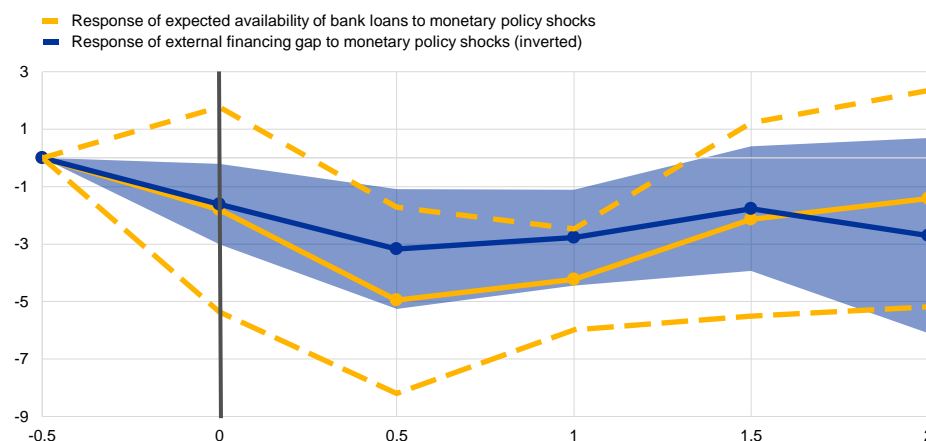
<sup>7</sup> See Ferrando, A., Popov, A. and Udell, G., "[Unconventional monetary policy, funding expectations and firm decisions](#)", *European Economic Review*, Vol. 149, October 2022.



## Chart B

### Response of firms' financing gaps and expectations of the future availability of bank loans to an identified monetary policy shock

(horizontal axis: years after shock, vertical axis: percentage point changes relative to period before the shock)



Sources: ECB and European Commission Survey on the Access to Finance of Enterprises (SAFE), Altavilla et al. (2019), ECB calculations.

Notes: Response of firms' financing gaps and the net percentage of firms reporting an expected increase in the availability of bank loans over the next six months after a one-standard-deviation monetary policy shock. The shock used is the target factor from Altavilla et al. (2019), capturing monetary policy surprises in the very short end of the OIS curve in and around ECB monetary policy announcements. The effect of the monetary policy shocks on SAFE variables are estimated using local projections (Jorda, 2005). The shaded and dotted areas are 95% confidence bands based on Newey-West.

**When financing gaps increase, firms tend to be more concerned about future access to finance, suggesting that changes in financing gaps matter for firms' growth prospects (Chart C).** To assess whether changing financing conditions affect the real economy, a natural test is to analyse their effect on business sentiment. The SAFE measures business sentiment by asking firms to indicate to what extent they are concerned about access to finance.<sup>8</sup> Overall, firms have not considered access to finance to be their main concern in recent years, likely due to the extended period of monetary accommodation.<sup>9</sup> However, this might change as monetary policy is being normalised. Firm-level data is used to study the relationship between financing gaps and firms' concerns about access to finance. Chart C shows the correlation between the financing gaps and levels of concern regarding access to finance. This is done by grouping firms' replies since 2009 into bins according to their rating of access to finance as a concern, after having removed common variation within countries and time periods and computing the bin-specific average level of concern about finance. The positive correlation indicates that firms with large financing gaps perceive access to finance as a more pressing concern. Financing gaps therefore appear relevant to firms' overall sentiment and may plausibly affect their future growth prospects.

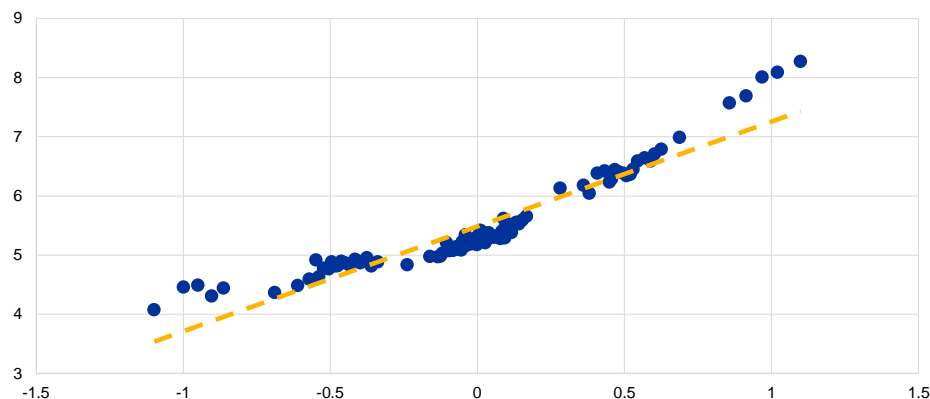
<sup>8</sup> Firms provide an answer on a scale of 1 (not at all important) to 10 (extremely important) regarding finance, as well as a selection of other problems. The derived indicator is normally used to detect the relative importance of financing with respect to other problems affecting firms, such as increasing costs of production or labour or difficulties finding customers.

<sup>9</sup> See [Survey on the Access to Finance of Enterprises in the euro area – October 2021 to March 2022](#), ECB, June 2022.

### Chart C

#### Relationship between concerns about access to finance and financing gaps at the firm level

(horizontal axis: residualised change in external financing gap, vertical axis: residualised degree of concern)



Sources: ECB and European Commission Survey on the Access to Finance of Enterprises (SAFE), ECB calculations.

Notes: Binned scatterplot of the financing gap for bank loans against the degree to which firms are concerned about access to finance, conditional on country-by-time fixed effects.

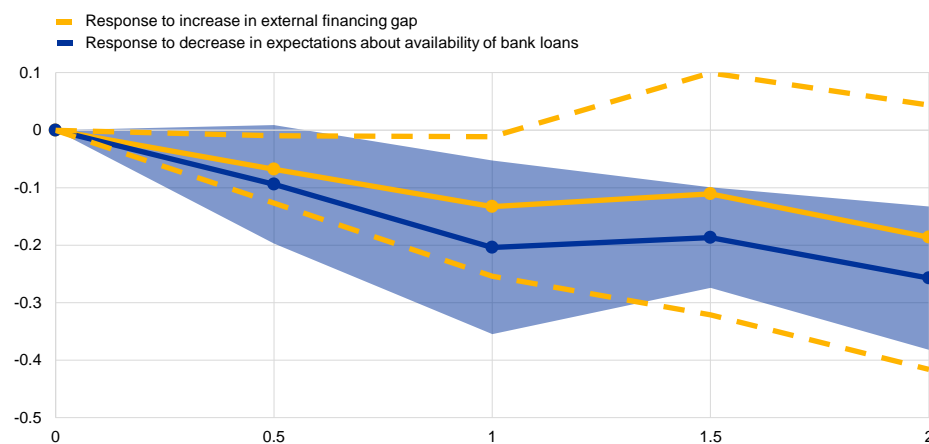
**Financing gaps and expectations about the availability of bank loans are related to current and future real GDP growth.** Although firms' availability of external financing affects their business sentiment, it is important to investigate how they are related to macroeconomic outcomes. The average evolution of euro area GDP growth following net changes in financing gaps and expectations from the SAFE as measures of changes in financing conditions is estimated using local projections.<sup>10</sup> Although the estimates cannot be considered causal effects, they provide an indication of average future developments after a given change in the SAFE measures. Chart D shows that after a 1 percentage point increase in the financing gap indicator or a decrease in the balance of expectations about the future availability of bank loans, real GDP in the euro area declines on average by about 0.2% more in the subsequent year relative to no change in these financing indicators, with some modest further effect during the subsequent year. These effects are estimated conditional on current and lagged GDP growth, thereby using the informational content contained in SAFE above and beyond currently observable developments in the business cycle. The estimated effects are persistent, especially when considering changes in firms' expectations about the availability of finance. This suggests that forward-looking variables, a unique feature of the SAFE, contain useful information for understanding the future development of the euro area economy.

<sup>10</sup> For a related exercise assessing how information from the Bank Lending Survey relates to future lending volumes, please see the box entitled "[What information does the euro area bank lending survey provide on future loan developments?](#)", *Economic Bulletin*, Issue 8, ECB, 2022.

### Chart D

#### Average evolution of euro area real GDP after a deterioration in financing conditions or in the expected availability of bank loans, relative to no deterioration

(horizontal axis: years after shock, vertical axis: cumulated growth in percent relative to period before the shock)



Sources: ECB and European Commission Survey on the Access to Finance of Enterprises (SAFE), ECB calculations.

Notes: Average evolution of euro area real GDP growth in cumulated terms after changes in firms' financing gaps and the net percentage of firms reporting an expected increase in the availability of bank loans. The local projections (Jorda, 2005) include current and past GDP growth as control variables. The shaded and dotted areas are 95% confidence bands based on Newey-West.

## 6 Liquidity conditions and monetary policy operations from 27 July to 1 November 2022

Prepared by Juliane Kinsele and Christian Lizarazo

**This box describes liquidity conditions and the ECB's monetary policy operations during the fifth and sixth reserve maintenance periods of 2022.**

Together, these two maintenance periods ran from 27 July to 1 November 2022 (the “review period”), thus covering the period when the ECB's policy rate hikes came into effect.

**When the period of negative policy rates ended in July 2022, there were changes in various autonomous factors, notably including government deposits, which altered the composition of excess liquidity.** Net autonomous factors declined and a rebalancing in the Eurosystem balance sheet occurred when the ECB raised its key policy rates by 50 basis points in the fifth maintenance period, which ended the period of negative policy rates, and increased them by a further 75 basis points in the sixth maintenance period.

**Average excess liquidity in the euro area banking system rose by €46.5 billion during the fifth and sixth maintenance periods of 2022 to reach a record level of €4,569.7 billion.** The overall increase was mainly driven by a decline in liquidity-absorbing autonomous factors. The increase took place primarily in the fifth maintenance period, in view of the widely anticipated increase of the deposit facility rate to positive territory as of the sixth maintenance period. At the same time, liquidity provided through monetary policy instruments declined over the review period.

### Liquidity needs

**The average daily liquidity needs of the banking system, defined as the sum of net autonomous factors and reserve requirements, decreased by €96.2 billion to €2,506.6 billion in the review period.** The decrease compared with the two previous maintenance periods was almost entirely due to a fall of €100 billion in net autonomous factors to €2,343.7 billion, which in turn was driven by a decline in liquidity-absorbing autonomous factors (see the part of Table A entitled “Other liquidity-based information”). At the same time, there was only a marginal increase, of €3.8 billion, in minimum reserve requirements to €162.9 billion.

**Liquidity-absorbing autonomous factors were affected during the review period by the raising of ECB policy rates, causing them to decline by €105.3 billion to €3,280 billion, mainly on account of lower government deposits and banknotes in circulation.** Government deposits (see the part of Table A entitled “Liabilities”) fell by €97.4 billion on average over the review period to €545.3 billion, with most of the decline taking place in the fifth maintenance period. When the negative policy rate environment ended in July 2022 and in expectation of the deposit facility rate being raised to a positive level at the September meeting of the

ECB's Governing Council, debt management offices opted to reduce their liquidity buffers with the Eurosystem and sought alternative arrangements to place funds. With the further hike in September of policy rates, and of the deposit facility rate to 0.75% in particular, the Governing Council decided to temporarily remove the zero interest rate ceiling for the remuneration of government deposits and to instead remunerate these deposits at the lower of the deposit facility rate or the euro short-term rate (€STR). This measure is intended to remain in place until 30 April 2023. The decision had the intended effect of preventing an abrupt further outflow of government deposits to the market, which could have impaired policy transmission and orderly market functioning. As a consequence of this measure, the further decline in average government deposits, of €17.2 billion to €536.7 billion, was only moderate in the sixth maintenance period. Average banknotes in circulation decreased by €22.3 billion over the review period to €1,574.5 billion. The end of the negative policy rate environment has in particular led banks to reduce their banknote holdings. Previously, banks had increased the amounts of vault cash they held amid negative policy rates. With the deposit facility rate now in positive territory, these holdings have an opportunity cost, inducing banks to optimise their cash management and swiftly reduce their vault cash holdings by around €40 billion between the end of June and the end of October. The release of liquidity through lower government deposits and banknotes in circulation was only marginally offset by other autonomous factors, which increased by €14.5 billion in the review period to €1,160.2 billion.

**Liquidity-providing autonomous factors declined by a slight €5.4 billion to €936.6 billion.** The rise of €14.6 billion in net foreign assets was more than offset by the decline in net assets denominated in euro.

Table A provides an overview of the autonomous factors<sup>1</sup> discussed above and their changes.

---

<sup>1</sup> For further details on autonomous factors, see the article entitled “[The liquidity management of the ECB](#)”, *Monthly Bulletin*, ECB, May 2002.

**Table A**  
Eurosystem liquidity conditions

**Liabilities**

(averages; EUR billions)

	Current review period: 27 July-1 November 2022						Previous review period: 20 April- 26 July 2022	
	Fifth and sixth maintenance periods		Fifth maintenance period: 27 July- 13 September		Sixth maintenance period: 14 September- 1 November		Third and fourth maintenance periods	
<b>Liquidity-absorbing autonomous factors</b>	3,280.0	(-105.3)	3,329.7	(-106.7)	3,230.3	(-99.4)	3,385.3	(+63.4)
Banknotes in circulation	1,574.5	(-22.3)	1,585.3	(-18.6)	1,563.7	(-21.6)	1,596.9	(+33.6)
Government deposits	545.3	(-97.4)	553.9	(-113.7)	536.7	(-17.2)	642.7	(-12.4)
Other autonomous factors (net) <sup>1)</sup>	1,160.2	(+14.5)	1,190.5	(+25.6)	1,129.9	(-60.6)	1,145.7	(+42.3)
<b>Current accounts above minimum reserve requirements</b>	<b>1,971.2</b>	<b>(-1,871.8)</b>	<b>3,774.7</b>	<b>(-7.8)</b>	<b>167.6</b>	<b>(-3,607.1)</b>	<b>3,843.0</b>	<b>(+84.3)</b>
<b>Minimum reserve requirements<sup>2)</sup></b>	162.9	(+3.8)	161.4	(+0.5)	164.4	(+3.0)	159.1	(+3.7)
<b>Deposit facility</b>	2,598.5	(+1,918.3)	707.0	(+28.3)	4,490.0	(+3,783.0)	680.2	(-50.2)
<b>Liquidity-absorbing fine-tuning operations</b>	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. With the suspension of the tier-two system, information on the exemption allowance has been removed from the table.

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

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

**Assets**

(averages; EUR billions)

	Current review period: 27 July-1 November 2022						Previous review period: 20 April- 26 July 2022	
	Fifth and sixth maintenance periods		Fifth maintenance period: 27 July- 13 September		Sixth maintenance period: 14 September- 1 November		Third and fourth maintenance periods	
<b>Liquidity-providing autonomous factors</b>	<b>936.6</b>	<b>(-5.4)</b>	<b>891.7</b>	<b>(-58.0)</b>	<b>981.6</b>	<b>(+89.8)</b>	<b>942.0</b>	<b>(+42.0)</b>
Net foreign assets	952.9	(+14.6)	950.1	(+6.3)	955.8	(+5.7)	938.3	(+38.1)
Net assets denominated in euro	-16.3	(-20.0)	-58.3	(-64.3)	25.8	(+84.1)	3.7	(+3.9)
<b>Monetary policy instruments</b>	<b>7,076.3</b>	<b>(-49.6)</b>	<b>7,081.4</b>	<b>(-27.7)</b>	<b>7,071.0</b>	<b>(-10.4)</b>	<b>7,125.9</b>	<b>(+59.5)</b>
Open market operations	7,076.3	(-49.6)	7,081.4	(-27.7)	7,071.0	(-10.4)	7,125.9	(+59.5)
Credit operations	2,124.7	(-53.7)	2,126.6	(-23.7)	2,122.7	(-3.9)	2,178.3	(-22.5)
MROs	2.8	(+2.1)	1.7	(+0.7)	4.0	(+2.2)	0.7	(+0.4)
Three-month LTROs	1.2	(+0.9)	0.8	(+0.4)	1.6	(+0.8)	0.3	(+0.2)
TLTRO III operations	2,118.7	(-55.9)	2,121.7	(-24.7)	2,115.7	(-6.0)	2,174.6	(-22.6)
PELTROs	2.0	(-0.8)	2.4	(-0.2)	1.5	(-0.9)	2.8	(-0.4)
Outright portfolios <sup>1)</sup>	4,951.6	(+4.0)	4,954.8	(-4.0)	4,948.3	(-6.6)	4,947.6	(+82.0)
Marginal lending facility	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)	0.0	(-0.0)

Source: ECB.

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

1) With the discontinuation of net asset purchases, the individual breakdown of outright portfolios is no longer shown.

## Other liquidity-based information

(averages; EUR billions)

	Current review period: 27 July-1 November 2022						Previous review period: 20 April- 26 July 2022	
	Fifth and sixth maintenance periods		Fifth maintenance period: 27 July- 13 September		Sixth maintenance period: 14 September- 1 November		Third and fourth maintenance periods	
Aggregate liquidity needs <sup>1)</sup>	2,506.6	(-96.2)	2,599.7	(-48.3)	2,413.4	(-186.4)	2,602.8	(+25.3)
Net autonomous factors <sup>2)</sup>	2,343.7	(-100.0)	2,438.3	(-48.8)	2,249.0	(-189.3)	2,443.7	(+21.6)
Excess liquidity <sup>3)</sup>	4,569.7	(+46.5)	4,481.7	(+20.6)	4,657.6	(+175.9)	4,523.1	(+34.1)

Source: ECB.

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

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

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

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

## Interest rate developments

(averages; percentages and percentage points)

	Current review period: 27 July-1 November 2022						Previous review period: 20 April- 26 July 2022	
	Fifth and sixth maintenance periods		Fifth maintenance period: 27 July- 13 September		Sixth maintenance period: 14 September- 1 November		Third and fourth maintenance periods	
MROs	0.88	(+0.88)	0.50	(+0.50)	1.25	(+0.75)	0.00	(+0.00)
Marginal lending facility	1.13	(+0.88)	0.75	(+0.50)	1.50	(+0.75)	0.25	(+0.00)
Deposit facility	0.38	(+0.88)	0.00	(+0.50)	0.75	(+0.75)	-0.50	(+0.00)
€STR	0.286	(+0.869)	-0.085	(+0.496)	0.657	(+0.742)	-0.583	(-0.004)
RepoFunds Rate Euro Index	0.148	(+0.794)	-0.162	(+0.489)	0.459	(+0.621)	-0.646	(-0.008)

Source: ECB.

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

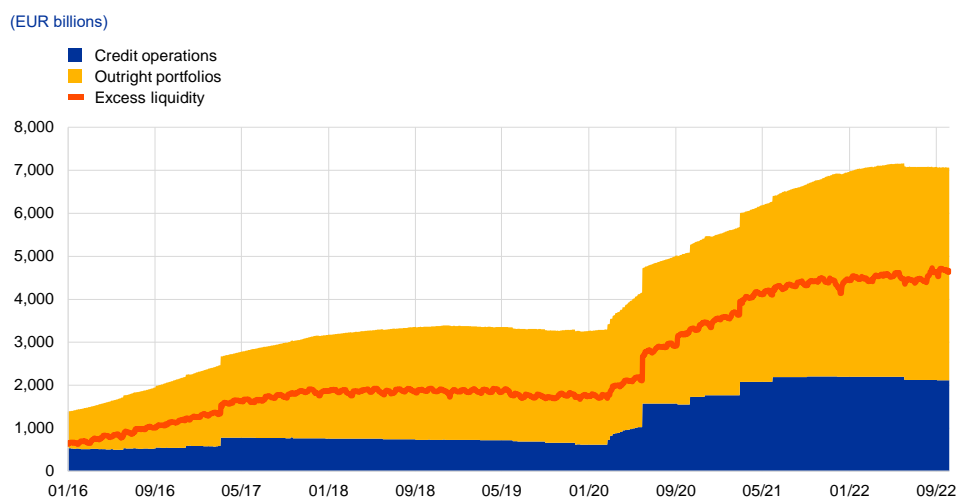
## Liquidity provided through monetary policy instruments

**The average amount of liquidity provided through monetary policy instruments decreased by €49.6 billion to €7,076.3 billion during the review period (Chart A).** The reduction in liquidity was mainly driven by the decline in credit operations as a result of voluntary repayments of TLTRO III funds. Net asset purchases under the ECB's pandemic emergency purchase programme (PEPP) were discontinued at the end of March and under its asset purchase programme (APP) on 1 July 2022, meaning that outright portfolios no longer provide any additional liquidity.<sup>2</sup>

<sup>2</sup> Even though net purchases ended in the previous review period, the full effect on period averages is still visible in the current review period. Furthermore, securities held in the portfolio are carried at amortised cost and revalued at the end of each quarter, which also has an impact on the total averages and the changes in the outright portfolios.

## Chart A

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



Source: ECB.

Note: The latest observation is for 1 November 2022.

### The average amount of liquidity provided through credit operations decreased by €53.7 billion during the review period.

This decrease mainly reflects the voluntary TLTRO III repayments of €74.0 billion and €6.5 billion made at the end of June and September respectively, together with the amount of €1.9 billion from a TLTRO III tender maturing in September. Even though the settlement of €74.0 billion in TLTRO III repayments took place in the fourth maintenance period, the full effect on period averages became visible in the fifth maintenance period. The maturing PELTRO amounts of €0.5 billion and €1.3 billion at the end of June and September respectively made only a marginal contribution to the decline in the review period. With average increases of €2.1 billion and €0.9 billion respectively, the main refinancing operations (MROs) and three-month LTROs only offset a small part of the liquidity drained by TLTRO III repayments and PELTRO maturities.

## Excess liquidity

**Average excess liquidity increased by €46.5 billion to reach a new record high of €4,569.7 billion (Chart A).** Excess liquidity is the sum of banks' reserves above the reserve requirements and the recourse to the deposit facility net of the recourse to the marginal lending facility. It reflects the difference between the total liquidity provided to the banking system and banks' liquidity needs.

**When the ECB started raising its policy rates, banks began to shift the allocation of excess liquidity holdings between their current accounts with the Eurosystem and the deposit facility.** Until the ECB lifted the deposit facility rate above zero, the remuneration of liquidity placed in the deposit facility was the same as the remuneration of liquidity placed in the current accounts in excess of the exempted excess reserves under the two-tier system. When the ECB lifted the deposit facility rate to 0.75% as of 14 September 2022, the reserves in current



accounts in excess of the minimum reserve requirements continued to be remunerated at 0%.<sup>3</sup> To benefit from the positive deposit facility rate, banks needed to shift their excess reserves from their current accounts to the deposit facility. As a result, average current account holdings decreased by €3,607.1 billion during the sixth maintenance period, while average use of the deposit facility increased by €3,783 billion. The difference between the two figures is explained by the rise in average excess liquidity due to lower liquidity-absorbing autonomous factors. Average current account holdings in excess of minimum reserves amounted to €167.6 billion in the sixth maintenance period, representing approximately twice as much liquidity as strictly needed to fulfil the minimum reserve requirements of €164.4 billion. This may be the result of temporary operational frictions that are expected to be addressed over time to minimise excess reserves remunerated at 0%.

**The ECB suspended its two-tier system for remunerating excess reserves.** This system, under which average excess reserves up to six times the minimum reserve requirements were exempted from the negative deposit facility rate, had effectively become redundant when the period of negative interest rates ended in July. After raising the deposit facility rate above zero in September, the ECB decided to suspend the two-tier system by setting the multiplier to zero.

## Interest rate developments

**The average €STR increased by 87 basis points over the review period to 0.29% per annum.** The pass-through of the ECB policy rate hikes in July and September to the unsecured money market was broadly complete and immediate. On average, the €STR traded at 8.5 and 9.3 basis points below the respective deposit facility rate during the fifth and sixth maintenance periods.

**The average euro area repo rate, measured by the RepoFunds Rate Euro Index, increased by almost 79.4 basis points to 0.148% during the review period.** The pass-through to the secured money market was less smooth than to the unsecured money market. This was particularly the case for the September policy rate hike. The high uncertainty around any change in behaviour by market participants during the normalisation of the interest rate environment, coupled with associated shifts in investment flows, exerted downward pressure on repo rates for transactions motivated by the need to park cash. The tensions in the repo market proved to be transitory, however, and were concentrated mostly on collateral issued by the German and French sovereigns. By 21 September, about one week after the September policy rate hike had taken effect, secured money market rates had, by and large, normalised, adjusting to the new level of policy rates, albeit with a somewhat wider spread over the €STR and the deposit facility rate compared with the previous review period.

---

<sup>3</sup> During the review period minimum reserves were remunerated at the ECB's main refinancing operations (MRO) rate. On 27 October the ECB announced that the remuneration of minimum reserves would be lowered to the deposit facility rate which would become effective at the beginning of the reserve maintenance period starting on 21 December 2022, after the current review period.

## What information does the euro area bank lending survey provide on future loan developments?

Prepared by Franziska Huennekes and Petra Köhler-Ulbrich

### **The euro area bank lending survey (BLS) provides valuable information on bank lending standards and conditions as well as on loan demand in the euro area.**

By collecting this information, the survey sheds light on the transmission of monetary policy in the euro area via the bank lending channel. It relies on a representative sample of about 150 euro area banks. While the survey information is qualitative, the replies of the banks are closely related to actual loan growth and lending rate developments. The BLS is especially useful for monetary policy purposes as it provides early indications about changes in bank lending criteria, conditions and loan demand before such changes become evident in actual loan developments.<sup>1</sup> This box describes how the BLS can provide early indications on developments in loans to firms and loans to households for house purchase in the euro area.

### **BLS data provide timely information on bank lending conditions and loan demand.**

Euro area banks reply to the BLS questionnaire around the end of each quarter. Aggregate BLS data are published by the ECB three weeks after receiving the replies from the reporting banks. The short reporting lag compared with other statistical data means that BLS data provide early information on key lending developments in the euro area, which has been especially valuable for identifying turning points in lending conditions and assessing lending developments during exceptional periods. For example, at the start of the coronavirus pandemic in 2020, the BLS signalled early on that there had been a sharp rise in the demand for loans on account of increased short-term financing needs of firms (Chart A), and a substantial fall in household loan demand for house purchase, owing mainly to a drop in consumer confidence.<sup>2</sup> The BLS also provided timely information on the impact of the Russian war in Ukraine and the surge in energy costs on bank lending conditions in 2022, revealing a net tightening of credit standards – driven mainly by an increase in banks' risk perceptions in the context of high uncertainty about the economic outlook and concerns about borrowers' creditworthiness. While most of the BLS questions are backward-looking, the survey also includes some forward-looking questions on the expectations of banks for credit standards and loan demand in the coming three months, allowing some assessment of future lending conditions based directly on the expectations of banks.

---

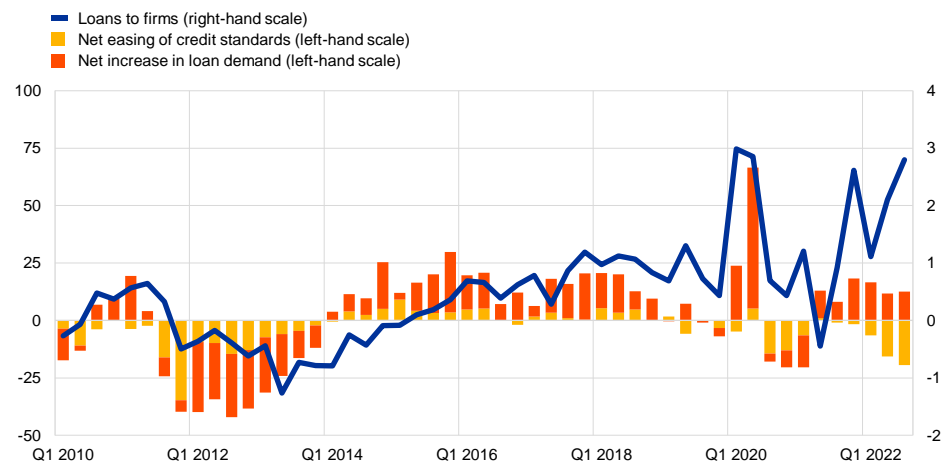
<sup>1</sup> See the article entitled "[What does the bank lending survey tell us about credit conditions for euro area firms?](#)", *Economic Bulletin*, Issue 8, ECB, 2019. See also De Bondt, G., Maddaloni, A., Peydró, J.-L. and Scopel, S., "[The euro area bank lending survey matters – empirical evidence for credit and output growth](#)", *Working Paper Series*, No 1160, ECB, February 2010.

<sup>2</sup> See the box entitled "[Drivers of firms' loan demand in the euro area – what has changed during the COVID-19 pandemic?](#)", *Economic Bulletin*, Issue 5, ECB, 2020.

## Chart A

### Loan growth and BLS indicators for euro area firms

(left-hand scale: net percentages of banks over the past three months; right-hand scale: quarterly growth rate in percentages)



Source: ECB (BLS and Balance Sheet Items (BSI) statistics).

Notes: "Loans to firms" refers to the quarterly net loan growth to non-financial corporations. For credit standards, net percentages are defined as the difference between the percentage of banks reporting an easing and the percentage of banks reporting a tightening. For loan demand, net percentages are defined as the difference between the percentage of banks reporting an increase and the percentage of banks reporting a decrease.

**The BLS also helps to disentangle credit supply from credit demand in lending developments.** Analytical work on credit supply and demand and possible credit constraints has been especially important for understanding lending developments during the global financial crisis and the sovereign debt crisis.<sup>3</sup> The BLS has also played an important role in assessing the impact of the ECB's monetary policy measures, such as its asset purchases and targeted longer-term refinancing operations (TLTROs), on bank loan supply and demand.<sup>4</sup> Overall, the BLS has proved to be a very useful tool for understanding and analysing bank lending conditions in the euro area. Within this broader range of topics, this box focuses on one specific characteristic of the BLS, namely its leading indicator properties for predicting loan growth.

**Changes in BLS credit standards and loan demand have leading indicator properties for future growth in loans to firms.** A first indication of the information BLS indicators provide for future loan growth is to consider cross-correlations between BLS indicators at different leads relative to data on actual loan growth. For loans to firms, the cross-correlation between credit standards and annual loan growth is highest when the BLS leads actual loan growth by five to six quarters

<sup>3</sup> See, for instance, Altavilla, C., Darracq Pariès, M. and Nicoletti, G., "Loan supply, credit markets and the euro area financial crisis", *Journal of Banking and Finance*, Vol. 109, 2019, in which the authors construct a loan supply indicator based on the BLS and use it to identify the impact of loan supply shocks on euro area real economic activity. Other examples of analytical work on loan supply based on the BLS are, for instance, Hempell, H. and Kok Sorensen, C., "The impact of supply constraints on bank lending in the euro area – crisis induced crunching?", *Working Paper Series*, No 1262, ECB, November 2010, and Maddaloni, A., and Peydró, J.-L., "Bank Risk-taking, Securitization, Supervision and Low Interest Rates: Evidence from the Euro-area and the U.S. lending standards", *The Review of Financial Studies*, Vol. 24, No 6, 2011, pp. 2121-2165.

<sup>4</sup> See, for instance, Altavilla, C., Boucinha, M., Holton, S. and Ongena, S., "Credit Supply and Demand in Unconventional Times", *Journal of Money, Credit and Banking*, Vol. 53, No 8, 2021, and Andreeva, D.C. and García-Posada, M., "The impact of the ECB's targeted long-term refinancing operations on banks' lending policies: The role of competition", *Journal of Banking and Finance*, Vol. 122, 2021.

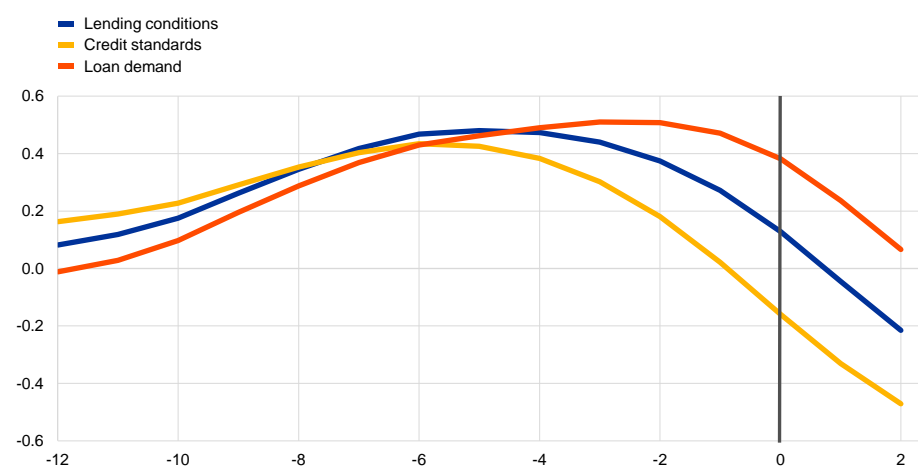
(Chart B, panel a). In other words, a tightening of credit standards tends to lead to weaker loan growth around five to six quarters later. For loan demand, the maximum correlation is higher and observed for a shorter lead of around three quarters. The longer lead between credit standards and actual loan developments is consistent with the fact that credit standards are set ahead of loan negotiations by the banks. By contrast, firms' financing needs, as indicated by loan demand, are reflected faster in actual loan growth developments.

## Chart B

### Cross-correlations between loan growth and BLS indicators for euro area firms and households

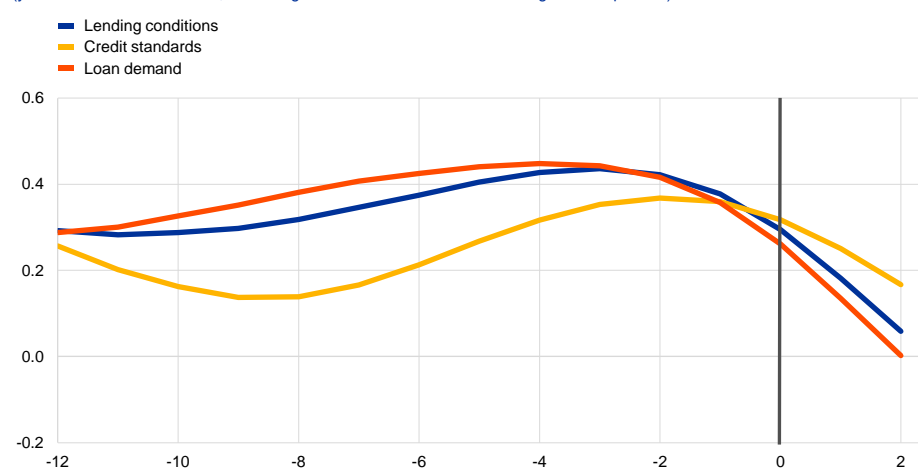
#### a) Loans to firms

(y-axis: correlation coefficient; x-axis: lag of BLS indicators relative to loan growth in quarters)



#### b) Loans to households for house purchase

(y-axis: correlation coefficient; x-axis: lag of BLS indicators relative to loan growth in quarters)



Source: ECB (BLS and BSI statistics).

Notes: The chart shows the correlation between aggregate BLS indicators, based on the BLS sample of about 150 banks, and the annual growth rate of loans (net loan growth) to non-financial corporations (panel a) and to households for house purchase (panel b). BLS indicators either lead loan growth (negative value on the y-axis) or lag loan growth (positive value). "Lending conditions" refers to the net increase in loan demand minus the net tightening of credit standards. "Credit standards" are inverted, i.e. net percentages are defined as the share of banks reporting an easing minus the share of banks reporting a tightening. The annual growth rate of loans is computed as the sum of loan flows over the past 12 months divided by the outstanding amount of loans 12 months ago. BLS indicators are four-quarter moving averages. Loans to firms are adjusted for sales, securitisation and cash pooling.

**Beyond the simple correlations mentioned above, the information that the BLS indicators provide on future loan growth can be assessed by analysing their**

**value in forecasting actual loan growth.** Compared with an autoregressive model where loan growth is predicted by its own lag, a model which includes BLS indicators improves the loan growth forecast for euro area firms (Chart C, panel a). While credit standards and loan demand each individually improve loan forecasts, combining both in a lending conditions indicator further improves the performance of forecasts over time, i.e. the forecast error is reduced more on average. Broadly corresponding evidence on the information that the BLS provides regarding future loan growth is also found for individual euro area countries.<sup>5</sup>

---

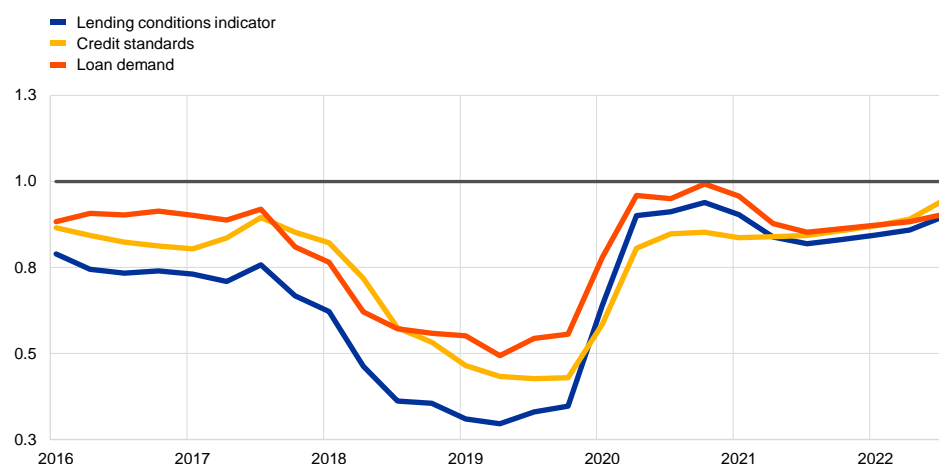
<sup>5</sup> See “Negative interest rate policy period and pandemic as reflected in the Bank Lending Survey”, Monthly Report, *Deutsche Bundesbank*, September 2022, and Leveiege, G., “On the coherence and the predictive content of the French Bank Lending Survey’s indicators”, *Working Paper Series*, Banque de France, No 567, August 2015.

## Chart C

### BLS leading properties for future growth in loans to euro area firms

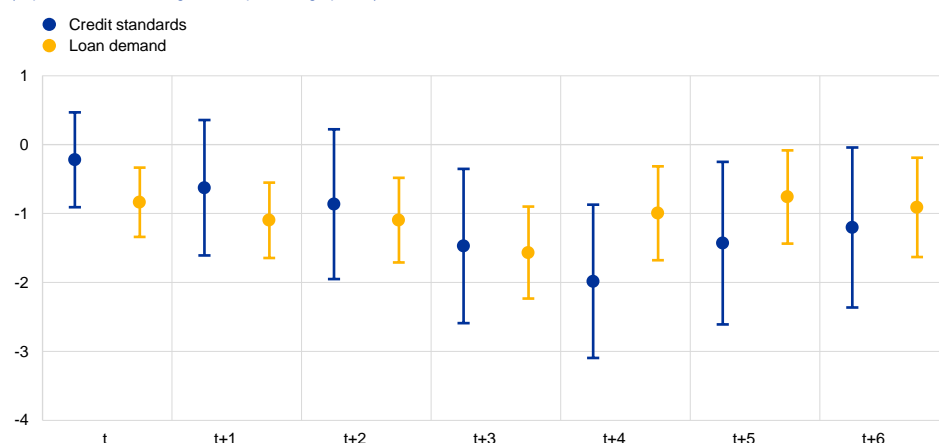
#### a) Performance of BLS indicators in forecasting aggregate loan growth

(ratio of root mean squared error of out-of-sample forecast of loan growth based on models with and without BLS indicators)



#### b) Impact of changes in credit standards and loan demand on loan growth at the level of individual banks

(impact on annual loan growth in percentage points)



Source: ECB (BLS and BSI statistics for panel a; individual BLS and individual BSI statistics for panel b) and ECB calculations. Notes: Panel a shows the performance of BLS indicators in forecasting annual loan growth at a horizon equal to two quarters. Values below 1 indicate that augmenting a pure autoregressive model with the BLS improves the forecast's accuracy. Annual loan growth is defined as net loan flows over the past 12 months divided by the outstanding amount of loans 12 months ago, adjusted for sales, securitisation and cash pooling. Models are estimated over rolling ten-year windows. Root mean squared errors (RMSEs) are computed over rolling four-year windows. Panel b shows the impact on annual loan growth in periods  $t+i$ , with BLS indicators measured in period  $t$ . Effects are relative to banks which report eased or unchanged credit standards/increasing or unchanged loan demand. Coefficients result from a regression with the annual growth in net loans to firms as the dependent variable and the respective lags of banks' reported credit standards and loan demand, three lags of the dependent variable and bank and country time-fixed effects as explanatory variables. The sample includes 149 banks and covers the period from the third quarter of 2009 to the second quarter of 2022.

**The BLS contains information on future loan growth not only at the aggregate level, but also for individual banks.** Bank-level estimations show that for banks reporting tighter credit standards, actual growth in loans to firms declines significantly three to six quarters after the tightening relative to banks reporting eased or unchanged credit standards (Chart C, panel b). At the same time, for banks which report a decrease in demand for loans in the BLS, actual growth in loans to firms is lower in the same quarter and the following quarters compared with banks reporting

unchanged or increased loan demand.<sup>6</sup> This shows that the more contemporaneous relationship of loan demand with actual loan growth in the cross-correlations of the aggregate series is also valid at the level of individual banks.

**For housing loans, BLS indicators also provide valuable information about future loan growth, albeit with a shorter lead time and a somewhat weaker correlation than in the case of loans to firms.** In particular, the cross-correlation between credit standards and housing loan growth shows that the BLS indicator has only a slight lead over actual housing loan growth (peaking at around two quarters; Chart B, panel b). For housing loan demand, the cross-correlation with housing loan growth is generally higher than for credit standards, and peaks somewhat earlier, with a lead of three to four quarters. In addition, the co-movement of the BLS indicators with net loan growth is weaker overall for housing loans than for loans to firms. However, this difference is likely related to the fact that housing loan repayments were high as of around ten years after the housing market boom experienced before the global financial crisis, which was dragging down net housing loan growth.<sup>7</sup> In fact, the correlation is higher for both credit standards and housing loan demand when considering new business loans for house purchase (peaking at around 0.6 in both cases, with a lead of four quarters), which is also in line with banks being asked to report on gross loans in the BLS.

**The information reported in the BLS also helps improve housing loan growth forecasts.** In contrast with forecasts for loans to firms, housing loan growth forecasts are improved more by including loan demand than by including credit standards (Chart D, panel a). This is in line with the fact that the cross-correlation of net housing loan growth is lower with credit standards than with loan demand, as discussed above. Loan demand also helps predict future housing loan growth at the bank level – banks reporting a decrease in demand experience lower loan growth over the following quarters compared with banks reporting unchanged or increased loan demand (Chart D, panel b). By contrast, credit standards are less relevant for predicting housing loan growth, not only at the aggregate level but also at the level of individual banks.

---

<sup>6</sup> These results show that banks' responses on credit standards and loan demand for firms not only help improve loan growth forecasts on aggregate, but also contain valuable information on changes in loan volumes for individual banks. Importantly, this is the case even after accounting for past developments, bank-specific factors and national macroeconomic developments that may influence the lending markets in which banks operate.

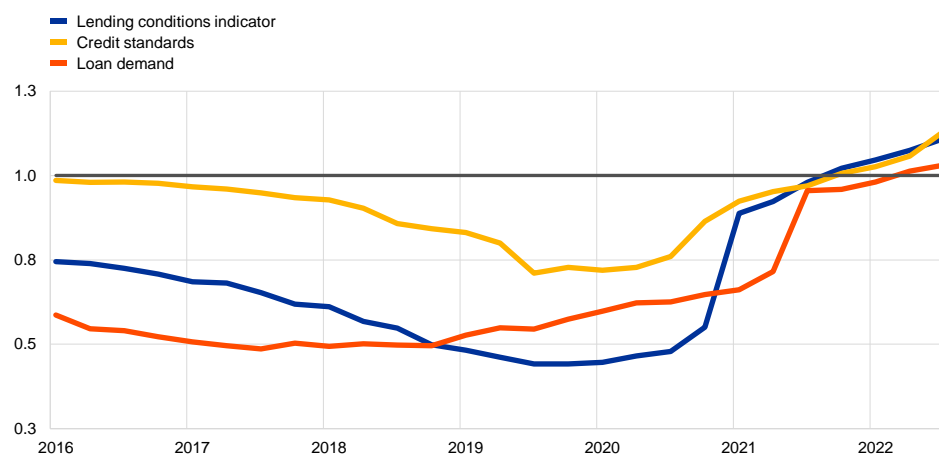
<sup>7</sup> See the box entitled "[Developments in mortgage loan origination in the euro area](#)", *Economic Bulletin*, ECB, Issue 5, 2018.

## Chart D

### BLS leading properties for future growth in loans to euro area households for house purchase

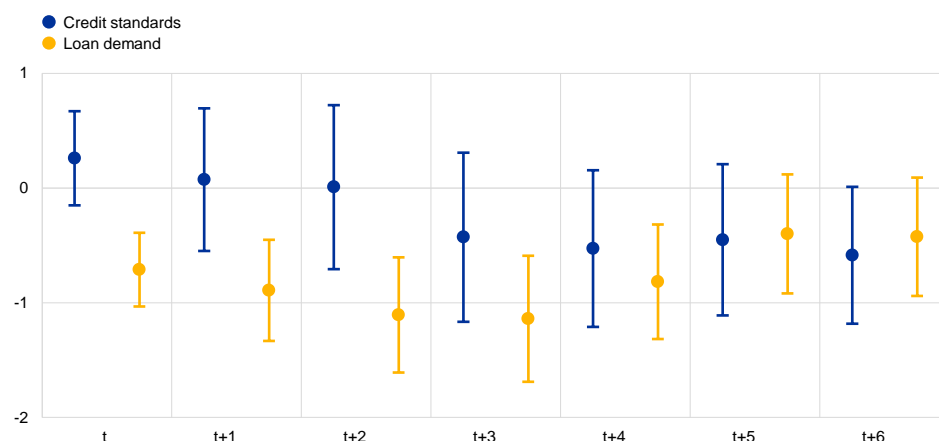
#### a) Performance of BLS indicators in forecasting aggregate loan growth

(ratio of root mean squared error of out-of-sample forecast of loan growth based on models with and without BLS indicators)



#### b) Impact of changes in credit standards and loan demand on loan growth at the level of individual banks

(impact on annual loan growth in percentage points)



Sources: ECB (BLS and BSI statistics for panel a; individual BLS and individual BSI statistics for panel b) and ECB calculations. Notes: Panel a shows the performance of BLS indicators in forecasting annual loan growth at the horizon yielding the lowest average RMSE (two quarters for credit standards, five quarters for loan demand and three quarters for lending conditions). Values below 1 indicate that augmenting a pure autoregressive model with the BLS improves the forecast's accuracy. Annual loan growth is defined as net loan flows over the past 12 months divided by the outstanding amount of loans 12 months ago. Models are estimated over rolling ten-year windows. RMSEs are computed over rolling four-year windows. Panel b shows the impact on annual loan growth in periods  $t+i$ , with BLS indicators measured in period  $t$ . Effects are relative to banks which report eased or unchanged credit standards/increasing or unchanged loan demand. Coefficients result from a regression with the annual growth in net loans to households for house purchase as the dependent variable and the respective lags of banks' reported credit standards and loan demand, three lags of the dependent variable and bank and country time-fixed effects as explanatory variables. The sample includes 140 banks and covers the period from the third quarter of 2009 to the second quarter of 2022.

**In the light of these findings, the BLS currently points to a deceleration of loan growth to euro area firms and households for house purchase over the coming quarters.** In the first three quarters of 2022 banks reported a net tightening of their



credit standards for loans to firms.<sup>8</sup> In particular, the net tightening in the second and third quarters exceeded that observed during the coronavirus pandemic (which was dampened by public sector intervention in the form of loan guarantee schemes and other fiscal support measures as well as measures by monetary policy and supervisory authorities), while remaining below the net tightening seen during the global financial crisis and sovereign debt crisis.<sup>9</sup> The main drivers of this tightening were banks' higher risk perceptions and lower risk tolerance owing to concerns regarding the general economic outlook and borrower creditworthiness. Banks' cost of funds and balance sheet situations also had a tightening impact on credit standards for loans to euro area firms and households for house purchase. This impact became larger over the first three quarters of 2022 with the ongoing monetary policy normalisation. This reflects the survey's usefulness for assessing the passthrough of the ECB's monetary policy to euro area firms and households via the bank lending channel. At the same time, banks reported that, on balance, loan demand from firms continued to increase in the first three quarters of 2022, driven mainly by firms' financing needs for working capital and inventories. In the October 2022 BLS, banks reported that they expect a further strong net tightening in credit standards but a net decline in loan demand from firms in the fourth quarter of 2022. Overall, these results point to slower growth in loans to firms during 2023.<sup>10</sup> For housing loans, banks reported a substantial net decrease in housing loan demand in the third quarter of 2022, following a more moderate decline in the second quarter of 2022. In conjunction with the strong net tightening of credit standards for housing loans in the second and third quarters of 2022, this points to a marked decline in actual housing loan growth in the coming quarters. In fact, signs of a turning point in actual housing loan growth are already visible.

---

<sup>8</sup> The BLS evidence provided by banks is consistent with the latest evidence from firms in the Survey on the Access to Finance of Enterprises (SAFE), in which firms reported a widening of their financing gaps for the period from April to September 2022 and expect a reduced availability of bank loans for the period from October 2022 to March 2023. See the box entitled "[Firms' access to finance and the business cycle – evidence from the SAFE](#)" in this issue of the Economic Bulletin.

<sup>9</sup> See the BLS reports on these quarters on the [ECB's website](#).

<sup>10</sup> Notwithstanding the information provided by BLS indicators on actual growth in loans to firms and to households for house purchase, it needs to be kept in mind that these developments are unconditional forecasts based solely on the BLS and that further changes to the economic environment and outlook may alter these trajectories.

## 8 Fiscal policy implications of euro area countries' 2023 draft budgetary plans

Prepared by Johannes Simeon Bischl, Stephan Haroutunian, Sebastian Hauptmeier and Steffen Osterloh

**On 22 November 2022 the European Commission released its opinions on the draft budgetary plans (DBPs) of euro area countries for 2023.**<sup>1</sup> Owing to the continued application in 2023 of the general escape clause of the Stability and Growth Pact (SGP), the assessment by the Commission followed the practice of the two previous years, focusing on the compliance of the DBPs with fiscal policy recommendations that are more qualitative than quantitative in nature.<sup>2</sup> These recommendations were adopted by the Council on 12 July 2022. At that time, the Council also advised euro area countries to adopt differentiated fiscal policies in 2023, in particular recommending countries with high levels of government debt to ensure a prudent fiscal policy. In operational terms, this means keeping the growth in nationally financed primary current expenditure, net of discretionary revenue measures, below the growth in potential output over the medium term. Euro area countries with low or medium levels of government debt were recommended to ensure that the growth in nationally financed current expenditure is in line with an overall neutral policy stance. In both cases, it was recognised that government expenditure plans would need to take into account the ongoing temporary and targeted support for households and firms via energy-related compensatory measures and for people fleeing Russia's war of aggression against Ukraine. Euro area countries were also advised to expand public investment for the green and digital transitions and for energy security.<sup>3</sup>

**In its assessment of whether the budgetary plans for 2023 are in line with the Council's recommendations, the Commission focused on the compliance of countries with an indicator developed in the context of the coronavirus**

---

<sup>1</sup> See "[Communication from the Commission to the European Parliament, the Council and the European Central Bank on the 2023 Draft Budgetary Plans: Overall Assessment](#)", European Commission, 22 November 2022; and "[Recommendation for a Council Recommendation on the economic policy of the euro area](#)", European Commission, 22 November 2022. The DBPs of Italy and Latvia were submitted by the outgoing governments on a "no policy change" basis and were therefore not assessed by the Commission at the time of its autumn package. Following submission of the update on 21 November 2022, the Commission published its opinion on the Italian DBP on 14 December 2022.

<sup>2</sup> The general escape clause was introduced as part of the "six-pack" reform of the SGP in 2011. It can be activated in the case of an unusual event outside the control of the Member State concerned which has a major impact on the financial position of the general government, or in periods of severe economic downturn for the euro area or the EU as a whole. When the clause is activated, Member States may temporarily depart from the fiscal adjustment requirements under both the preventive and corrective arms of the Pact, provided this does not endanger fiscal sustainability in the medium term.

<sup>3</sup> In addition to the Council's Recommendations, in its [statement of 11 July 2022 on fiscal policy orientations for 2023](#), the Eurogroup considered that, for the euro area, supporting overall demand through fiscal policies in 2023 was not warranted in view of the prevailing economic circumstances, notably the inflationary dynamics.

**(COVID-19) crisis which adjusts the SGP expenditure benchmark.**<sup>4</sup> First, this indicator takes into account the expenditures financed with EU grants under the Recovery and Resilience Facility (RRF) or with other EU funds. These financing sources provide a fiscal impulse to the economy but are not reflected in the budget balances of euro area countries, given that they are recorded equally as both revenue and expenditure. Second, the indicator nets out temporary emergency measures taken in response to the COVID-19 pandemic. Importantly, the expenditure aggregate underlying the indicator includes expenditure measures adopted in response to the energy crisis as well as nationally financed government investment. The Commission assessed the level of compliance with the Council's recommendations of 12 July 2022 on the basis of an assessment of developments in these expenditure items.

**According to the Commission assessment, the DBPs of euro area countries for 2023 are broadly in line with the fiscal policy recommendations of the Council, with a few exceptions.** Among the countries with high levels of government debt, the Commission assessed the DBP of Belgium to be only partly in line with the recommendation, given that the growth in nationally financed current expenditure exceeds potential output growth. For Portugal, the Commission, while providing an overall positive assessment, saw risks of partial compliance should the energy-related compensatory measures not be unwound as planned.<sup>5</sup> Among the group of countries with low or medium levels of government debt, the DBPs of Germany, Estonia, Lithuania, Luxembourg, the Netherlands, Austria, Slovenia and Slovakia were assessed to be partly in line with the recommendation, given the expansionary rather than neutral contributions of their nationally financed net current expenditure to the overall orientation of fiscal policies in 2023.<sup>6</sup> All euro area countries plan to finance public investment for the green and digital transitions and for energy security, including by making use of the RRF and other EU funds, as recommended by the Council.

**The Commission assessment emphasised the euro area-wide rise in government investment since 2018, which has continued in 2020-22 despite the shocks stemming from COVID-19 and the Russian war in Ukraine.** While being moderate in terms of percentage of GDP, the increase in government investment since the pandemic contrasts with the pattern observed in the aftermath

---

<sup>4</sup> The Commission computes this indicator capturing the orientation of fiscal policies by gauging the annual increase in net expenditure relative to ten-year potential growth and the growth rate of the GDP deflator. Following the Council's recommendations on the 2021 stability programmes, the underlying net expenditure aggregate was adjusted to include expenditure financed by RRF grants and other EU funds and to exclude the temporary emergency measures related to the COVID-19 crisis. In addition to the contribution from EU-financed expenditure, the Commission's assessment includes the contributions to the overall fiscal stance from different nationally financed expenditure aggregates, namely (i) investment, (ii) other capital expenditure and (iii) current primary expenditure (net of discretionary revenue measures). This indicator differs from the measure that has traditionally been used to assess the fiscal stance within the European System of Central Banks (ESCB) based on the concept of the cyclically adjusted primary balance (see Section 6 of this issue of the Economic Bulletin).

<sup>5</sup> Given the overall assessment by the Commission of the DBP of Portugal, the [Eurogroup statement on draft budgetary plans for 2023](#) – issued on 5 December 2022 – emphasised the progress made by Portugal in terms of deficit and debt reduction.

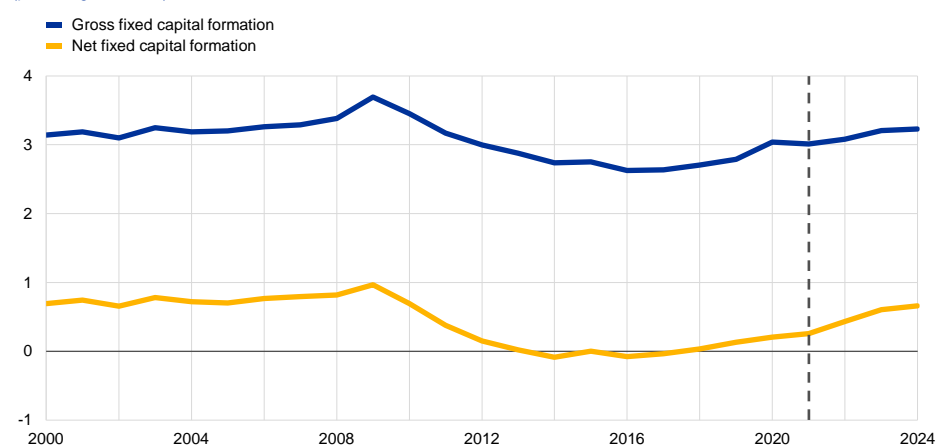
<sup>6</sup> According to the Commission analysis, in the case of the Netherlands, while the contribution of nationally financed primary current expenditure to the fiscal stance is broadly neutral, the overall orientation of fiscal policies is expansionary.

of the global financial crisis, when gross government investment declined by more than one percentage point of GDP and net investment – which takes into account the depreciation of the capital stock – turned negative between 2014 and 2017 (Chart A).

### Chart A

#### Euro area public investment, 2000-2024

(percentages of GDP)



Source: European Commission (AMECO database).

Notes: The years 2022-24 are taken from the European Commission's autumn 2022 forecast. The dashed vertical line indicates the beginning of the forecast horizon.

**According to the Commission, fiscal policies may become expansionary in 2023 in an environment of still elevated inflation.** According to the Commission's autumn 2022 forecast, which incorporates the DBPs for 2023, the fiscal expansion based on the adjusted indicator described above will amount to around 2.2% of GDP in 2022, while broadly neutral fiscal policies are projected for 2023.<sup>7</sup> The Commission's projections include a net budgetary impact of 0.9% of GDP from the measures aimed at mitigating the impact of high energy prices on households and firms in the euro area in 2023, down from 1.3% of GDP in 2022. The Commission also estimated that, if existing measures were extended throughout 2023, their cost could increase by an additional 1% of GDP, reaching close to 2% of GDP in 2023, thus rendering fiscal policies more expansionary.

**The latest Eurosystem staff projections include a significantly larger amount of energy-related support measures than in the Commission's baseline, pointing to an expansionary fiscal stance in 2023.** The aggregate euro area energy support, as embedded in the macroeconomic outlook of the December 2022 Broad Macroeconomic Projections Exercise (BMPE), is estimated at around 2% of GDP.<sup>8</sup> This is significantly larger than projected by the Commission in its autumn 2022 forecast and reflects, among other things, a later cut-off date for projections,

<sup>7</sup> See "Communication from the Commission to the European Parliament, the Council and the European Central Bank on the 2023 Draft Budgetary Plans: Overall Assessment", op. cit.

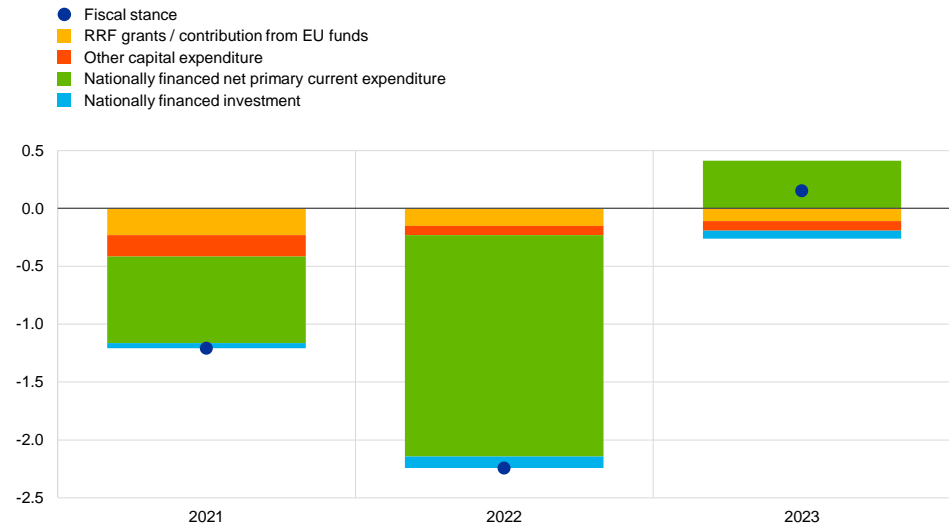
<sup>8</sup> See Section 2 on the fiscal outlook in the "December 2022 Eurosystem Staff Macroeconomic Projections".

whereby more support measures are sufficiently specified to fulfil the criteria for consideration in the December BMPE fiscal assumptions.<sup>9</sup>

### Chart B

#### Commission assessment of fiscal policy orientation, 2021-23

(percentages of GDP)



Source: European Commission (AMECO database).

Notes: For its assessment of the euro area fiscal stance, the Commission used the adjusted expenditure benchmark approach explained in the text. A negative (positive) figure points to an expansionary (contractionary) stance.

**To ensure that fiscal policies do not add to inflationary pressures while safeguarding debt sustainability and supporting the growth-friendliness of public finances, it is important that policies are targeted, tailored and temporary.** From a monetary policy viewpoint, energy support measures need to be further adjusted in accordance with these “three Ts”, i.e. the measures should be (i) *targeted* to the most vulnerable so that the size of the fiscal impulse is limited and benefits those who need it most, (ii) *tailored* so that measures do not weaken incentives to cut energy demand, and (iii) *temporary* so that the fiscal impulse is maintained no longer than strictly necessary. Given the expected deactivation of the SGP’s general escape clause as of 2024, a timely agreement on a reform of the EU economic governance framework will be essential as it will help orient fiscal policies going forward.<sup>10</sup> Overall, a gradual, realistic and sustained reduction of public debt where needed should be combined with an improved quality of government budgets and sustained public investment to support potential growth as well as the green and digital transitions.

<sup>9</sup> The projections for fiscal variables in the BMPE are carried out under the responsibility of the Working Group on Public Finance. The fiscal projections are fully consistent with the macroeconomic projections and take into account the most recent information, for example the latest data releases, budget laws, supplementary budgets, and stability and convergence programmes. The fiscal projections incorporate only those measures that have been approved by national parliaments or that have already been defined in sufficient detail and are likely to pass the legislative process. For more information, see ECB, “A guide to the Eurosystem/ECB staff macroeconomic projection exercises” July 2016.

<sup>10</sup> See “Communication on orientations for a reform of the EU economic governance framework”, European Commission, 9 November 2022.

# Articles

## 1 The pandemic emergency purchase programme – an initial review

Prepared by Benjamin Böninghausen, León Fernández Brennan, Laura McCabe and Julian Schumacher

### 1 Introduction

**The ECB launched the pandemic emergency purchase programme (PEPP) in March 2020 in response to the extraordinary economic and financial shock triggered by the coronavirus (COVID-19) pandemic.**<sup>1</sup> The pandemic erupted in full force in early 2020 and constituted a collective public health emergency unprecedented in recent history, bringing unbearable human tragedy across the world. It was also a massive economic shock that led to huge economic dislocations in production, trade, investment, employment and consumption. The economic fallout required a strong and determined policy response to support people and firms at risk, which fiscal and monetary policymakers all over the world swiftly delivered. This article provides an initial review of one cornerstone of the ECB's monetary policy response: the announcement of the PEPP on 18 March 2020 and its subsequent implementation, which saw the ECB conduct net purchases of euro area private and public sector securities totalling around €1.7 trillion by March 2022. Since the end of net purchases in March 2022, transactions under the PEPP have only been conducted to reinvest redemptions in the portfolio. As announced in December 2021, the Governing Council intends to reinvest principal payments from maturing securities purchased under the PEPP until at least the end of 2024.

**The PEPP was designed with a dual role: it supported market functioning as well as the transmission of monetary policy, and enabled a substantial easing of the monetary policy stance to counter the serious downside risks to price stability posed by the pandemic.** The pandemic and associated containment measures around the world led to a sharp downward revision in the economic and financial outlook and substantially increased uncertainty, leaving the euro area with an even more subdued outlook for medium-term inflation than already prevailing when it hit. The resulting strains in the global financial system raised the risk of fire sales and adverse illiquidity spirals. In these conditions, the PEPP proved a crucial addition to the asset purchases already being conducted under the ECB's asset purchase programme (APP) to provide market liquidity and limit the risk of self-fulfilling dynamics. The announcement of the PEPP successfully interrupted the rapid

---

<sup>1</sup> See Lane, P.R., “[Monetary policy during the pandemic: the role of the PEPP](#)”, speech at the International Macroeconomics Chair Banque de France – Paris School of Economics, 31 March 2022 (and the references cited therein); also Lane, P.R., “The monetary policy response in the euro area”, in English, B., Forbes, K. and Ubide, A. (eds.), “[Monetary Policy and Central Banking in the Covid Era](#)”, CEPR Press, London, 2021.

detachment of euro area sovereign bond yields from risk-free rates amid the market turmoil in early 2020, as proxied by the wedge between overnight index swap (OIS) rates and euro area GDP-weighted sovereign bond yields (Chart 1). This was essential, since sovereign bond yields serve as benchmark rates for funding conditions in the wider euro area economy and are used to price corporate and bank bonds, as well as bank loans to firms and households; they are thus pivotal in the transmission of monetary policy.<sup>2</sup> The market stabilisation following the announcement of the PEPP ensured that the ECB's accommodative monetary policy stance was successfully transmitted to firms and households, and so helped counteract the pandemic shock to the inflation outlook, alongside substantial support from fiscal policy at the EU level.<sup>3</sup> Further monetary accommodation – in the form of more favourable financing conditions for firms and households – was required to support economic recovery and safeguard price stability. Following increases in its overall size subsequent to the initial announcement, the PEPP was therefore also instrumental in bringing about a further easing in the ECB's monetary policy stance itself, by reducing the volume of public and private sector securities in the market and thereby further lowering their yields. Overall, the PEPP performed two critical and mutually reinforcing functions in countering an unprecedented shock: stabilising markets and easing the monetary policy stance, both of which were expected to significantly contribute to price stability.

---

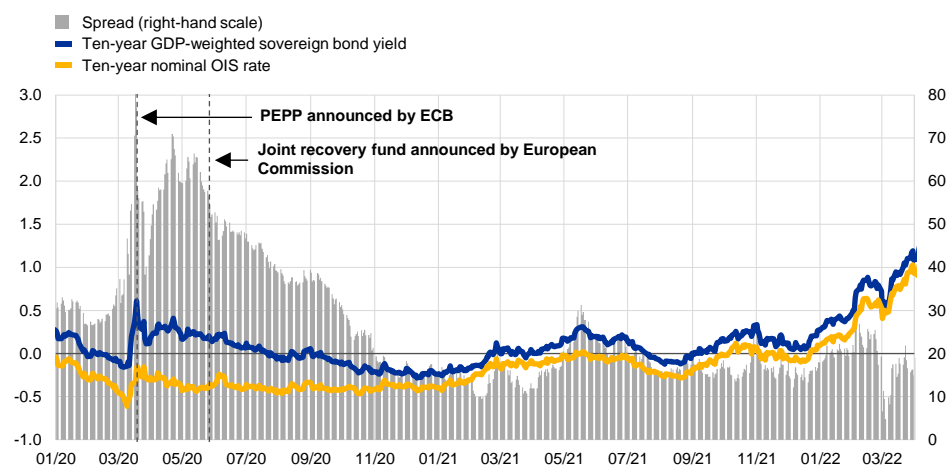
<sup>2</sup> See, for example, Lane, P.R., “[The compass of monetary policy: favourable financing conditions](#)”, speech at Comissão do Mercado de Valores Mobiliários, 25 February 2021.

<sup>3</sup> The state-contingent forward guidance by the ECB's Governing Council that had already been in place before the outbreak of COVID-19 ensured that the risk-free yield curve was able to adjust to the adverse economic shock from the pandemic. In response to the pandemic and before the announcement of the PEPP, the Governing Council had decided on a comprehensive package of monetary policy measures, including additional longer-term refinancing operations (LTROs) as fixed rate tenders with full allotment, easing the conditions of the third series of targeted longer-term refinancing operations (TLTRO III), pandemic emergency longer-term refinancing operations (PELTROs) and a temporary increase in the asset purchase programme (APP), which was already supporting the convergence of the pre-pandemic inflation outlook to levels close to the ECB's inflation target.

## Chart 1

### Ten-year GDP-weighted sovereign bond yield and ten-year nominal OIS rate in the euro area: levels and spread

(percentages per annum, basis points)



Sources: Refinitiv and ECB calculations.

Note: The latest observations are for March 2022.

**This article provides an initial review of the ECB’s experience with the PEPP and that of the wider Eurosystem, with a focus on objectives, implementation and effectiveness.** Due to the exceptional, fast-evolving and uncertain circumstances created by the pandemic, the PEPP required a high degree of flexibility in its design and implementation compared with the APP. This was reflected in its design and implementation, most prominently with regard to the embedded flexibility, and these are reviewed in Sections 3 and 4. As a result, and as illustrated by empirical evidence in Section 5, the PEPP became an indispensable element of the ECB’s monetary policy response to the pandemic.

## 2 The PEPP’s monetary policy objectives

**The PEPP was designed with two monetary policy aims in mind: supporting the proper functioning of the monetary policy transmission mechanism by stabilising financial markets and easing the monetary policy stance to offset the direct impact of the pandemic on price stability.** As a result of the exceptional uncertainty caused by the acceleration of the pandemic, financial markets were suffering from serious dislocations in early March 2020. The distressed market conditions severely impeded transmission of the ECB’s monetary policy actions intended to mitigate the economic hardships caused by the pandemic. This posed significant downside risk to price stability. The first of the PEPP’s aims was to protect the monetary policy transmission mechanism against unwarranted financial market fragmentation. Over time it became apparent that the pandemic had struck the euro area economy through a combination of supply and demand shocks.<sup>4</sup> While the

<sup>4</sup> See the articles entitled “[The impact of COVID-19 on potential output in the euro area](#)”, *Economic Bulletin*, Issue 7, ECB, 2020, and “[The role of demand and supply factors in HICP inflation during the COVID-19 pandemic – a disaggregated perspective](#)”, *Economic Bulletin*, Issue 1, ECB, 2021.



pandemic was an exogenous shock that hit the entire euro area and the world at large, its impact varied across countries depending on their initial situation and exposure to specific economic sectors that were more affected. Despite the changes in the pandemic's economic effects over time and variation across countries, its first-order impact on the euro area inflation and growth outlook clearly called for an easing of the monetary policy stance. The first Eurosystem staff macroeconomic projections able to fully take account of the initial impact of the pandemic (published in [June 2020](#)) contained a significant downward revision of projected inflation from 1.6% to 1.3% at the end of the relevant projection horizon at the time (2019-22) and thus considerably below the Governing Council's target. Real GDP growth projections were revised downwards dramatically in 2020 but upwards for the rest of the horizon, especially for 2021, leaving projected real GDP around 4% lower by the end of the projection horizon compared with the March 2020 staff projections. At the same time, policy rates were already at very low levels. Providing monetary accommodation by lowering longer-term interest rates to help counter the negative pandemic shock to the path of inflation in the euro area as a whole thus constituted the second, monetary policy stance objective of the PEPP (see Section 5).

**The uncertainty brought about by the pandemic called for a high degree of flexibility in the PEPP's design and implementation.** Adjusting the pace and composition of purchases under the PEPP so they could quickly and effectively address impediments to the transmission mechanism in specific market segments required the ability to spread purchase volumes flexibly over time, asset classes and jurisdictions. The greater degree of flexibility is one of the key distinguishing features of the PEPP compared with the APP, beside the focus on offsetting the impact of the pandemic on the inflation outlook. The APP, by contrast, was designed to support sustained convergence of inflation rates towards the Governing Council's target during a prolonged period of low inflation, rather than to react to an acute and fast-moving crisis.

**As the pandemic's impact on the economy evolved, the primary focus of the PEPP shifted over time from market stabilisation towards countering the adverse impact of the pandemic on the projected inflation path.** In the first half of 2020, uncertainty about the pandemic's economic impact led to severe tensions in global financial markets. Accordingly, the implementation of the PEPP in that period was characterised by high purchase volumes mainly geared towards stabilising markets with a view to restoring monetary policy transmission. This initial focus on the transmission objective was reflected in fluctuations in the distribution of purchases over time, across asset classes and among jurisdictions, especially in the second quarter of 2020. As the pandemic progressed and the economy adjusted, uncertainty abated. This enhanced the PEPP's scope to operate more in the mould of a stance-oriented purchase programme. The Governing Council decided to increase the aggregate purchase volume, or envelope, of the programme in June and December 2020 in response to pandemic-related downward revisions to the inflation outlook.<sup>5</sup> By allowing the overall expected stock of purchases to be revised

---

<sup>5</sup> See Rostagno, M. et al., "Combining negative rates, forward guidance and asset purchases: identification and impacts of the ECB's unconventional policies", *Working Paper Series*, No 2564, ECB, Frankfurt, June 2021.

up or down, depending on the evolution of financing conditions and the projected inflation shortfall, the final recalibration in December 2020 encapsulated the Governing Council's emphasis on two-sided flexibility. Ultimately the final envelope size was not used in full, as favourable financing conditions could be maintained with lower purchase flows. Compared with the early stages of the PEPP and the pandemic, the absence of major financial market uncertainties allowed for a steadier path of monthly net purchase volumes within the overall envelope, as well as a convergence of purchases of public sector securities towards the Eurosystem capital key (see Section 4 below for details on the evolution of overall programme size, usage and deviations from the capital key). This latter period saw increases in risk-free rates at the start of 2021, which were assessed to be in no small part the result of spillovers from rising yields in the United States. This reinforced the case for leaning against yield increases in the euro area so as to avoid a premature tightening in financing conditions that would have posed a risk to medium-term inflation. Later in 2021, as the projections for inflation approached, and ultimately exceeded, those prevailing before the pandemic, purchase volumes were reduced accordingly.

### 3 PEPP implementation framework

**All asset categories eligible for the APP were also eligible under the PEPP, but the PEPP implementation framework complemented the APP in several ways to deliver a more tailored response to the pandemic shock.** Table 1 gives a summary of the parameter differences between the APP and the PEPP. To enable the effectiveness of the PEPP, the consolidation of holdings under Article 5 of Decision (EU) 2015/774 does not apply to PEPP holdings.<sup>6</sup> Three other important distinctions should be mentioned. First, while generally only bonds issued by issuers with an investment-grade credit rating were eligible for purchase, a waiver of the eligibility requirements was granted for securities issued by the Hellenic Republic (which was rated below BBB-), based on a number of monetary policy and risk considerations, to ensure smooth transmission of monetary policy to all euro area countries. Second, the eligibility of private sector securities was expanded to encompass non-financial commercial paper (CP) with a remaining maturity of at least 28 days. Third, the eligible residual maturity range for the purchase of public sector securities under the PEPP was widened to include shorter-dated bonds and Treasury bills.

---

<sup>6</sup> [Decision \(EU\) 2015/774](#) of the European Central Bank of 4 March 2015 on a secondary markets public sector asset purchase programme (ECB/2015/10) (OJ L 121, 14.5.2015, p. 20).

**Table 1**  
APP and PEPP: key parameters

	APP	PEPP
<b>Eligible universe</b>	Public sector: monetary policy-eligible government bonds, agencies and EU suprationals Private sector: non-financial CP and corporate bonds, covered bonds and asset-backed securities	Public sector: APP parameters apply, with the addition of Treasury bills and Greek government securities Private sector: APP parameters apply
<b>Minimum rating</b>	Credit quality step 3 (BBB- or higher)*	Same, with the exception of a waiver for Greek government bonds
<b>Maturity</b>	Public sector: 1 – 30 years and 364 days Private sector: corporate non-financial CP with a residual maturity of at least 28 days,** 6 months – 30 years for bonds. No limit for covered bonds and asset-backed securities	Public sector: 70 days – 30 years and 364 days Private sector: APP parameters apply
<b>Issue limit</b>	Public sector: 25%/33%***/* sovereign; 50% suprationals Private sector: 70% (lower issue share limits apply in specific cases).****	Purchases carried out under the PEPP to the extent deemed necessary and proportionate to counter the threats posed by the extraordinary economic and market conditions on the ability of the Eurosystem to fulfil its mandate. In order to enable the effectiveness of this exceptional decision, the consolidation of holdings under Article 5 of Decision (EU) 2015/774 does not apply to PEPP holdings.
<b>Issuer limit</b>	Public sector: 33%***/50%**** Private sector: Corporate: Yes; Covered: Yes; Asset-backed securities: No	

\* Credit quality steps harmonise the individual rating scales and grades of different credit assessment systems on a Eurosystem harmonised rating scale. \*\* CP maturity lowered for the APP in March 2020. \*\*\* Combined Eurosystem holdings from monetary policy and investment portfolios. \*\*\*\* Subject to case-by-case verification that this would not create a situation where the Eurosystem would have blocking minority power. \*\*\*\*\* Specific conditions may apply for non-financial corporate (NFC) commercial paper.

**First, the inclusion of securities issued by the Hellenic Republic was an important element in supporting the smooth transmission of monetary policy to all euro area countries.**<sup>7</sup> The Governing Council assessed that the eligibility of Greek government debt securities for the PEPP was warranted based on several considerations. These included (i) the need to alleviate pressures stemming from the pandemic, which had severely affected the Greek financial markets, (ii) the monitoring of the Greek economy in the context of enhanced surveillance, including the related commitments undertaken by Greece, and (iii) the fact that Greece had regained market access.<sup>8</sup> The eligibility waiver enhanced the effectiveness of the transmission objective of the PEPP, helping to mitigate against fragmentation risks across all euro area countries.

**Second, in the face of significant stress in the euro area CP market, PEPP purchases were initiated to restore market functioning and maintain the transmission of monetary policy.** The CP market came under significant stress in March 2020. Demand from investors evaporated at a time when corporates' desire for short-term funding was amplified by the extremely uncertain environment. Many investors were facing large redemptions and therefore in urgent need of liquidity. Thus, they were reluctant to roll over maturing CP holdings; some even sold in the secondary market, which is rare in normal times. The collapse in investor demand at a time when issuers needed extra short-term liquidity blocked the transmission of the monetary policy stance to the real economy. This was the backdrop that led to a broadening of the eligibility rules so meaningful CP purchases could be made under

<sup>7</sup> See Schnabel, I., "Interview with To Vima", 4 April 2020.

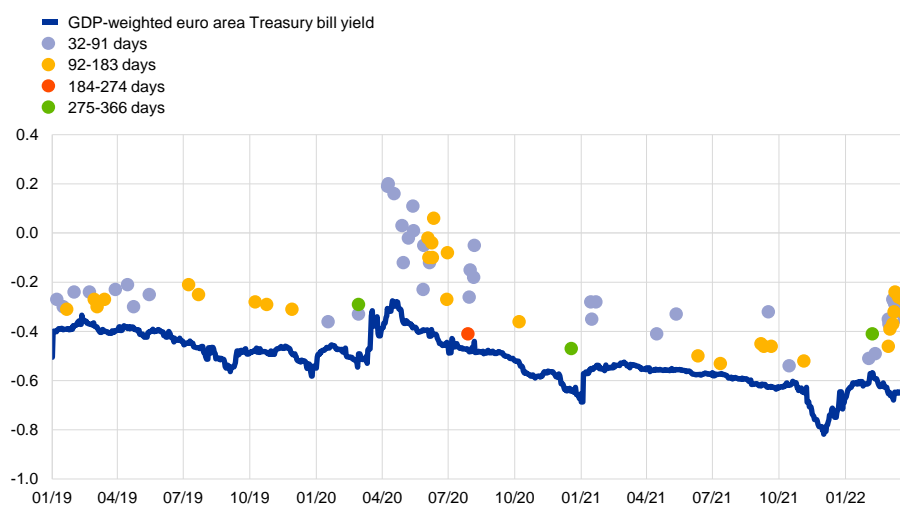
<sup>8</sup> See recital (7) of Decision (EU) 2020/440 of the European Central Bank of 24 March 2020 on a temporary pandemic emergency purchase programme (ECB/2020/17) (OJ L 91, 25.3.2020, p. 1).

the PEPP. Chart 2 shows the situation in March 2020; the market had ceased functioning, with issuance grinding to a halt. When it resumed, rates at which even short-term paper was issued rose sharply. The PEPP purchases facilitated a return to more stable market conditions and helped other investors to come back. Rates gradually declined and returned to levels in line with the monetary policy stance, supporting its transmission to financing conditions of the real economy.

## Chart 2

### Short-Term European Paper (STEP) interest rates and the GDP-weighted euro area Treasury bill yield

(percentages per annum)



Sources: Bloomberg and ECB.

Notes: The GDP-weighted euro area Treasury bill yield includes secondary market yields of a rolling set of outstanding Treasury bills with maturities of up to 12 months. The latest observations are for 31 March 2022.

### Third, the lowering of the eligible maturity for public sector securities under the PEPP avoided dislocations in the shorter segments of the yield curve, which could have impeded monetary policy transmission.

The onset of the pandemic led to concerns that emerging constraints on market liquidity risked severely impacting financial conditions. As is common during times of heightened market stress, investors reduced their investment horizon, as they faced a heightened risk of deposit withdrawals from their clients. Allowing for a shorter minimum eligible maturity helped to mitigate this “dash for cash” by enabling Eurosystem purchases across a broader range of the yield curve than would have been possible under the APP. At the same time, debt management offices significantly increased their issuance of Treasury bills to both address urgent funding needs and retain flexibility amid this uncertainty. Chart 2 illustrates the considerable increase in Treasury bill yields in the secondary market during the initial phase of the pandemic. PEPP purchases adjusted flexibly, ensuring an approach that remained consistent with the relative volumes of trading activity between bonds and bills observed in the secondary market.

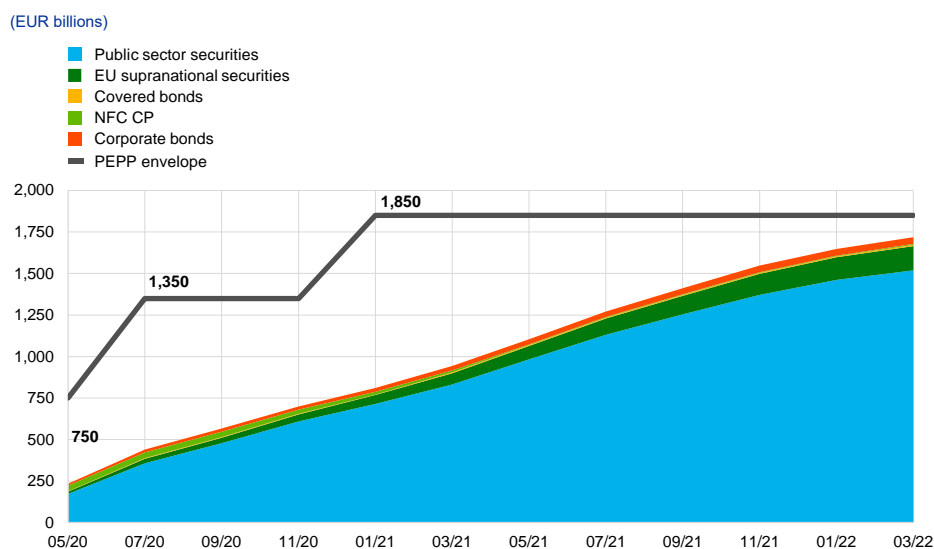
## 4 Implementation in practice

### The PEPP's initial envelope of net purchases announced on 18 March 2020 amounted to €750 billion.<sup>9</sup>

The Governing Council subsequently decided to increase the envelope by €600 billion on 4 June 2020<sup>10</sup> and by €500 billion on 10 December 2020<sup>11</sup> in response to the pandemic-related downward impact on the euro area inflation outlook (see Section 2), leading to a total programme size of €1,850 billion. During the PEPP net purchase phase, cumulative net purchases amounted to €1,718 billion, implying 93% usage of the overall envelope (Chart 3). These were conducted smoothly and flexibly by striving for a market-consistent approach,<sup>12</sup> mitigating unintended side effects on market functioning. The pace of purchases was calibrated regularly, taking into account market developments and the PEPP's impact, while making full use of the flexibility mentioned.<sup>13</sup> Utilising a broad range of economic indicators, overlaid with expert judgement, decisions on the overall pace and the split across jurisdictions and asset classes were taken with a view to ensuring smooth policy transmission in all countries. Care was taken to prevent a tightening of financing conditions, which would have been inconsistent with countering the downward impact of the pandemic on the projected path of inflation.

### Chart 3

#### Cumulative net purchases and the size of the programme envelope under the PEPP



Source: ECB.

Note: The latest observations are for 31 March 2022.

### Public sector purchases accounted for 97% of overall PEPP volumes, and the benchmark allocation across jurisdictions was the Eurosystem capital key of

<sup>9</sup> See [ECB announces €750 billion pandemic emergency purchase programme \(PEPP\)](#), *press release*, ECB, 18 March 2020.

<sup>10</sup> See [Monetary policy decisions](#), *press release*, ECB, 4 June 2020.

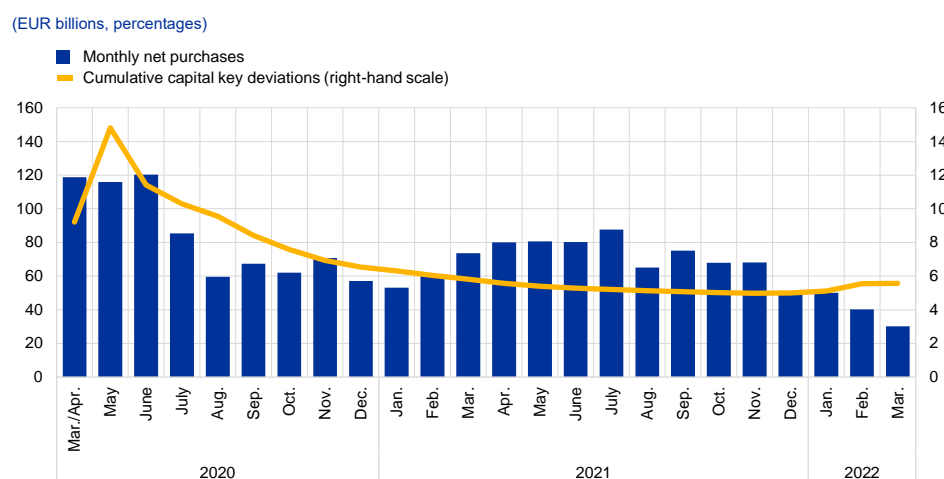
<sup>11</sup> See [Monetary policy decisions](#), *press release*, ECB, 10 December 2020.

<sup>12</sup> Purchasing behaviour adjusted flexibly to ensure smooth implementation according to market conditions.

<sup>13</sup> See Schnabel, I., “[Asset purchases: from crisis to recovery](#)”, speech at the Annual Conference of Latvijas Banka on “Sustainable Economy in Times of Change”, 20 September 2021.

**the national central banks.** Flexibility across jurisdictions was a key component of the PEPP. This allowed deviations from the Eurosystem capital key in the allocation of purchases of public sector securities, especially at the height of the market turmoil in the early phase of the pandemic when these deviations were substantial. As a result, the volume of monthly net purchases peaked between March and June 2020, as did cumulative deviations from the ECB’s capital key (Chart 4). The ability to respond to transmission risks was most evident in this period, as public sector purchases were increased in the jurisdictions most adversely affected by pandemic-related fragmentation risks. Deviations from the capital key then receded for the remainder of the net purchase phase as financial market conditions stabilised and the dual nature of the PEPP allowed the focus to evolve from the transmission phase to operating with a more stance-focused objective addressed to the euro area as a whole (see Section 2). Over most of the lifetime of the PEPP, purchases were conducted according to the capital key. However, even though there was less need to deviate from the benchmark in the later stages of the crisis, the ability to do so remained relevant as the inherent option to conduct purchases flexibly prevented pandemic-induced fragmentation risks from resurfacing.

**Chart 4**  
Monthly net purchases and cumulative capital key deviations under the PEPP

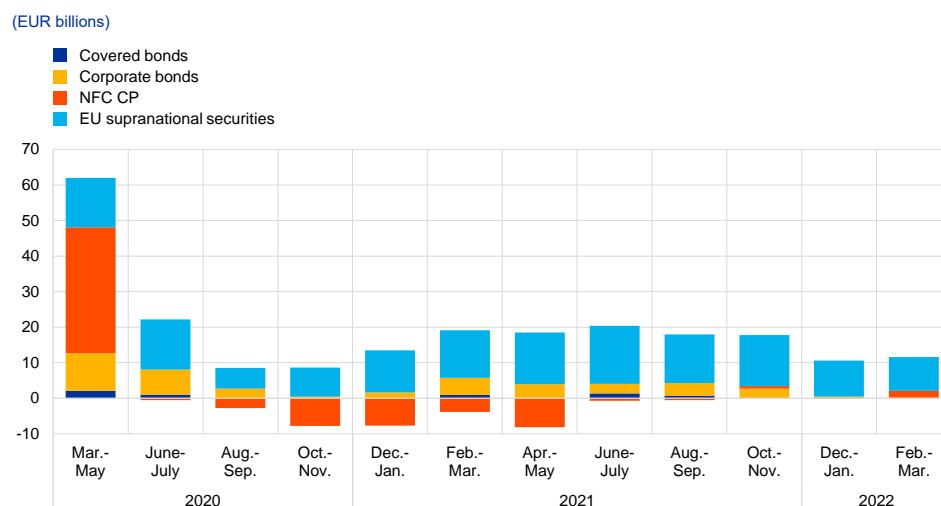


Source: ECB.  
Notes: “Cumulative capital key deviations” refers to the sum of deviations from the capital key used as the benchmark to guide the stock of public sector purchases across euro area countries. The latest observations are for 31 March 2022.

**Besides avoiding fragmentation, flexibility was necessary to avoid large price movements in some asset classes, which was most clearly seen in the evolution of supranational bond purchase volumes.** During the net purchase phase, supranational bonds accounted for up to 10% of public sector purchases. Chart 5 illustrates how purchase volumes were calibrated flexibly to respond to developments in the supranational market. In the first months of PEPP implementation, liquidity in outstanding supranational bonds allowed for sufficient purchase volumes. However, as purchases progressed and new issuance remained low, conducting 10% of purchases under such liquidity conditions could have led to undesired stress and risked distorting this market segment. Purchase volumes were therefore reduced to avoid this outcome. A fundamental change in the euro area

supranational market came with the announcement that the Commission – on behalf of the EU – would raise significant amount of funds from the capital markets to support Europe's recovery. This led to a significant increase in issuance by the EU from late 2020 onwards. Although temporary in nature, the significant size of the issuance, equating to around 7% of euro area GDP in 2020, marked a watershed in the euro area, as fiscal policy complemented monetary stimulus. The Support to mitigate Unemployment Risks in an Emergency (SURE) and Next Generation EU (NGEU) initiatives (€100 billion and €800 billion, respectively) marked the largest issuance of supranational debt ever announced in the EU. This, along with a marginal increase in issuance from other euro area supranational entities, led to increased liquidity in the market.<sup>14</sup> Chart 5 shows how the increase in net purchases of supranational bonds was calibrated to take account of the improved liquidity conditions from the end of 2020 onwards.

**Chart 5**  
Net purchases of different asset types under the PEPP



Source: ECB.

**In the private sector segment too, flexible purchases were an integral part of the PEPP, with the relative proportion of the constituent sub-programmes varying significantly over time as conditions in private sector markets evolved.**

Purchases were conducted in corporate and covered bonds and, as mentioned above, non-financial CP.<sup>15</sup> Purchase volumes across all three were driven by primary market issuance dynamics and secondary market conditions, which varied markedly at times. In general, private sector purchases were larger in the early months of the programme, as issuers' strong preference for increasing their cash holdings led to a high level of issuance in both corporate bonds and CP. This surge contrasts markedly with previous incidences of macroeconomic uncertainty, such as in the

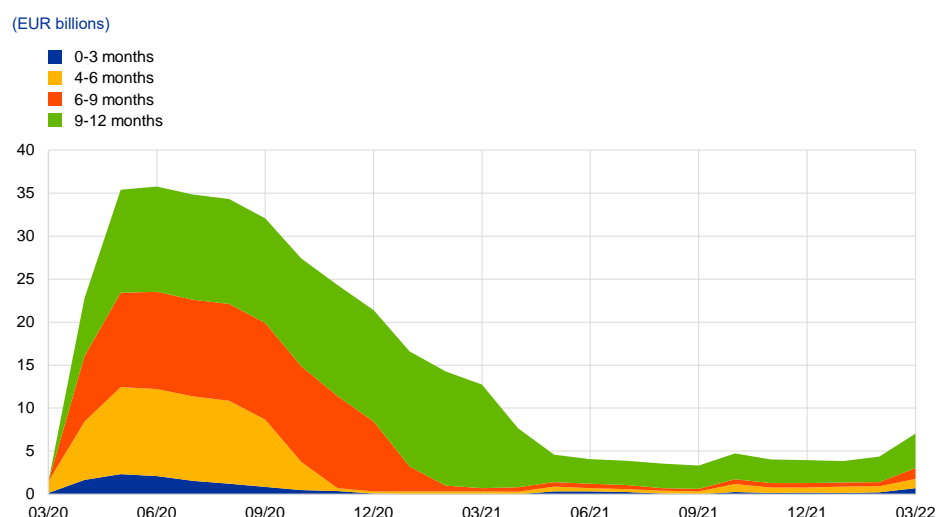
<sup>14</sup> See Bletzinger, T., Greif, W. and Schwaab, B., "Can EU bonds serve as euro denominated safe assets", *Working Paper Series*, No 2712, ECB, Frankfurt, August 2022.

<sup>15</sup> While asset-backed securities purchases were eligible for the PEPP, in practice, given conditions in the euro area asset-backed securities market, the purchases conducted under the ABSPP, which is part of the APP, were deemed to be sufficient. As a result, only purchases of covered bonds, corporate bonds and CP were made for the private sector element of the PEPP.

global financial crisis, when increased volatility tended to hamper market access and reduce issuance. As market conditions improved and issuance levels stabilised, the share of private sector purchases declined.

**The most pronounced use of flexibility in private sector net purchase volumes over time was seen with CP purchases.** Significantly more CP was purchased early on in the programme, when the segment was under extreme stress (see Section 3). As investors were unwilling to take on longer maturities during the most acute phase of the crisis, the ability of the PEPP to buy such tenors supported issuers. This can be seen in Chart 6, which shows CP purchases by maturity. When demand from the regular investor base resumed, issuers had less need to resort to the PEPP. This mirrored the shift from transmission to stance objectives (as discussed in Section 2), with CP purchases declining in the latter phase. CP holdings then declined markedly, as most holdings were not rolled over.

**Chart 6**  
NFC CP holdings by original maturity



Source: ECB.

**The public issuance patterns of covered and corporate bond issuers during the PEPP net purchase phase contrasted starkly, as reflected in their respective purchase volumes.** Chart 7 shows that in the most acute phase of the crisis corporate bond issuance spiked, as companies rushed to increase their access to cash in the face of heightened uncertainty and collapsing cash inflows. By contrast, covered bond issuance to the market from the second quarter of 2020 through to the end of 2021 was very subdued by recent standards. The most obvious difference for covered bond issuers was that banks had other sources of funding not available to corporates. First, TLTRO III was concurrently offering funding to banks at rates which, in most cases, were cheaper than issuing in the public market. Second, deposits in euro area banks rose sharply as the public reacted to the uncertainty of the pandemic by saving more. This resulted in relatively limited PEPP covered bond purchases, with purchases under the ECB's third covered bond purchase programme (CBPP3) continuing at normal levels to support transmission of the monetary policy stance through the bank lending channel.

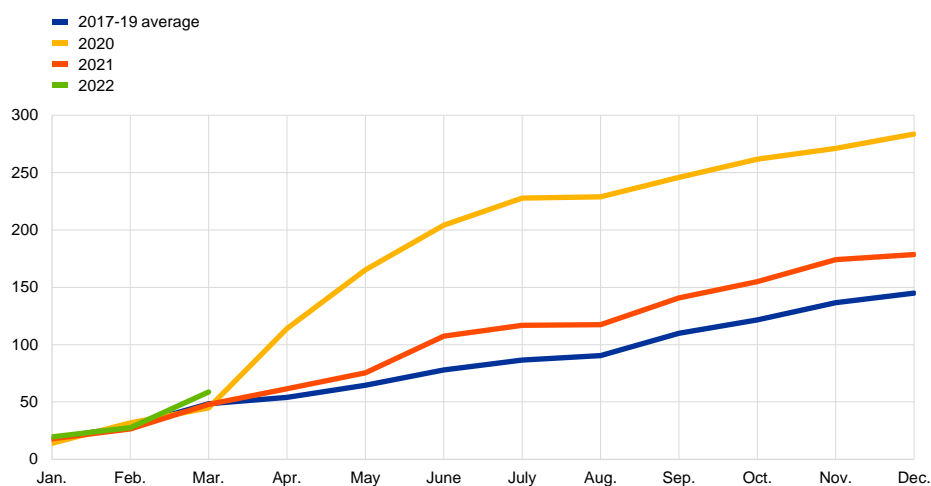


## Chart 7

### Cumulative eligible issuance of a) corporate and b) covered bonds

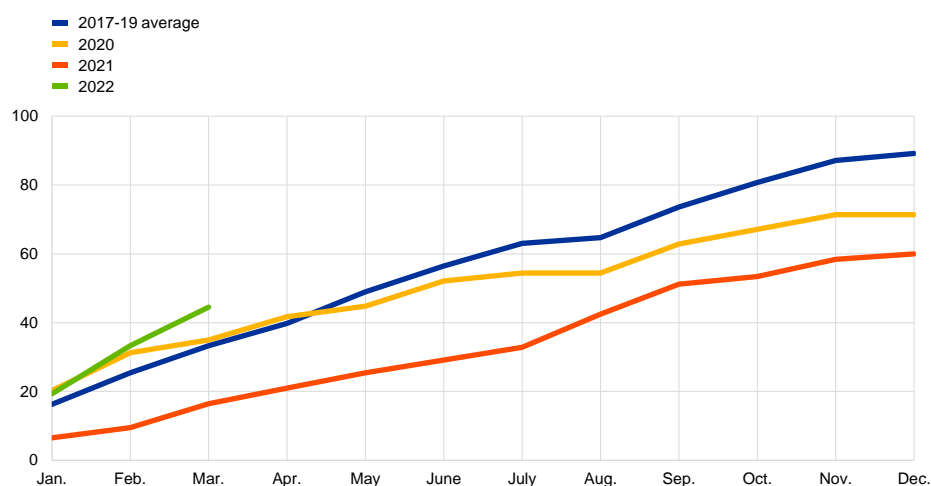
#### a) Corporate bond issuance, per year

(EUR billions)



#### b) Covered bond issuance, per year

(EUR billions)



Source: ECB.

#### The Eurosystem bought securities in a way that aimed to preserve market liquidity conditions.

Securities were purchased from a broad range of counterparties. In addition, significant efforts were made to avoid buying scarce securities when they were not available.<sup>16</sup> At the end of the net purchase phase, public sector and private sector cumulative net purchases amounted to €1,665.7 billion and €52.4 billion respectively. PEPP purchases and holdings are disclosed on a bi-monthly basis on the ECB's website.<sup>17</sup> Private sector net purchases as a percentage of overall PEPP net purchases were lower than for the APP. There are several reasons for this. First, with the exception of CP and

<sup>16</sup> These included the use of relative value and liquidity indicators, as well as an assessment of the availability of bonds in both the cash and repo markets.

<sup>17</sup> See "[Pandemic emergency purchase programme \(PEPP\)](#)" on the ECB's website.

corporate bonds, private sector issuance was otherwise subdued. Second, many of the private sector purchases were made in CP, which by their nature have short maturities and, as described above, had largely matured and were not rolled over by the end of the net purchase period. Finally, private sector APP redemptions, particularly in asset-backed securities and covered bonds, were relatively high throughout the period and absorbed a great deal of the gross purchases conducted, while new issuance was relatively low. The Eurosystem executed around 82,400 transactions under the PEPP during that time (Table 2). By the end of the net purchase phase, the weighted average maturity of PEPP holdings was 7.57 years, broadly in line with the eligible universe (7.51 years).

**Table 2**  
Implementation of the PEPP during the net asset purchase phase

Asset class	Number of transactions executed	Average transaction size (EUR millions)
<b>Asset-backed securities</b>	0	0
<b>Covered bonds</b>		
- primary market	17	76
- secondary market	1,232	4
<b>Corporate bonds</b>		
- primary market	140	109
- secondary market	4,812	5
<b>NFC CP</b>		
- primary market	376	112
- secondary market	101	71
<b>Government securities</b>		
- secondary market	69,372	25
<b>Supranational securities</b>		
- secondary market	6,404	23

Source: ECB.

**During the current PEPP reinvestment phase, flexibility has remained an integral aspect to guard against pandemic-related risks to the smooth transmission of monetary policy.**<sup>18</sup> The Governing Council decided in June 2022 that it would apply flexibility in the reinvestment of redemptions from maturing securities coming due under the PEPP (see Box 1). This decision was confirmed in July and September 2022, with a view to countering risks to the transmission mechanism related to the pandemic.

## Box 1

### Flexibility of reinvestments under the pandemic emergency purchase programme

Prepared by Eduard Betz

The reinvestment horizon of the pandemic emergency purchase programme (PEPP) has shifted over time in line with pandemic conditions and the programme's dual monetary policy objectives. In June 2020 the Governing Council initially communicated that it intends to reinvest maturing

<sup>18</sup> See [Monetary policy decisions](#), *press release*, ECB, 16 December 2021.

securities held in the PEPP portfolio until at least the end of 2022; this was extended in December 2020 to the end of 2023, and in December 2021 to the end of 2024. In all its communications about reinvestment policy, the Governing Council has emphasised that the future roll-off of the PEPP portfolio will be managed to avoid interference with the appropriate monetary policy stance.

The pandemic has left lasting vulnerabilities in the euro area economy, which imply risks to the even transmission of monetary policy across jurisdictions. In December 2021 the Governing Council therefore decided that, in line with the initial design features of the PEPP, in the event of renewed market fragmentation related to the pandemic, reinvestments could be adjusted flexibly across time, asset class and jurisdiction at any time. This recognised the lesson from the pandemic, that under stressed conditions, flexibility in the design and conduct of asset purchases helped to counter impairments to the transmission of monetary policy and made the efforts to achieve the Governing Council's goal more effective. Accordingly, the Governing Council communicated that within its mandate, under stressed conditions, flexibility would remain an element of monetary policy whenever threats to monetary policy transmission jeopardise the attainment of price stability.

By mid-2022 the euro area had experienced a complex mix of shocks that contributed to the uneven transmission of monetary policy across jurisdictions. The Governing Council therefore decided that it would apply flexibility in reinvesting redemptions of maturing securities held under the PEPP, with a view to countering pandemic-related risks to the transmission mechanism.<sup>19</sup> Such flexibility includes reinvesting redemptions, as deemed appropriate, in bond markets of euro area jurisdictions where orderly transmission is at risk.<sup>20</sup> This was evident in the relative weights of gross PEPP purchase volumes in June and July 2022. The degree to which this is applied will continue to be dependent on market conditions and forms an additional layer of the multi-faceted flexibility that characterises the PEPP. Flexibility in PEPP reinvestments represents a first line of defence against fragmentation risk.

---

## 5 The effectiveness of the PEPP

### Monetary policy transmission

**The launch of the PEPP arose from the need for market stabilisation in an environment in which euro area financial markets were showing increasing signs of stress and illiquidity, suggesting that financing conditions were becoming unduly detached from the ECB's intended monetary policy stance.**

Central banks need to act decisively against such a detachment to ensure the transmission of their monetary policy stance. At the same time, any intervention for the purposes of market stabilisation requires that dislocations – e.g. between key yield curves – be the result of non-fundamental, self-fulfilling dynamics in securities markets. The severe financial market dislocations in the run-up to the announcement

---

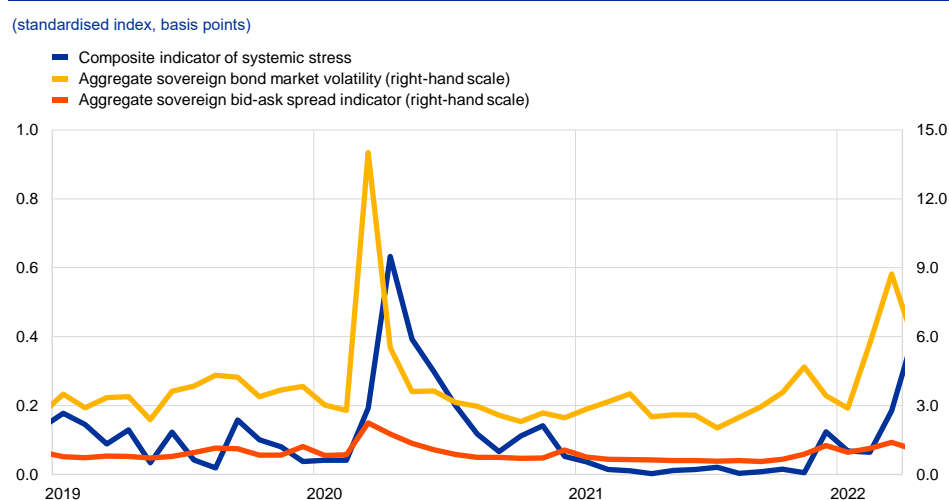
<sup>19</sup> See, “Statement after the ad hoc meeting of the ECB Governing Council”, *press release*, ECB, 15 June 2022.

<sup>20</sup> Lagarde, C., “Price stability and policy transmission in the euro area”, speech at the ECB Forum on Central Banking 2022 on “Challenges for monetary policy in a rapidly changing world” in Sintra, Portugal, 28 June 2022.

of the PEPP were indicative of such dynamics. The wedge between sovereign bond yields and risk-free rates is a case in point; this increased sizeably and rapidly (Chart 1). It also occurred amid a significant deterioration in liquidity conditions in euro area sovereign bond markets and significant systemic stress engulfing several segments of the euro area financial markets (Chart 8). This combination – together with a broad assessment of a range of further quantitative and qualitative evidence – pointed to a disorderly and potentially self-fulfilling repricing in government bond markets and a clear need for intervention to restore market stability so that monetary policy could be transmitted smoothly.<sup>21</sup>

**The PEPP’s success is illustrated by the fact that liquidity strains in euro area sovereign bond markets and systemic stress across markets receded markedly following the announcement of the programme.** After the announcement, PEPP purchases were adjusted on an ongoing basis within the overall maximum envelope, both in terms of volume and across jurisdictions, so as to guard against a non-fundamental detachment of sovereign bond yields from the ECB’s intended monetary policy stance. This approach visibly contributed to further reducing market tensions and ultimately returned them to more normal, pre-pandemic levels.

**Chart 8**  
Euro area indicators of systemic stress and sovereign bond market conditions



Sources: Refinitiv and ECB calculations.  
Notes: The euro area composite indicator of systemic stress is computed following Holló, D., Kremer, M. and Lo Duca, M., “CISS – A composite indicator of systemic stress in the financial system”, *Working Paper Series*, No 1426, ECB, Frankfurt, March 2012. The sovereign bond market volatility and bid-ask spread indicators are aggregated to the euro area level using GDP weights, based on ten-year sovereign benchmark yields in individual jurisdictions. The latest observations are for March 2022.

<sup>21</sup> See also Lane, P.R., “The market stabilisation role of the pandemic emergency purchase programme”, *The ECB Blog*, 22 June 2020.

**The PEPP's success in countering pandemic-related risks to the transmission of monetary policy reflected both announcement and flow effects.**<sup>22</sup> The

announcement effect of central bank asset purchase programmes, as the name implies, refers to the impact that the announcement of key parameters such as the overall size of the programme or central implementation aspects has on financing and market conditions. The “pure” announcement effect captures the impact that materialises even before the programme is actually implemented, as market participants instantaneously readjust their expectations, especially concerning the expected stock of future bond holdings by the central bank. For pre-pandemic asset purchase programmes of major central banks, the overriding transmission channel operated by extracting duration risk,<sup>23</sup> i.e. the expected stock of sovereign bonds on the central bank’s balance sheet compressed the term premium component embedded in the term structure of interest rates.<sup>24</sup> By contrast, the set of relevant transmission channels with the PEPP is richer, owing to the flexibility in allocating net purchases over time and across asset classes and jurisdictions. Given this considerable additional flexibility, the flow effects stemming from implementation of asset purchases, i.e. the impact actual purchases have on financial asset prices, can gain additional relevance.

**The most significant announcement effect arose at the inception of the programme on 18 March 2020 and reduced euro area sovereign bond yields beyond what might have been expected based on experience with non-stressed financial market environments.** Of the three major announcements of

the PEPP – the launch of the programme on 18 March 2020 and the two upscalings of the maximum overall envelope in June and December of the same year (Section 4, Chart 3) – the initial announcement stands out not only for being associated with the largest increase in the envelope and launching the programme to begin with; it was also largely unexpected by financial market participants at the time. Accordingly, moves in market prices within a narrow time window can be used to gauge the size of the associated announcement effect using an event-study type analysis. Chart 9 shows model-implied elasticities (i.e. changes in the yields of sovereign bonds of different maturities for a given envisaged volume of additional Eurosystem bond holdings) associated with PEPP purchases (yellow bars) and purchases under the public sector purchase programme (PSPP – blue bars). While the latter are informed by experience with the PSPP as a whole, the former reflect only bond yield reactions

<sup>22</sup> See Bernanke, B.S., “[The New Tools of Monetary Policy](#)”, American Economic Association Presidential Address, 4 January 2020, for a general discussion of quantitative easing and other tools that have become a staple of major central banks since the global financial crisis. See also D’Amico, S. and King, T., “[Flow and Stocks Effects of Large-Scale Treasury Purchases: Evidence on the Importance of Local Supply](#)”, *Journal of Financial Economics*, Vol. 108, No 2, 2013, pp. 425-448, for a discussion of the differences between stock and flow effects and an empirical analysis of the Federal Reserve System’s large-scale asset purchases.

<sup>23</sup> See Bernanke, B.S. (2020). See also Vayanos, D. and Vila, J.-L., “[A Preferred-Habitat Model of the Term Structure of Interest Rates](#)”, *Econometrica*, Vol. 89, No 1, 2021, pp. 77-112, for the effects of large-scale asset purchases – such as those conducted by major central banks since the global financial crisis – in a setting where various investor clienteles prefer to operate in specific segments of the yield curve (“preferred habitat”).

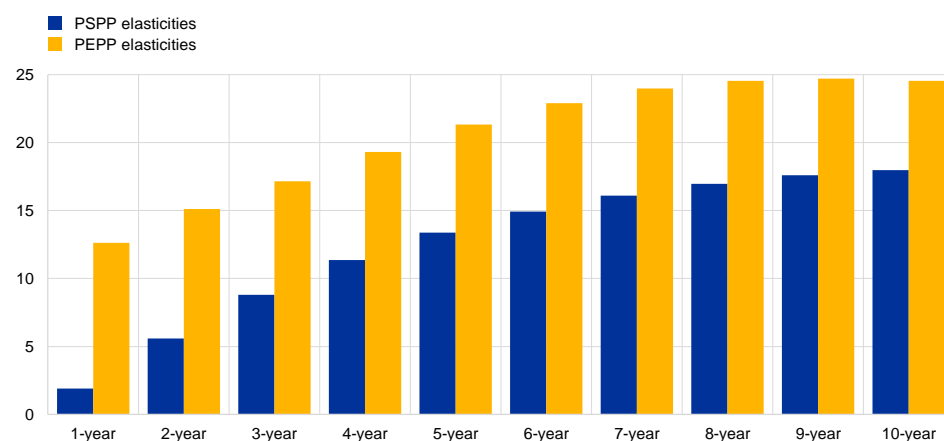
<sup>24</sup> See also Lane, P.R., “[The yield curve and monetary policy](#)”, Public Lecture for the Centre for Finance and the Department of Economics at University College London, 25 November 2019, and Altavilla, C., Lemke, W., Linzert, T., Tapking, J. and von Landesberger, J., “[Assessing the efficacy, efficiency and potential side effects of the ECB’s monetary policy instruments since 2014](#)”, *Occasional Paper Series*, No 278, ECB, Frankfurt, September 2021.

around the time the PEPP was announced. In addition to being significant in absolute terms, the implied PEPP elasticities are clearly higher than those implied by their PSPP counterparts. The estimated PSPP elasticities reflect the financial market conditions during its net purchase phase, which predominantly covered calm periods. This contrasts notably with the severe market stress that prevailed around, and in fact gave rise to, the announcement of the PEPP. Hence the difference between the two sets of elasticities may be interpreted as confirming that, in general, central bank policy measures which absorb risk otherwise borne by investors tend to be more effective in countering an undue build-up of risk premia under conditions of market distress.<sup>25</sup>

### Chart 9

#### PSPP and PEPP yield elasticities for sovereign bond purchases, by residual maturity

(basis points per EUR 500 billion of sovereign bond purchases)



Source: ECB calculations.

Notes: PSPP elasticities are based on Eser, F., Lemke, W., Nyholm, K., Radde, S. and Vladu, A.L., “Tracing the impact of the ECB’s asset purchase programme on the yield curve”, *Working Paper Series*, No 2293, ECB, Frankfurt, July 2019. The model translates current and expected Eurosystem bond holdings into changes in sovereign bond yields and is estimated based on the APP/PSPP evidence. PEPP elasticities are derived from an alternative version of the same model, recalibrated such that the model-implied yield reactions to the March PEPP announcement match the two-day yield changes observed after 18 March 2020. Elasticities refer to the change in GDP-weighted yields of the four largest euro area countries in response to €500 billion of sovereign bond purchases in the euro area over the following ten months, without subsequent reinvestment.

#### Flow effects from implementing the PEPP were also stronger during the stressed market conditions that characterised the initial phase of the programme compared with the subsequent phases.

This conclusion is the result of analyses of various ECB purchase programmes, comparing the price changes of sovereign bonds that attracted positive purchase flows on a given day during the implementation phase with the price changes of those bonds that attracted no, or a lower, purchase flow. Updating and extending earlier work makes it possible to compare flow effects in sovereign bond markets according to the presence or

<sup>25</sup> See also Costain, J., Nuño, G. and Thomas, C., “The term structure of interest rates in a heterogeneous monetary union”, *Documentos de Trabajo*, No 2223, Banco de España, Madrid, June 2022, who find that the extraction of default risk premia is especially significant in explaining the behaviour of yields in response to the PEPP announcement, in particular for vulnerable euro area countries.

absence of stress, both over time and across countries.<sup>26</sup> In this exercise, the first year of the PSPP net purchase phase serves as a benchmark for non-stressed market conditions. As shown in Chart 10, even under non-stressed conditions such as were seen during most of the PSPP net purchase phase, sovereign bond purchase flows exerted statistically significant and economically relevant effects on sovereign bond returns. These were concentrated in more stressed countries. However, in the stressed conditions prevailing from March to June 2020, the magnitude of the flow effects rose markedly. An analysis for the CBPP3, which was carried out alongside the PSPP under the umbrella of the APP, suggests that similar conclusions can be drawn for private sector purchase programmes.<sup>27</sup> The estimated flow effects of covered bond purchases during the CBPP3 net purchase phase were considerably larger during sub-periods of higher levels of stress, as proxied by the increase in sovereign spreads (Chart 11). This implies that central bank purchases of private sector bonds, too, are especially powerful if monetary policy transmission is at risk of being impaired. Consistent with the evidence for announcement effects, the estimates therefore suggest that actual purchases during implementation are more potent for supporting bond prices in stressed conditions.<sup>28</sup>

---

<sup>26</sup> See De Santis, R. and Holm-Hadulla, F., “[Flow Effects of Central Bank Asset Purchases on Sovereign Bond Prices: Evidence from a Natural Experiment](#)”, *Journal of Money, Credit and Banking*, Vol. 52, No 6, 2020, pp. 1467-1491. For estimates of the effects of asset purchases in stressed conditions under the Securities Markets Programme in the context of the euro area sovereign debt crisis, see Eser, F. and Schwaab, B., “[Evaluating the impact of unconventional monetary policy measures: Empirical evidence from the ECB’s Securities Markets Programme](#)”, *Journal of Financial Economics*, Vol. 119, No. 1, 2016, pp. 147-167; Ghysels, E., Idier, J., Manganelli, S. and Vergote, O., “A high frequency assessment of the ECB Securities Markets Programme”, *Journal of the European Economic Association*, 15, pp. 218-243; De Pooter, M., Martin, R.F. and Pruitt, S., “The Liquidity Effects of Official Bond Market Intervention”, *Journal of Financial and Quantitative Analysis*, Vol. 53, No. 1, 2018, pp. 243-268.

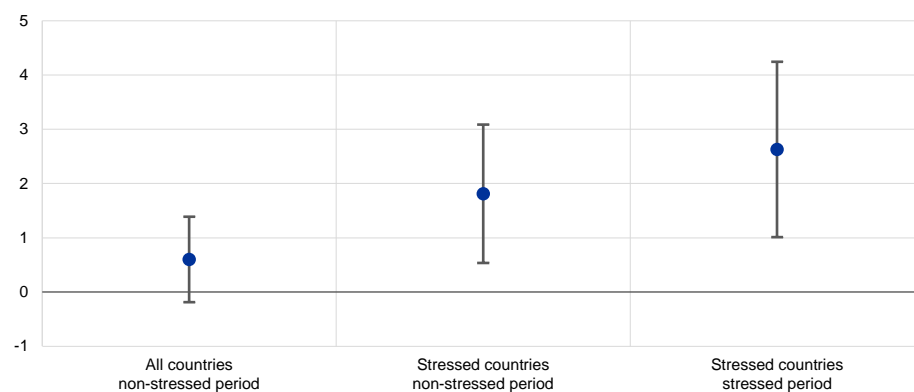
<sup>27</sup> Contributions by Jasper Knyphausen to this analysis are gratefully acknowledged.

<sup>28</sup> See Bernardini, M. and De Nicola, A., “[The market stabilization role of central bank asset purchases: high-frequency evidence from the COVID-19 crisis](#)”, *Temì di discussione*, No 1310, Banca d’Italia, Rome, December 2020, who show that, for central bank purchases made by Banca d’Italia during the pandemic crisis, outright government bond purchases compressed yields immediately and persistently over a trading day and helped to improve market liquidity, in particular under heightened market stress. For a more general discussion, see Bailey, A., Bridges, J., Harrison, R., Jones, J. and Mankodi, A., “[The central bank balance sheet as a policy tool: past, present and future](#)”, *Staff Working Paper*, No 899, Bank of England, London, December 2020; also Cúrdia, A. and Woodford, M., “[The central-bank balance sheet as an instrument of monetary policy](#)”, *Journal of Monetary Economics*, Vol. 58, No 1, January 2011, pp. 54-79.

## Chart 10

### Flow effects on daily sovereign bond returns

(impact of a 1 percentage point increase in purchases of securities relative to the outstanding amount, percentages)



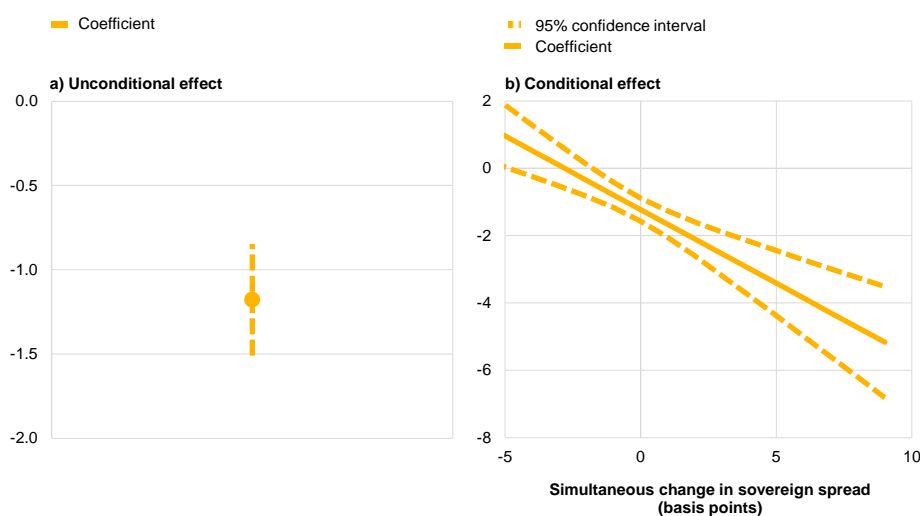
Source: ECB calculations.

Notes: The impact estimates are derived from regressions of daily bond returns of individual central government securities on ECB purchases of these securities, scaled by their outstanding amounts, and a full set of security and day-fixed effects. Purchase volumes are instrumented via the blackout periods embedded in the PSPP and PEPP design, as detailed in De Santis, R. and Holm-Hadulla, F. (2020). The blue circles represent point estimates and the whiskers are 95% confidence intervals.

## Chart 11

### Yield impact of private sector purchases: the case of covered bonds

(basis points per percentage point of outstanding amount purchased)



Source: ECB calculations.

Notes: The chart shows the estimated effect of purchasing 1 percentage point of the outstanding amount of a covered bond under the CBPP3. The effects are identified using proximity to the issue share limit as an instrumental variable for the purchase decisions. The left panel shows the unconditional effect, while the right panel shows the conditional effect for a given change in the sovereign spread on the same date.

## Monetary policy stance

**The announcement and implementation of the PEPP effectively stabilised financial markets and contributed to countering the adverse impact of the pandemic on the projected inflation path.** The accumulated stock of bond

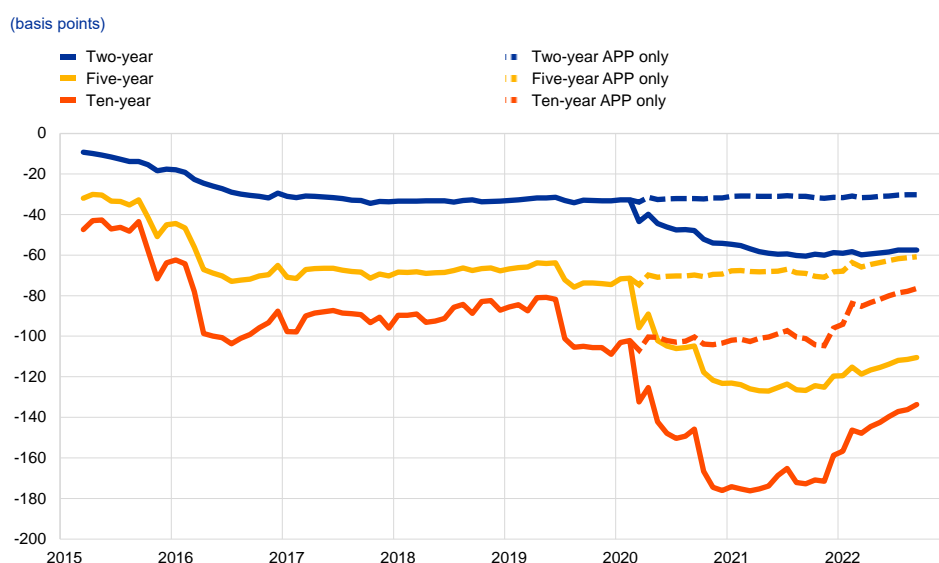
holdings under the APP had already led to an estimated compression of around 100 basis points in the aggregated ten-year bond yields of the four largest euro area



jurisdictions before the announcement of the PEPP (Chart 12).<sup>29</sup> The additional ten-year yield compression from the PEPP added around another estimated 60 basis points by the end of the net purchase phase. The PEPP thus enabled substantial easing of financing conditions at a time when the scope for additional accommodation via the ECB's key policy rates was limited by proximity to the effective lower bound on interest rates.

**Chart 12**

Time series estimates of the impact of the APP and PEPP on sovereign term premia



Source: ECB calculations.

Notes: APP impacts are estimated on the basis of an arbitrage-free affine model of the term structure with a quantity factor (see Eser, F. et al., 2019). PEPP impacts are derived as averages of the estimated impact using the same model and an alternative version of the model recalibrated so that the model-implied yield reactions to the March 2020 announcement of the PEPP match the two-day yield changes observed after 18 March. Estimates refer to GDP-weighted averages of the zero-coupon yields of the four largest euro area countries (Germany, Spain, France, and Italy). The latest observations are for September 2022.

**In conjunction with the ECB's other pandemic-related measures, the PEPP successfully contributed to limiting the economic fallout from the pandemic.**

The inflation rates at the end of the respective horizons of the staff macroeconomic projections deteriorated sharply over the course of the pandemic, before recovering back towards (and ultimately exceeding) the Governing Council's medium-term target of 2% (Chart 13). However, considering the evolution of the inflation outlook without a counterfactual scenario cannot establish the estimated accommodative effect of the PEPP. Compared with a model-based counterfactual scenario in which the ECB did not ease its monetary policy stance, the PEPP and other pandemic-related measures supported euro area growth by a cumulative 1.8 percentage points over the period 2020-23 (Chart 1). Inflation, which was projected to remain below the ECB's medium-term target at the time the decisions were taken, would have been a cumulative 1.2 percentage points lower over the same period in the counterfactual

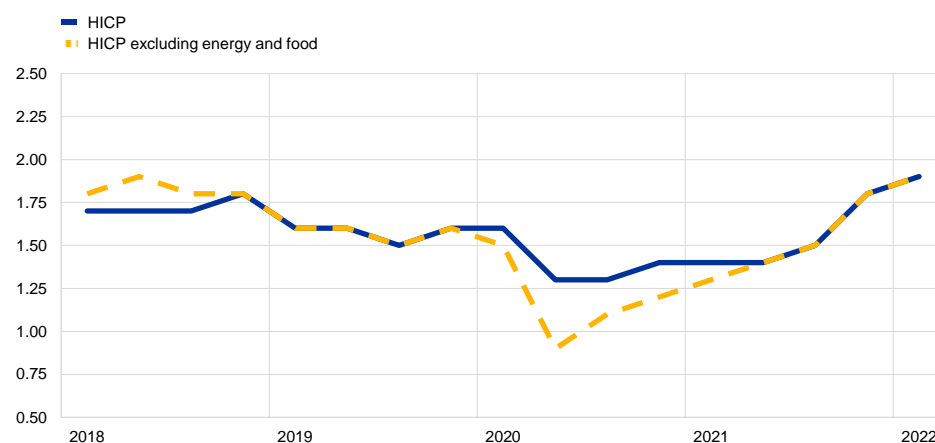
<sup>29</sup> "Term premium" in Chart 12 can be understood as the portion of the considered sovereign bond yields (the weighted average across Germany, Spain, France, and Italy) that is not related to current or expected short-term interest rate expectations. For an explicit decomposition of the effect of bond purchases on interest rate expectations, term premia (in the narrow sense of just capturing duration risk), expected default compensation and credit risk premia, see Costain, J. et al. (2022).

scenario.<sup>30</sup> These numbers are likely conservative estimates of the true impact of the PEPP and other monetary policy measures during the pandemic, as the underlying models feature quantitative calibrations that largely rely on observations made in periods of calm. As discussed in Section 5.1, there is substantial evidence suggesting that the effects of monetary policy are stronger in stressed conditions like the early phase of the pandemic. Moreover, the announcement of the PEPP acted as a circuit breaker, interrupting the destabilising dynamics in the spring of 2020 and helping to reduce the risk of particularly adverse tail events. A quantile regression-based approach indicates that a tightening of financial conditions can have a considerably more negative impact on output growth during an economic downturn, suggesting that the ECB's easing measures were particularly important to stabilise the economy during the severe recession in the first year of the pandemic (Chart 15).<sup>31</sup>

### Chart 13

#### End-of-horizon projections for HICP inflation and HICP inflation excluding energy and food

(percentages per annum)



Sources: ECB/Eurosystem staff macroeconomic projections and ECB calculations.

Note: The latest observations are from the March 2022 ECB staff macroeconomic projections.

<sup>30</sup> These estimates refer only to the monetary policy measures taken in response to the pandemic and do not account for the impact of the more recent monetary policy normalisation.

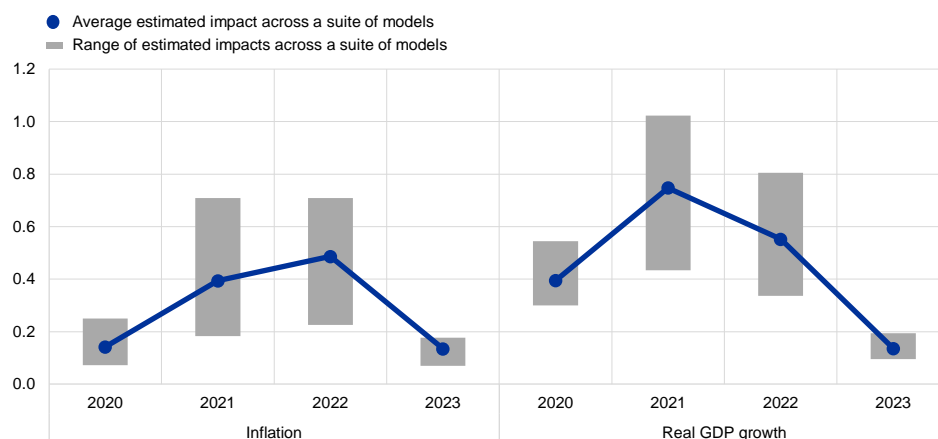
<sup>31</sup> See Lane, P.R. (2022).

### Chart 14

#### Estimated impact of the ECB's monetary policy decisions between March and December 2020 on inflation and economic activity

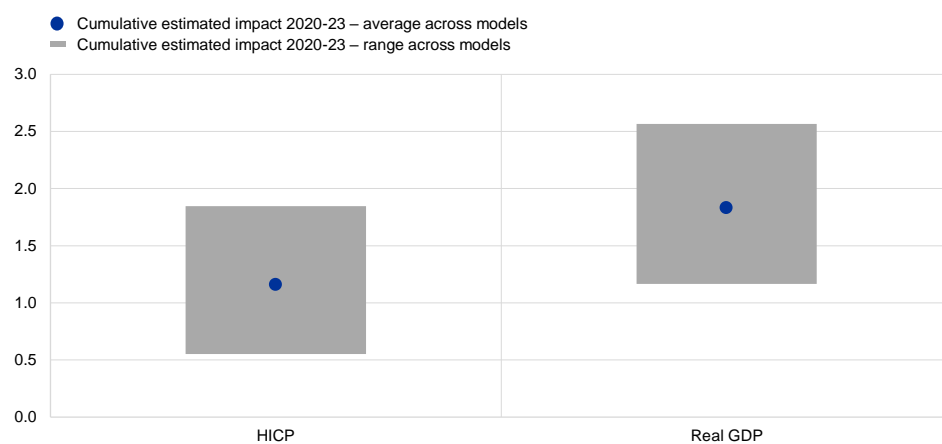
##### a) Estimated impact per annum

(percentage points)



##### b) Estimated cumulative impact over the period 2020-23

(percentage points)

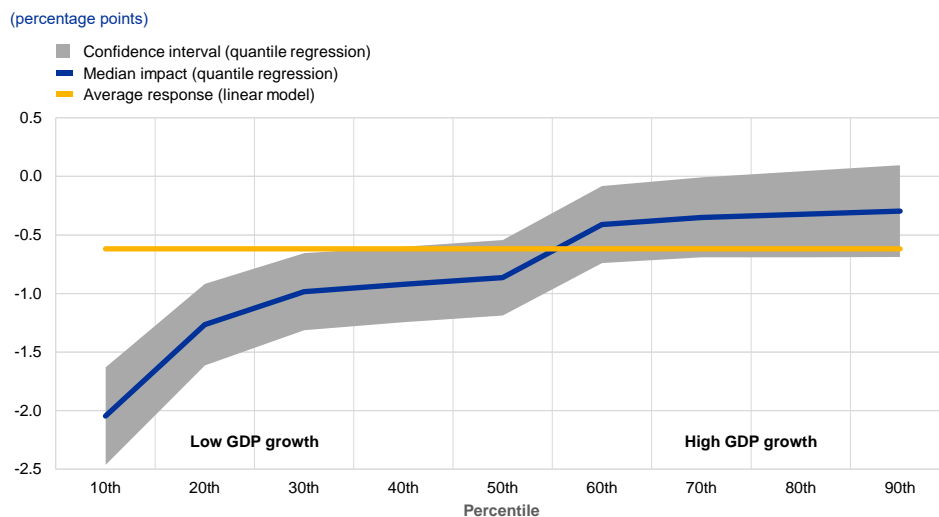


Source: ECB calculations.

Notes: The estimated impact across a suite of models refers to the average across a set of models used by the Eurosystem for policy simulations, namely a Bayesian vector autoregression model (see Rostagno, M. et al., cited in footnote 5), the NAWM-II model (see Coenen, G., Karadi, P., Schmidt, S. and Warne, A., "The New Area-Wide Model II: an extended version of the ECB's micro-founded model for forecasting and policy analysis with a financial sector", *Working Paper Series*, No 2200, ECB, Frankfurt, November 2018, revised December 2019) and 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, Frankfurt, September 2019).

## Chart 15

### Impact of financial tightening on real GDP growth under different distribution quantiles



Source: ECB calculations.

Notes: The chart shows the impact of a one standard deviation increase in the euro area composite indicator of systemic stress (CISS) on the one-year-ahead annual growth rate of euro area GDP, by GDP decile. The estimates are based on quantile regressions of the one-year-ahead GDP growth rate on the CISS index. The estimation is carried out for the period January 1999 to December 2021, based on monthly observations. The shaded area is the 64% confidence interval for the estimates of the coefficients, while the linear model refers to the ordinary least squares estimate.

### The potential side effects of the PEPP's contribution to the macroeconomic stabilisation of the euro area during the pandemic are likely limited.

Since monetary policy can affect prices only indirectly, through its impact on economic activity, all monetary policy measures have a range of direct and indirect effects on economic conditions. In its deliberations, the Governing Council therefore assesses whether the benefits of its monetary policy measures outweigh the costs.<sup>32</sup> With respect to the PEPP, this assessment includes careful monitoring of the potential side effects of large-scale asset purchases on the different economic sectors. First, the household sector is affected by asset purchases in several, partly opposing ways. Asset purchases tend to lower longer-term interest rates for private borrowers and savers and support household incomes and ultimately the macroeconomy through higher employment, growing wages and positive wealth effects, but asset purchase programmes can also have potential distributional implications. While they tend to reduce income inequality overall through positive employment and wage effects, their implications for wealth inequality can be mixed. Second, the favourable financing conditions for non-financial corporates, together with fiscal subsidies, might have contributed to the survival of some firms that would otherwise have been forced to shut down. However, the return to pre-pandemic GDP levels by the end of 2021 suggests that a comprehensive approach to supporting firms' survival was broadly appropriate. Third, asset purchases have direct effects on bank profitability. However, a comprehensive assessment of the impact on banks must also consider that the supportive monetary policies during the pandemic improved the

<sup>32</sup> See, among others, Schnabel, I., "Necessary, suitable and proportionate", *The ECB Blog*, 28 June 2020, and Lane, P.R. (2022) for discussions of the Governing Council's assessment of the PEPP's proportionality in achieving its intended objective.

macroeconomic outlook. Fourth, while the PEPP supported market functioning especially during the outbreak of the pandemic in early 2020, purchases may at times have reduced liquidity in some smaller market segments (mitigated to some extent by precautionary measures such as securities lending). The impact of asset purchases on property markets and financial markets is also being closely monitored. The Governing Council stressed that a number of medium-term vulnerabilities had intensified when it announced in December 2021 that net purchases under the PEPP would end. In its latest assessment of the interrelation between monetary policy and financial stability in June 2022, the Governing Council concluded that the environment for financial stability had worsened. However, macroprudential policy remains the first line of defence in preserving financial stability and addressing medium-term vulnerabilities. Fifth, with regards to the impact of the PEPP on the conduct of fiscal policy, the pandemic experience demonstrated that in response to a severe shock, simultaneous and ambitious policy actions by governments and central banks working in the same direction – within their respective responsibilities and mandates – can complement each other effectively. At the same time, the ECB’s overriding price stability mandate is unambiguous. Overall, the PEPP has been found to have limited unintended side effects on households, non-financial corporates and the financial system, and is likely to have reinforced the effectiveness of the fiscal policy response to the pandemic crisis.<sup>33</sup>

---

<sup>33</sup> For more details, see [Lane, P.R. \(2022\)](#).

## 2 Wage developments and their determinants since the start of the pandemic

Prepared by Katalin Bodnár, Eduardo Gonçalves, Lucyna Górnicka and Gerrit Koester

### 1 Introduction

**The coronavirus (COVID-19) pandemic has greatly affected labour markets and wage growth indicators in the euro area.** The onset of the pandemic led to the sharpest decline in total hours worked on record. The widespread introduction of job retention schemes to contain the effects of the pandemic helped to keep employment losses moderate – particularly when compared with the decline in GDP – and affected developments in labour compensation. The containment measures and the pandemic-induced shifts in demand and supply for goods and services also led to more diverse employment and wage dynamics across sectors. More recently, wage growth has been driven by the exceptional strength of the economic rebound post-reopening and the Russian invasion of Ukraine, both contributing to an unprecedented surge in consumer price inflation. At the same time consumer confidence in the euro area dropped abruptly following the invasion and uncertainty about the economic outlook rose. The combination of these factors has made assessing underlying wage pressures and the outlook for wage growth extremely challenging. Issues related to the statistical treatment of government support in the context of job retention schemes add to these difficulties.

**Wage growth indicators have been extremely volatile since the start of the pandemic, partly owing to the impact of job retention schemes, complicating the assessment of wage developments.** Large pandemic-related swings in hours worked and, to a much lesser extent, employment have resulted in more volatile annual growth rates for compensation per employee and compensation per hour, which are typically the main indicators used to assess wage growth in the euro area.<sup>1</sup> Job retention schemes introduced by governments to prevent large-scale job losses have had a differing impact on employment and hours worked, creating a wedge between growth in compensation per employee and growth in compensation per hour. Different statistical treatments of these support measures have also made it difficult to compare wage developments across euro area countries.

**In this unusual economic environment, standard empirical models provide only limited help in analysing wage developments in the euro area.** Normally, wage developments can be assessed against empirical regularities by observing the Phillips curve, which links wage growth to economic or labour market slack, past and/or expected inflation, and productivity. During the pandemic, however, wage

---

<sup>1</sup> For more details, see Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.), “Understanding low wage growth in the euro area and European countries”, *Occasional Paper Series*, No 232, ECB, Frankfurt am Main, September 2019, revised December 2020.

growth indicators as well as indicators of economic activity and labour market slack have followed patterns that deviate strongly from historical regularities, making it harder to interpret results obtained from the usual empirical models.<sup>2</sup> As a result, assessing underlying wage pressures has become a lot more challenging and requires an in-depth analysis of the impact of the pandemic on different indicators of wage growth.

**This article discusses wage developments and the main factors that have influenced them since the start of the pandemic.** First, it reviews developments in a broad range of wage measures for the euro area since the start of the pandemic and discusses their usefulness as signals of wage pressures. It also proposes approaches to adjust for the impact of job retention schemes on the growth in compensation per employee (CPE growth) and compensation per hour (CPH growth). Second, the article looks at how wage developments have differed across sectors, reflecting the heterogeneous impact of the pandemic shock. Finally, it discusses the impact of inflation on wage growth in the euro area by examining developments in consumer and producer wages for the economy as a whole and in its main sectors.

## 2 Euro area wage growth since the start of the pandemic – assessing underlying wage pressures

**The pandemic has led to an unusual divergence between measures of euro area wage growth (Chart 1).** A key indicator in the assessment of wage growth in the euro area is the annual growth rate of compensation per employee. This reflects the labour costs payable by employers – including wages, salaries and employers' social contributions – expressed as an average per employee. CPE growth declined considerably at the start of the pandemic and during most of 2020, whereas indicators of wage growth per hour worked, such as compensation per hour and Eurostat's labour cost index, rose.<sup>3</sup> These indicators also remained volatile in 2021 owing to base effects. These developments are heavily influenced by statistical factors linked to the pandemic and the use of job retention schemes, which distorted the information content of CPE and CPH growth during this period. By contrast, the ECB's indicator of negotiated wages, which captures the outcome of collective bargaining processes, remained relatively stable during 2020-21. The differences in the growth rates of different wage measures have moderated over time but remain substantial. For example, in the second quarter of 2022 indicators of year-on-year wage growth ranged from 2.4% (negotiated wages) to 4.5% (compensation per employee).

---

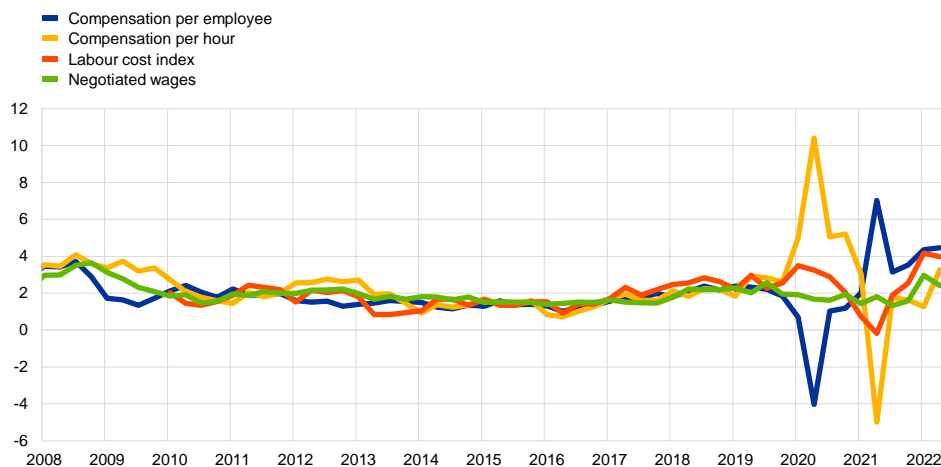
<sup>2</sup> See, for example, Bobeica, E. and Hartwig, B., "The COVID-19 shock and challenges for time series models", *Working Paper Series*, No 2558, ECB, Frankfurt am Main, May 2021, or Lenza, M. and Primiceri, G.E., "How to estimate a VAR after March 2020", *Working Paper Series*, No 2461, ECB, Frankfurt am Main, August 2020.

<sup>3</sup> The labour cost index measures developments in compensation per hour, including employers' social security contributions and taxes paid less any subsidies received by employers.

## Chart 1

### Measures of euro area wage growth

(annual percentage growth)



Sources: ECB and Eurostat.

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

**Compensation per employee declined strongly during the pandemic, heavily affected by job retention schemes (Chart 2).** Total labour input at the start of the pandemic fell substantially, by around 16%, owing mainly to the drop in hours worked per employee.<sup>4</sup> Measures of compensation per hour increased significantly as a result, given the lower denominator. By contrast, total compensation of employees declined by 7.0% in the second quarter of 2020 on a year-on-year basis as job retention schemes cushioned employment losses and governments compensated part of the decline in wages through transfers. Furthermore, while job retention schemes prevented major job losses, the number of employees still fell, counteracting somewhat the decline in compensation per employee.<sup>5</sup> As a result, compensation per employee fell by 4.0% year on year in the second quarter of 2020, resulting in the lowest annual growth rate in any quarter since 1999. Compensation of employees and the number of employees both recovered in 2021 when the economy reopened, and their contributions to CPE growth changed signs. However, base effects implied a spike in CPE growth and continue to distort it.

<sup>4</sup> Total hours worked by salaried employees declined by 15.8% year on year in the second quarter of 2020. Over the same period total hours worked by all workers (i.e. salaried employees and self-employed workers) declined by 17.3%. See also the article entitled “[The impact of the COVID-19 pandemic on the euro area labour market](#)”, *Economic Bulletin*, Issue 8, ECB, 2020.

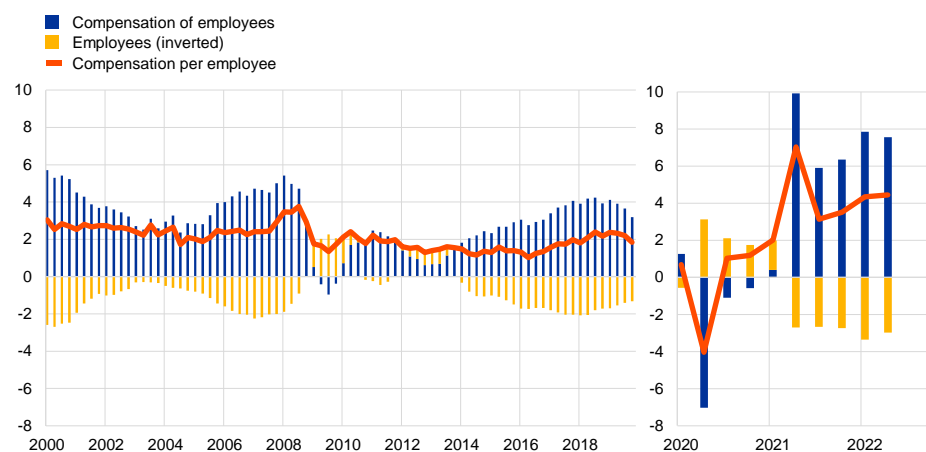
<sup>5</sup> A positive contribution from the falling number of employees to the growth of compensation per employee is characteristic of recessions and was also observed during the global financial crisis and the sovereign debt crises in some euro area countries. This partly reflects compositional effects, as workers on low wages are generally the first to be dismissed during a recession.



## Chart 2

### Decomposition of compensation per employee growth into compensation of employees and number of employees

(annual percentage growth and percentage point contributions)



Sources: Eurostat and ECB staff calculations.

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

### Pandemic-related support measures drove a large wedge between compensation per employee and compensation per hour.

Compensation per employee declined considerably in the second quarter of 2020, whereas compensation per hour rose exceptionally strongly, by 10.4%. The difference in growth rates between the two indicators moderated in the third quarter of 2020 but increased again in 2021 (Chart 1), partly reflecting base effects from 2020.<sup>6</sup> The volatility of hours worked per employee caused by job retention schemes contributed decisively to this wedge. The schemes helped enrolled workers retain their employment status but with reduced compensation, thus decreasing compensation per employee. However, as hours worked fell by a lot more than pay, compensation per hour increased (Chart 3).<sup>7</sup> The statistical recording of government support paid under the job retention schemes is also likely to have affected the wedge between compensation per employee and compensation per hour. In some countries, government support was not recorded as compensation of employees because it was paid as a direct transfer to households, whereas in others, government payments were recorded as part of compensation of employees because they were considered a reimbursement to employers.<sup>8</sup>

<sup>6</sup> Looking through the volatility caused by base effects, the quarter-on-quarter growth rates of the different wage measures have been aligned and moderate since the second half of 2021.

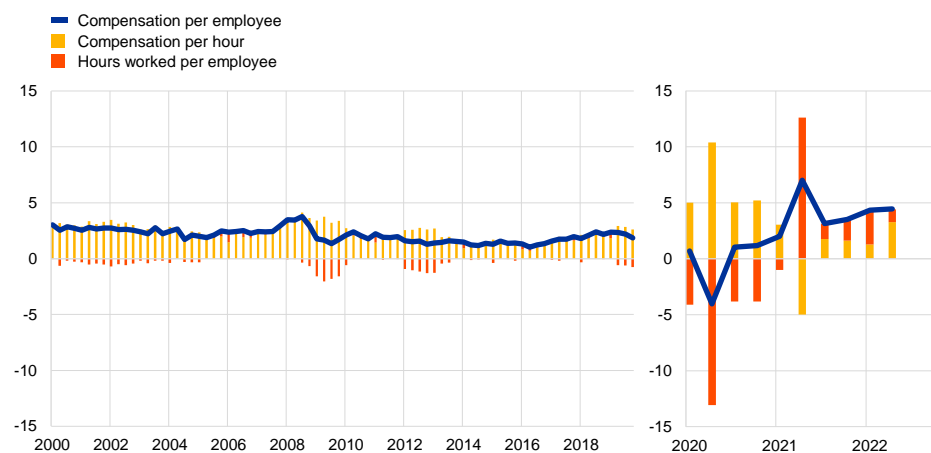
<sup>7</sup> See the box entitled “Developments in compensation per hour and per employee since the start of the COVID-19 pandemic” in the article entitled “[The impact of the COVID-19 pandemic on the euro area labour market](#)”, *Economic Bulletin*, Issue 8, ECB, 2020.

<sup>8</sup> See also the box entitled “[Wage dynamics across euro area countries since the start of the pandemic](#)” in this issue of the *Economic Bulletin* and the box entitled “[Short-time work schemes and their effects on wages and disposable income](#)”, *Economic Bulletin*, Issue 4, ECB, 2020. The strong negative correlation between average hours worked and compensation per hour was also characteristic of the recession following the global financial crisis, when job retention schemes were also used in some euro area countries, albeit to a much lesser extent than during the pandemic.

### Chart 3

#### Decomposition of compensation per employee growth into compensation per hour growth and the average hours worked per employee

(annual percentage growth and percentage point contributions)



Sources: Eurostat and ECB staff calculations.

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

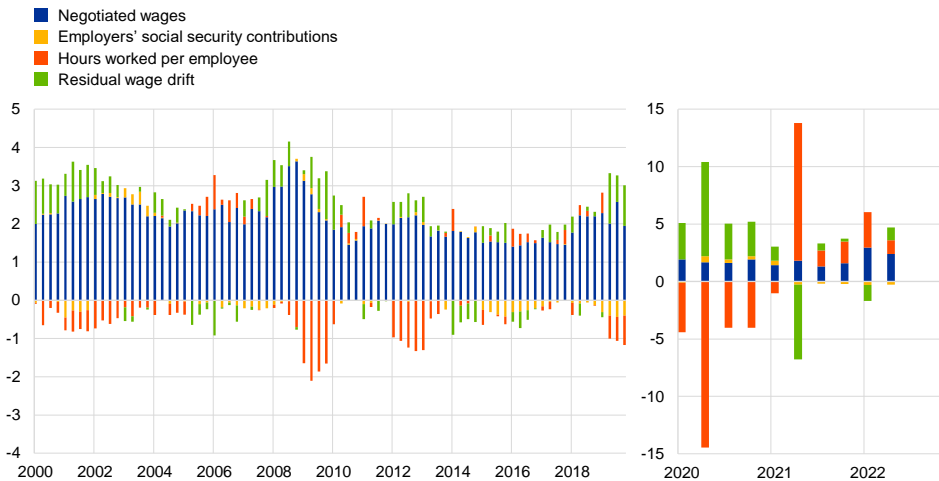
**The pandemic-related distortions have become much smaller in recent quarters, but developments in hours worked per employee continue to be an important driver of growth in compensation per employee.** CPE growth can be decomposed into negotiated wages, social security contributions, hours worked per employee and the residual wage drift. This decomposition suggests that the impact of pandemic-related distortions declines as job retention schemes wind down. The wage drift, which since the start of the pandemic has largely reflected the subsidies paid by governments to employers, had a significant role in explaining CPE developments during 2020 and the first half of 2021.<sup>9</sup> Since then, however, its role has moderated, and the recovery of hours worked per employee and more recently the pick-up in negotiated wages have accounted for most of the increase in CPE growth (Chart 4).

<sup>9</sup> For an explanation of the wage drift, see the box entitled “Recent developments in the wage drift in the euro area”, *Economic Bulletin*, Issue 8, ECB, 2018.

## Chart 4

### Decomposition of compensation per employee growth and role of negotiated wage growth

(percentage point contributions to annual percentage growth)



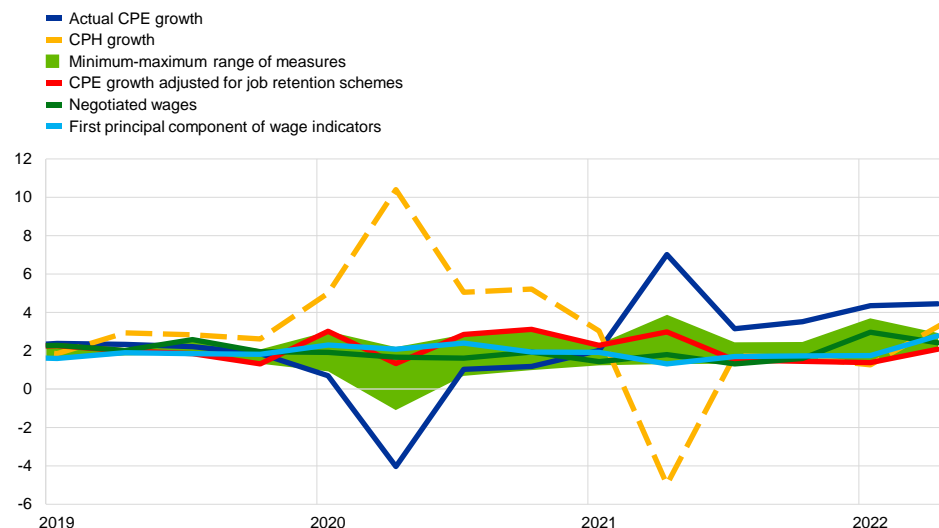
Sources: Eurostat, ECB and ECB staff calculations.

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

**One way to look through the pandemic-related distortions of wage measures is to estimate compensation per employee adjusted for the impact of the job retention schemes.** However, this is not straightforward. Without job retention schemes, the decline in GDP and total labour input would probably have been similar, but the adjustments in employment and average hours worked may have been different, with implications for the compensation measures. It is possible to estimate the path of adjusted wage measures by making some assumptions about the counterfactual path of the various components. A principal component analysis of wage growth indicators and negotiated wage growth can also be used to assess underlying wage measures. Chart 5 shows the range of these different estimates using a variety of methods. Overall, these approaches result in smoother series and suggest more moderate wage growth than the headline indicators. At the same time, the differences between these adjusted indicators illustrate the uncertainty around underlying wage growth during the pandemic.

**Chart 5****CPE growth and estimates for underlying wage growth**

(annual percentage growth)



Sources: Eurostat and ECB staff calculations.

Notes: The range includes six series: (i) negotiated wage growth; (ii) Christiano-Fitzgerald filter (with a cut-off of 2 and 32 quarters); (iii) a Hodrick-Prescott filter with a lambda of 1,600; (iv) the CPE series adjusted for the impact of the job retention schemes, which uses data on the government subsidies that firms received and information (including estimates) on the number and total hours worked by workers in job retention schemes; (v) the CPE series adjusted for the wage drift, which relies on the pre-pandemic relationship between the wage drift (the most cyclical part of wage growth) and business cycle indicators (GDP growth, total labour input growth, industrial production and the unemployment rate); the range includes the average of estimates using 12 specifications; and (vi) the principal component of different wage measures. The latest observations are for the second quarter of 2022.

**The ECB's indicator of negotiated wage growth, which has been less distorted by the pandemic than other indicators, has remained relatively stable.**

Negotiated wage growth captures the outcome of collective bargaining processes with respect to the level of salaries for a specified number of working hours, so it should be less affected by actual developments in average hours worked or by government subsidies. Negotiated wage growth slowed somewhat in 2020 and 2021, likely reflecting the worsening economic conditions and heightened uncertainty at that time. In addition, the high number of people working remotely and the alternative ways of rewarding employees during the pandemic (which included one-off support for teleworking or pandemic-related payments) may have kept wage demands low. Negotiated wages have started to pick up, albeit moderately, in recent quarters, with compensation for higher inflation and labour shortages in some sectors playing an important role. As a result, agreements signed in 2022 have been characterised by higher negotiated wage increases compared with previous years (Chart 1). In some countries, such as Germany, the wage increases have mainly been passed on to workers in the form of larger than usual one-off payments rather than permanent increases in base wage rates. Although negotiated wage growth has become a more important means of assessing underlying wage pressures since the start of the pandemic, given the significant volatility of the other wage indicators, its use comes with caveats. First, this measure does not cover all euro area countries, and the methodology is not fully harmonised across the countries for which negotiated wage series are available. For example, the sectoral coverage and the inclusion of wage indexation and one-off payments, which have become more significant recently, vary across economies. Second, negotiated wage growth tends to react to changes in

labour market conditions with a lag of some quarters and, in a crisis, generally more slowly than CPE growth, for example, as agreements are signed for a year or more.<sup>10</sup>

**Estimating the common drivers across a range of wage indicators also suggests that wage pressures have remained moderate.** Another way to mitigate the impact of pandemic-related distortions in the assessment of wage pressures is to estimate underlying wage growth pressures across different wage indicators. The results of such a principal component analysis conducted using a broad range of wage indicators are shown in Chart 5. The first principal component across different wage indicators moved sideways from the onset of the pandemic to the start of 2022, when it started to pick up.<sup>11</sup> This is consistent with the view that overall wage growth remained modest during the pandemic, with wage pressures showing a moderate increase more recently amid high inflation – in line with the ECB’s indicator of negotiated wage growth.

**Looking through the volatility of the past few years, the main wage indicators stand slightly above the levels implied by their long-term trends over the period 1999-2019 (Chart 6).** In the second quarter of 2022 compensation per employee was slightly above the level implied by its pre-pandemic long-term trend (based on a long-term average annual growth rate of 2.1%). This slight upward deviation primarily reflects developments in compensation per hour, which also stood slightly above the level implied by its pre-pandemic long-term trend (based on a long-term average annual growth rate of 2.3%), while average hours worked are close to the downward trend that would have been present had pre-pandemic developments continued.

---

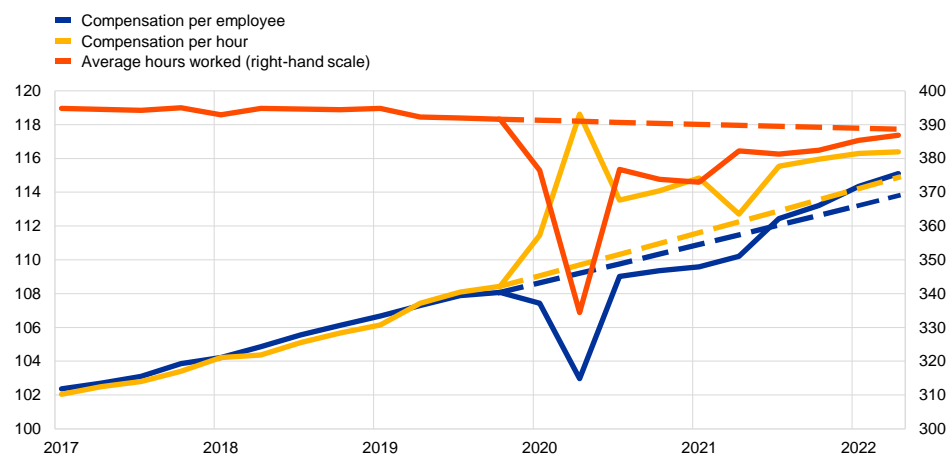
<sup>10</sup> See also the box entitled “[Assessing wage dynamics during the COVID-19 pandemic: can data on negotiated wages help?](#)”, *Economic Bulletin*, Issue 8, ECB, 2020.

<sup>11</sup> This component captures 34% of the variability of all different wage measures.

### Chart 6

#### Compensation per employee, compensation per hour and average hours worked in relation to their linear long-term trends

(left-hand scale: index: 2015 = 100; right-hand scale: quarterly average of hours worked per salaried employee)



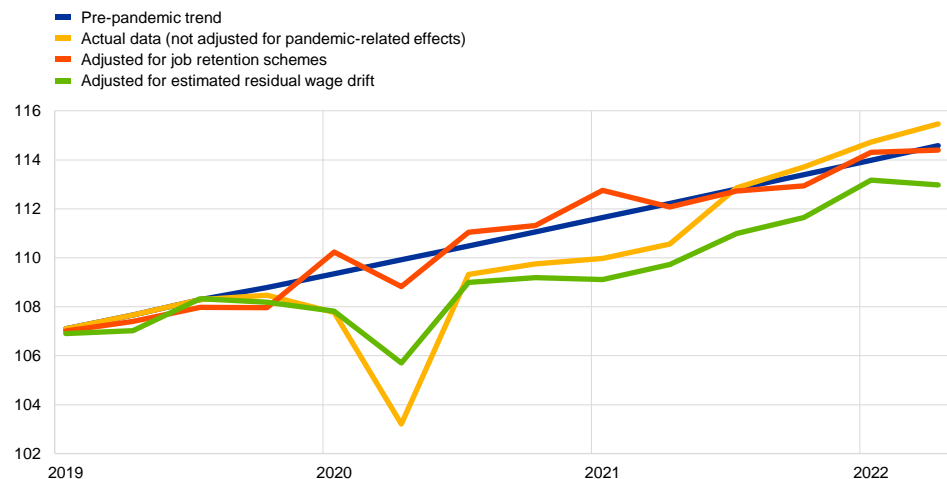
Sources: Eurostat and ECB staff calculations.

Notes: The linear trends are calculated by applying the long-term average growth rates for the period 1999-2019. The latest observations are for the second quarter of 2022.

### Chart 7

#### Compensation per employee and adjusted compensation per employee levels compared with the long-term trend

(index: 2015 = 100)



Sources: Eurostat and ECB staff calculations.

Notes: The linear trends are calculated by applying the long-term (1999-2019) average growth rate of compensation per employee since 2019. The latest observations are for the second quarter of 2022.

**Overall, underlying wage growth has been relatively moderate since the start of the pandemic, and it now stands close its long-term trend.** The volatility caused by the pandemic and the government measures implemented to cushion its impact occurred mainly at the start of the pandemic. Wage growth normalised somewhat following the reopening of the economy, the loosening of pandemic-related restrictions and the strong base effects starting to fall out of the equation after the second quarter of 2021. However, the impact of job retention schemes on CPE

growth and CPH growth is still quite substantial. Adjusting for the effects of these schemes brings current CPE growth quite close to its historical average, and compensation per employee for the adjusted series is also returning to its pre-pandemic trend. All things considered, this supports the view that CPE growth continues to move along pre-pandemic trends. Wage dynamics are also moderate compared with the United States (Box 1).

## Box 1

### Comparing labour market developments in the euro area and the United States and their impact on wages

---

Prepared by Katalin Bodnár, Jenny Franke, Ramon Gomez-Salvador and Matthias Mohr

The purpose of this box is to assess labour market developments in the euro area and the United States, in particular the tightening of labour market conditions and its impact on wages.<sup>12</sup>

Labour input, as measured by total hours worked, recovered strongly in both the euro area and the United States on the back of different adjustment patterns and government support throughout the crisis. Euro area countries implemented policies aimed at preserving employment contracts, whereas the US economy was strongly supported by a fiscal package in the recovery phase. This meant that, while there was a large decline in overall labour input in both economic areas, the extent and, in particular, the composition of this change differed, and the recovery was somewhat faster in the United States. Regarding the composition of the change in labour input, the number of persons employed was more stable in the euro area than in the United States. The decline in total labour input in the euro area was driven primarily by average hours worked, whereas unemployment was the primary adjustment channel in the United States. Hours worked per employee actually increased in the United States, reflecting compositional effects, as workers in the services sector and part-time workers were particularly affected by the crisis.<sup>13</sup> By contrast, hours worked per employee in the euro area are still below pre-pandemic levels, although the latest figures are broadly in line with the longer-term downward trend seen before the crisis. The decline in labour force participation has been more prolonged in the United States. This has been largely driven by older male workers who decided to retire during the crisis, but is also visible across most age and gender groups. The equivalent impact on the labour force was less pronounced in the euro area.<sup>14</sup> Finally, immigration in the euro area was negatively affected by the pandemic,<sup>15</sup> restraining working age population growth, whereas the working age population increased moderately in the United States. Consequently, labour market participation in the United States continues to be below its pre-crisis level in contrast to the euro area, where the labour force participation rate exceeds the level seen before the pandemic (Chart A).

---

<sup>12</sup> The box compares the developments in the US employment cost index with negotiated wages in the euro area, which are the measures least affected by statistical distortions stemming from pandemic-related public support schemes.

<sup>13</sup> See also Gomez-Salvador, R. and Soudan, M., “The US labour market after the COVID-19 recession”, *Occasional Paper Series*, No 298, ECB, Frankfurt am Main, July 2022.

<sup>14</sup> See the box entitled “COVID-19 and retirement decisions of older workers in the euro area”, *Economic Bulletin*, Issue 6, ECB, 2022.

<sup>15</sup> See the box entitled “The role of migration in weak labour force developments during the COVID-19 pandemic”, *Economic Bulletin*, Issue 1, ECB, 2022.

## Chart A

### Change in total labour input and its decomposition in the euro area and the United States

(percentages and percentage point contributions; cumulative change compared with the level in Q4 2019)



Sources: Eurostat and Haver Analytics.

Notes: Population refers to people aged 15-74 in the euro area and people aged 16 and over in the United States. The latest observations are for the second quarter of 2022.

The labour market has tightened a lot more in the United States than in the euro area, in part reflecting the more advanced phase of the US business cycle. Labour market tightness is assessed using the ratio of vacancies to unemployment. In the short run, the indicator varies in response to economic activity over the business cycle. Over the longer run, it tends to be lower in the euro area than in the United States, reflecting the latter's more dynamic labour market but also differences in the recording of open positions. Chart B shows that, in line with the decline in economic activity, labour market tightness fell to a very low level in the second quarter of 2020, particularly in the United States, but has since recovered quickly to reach record levels in the first half of 2022 in both economic areas. Recent data suggest that the gap in labour market tightness between the euro area and the United States has increased compared with before the pandemic. In the euro area, the recent increase in labour market tightness is dampened by a larger supply of labour than before the pandemic. Despite demographic factors increasingly constraining labour supply, the labour force as a whole has significantly exceeded pre-pandemic levels, to some extent matching increasing labour demand.<sup>16</sup> For the United States, the latest developments point to some stabilisation, as also

<sup>16</sup> See the box entitled "Labour supply developments in the euro area during the COVID-19 pandemic", *Economic Bulletin*, Issue 7, ECB, 2021.

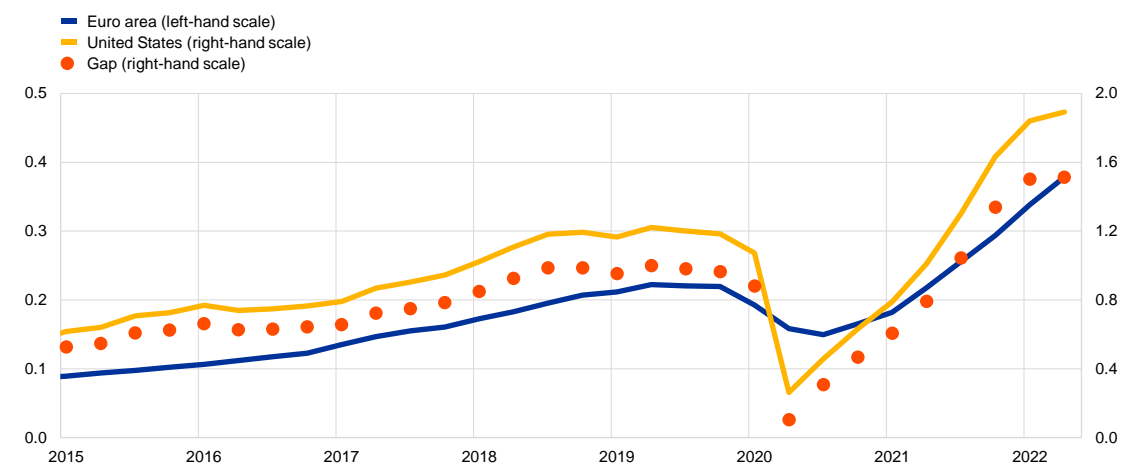


confirmed by the decline in the quits rate – employees who left voluntarily as a percentage of total employment – which is also a good proxy for labour market tightness. Labour market tightness in the United States is broad-based across industries, but can be attributed in large part to the delay in reincorporating workers in certain industries, particularly leisure and hospitality.

## Chart B

### Labour market tightness in the euro area and the United States

(ratio of vacancies to unemployment)



Sources: Eurostat, Haver Analytics, Bureau of Labor Statistics and own calculations.

Notes: The gap refers to the figure for the United States minus the figure for the euro area. In France, vacancies are only reported for firms with ten or more employees. The latest observations are for the second quarter of 2022.

Since the start of the recovery, wage growth in the United States has been stronger than in the euro area, partly reflecting greater labour market tightness.<sup>17</sup> This can be attributed to the different stage of the business cycle in the United States and the country's stronger aggregate demand, which is due in part to the more expansionary fiscal policies aimed at supporting household income – via stimulus cheques and enhanced unemployment benefits. At the same time, it is also due to differences in labour supply and demand. Since the trough of the pandemic crisis in the second quarter of 2020, US nominal wage growth has increased substantially to reach 5.0% in the second quarter of 2022, whereas the rise in euro area wage growth has been more gradual and limited, with negotiated wage growth standing at 2.4% in the second quarter of 2022 (Chart C, panel a). In the United States, wage pressures were initially only present in those sectors that were more exposed to the pandemic, notably leisure and hospitality. These then spread to other sectors from mid-2021 and are now broad-based. The differences in the wage growth trajectories can also be seen in the developments in US core inflation, which has been higher than euro area core inflation since the beginning of the recovery.<sup>18</sup> Nevertheless, real wages have been declining in both the euro area and the United States since the second quarter of 2021. In the first half of 2022 the more gradual growth of nominal wages in the euro area led to a stronger decline in real wages compared with the United States. In the second quarter of 2022 the real annual growth rate of the US employment cost index was -3.3%, while for negotiated wages in the euro area it was -5.2% (Chart

<sup>17</sup> For the United States, we focus on the employment cost index as a measure for wage costs as it captures all elements of employee compensation (including benefits) and, unlike other measures such as hourly wages, is not affected by compositional changes in employment. This is in contrast to the average hourly earnings, which were strongly affected by compositional effects because employment declined more strongly in low-wage industries during the pandemic.

<sup>18</sup> See the box entitled "[Recent inflation developments in the United States and the euro area – an update](#)", *Economic Bulletin*, Issue 1, ECB, 2022.

C, panel b). Looking ahead, given the differences in labour market tightness, wage growth may remain stronger in the United States than in the euro area.

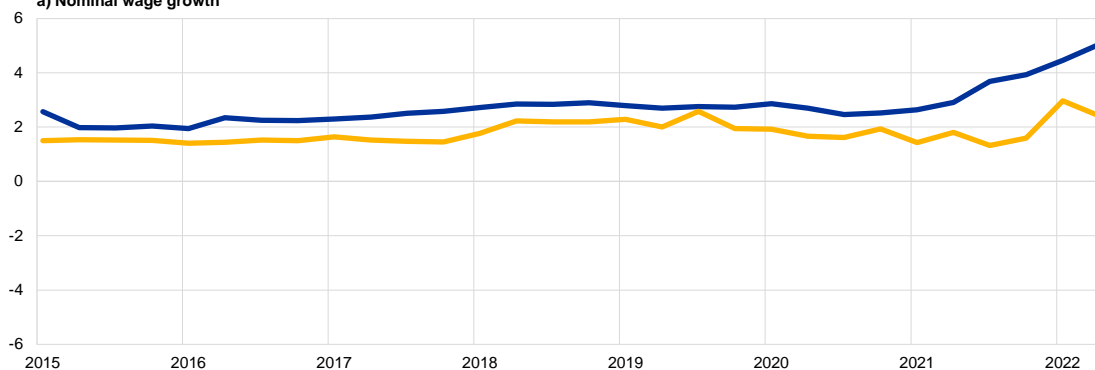
### Chart C

#### Measures of wage growth in the euro area and the United States

(annual percentage changes)

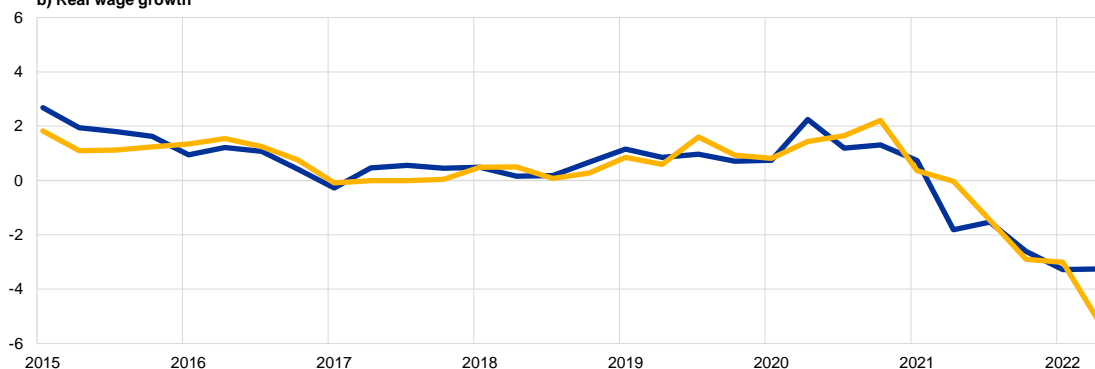
■ US employment cost index  
■ Euro area negotiated wages

##### a) Nominal wage growth



■ US employment cost index deflated by CPI  
■ Euro area negotiated wages deflated by HICP

##### b) Real wage growth



Sources: Eurostat, Haver Analytics and ECB staff calculations.  
Note: The latest observations are for the second quarter of 2022.

### 3 A sectoral perspective on wage growth developments in the euro area since the start of the pandemic

**Wage growth has varied greatly across the main sectors of the economy since the start of the pandemic.**<sup>19</sup> The pandemic and the government measures to cushion its impact have contributed to large differences in sectoral value added, average hours worked, productivity and, in particular, wage growth. This reflects the differing extents to which containment measures, supply disruptions and the participation in job retention schemes affected different sectors during the pandemic. Because of this, sectoral data are even harder to interpret than aggregate data. For example, activity and labour input were affected most significantly and persistently in

<sup>19</sup> See also the discussion in the box entitled “The role of sectoral developments for wage growth in the euro area since the start of the pandemic”, *Economic Bulletin*, Issue 5, ECB, 2021.

contact-intensive services, such as accommodation, food services, transport, personal services and recreation including sports and entertainment. These sectors also recorded a strong recovery during the reopening phase, although it is difficult to disentangle the impact of the recovery on wage growth from the base effects. To address this, we focus on the change in the level of wages between the last quarter before the pandemic (the fourth quarter of 2019) and the most recent quarter (the second quarter of 2022). We look at five main sectors in the economy: industry (excluding construction), construction, contact-intensive services (including trade, transport, accommodation and other services), non-contact-intensive services (including information and communication, real estate, financial and insurance activities, and professional and administrative services) and public sector services.<sup>20</sup>

**The volatility of CPE growth in the euro area has mainly been driven by contact-intensive services.** Compensation per employee declined very strongly, by almost 13%, in contact-intensive services after pandemic-related lockdowns were imposed, explaining most of the decline in compensation per employee for the total economy, as this was the sector with the highest share of workers in job retention schemes. As a result, these services are the most affected by base effects, so wage growth here has been strong recently. CPE growth in industry and construction also declined at the start of the pandemic, but to a smaller degree, while wages were relatively smooth in non-contact-intensive services and public services. CPE growth rates over the last 18 months have been above their historical averages for almost all the main sectors.

**Compensation per employee is above its pre-pandemic trend, mainly because of developments in the services sectors (Chart 8).** Comparing the latest data with the last observation before the pandemic helps to look through the volatility caused by the job retention schemes. Compensation per employee is above its pre-pandemic trend in all private services, both contact-intensive and non-contact-intensive. In these sectors, average hours worked have already returned to pre-pandemic levels, whereas in the other main sectors they have not fully recovered. Compensation per employee for the total economy has also exceeded its long-term trend, again owing mostly to the increase in wages in the services sectors. In non-contact-intensive services, the catch-up is largely due to real estate activities – probably reflecting the strong dynamics of housing markets and, to a lesser extent, professional and administrative services (i.e. those subsectors where demand for their output did not increase because of digitalisation). In contact-intensive services, labour shortages in certain subsectors may explain the strengthening of wage growth in the most recent period.

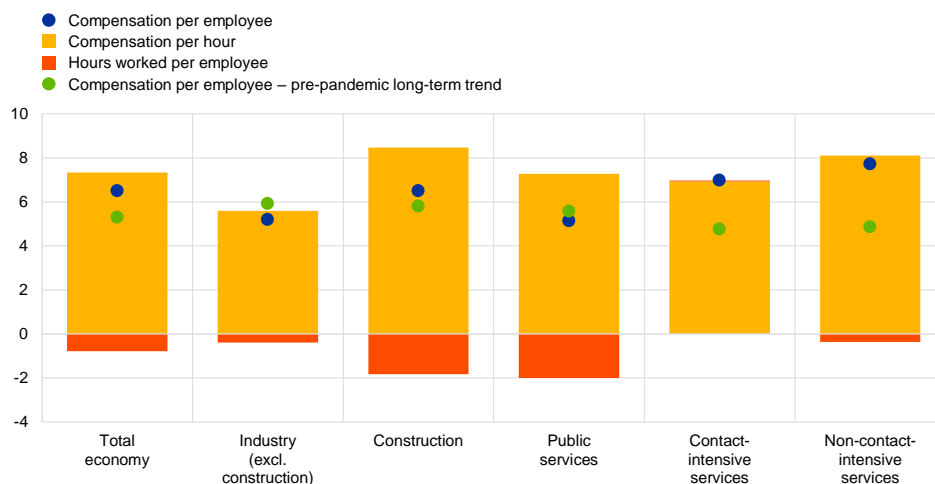
---

<sup>20</sup> See also Bandera, N., Bodnár, K., Le Roux, J. and Szörfi, B., “[The impact of the COVID-19 shock on euro area potential output: a sectoral approach](#)”, *Working Paper Series, No 2717*, ECB, Frankfurt am Main, September 2022.

## Chart 8

### Compensation per employee in the main sectors and its decomposition compared with pre-pandemic levels and trends

(percentage change, Q2 2019-Q2 2022)



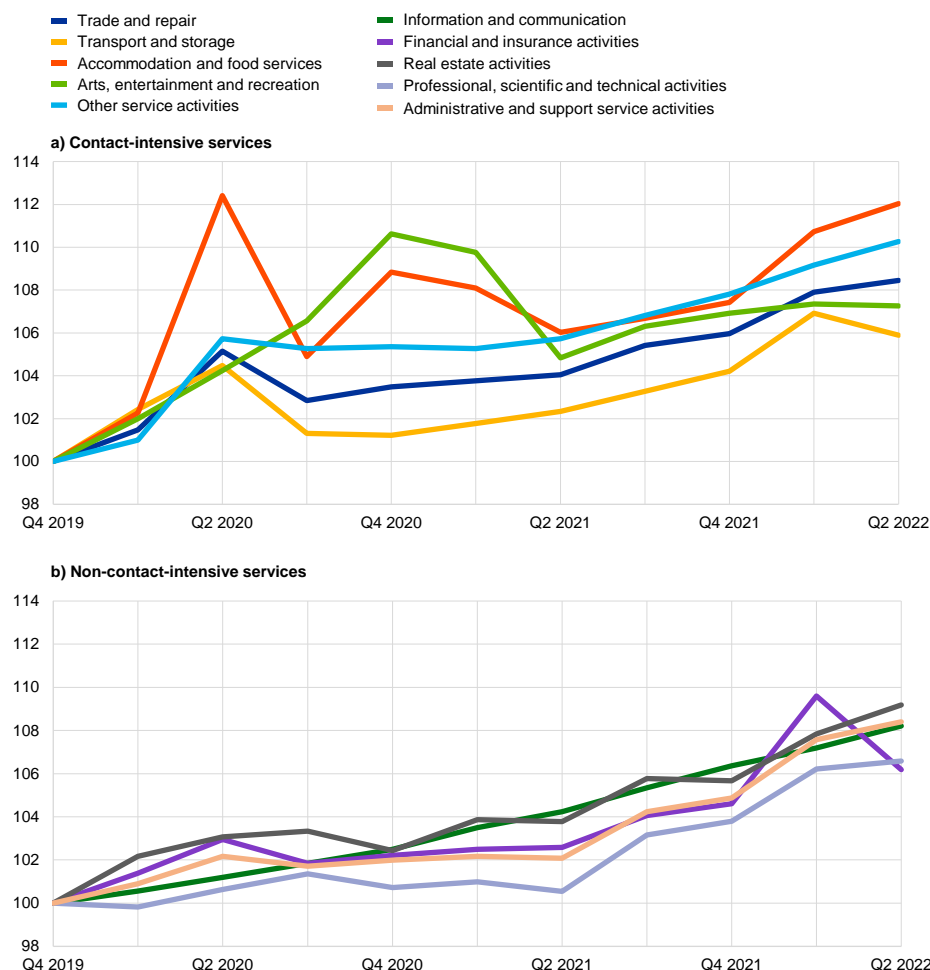
Sources: Eurostat and ECB staff calculations.

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

**Initially, the pandemic had a strong negative impact on wages in contact-intensive services, but the wage growth rate picked up with the reopening of the economy.** Given the dominant role of the services sectors in total economy CPE developments since the start of the pandemic, these sectors should be analysed more closely. We focus on the wages and salaries component of the labour cost index, as the national accounts data provide a more detailed sectoral breakdown for this component than for compensation per employee. In contact-intensive services, hourly wages closely followed the developments in containment and social distancing measures, which caused strong volatility through both hours worked per employee and statistical distortions. By contrast, in non-contact-intensive services sectors such as information and communication, hourly wage growth was less volatile (Chart 9). When comparing the latest data observation for these indicators with their pre-pandemic level, the heterogeneity within contact-intensive services is much greater than within non-contact-intensive services. This reflects the recent strong pick-up in hourly wages in those services sectors where tourism plays a larger role, such as accommodation and food services, transport and trade. This is probably due to the labour shortages experienced in some of these subsectors following the reopening of the economy.

**Chart 9****Labour cost index in contact-intensive and non-contact-intensive services sectors**

(percentage difference compared with the level in Q4 2019)



Source: Eurostat.

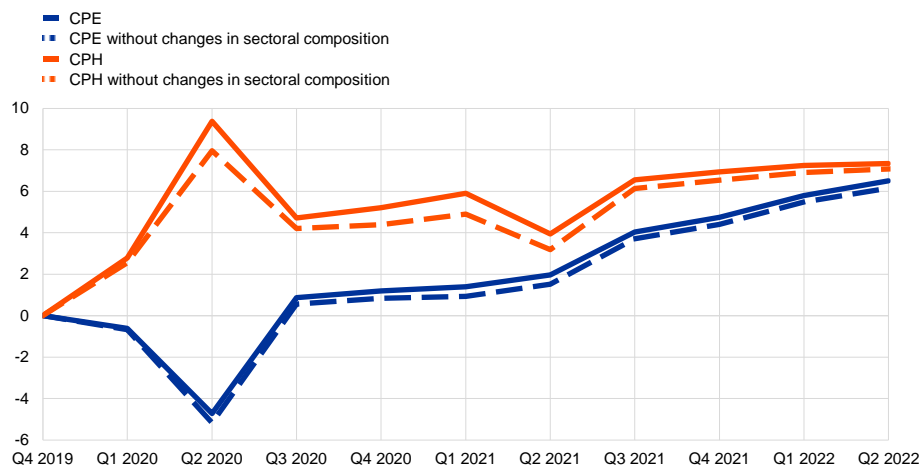
Note: The latest observations are for the second quarter of 2022.

**Despite such a varied impact across sectors, changes in overall wage growth owing to sectoral composition remained limited as job retention schemes contained changes of employment.** During the recovery, changes in employment across sectors have only had a slight positive impact on compensation per employee and compensation per hour for the total economy (Chart 10). However, the composition of employment has probably changed within sectors, especially in those sectors where employment declined. Such changes, seen for example in the education level, age or gender of workers, could have an impact on wage growth in different sectors. Unfortunately, data limitations mean that these intra-sector shifts cannot be estimated and they remain an area for future research.<sup>21</sup>

<sup>21</sup> For a detailed assessment of such compositional effects in the euro area in the pre-pandemic period, see the article entitled “The effects of changes in the composition of employment on euro area wage growth”, *Economic Bulletin*, Issue 8, ECB, 2019.

**Chart 10****Compensation per employee and per hour and the role of compositional changes**

(percentage change compared with the level in Q4 2019)



Sources: Eurostat and ECB staff calculations.

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

## 4 The impact of inflation on wage growth in the euro area

**Looking at real wage developments, which take nominal wage growth and inflation into account, makes it possible to analyse changes in the purchasing power of employees and to evaluate real cost pressures for companies stemming from wages.**

The purchasing power of employees can be monitored by looking at real consumer wage developments, which are obtained by taking the difference between nominal wage growth and HICP inflation. The real wage from an employer's perspective is different. It is a cost factor rather than an income item, so the calculation requires a different deflator. Real producer wages can be derived by adjusting the nominal wages using value-added deflators, which measure the prices charged for the production of goods and services in the economy. Real consumer wages indicate how severe purchasing power losses have been for employees. To the extent that employees try to compensate for this loss of purchasing power, this could affect nominal wage demands. Real producer wages reflect the cost pressures implied by nominal wage growth relative to the overall growth in the price of output.

**Nominal and real consumer wages developed in a very similar way in 2020 before diverging strongly from the first quarter of 2021, when consumer price inflation started to pick up (Chart 11).**<sup>22</sup> Headline inflation was very low during the initial phase of the pandemic, reflecting low overall price pressures, a substantial negative contribution of energy inflation and other factors such as temporary cuts in indirect taxes to stimulate the economy. Consequently, the wedge between nominal and real consumer wages was quite small, and nominal and real consumer wage

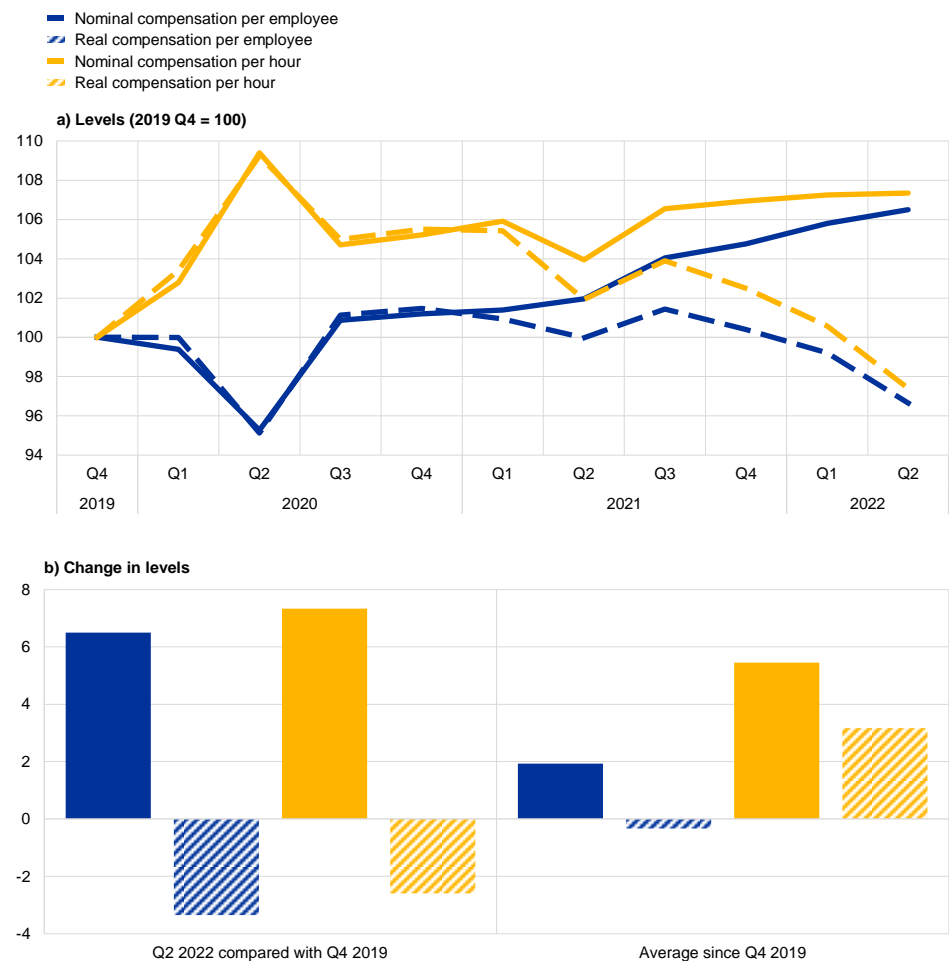
<sup>22</sup> See the article entitled "The role of demand and supply factors in HICP inflation during the COVID-19 pandemic – a disaggregated perspective", *Economic Bulletin*, Issue 1, ECB, 2021, or Nickel, C., Koester, G. and Lis, E., "Inflation Developments in the Euro Area Since the Onset of the Pandemic", *Intereconomics*, Vol. 57, No 2, pp. 69-75.

developments as reflected in CPE and CPH growth were dominated by the effects of job retention schemes (as discussed in Section 2 above). When inflation started to pick up in 2021 – driven first by energy inflation then also by supply bottlenecks, especially for goods but later on also for services in the context of the economic reopening – a substantial gap opened up between nominal and real consumer wage growth.

### Chart 11

#### Nominal and real wage growth (consumer wages) compared with pre-pandemic levels

(panel a: index: Q4 2019 = 100; panel b: percentage change compared with the level in Q4 2019)



Sources: Eurostat and ECB staff calculations.

Notes: Real compensation per employee and per hour are calculated using HICP (consumer wages). The latest observations are for the second quarter of 2022.

#### Real consumer wages are now substantially lower than before the pandemic and are likely to fall further in the coming months (Chart 12).

Nominal wages have increased at a slower pace than HICP, leading to a decrease in the purchasing power of wages, which in the second quarter of 2022 stood around 3.6% below its level in the fourth quarter of 2019. Over the period from the fourth quarter of 2019 to the second quarter of 2022, employees experienced an average quarterly reduction

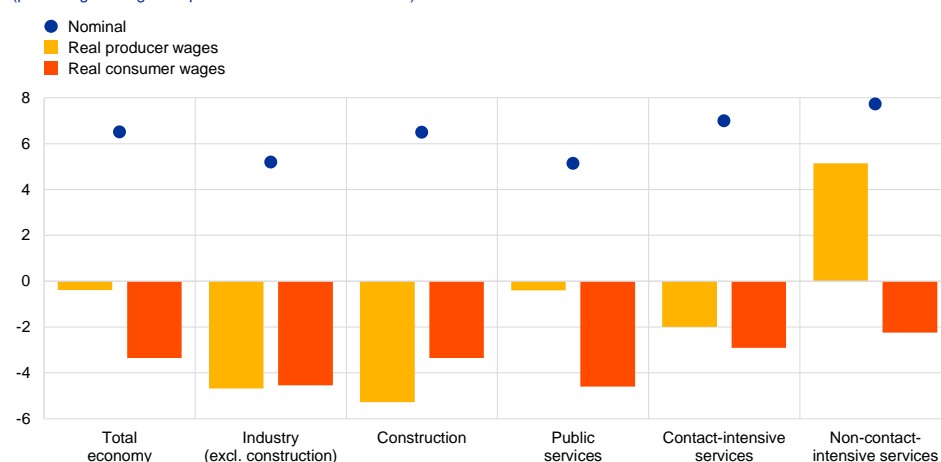
in their pre-pandemic real wage level of around 0.5%.<sup>23</sup> The further losses in real wages expected over the coming months will increasingly be felt by consumers as a loss in purchasing power compared with before the pandemic. This might increase pressure on trade unions to demand higher pay rises in upcoming negotiation rounds, especially in sectors with lower wages. However, losses in purchasing power are only one factor affecting unions' wage demands – the tightness of the labour market and the current economic situation are also likely to play a central role.

**For the total economy, compared with the levels before the pandemic, real producer wages have decreased a lot less strongly than real consumer wages (Chart 12).** In the second quarter of 2022 real producer wages were only 0.5% below their pre-pandemic levels. This is because developments in wage growth as a cost factor were broadly similar to those for the price of output.

### Chart 12

#### Nominal and real growth of producer and consumer wages in the main sectors

(percentage change compared with the level in Q4 2019)



Sources: Eurostat and ECB staff calculations.

Notes: Real consumer wages reflect compensation per employee deflated by HICP, while real producer wages are calculated based on compensation per employee deflated by value-added deflators. The latest observations are for the second quarter of 2022.

**Developments in real producer prices have diverged strongly across different sectors of the economy, with implications for expected wage and price pressures.**<sup>24</sup> Developments in real producer wages suggest that additional price pressures can be expected, especially in non-contact-intensive services. This is in line with the decrease in unit profits in this sector compared with pre-pandemic

<sup>23</sup> The largest part of payments made under job retention schemes is already included in wage measures like compensation per employee. Adding support paid to employees in the form of transfers or other social benefits (which are not included in compensation per employee) does not change the picture substantially.

<sup>24</sup> Real producer wages could also be analysed by deflating wages using producer price indices (PPI). These are available for industry or construction, but there are data limitations for services. PPIs measure gross output prices, whereas the value-added deflator measures only the price of value added (i.e. the difference between gross output and intermediate inputs). Real producer wages in construction, and even more so in industry, decrease far more strongly when deflated by PPIs. This probably reflects significant increases in intermediate costs (going well beyond increases in wage costs), which push up gross output prices in particular (reflected in PPIs).



levels.<sup>25</sup> While value-added deflators have increased broadly in line with nominal wages in public services, these have increased somewhat more strongly than nominal wages in contact-intensive services and in construction and industry in particular, in line with the large increases in sectoral profits in these sectors.<sup>26</sup> In non-contact-intensive services, however, the deflators have increased a lot less strongly than wages. This suggests that, based on developments in real producer wages with value-added deflators, there is pressure on firms to raise prices in the future or to hold out against additional wage claims. Looking ahead, the good cyclical position of the non-contact-intensive services sectors up to the second quarter of 2022, coupled notably with the tight labour markets, could – if persistent – point to further wage pressures and, subsequently, price increases in these sectors in particular. As these services are to a large degree provided to businesses rather than consumers, such increases are likely to affect HICP only partially, and with a delay.<sup>27</sup>

## 5 Conclusions

**The COVID-19 pandemic and the government measures to cushion its impact have caused exceptionally high volatility in wage growth indicators, which makes it harder to assess wage developments.** The effects of job retention schemes introduced by governments to prevent large-scale job losses played a key role in this regard. In this unusual economic environment, well-established empirical models such as wage Phillips curve regressions offer only limited help in assessing wage developments in the euro area. This is because wage indicators and their main drivers have displayed patterns that are way off historical regularities. Their volatility can be understood by taking into account statistical distortions stemming from job retention schemes.

**Estimates of underlying wage growth have, on average, remained relatively moderate since the start of the pandemic, but have started to pick up more recently.** Adjusting for the effects of job retention schemes using different methods brings CPE growth quite close to its historical average over the period from the start of the pandemic to the second quarter of 2022.

**So far there has been no evidence of a change in the wage growth trend in terms of compensation per employee since the start of the pandemic.** Looking through the volatility of the past couple of years, the levels of the main wage

---

<sup>25</sup> For a more complete picture, it would be interesting to assess the role of differences in input costs (including energy) in this cross-sectional analysis, for example by assessing real producer wage developments also based on PPIs, which reflect output prices and include costs of intermediate inputs. For services, however, this is hindered by data limitations (see the previous footnote).

<sup>26</sup> Compared with pre-pandemic levels, sectoral unit profits increased strongly in manufacturing and construction as well as in contact-intensive services like trade, transport, and accommodation and food services. Sectoral unit profits decreased compared with pre-crisis levels in non-contact-intensive services like professional, business and support services. For further details, see slide 6 of Schnabel, I., “Monetary policy in a cost-of-living crisis”, *Remarks at a panel on the “Fight against inflation” at the IV Edition Foro La Toja*, 30 September 2022.

<sup>27</sup> Inflation can also affect wage growth via indexation mechanisms or increases in minimum wages, which are often motivated by large changes in inflation. For an assessment of these mechanisms, see the box entitled “The prevalence of private sector wage indexation in the euro area and its potential role for the impact of inflation on wages”, *Economic Bulletin*, Issue 7, ECB, 2021, and the box entitled “Minimum wages and their role for euro area wage growth”, *Economic Bulletin*, Issue 3, ECB, 2022.

indicators, like compensation per employee and compensation per hour, currently stand slightly above those implied by pre-pandemic long-term trends. Adjusted for pandemic-related effects, the level of CPE growth has essentially returned to its pre-pandemic long-term trend.

**Looking through pandemic-related distortions in wage measures, which have varied greatly across sectors, there are signs of stronger wage growth in services sectors.** Wages are above their pre-pandemic levels primarily in those services sectors that have recently seen serious labour shortages.

**Taking into account the impact of inflation, real consumer wages are now substantially lower than before the pandemic.** This could lead trade unions to demand higher wage increases in upcoming negotiation rounds, especially in sectors with lower wages. For the total economy, real producer wages have decreased far less strongly than real consumer wages when compared with their pre-pandemic levels in the fourth quarter of 2019. This has largely been driven by non-contact-intensive services.

**Looking ahead, wage growth over the next few quarters is expected to be very strong compared with historical patterns.** This reflects robust labour markets that so far have not been substantially affected by the slowing of the economy, increases in national minimum wages and some catch-up between wages and high rates of inflation. Beyond the near term, the expected economic slowdown in the euro area and uncertainty about the economic outlook are likely to put downward pressure on wage growth.

# Statistics

## Contents

1 External environment	S 2
2 Economic activity	S 3
3 Prices and costs	S 9
4 Financial market developments	S 13
5 Financing conditions and credit developments	S 18
6 Fiscal developments	S 23

## Further information

ECB statistics can be accessed from the Statistical Data Warehouse (SDW):	<a href="http://sdw.ecb.europa.eu/">http://sdw.ecb.europa.eu/</a>
Data from the statistics section of the Economic Bulletin are available from the SDW:	<a href="http://sdw.ecb.europa.eu/reports.do?node=1000004813">http://sdw.ecb.europa.eu/reports.do?node=1000004813</a>
A comprehensive Statistics Bulletin can be found in the SDW:	<a href="http://sdw.ecb.europa.eu/reports.do?node=1000004045">http://sdw.ecb.europa.eu/reports.do?node=1000004045</a>
Methodological definitions can be found in the General Notes to the Statistics Bulletin:	<a href="http://sdw.ecb.europa.eu/reports.do?node=10000023">http://sdw.ecb.europa.eu/reports.do?node=10000023</a>
Details on calculations can be found in the Technical Notes to the Statistics Bulletin:	<a href="http://sdw.ecb.europa.eu/reports.do?node=10000022">http://sdw.ecb.europa.eu/reports.do?node=10000022</a>
Explanations of terms and abbreviations can be found in the ECB's statistics glossary:	<a href="http://www.ecb.europa.eu/home/glossary/html/glossa.en.html">http://www.ecb.europa.eu/home/glossary/html/glossa.en.html</a>

## 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 <sup>1)</sup> (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 <sup>2)</sup> (HICP)	
							Total	excluding food and energy						
	1	2	3	4	5	6	7	8	9	10	11	12	13	
2019	2.8	2.3	1.6	-0.4	6.0	1.6	2.1	2.1	1.8	1.8	0.5	2.9	1.2	
2020	-3.1	-2.8	-11.0	-4.3	2.2	-6.1	1.4	1.7	1.2	0.9	0.0	2.5	0.3	
2021	6.1	5.9	7.5	2.1	8.1	5.3	4.0	2.9	4.7	2.6	-0.3	0.9	2.6	
2021 Q4	1.7	1.7	1.6	1.2	1.4	0.5	5.9	4.0	6.7	4.9	0.5	1.8	4.6	
2022 Q1	0.5	-0.4	0.7	-0.5	1.4	0.6	7.9	5.5	8.0	6.2	0.9	1.1	6.1	
Q2	-0.4	-0.1	0.2	1.1	-2.6	0.8	9.7	6.4	8.6	9.2	2.5	2.2	8.0	
Q3	.	0.7	-0.2	-0.2	.	0.3	10.3	7.2	8.3	10.0	2.9	.	9.3	
2022 June	.	.	.	.	.	.	10.3	6.5	9.1	9.4	2.4	2.5	8.6	
July	.	.	.	.	.	.	10.2	6.8	8.5	10.1	2.6	2.7	8.9	
Aug.	.	.	.	.	.	.	10.3	7.2	8.3	9.9	3.0	2.5	9.1	
Sep.	.	.	.	.	.	.	10.5	7.6	8.2	10.1	3.0	.	9.9	
Oct.	.	.	.	.	.	.	10.7	7.6	7.7	11.1	3.7	.	10.6	
Nov. <sup>3)</sup>	.	.	.	.	.	.	.	.	7.1	10.7	.	.	10.0	

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 <sup>1)</sup>		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index <sup>2)</sup>			Global	Advanced economies	Emerging market economies
	Global <sup>2)</sup>	United States	United Kingdom	Japan	China	Memo item: euro area	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	-4.2	-3.9
2021	54.9	59.6	55.9	49.4	52.0	54.9	53.7	55.2	52.1	11.0	9.4	12.7
2021 Q4	54.6	57.3	56.3	52.1	51.9	54.3	52.2	55.5	50.4	2.1	2.3	1.9
2022 Q1	52.2	54.9	58.3	48.7	48.0	54.2	51.0	52.6	49.1	1.7	3.4	0.0
Q2	51.6	54.0	55.0	52.1	44.9	54.2	50.2	52.1	48.8	0.2	-0.2	0.6
Q3	50.0	47.2	50.3	50.2	51.8	49.0	49.9	50.1	47.5	0.8	-0.1	1.8
2022 June	53.8	52.3	53.7	53.0	55.3	52.0	52.9	54.0	50.1	0.2	-0.2	0.6
July	50.9	47.7	52.1	50.2	54.0	49.9	50.7	51.0	48.6	1.7	0.9	2.5
Aug.	49.3	44.6	49.6	49.4	53.0	49.0	49.8	49.1	47.5	1.2	-0.3	2.9
Sep.	49.9	49.5	49.1	51.0	48.5	48.1	49.1	50.2	46.5	0.8	-0.1	1.8
Oct.	49.3	48.3	48.2	51.8	48.3	47.3	49.5	49.2	47.3	.	.	.
Nov.	48.0	46.4	48.2	48.9	47.0	47.8	48.1	47.9	47.0	.	.	.

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 <sup>1)</sup>			
	1	2	Private consumption	3	Government consumption	4	Gross fixed capital formation			Changes in inventories <sup>2)</sup>	Total	Exports <sup>1)</sup>	Imports <sup>1)</sup>
							Total construction	Total machinery	Intellectual property products				
5	6	7	8	9	10	11	12						
<i>Current prices (EUR billions)</i>													
2019	11,986.3	11,579.0	6,381.8	2,456.1	2,657.1	1,252.0	770.7	627.6	83.9	407.3	5,772.1	5,364.9	
2020	11,456.5	11,046.3	5,924.4	2,565.7	2,515.9	1,221.6	685.3	602.2	40.3	410.2	5,187.8	4,777.7	
2021	12,313.5	11,834.4	6,289.0	2,717.8	2,701.7	1,369.4	761.1	563.8	126.0	479.1	6,070.2	5,591.1	
2021 Q4	3,176.2	3,093.5	1,642.2	692.6	707.0	355.7	193.4	156.0	51.7	82.7	1,634.7	1,552.1	
2022 Q1	3,231.7	3,147.2	1,677.8	700.4	718.7	372.8	199.5	144.5	50.2	84.5	1,713.5	1,629.0	
Q2	3,292.0	3,226.7	1,725.1	707.8	741.6	383.9	207.1	148.6	52.1	65.4	1,826.7	1,761.3	
Q3	3,339.0	3,327.0	1,769.0	715.7	777.8	388.0	213.9	174.0	64.4	12.0	1,890.4	1,878.4	
<i>as a percentage of GDP</i>													
2021	100.0	96.1	51.1	22.1	21.9	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 Q4	0.5	1.4	-0.1	0.4	3.4	0.2	1.6	13.5	-	-	2.6	4.7	
2022 Q1	0.6	-0.4	0.0	0.0	-0.7	2.1	1.5	-9.4	-	-	1.4	-0.7	
Q2	0.8	1.0	1.0	-0.1	0.9	-0.4	2.2	2.4	-	-	1.7	2.2	
Q3	0.3	1.5	0.9	0.1	3.6	-0.9	2.0	16.8	-	-	1.7	4.3	
<i>annual percentage changes</i>													
2019	1.6	2.4	1.4	1.7	6.9	3.3	1.8	23.0	-	-	2.8	4.8	
2020	-6.1	-5.8	-7.7	1.0	-6.2	-4.1	-11.6	-3.9	-	-	-8.9	-8.5	
2021	5.3	4.2	3.8	4.3	3.6	6.0	9.1	-7.5	-	-	10.5	8.3	
2021 Q4	4.8	5.0	5.9	2.6	2.0	1.7	1.5	3.0	-	-	8.3	9.2	
2022 Q1	5.5	5.6	7.9	3.0	3.6	4.3	1.9	4.5	-	-	8.7	9.3	
Q2	4.2	4.4	5.4	0.7	2.7	1.3	2.9	5.9	-	-	7.9	8.4	
Q3	2.3	3.5	1.7	0.4	7.4	1.0	7.5	23.0	-	-	7.7	10.8	
<i>contributions to quarter-on-quarter percentage changes in GDP; percentage points</i>													
2021 Q4	0.5	1.3	-0.1	0.1	0.7	0.0	0.1	0.6	0.6	-0.8	-	-	
2022 Q1	0.6	-0.4	0.0	0.0	-0.2	0.2	0.1	-0.5	-0.3	1.1	-	-	
Q2	0.8	0.9	0.5	0.0	0.2	0.0	0.1	0.1	0.2	-0.1	-	-	
Q3	0.3	1.4	0.4	0.0	0.8	-0.1	0.1	0.8	0.2	-1.1	-	-	
<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	5.3	4.2	2.0	1.0	0.9	0.7	0.6	-0.4	0.3	1.3	-	-	
2021 Q4	4.8	4.8	3.0	0.6	0.4	0.2	0.1	0.2	0.8	0.0	-	-	
2022 Q1	5.5	5.4	3.9	0.7	0.8	0.5	0.1	0.2	0.0	0.1	-	-	
Q2	4.2	4.2	2.7	0.2	0.6	0.2	0.2	0.3	0.7	0.1	-	-	
Q3	2.3	3.3	0.9	0.1	1.6	0.1	0.4	1.0	0.8	-1.1	-	-	

Sources: Eurostat and ECB calculations.

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

2) Including acquisitions less disposals of valuables.

## 2 Economic activity

### 2.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											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
<b>Current prices (EUR billions)</b>												
2019	10,743.8	176.7	2,103.8	555.5	2,041.8	531.6	481.7	1,203.9	1,251.7	2,027.1	369.9	1,242.4
2020	10,326.3	175.3	1,994.3	543.8	1,794.2	544.5	483.1	1,207.7	1,200.5	2,060.3	322.7	1,130.2
2021	11,042.0	188.1	2,166.2	594.8	1,996.5	586.1	497.1	1,242.7	1,285.8	2,151.6	333.1	1,271.5
2021 Q4	2,836.8	50.0	555.3	152.0	536.6	149.6	124.8	312.9	330.8	540.3	84.4	339.4
2022 Q1	2,891.2	51.6	576.4	158.0	545.4	150.5	124.9	315.6	335.5	546.8	86.3	340.5
Q2	2,951.4	54.3	591.8	161.4	570.5	153.9	126.8	317.8	341.0	544.2	89.8	340.6
Q3	3,006.8	55.8	597.5	162.3	588.9	154.3	128.9	323.7	346.0	557.0	92.5	332.3
<i>as a percentage of value added</i>												
2021	100.0	1.7	19.6	5.4	18.1	5.3	4.5	11.3	11.6	19.5	3.0	-
<b>Chain-linked volumes (prices for the previous year)</b>												
<i>quarter-on-quarter percentage changes</i>												
2021 Q4	0.2	0.0	0.5	0.3	0.6	2.2	-0.2	0.5	0.9	-0.8	-2.5	3.1
2022 Q1	0.9	-0.9	0.5	2.4	0.9	0.7	0.0	0.9	1.0	0.9	2.0	-1.7
Q2	0.7	-0.7	0.6	-0.7	1.7	2.1	0.2	0.2	1.0	-0.6	4.3	1.9
Q3	0.7	0.3	0.7	-1.7	1.3	0.0	-0.3	-0.1	0.3	1.4	3.0	-2.7
<i>annual percentage changes</i>												
2019	1.5	0.9	0.5	0.8	2.5	5.6	0.6	1.3	1.9	1.1	1.7	1.9
2020	-6.0	0.2	-6.4	-5.7	-14.1	1.9	0.5	-0.9	-5.6	-2.8	-17.7	-6.9
2021	5.2	0.0	7.0	5.3	7.9	7.0	3.0	1.7	6.0	3.5	3.1	6.3
2021 Q4	4.7	-0.9	1.9	0.8	11.8	8.7	2.2	1.8	5.7	2.0	14.2	5.8
2022 Q1	5.3	-0.5	1.8	4.6	14.1	6.5	0.4	3.2	6.3	1.9	17.2	6.7
Q2	4.3	-1.7	2.1	1.6	11.0	6.9	0.4	2.4	5.1	0.8	16.2	3.8
Q3	2.5	-1.3	2.3	0.2	4.5	5.1	-0.4	1.6	3.3	0.8	6.8	0.6
<i>contributions to quarter-on-quarter percentage changes in value added; percentage points</i>												
2021 Q4	0.2	0.0	0.1	0.0	0.1	0.1	0.0	0.1	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	-
Q3	0.7	0.0	0.1	-0.1	0.2	0.0	0.0	0.0	0.0	0.3	0.1	-
<i>contributions to annual percentage changes in value added; percentage points</i>												
2019	1.5	0.0	0.1	0.0	0.5	0.3	0.0	0.1	0.2	0.2	0.1	-
2020	-6.0	0.0	-1.3	-0.3	-2.7	0.1	0.0	-0.1	-0.7	-0.5	-0.6	-
2021	5.2	0.0	1.4	0.3	1.4	0.4	0.1	0.2	0.7	0.7	0.1	-
2021 Q4	4.7	0.0	0.4	0.0	2.0	0.5	0.1	0.2	0.7	0.4	0.4	-
2022 Q1	5.3	0.0	0.4	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	2.0	0.4	0.0	0.3	0.6	0.2	0.5	-
Q3	2.5	0.0	0.5	0.0	0.8	0.3	0.0	0.2	0.4	0.2	0.2	-

Sources: Eurostat and ECB calculations.

## 2 Economic activity

### 2.3 Employment <sup>1)</sup>

(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	85.9	14.1	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	24.2	3.1	2.4	1.0	14.1	25.0	6.6
<i>annual percentage changes</i>													
2019	1.3	1.5	0.3	-2.3	1.2	2.8	1.7	3.3	-0.3	1.9	1.2	1.3	0.5
2020	-1.5	-1.6	-1.2	-2.4	-2.0	0.5	-3.9	1.8	0.0	-0.2	-2.2	1.0	-3.0
2021	1.4	1.6	0.1	-0.2	-0.3	3.2	0.5	4.8	0.8	1.0	2.8	2.1	0.5
2021 Q4	2.4	2.7	0.3	-1.0	1.2	3.1	3.3	6.5	0.8	0.5	3.6	1.7	1.7
2022 Q1	3.0	3.3	1.1	-1.3	1.5	3.5	5.0	6.1	-0.2	2.4	4.3	1.7	3.0
Q2	2.6	2.9	0.6	-0.7	1.3	3.2	4.5	6.0	0.1	2.5	3.3	1.4	2.2
Q3	1.7	1.9	0.8	-1.7	1.4	3.0	1.6	6.0	-0.4	4.2	2.4	1.4	1.2
Hours worked													
<i>as a percentage of total hours worked</i>													
2019	100.0	81.2	18.8	4.1	14.9	6.9	25.9	3.1	2.5	1.0	13.8	21.7	6.1
2020	100.0	81.9	18.1	4.3	15.0	7.0	24.0	3.3	2.6	1.1	13.8	23.1	5.8
2021	100.0	81.7	18.3	4.1	14.9	7.2	24.3	3.4	2.5	1.1	14.0	22.7	5.8
<i>annual percentage changes</i>													
2019	0.9	1.1	0.1	-3.2	0.6	2.8	1.2	2.9	0.6	2.0	1.0	1.0	-0.2
2020	-8.1	-7.4	-11.1	-3.2	-7.5	-6.5	-14.8	-1.7	-2.4	-6.0	-8.3	-2.2	-12.0
2021	5.5	5.3	6.6	0.6	4.5	8.9	6.7	7.5	2.9	6.4	7.3	3.7	5.2
2021 Q4	4.8	4.7	5.3	-1.6	2.1	3.6	11.0	6.8	0.6	2.8	5.6	0.8	8.1
2022 Q1	6.6	6.6	6.4	-2.0	2.5	4.7	16.1	6.2	-0.6	6.9	6.6	1.1	13.6
Q2	3.7	4.0	2.6	-2.0	1.0	2.5	9.9	5.1	-1.5	4.5	4.0	-0.3	7.3
Q3	2.5	2.8	1.0	-1.5	2.4	2.7	3.2	6.8	-0.3	6.2	3.5	1.2	3.1
Hours worked per person employed													
<i>annual percentage changes</i>													
2019	-0.4	-0.4	-0.3	-0.9	-0.6	-0.1	-0.5	-0.3	0.9	0.1	-0.3	-0.3	-0.7
2020	-6.6	-5.8	-10.1	-0.8	-5.6	-7.0	-11.3	-3.5	-2.3	-5.9	-6.2	-3.1	-9.2
2021	4.0	3.6	6.4	0.8	4.8	5.5	6.2	2.5	2.1	5.4	4.4	1.6	4.7
2021 Q4	2.3	1.9	5.0	-0.5	0.9	0.5	7.4	0.2	-0.2	2.3	1.9	-0.9	6.3
2022 Q1	3.4	3.2	5.2	-0.7	1.0	1.2	10.6	0.2	-0.4	4.4	2.2	-0.5	10.3
Q2	1.1	1.0	1.9	-1.3	-0.4	-0.7	5.2	-0.9	-1.7	2.0	0.7	-1.6	5.1
Q3	0.8	1.0	0.2	0.2	0.9	-0.3	1.6	0.8	0.1	1.9	1.1	-0.3	1.9

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 <sup>1)</sup>											Job vacancy rate <sup>3)</sup>
			Total		Long-term unemployment, % of labour force <sup>2)</sup>	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	10.059	6.8	2.368	16.3	6.347	7.3	6.080	8.0	2.2
2020	160.959	3.5	12.833	8.0	3.0	10.281	7.0	2.552	18.1	6.581	7.7	6.252	8.3	1.8
2021	163.320	3.4	12.633	7.7	3.2	10.181	6.8	2.452	16.8	6.432	7.4	6.202	8.1	2.4
2021 Q4	164.577	3.3	11.743	7.1	3.0	9.564	6.4	2.179	14.7	6.038	6.9	5.705	7.4	2.8
2022 Q1	165.440	3.3	11.339	6.9	2.9	9.213	6.1	2.126	14.2	5.736	6.5	5.603	7.2	3.1
Q2	166.103	3.1	11.026	6.6	2.7	8.814	5.8	2.213	14.4	5.538	6.3	5.488	7.1	3.2
Q3	.	.	11.033	6.6	.	8.727	5.8	2.306	15.0	5.518	6.2	5.515	7.1	3.2
2022 May	-	-	11.130	6.7	-	8.959	5.9	2.172	14.1	5.589	6.3	5.541	7.1	-
June	-	-	11.113	6.7	-	8.846	5.9	2.267	14.7	5.584	6.3	5.529	7.1	-
July	-	-	11.036	6.6	-	8.781	5.8	2.255	14.7	5.542	6.3	5.493	7.1	-
Aug.	-	-	11.050	6.7	-	8.737	5.8	2.312	15.0	5.516	6.2	5.534	7.1	-
Sep.	-	-	11.014	6.6	-	8.662	5.7	2.351	15.2	5.496	6.2	5.518	7.1	-
Oct.	-	-	10.872	6.5	-	8.546	5.7	2.326	15.0	5.394	6.1	5.478	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 <sup>1)</sup>	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							
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	-4.2	-4.4	-5.7	-0.8	3.8	-2.3	-14.4	-8.8	-25.1
2021	8.0	8.8	9.6	9.1	7.8	1.6	4.7	5.1	0.8	7.9	9.4	13.3	-3.1
2021 Q4	0.2	0.1	2.2	-3.9	4.0	2.1	0.3	4.3	-0.7	6.8	14.2	16.9	-25.0
2022 Q1	-0.3	-0.1	1.2	-5.0	5.7	-0.7	5.9	5.9	-1.6	11.3	12.6	.	-13.0
Q2	0.4	0.7	-0.1	-0.2	2.4	-0.5	2.3	1.0	-2.8	2.8	7.9	.	-16.3
Q3	1.7	2.1	-1.5	5.5	2.1	-1.4	1.9	-0.7	-1.6	-0.9	3.6	.	2.2
2022 May	1.6	2.0	0.2	1.0	6.2	-1.9	2.9	1.1	-3.3	3.3	6.6	-	-17.4
June	2.2	2.4	-0.3	8.0	-2.2	0.4	1.3	-2.9	-2.1	-4.0	1.9	-	-13.5
July	-2.5	-2.6	-2.0	-5.0	-0.9	0.3	2.3	-0.8	-1.7	-0.9	2.2	-	-6.4
Aug.	2.6	3.2	-0.5	7.9	2.0	-0.6	2.0	-1.4	-1.3	-2.3	4.8	-	4.4
Sep.	5.1	6.1	-1.9	14.2	5.3	-4.0	1.0	0.0	-2.0	0.6	3.7	-	10.3
Oct.	3.4	4.7	-2.9	9.2	9.2	-8.7	.	-2.7	-3.9	-2.6	2.5	-	14.9
month-on-month percentage changes (s.a.)													
2022 May	1.3	1.9	0.2	2.9	3.0	-3.5	0.3	0.0	-1.0	0.6	0.0	-	0.5
June	0.9	0.7	-0.1	3.2	-4.2	1.0	-1.2	-1.0	0.0	-1.6	-0.9	-	0.5
July	-2.0	-2.0	-1.0	-4.1	2.2	-0.5	0.3	-0.2	0.1	-0.2	0.9	-	1.3
Aug.	1.6	1.7	-0.6	2.8	1.8	0.0	-1.0	0.0	-0.7	0.3	2.1	-	11.9
Sep.	0.8	1.5	-0.7	2.0	2.5	-1.9	0.1	0.8	0.6	1.2	-0.7	-	7.4
Oct.	-2.0	-2.2	-1.3	-0.6	-0.2	-3.9	.	-1.8	-1.5	-2.1	0.3	-	1.7

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	98.7	-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 Q4	116.0	13.8	82.5	-7.6	9.9	3.0	16.8	88.8	58.2	53.6	54.5	54.3
2022 Q1	111.1	11.8	82.5	-13.7	9.5	1.8	12.5	88.9	57.8	54.7	54.1	54.2
Q2	104.0	6.9	82.4	-22.4	5.5	-4.5	13.1	90.3	54.1	50.4	55.6	54.2
Q3	96.6	1.4	81.9	-26.9	2.8	-7.2	7.4	90.8	49.3	46.3	49.9	49.0
2022 June	103.2	6.9	-	-23.7	3.6	-5.2	13.4	-	52.1	49.3	53.0	52.0
July	98.6	3.3	82.3	-27.0	3.0	-7.1	9.7	91.0	49.8	46.3	51.2	49.9
Aug.	97.4	1.2	-	-24.9	3.5	-6.3	7.9	-	49.6	46.5	49.8	49.0
Sep.	93.7	-0.3	-	-28.7	1.8	-8.2	4.6	-	48.4	46.3	48.8	48.1
Oct.	92.7	-1.2	81.4	-27.5	2.6	-6.7	2.1	90.7	46.4	43.8	48.6	47.3
Nov.	93.7	-2.0	-	-23.9	2.3	-6.7	2.3	-	47.1	46.0	48.5	47.8

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 <sup>2)</sup>	Housing wealth	Profit rate <sup>3)</sup>	Saving rate (gross)	Debt ratio <sup>4)</sup>	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted) <sup>1)</sup>	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	93.1	2.0	2.5	3.9	6.0	3.6	47.8	24.2	75.2	2.1	7.8	2.0
2020	19.7	95.6	-0.1	4.1	-2.7	4.7	3.8	46.1	24.7	81.7	3.4	-12.2	2.3
2021	17.7	95.8	1.4	3.4	16.9	7.4	7.9	48.9	26.3	79.5	4.9	7.9	3.0
2021 Q3	18.9	96.1	0.7	3.9	14.6	7.7	7.2	48.9	26.8	79.4	4.2	12.9	2.3
Q4	17.7	95.8	0.7	3.4	15.8	7.4	7.9	48.9	26.3	79.5	4.9	14.3	3.0
2022 Q1	16.1	95.5	0.2	3.0	16.8	5.6	8.3	48.6	25.8	78.8	4.8	16.2	3.0
Q2	14.8	95.3	-0.4	2.7	16.1	2.9	8.1	48.3	24.2	77.3	4.7	-3.5	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 <sup>1)</sup>	
	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 Q4	1,185.9	1,152.7	33.2	650.3	619.1	279.4	246.4	216.4	205.5	39.7	81.7	60.3	46.9
2022 Q1	1,224.5	1,212.2	12.3	684.6	676.2	294.3	255.8	209.5	208.4	36.1	71.8	27.8	20.6
Q2	1,278.0	1,317.5	-39.6	717.8	746.9	305.2	267.3	214.4	219.5	40.6	83.9	110.3	11.8
Q3	1,320.5	1,376.3	-55.8	755.3	806.7	308.9	284.1	217.2	204.6	39.3	80.8	17.6	10.3
2022 Apr.	417.8	431.3	-13.5	233.0	242.8	100.5	88.3	70.5	72.8	13.8	27.5	6.7	4.5
May	427.4	443.5	-16.1	240.6	248.5	101.9	89.1	71.3	78.2	13.6	27.7	95.4	3.5
June	432.8	442.8	-10.0	244.3	255.6	102.8	89.9	72.6	68.6	13.1	28.7	8.1	3.7
July	432.9	453.7	-20.8	245.2	264.1	103.7	92.3	71.7	70.4	12.4	26.9	5.7	3.4
Aug.	442.3	469.2	-26.9	253.8	275.9	102.7	95.6	72.8	70.1	12.8	27.6	4.9	3.1
Sep.	445.4	453.4	-8.1	256.2	266.8	102.5	96.3	72.7	64.1	14.0	26.3	7.0	3.8
<i>12-month cumulated transactions</i>													
2022 Sep.	5,008.9	5,058.8	-49.9	2,808.0	2,848.9	1,187.7	1,053.7	857.5	838.0	155.7	318.1	216.0	89.6
<i>12-month cumulated transactions as a percentage of GDP</i>													
2022 Sep.	38.4	38.8	-0.4	21.5	21.8	9.1	8.1	6.6	6.4	1.2	2.4	1.7	0.7

1) The capital account is not seasonally adjusted.

### 2.9 Euro area external trade in goods<sup>1)</sup>, values and volumes by product group<sup>2)</sup>

(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 Q4	12.1	32.9	637.0	323.3	116.1	186.6	524.3	656.2	403.5	97.8	148.3	450.8	72.0
2022 Q1	17.1	40.7	676.5	343.3	124.3	196.7	554.2	718.8	454.3	104.3	151.6	478.7	85.6
Q2	20.2	45.7	714.9	361.0	126.2	216.5	574.7	810.8	524.7	111.6	163.7	516.6	107.9
Q3	20.1	47.2	733.6	.	.	.	590.6	859.3	.	.	.	533.1	.
2022 Apr.	12.7	40.3	231.4	116.6	41.4	70.4	187.3	264.7	170.9	36.0	53.4	167.6	33.5
May	28.3	53.2	241.8	122.4	41.7	73.4	193.6	271.3	175.2	37.4	55.4	174.5	34.3
June	19.8	43.9	241.7	122.1	43.1	72.6	193.8	274.9	178.6	38.2	54.9	174.5	40.1
July	13.2	43.8	237.7	119.7	42.8	70.8	189.8	278.2	183.7	36.7	54.2	172.7	36.8
Aug.	23.9	53.5	245.9	123.8	44.7	73.2	198.4	293.5	191.5	40.1	57.5	182.7	32.9
Sep.	23.6	44.6	250.0	.	.	.	202.4	287.7	.	.	.	177.7	.
<i>Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)</i>													
2021 Q4	0.6	7.3	105.1	112.2	96.3	102.1	104.1	113.2	116.0	110.2	110.6	115.1	93.8
2022 Q1	2.4	10.0	106.2	111.4	101.8	103.7	105.7	114.9	117.6	115.1	110.6	118.0	93.0
Q2	2.6	11.0	106.9	110.5	100.3	109.0	105.7	121.0	123.9	120.7	115.7	123.0	95.1
Q3	.	.	.	.	.	.	.	.	.	.	.	.	.
2022 Mar.	-0.7	5.8	105.5	110.7	99.4	102.5	103.8	115.6	118.2	115.4	111.8	118.1	88.6
Apr.	-2.6	6.7	105.4	108.8	99.8	108.1	104.3	119.5	122.1	117.4	114.9	121.3	93.7
May	9.5	17.5	108.3	112.5	99.0	110.7	106.8	122.3	125.2	122.7	117.5	124.9	94.3
June	1.3	9.1	107.0	110.4	102.0	108.2	106.1	121.2	124.6	121.9	114.5	122.7	97.4
July	-3.6	8.9	104.2	107.5	100.4	104.1	103.3	118.8	123.0	115.1	111.7	120.0	.
Aug.	5.9	18.7	107.0	109.9	104.6	107.4	107.1	126.3	129.8	128.2	116.2	126.6	.

Sources: ECB and Eurostat.

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

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

## 3 Prices and costs

### 3.1 Harmonised Index of Consumer Prices <sup>1)</sup>

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) <sup>2)</sup>						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										
% 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 Q4	109.9	4.6	2.4	6.2	2.4	1.6	1.0	0.7	0.2	9.1	1.0	4.6	5.1
2022 Q1	112.3	6.1	2.7	8.8	2.5	2.8	1.8	3.4	1.6	14.4	0.8	6.0	6.9
Q2	116.1	8.0	3.7	11.4	3.4	2.4	3.4	4.2	1.2	7.1	1.0	8.2	7.1
Q3	118.1	9.3	4.4	13.2	3.9	2.2	4.0	2.9	1.9	4.4	1.0	9.5	7.8
2022 June	117.0	8.6	3.7	12.5	3.4	0.8	1.3	1.5	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	0.7	0.8	0.3	0.5	9.3	5.9
Aug.	117.9	9.1	4.3	13.1	3.8	0.6	1.2	1.0	0.7	0.3	0.3	9.4	7.2
Sep.	119.3	9.9	4.8	14.0	4.3	1.0	1.1	1.4	0.3	2.9	0.9	9.9	10.4
Oct.	121.0	10.6	5.0	15.1	4.3	1.4	1.2	1.6	0.5	6.2	0.4	10.6	11.1
Nov. <sup>3)</sup>	120.9	10.0	5.0	.	4.2	0.2	1.4	-0.3	0.3	-1.9	0.4	.	.

	Goods						Services						
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing	Transport	Communication	Recreation and personal care	Miscellaneous		
	Total	Processed food	Unprocessed food	Total	Non-energy industrial goods	Energy	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 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	
Q3	10.7	10.5	11.6	14.7	5.0	39.7	2.6	1.9	4.3	-0.2	7.2	2.1	
2022 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.	10.6	10.5	11.0	14.5	5.1	38.6	2.6	1.8	3.5	-0.2	7.2	1.9	
Sep.	11.8	11.5	12.7	15.3	5.5	40.7	2.7	1.9	5.7	-0.3	7.3	2.5	
Oct.	13.1	12.4	15.5	16.3	6.1	41.5	2.9	2.0	5.9	-0.7	7.3	2.7	
Nov. <sup>3)</sup>	13.6	13.6	13.8	.	6.1	34.9	.	.	.	.	.	.	

Sources: Eurostat and ECB calculations.

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

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

3) Flash estimate.

## 3 Prices and costs

### 3.2 Industry, construction and property prices (annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction <sup>1)</sup>										Con- struction <sup>2)</sup>	Residential property prices <sup>3)</sup>	Experimental indicator of commercial property prices <sup>3)</sup>
	Total (index: 2015 = 100)	Total		Industry excluding construction and energy						Energy			
		Manu- facturing	Total	Intermediate 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	2.9	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	1.7	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	5.6	8.1	0.8
2021 Q4	127.3	24.0	12.3	9.7	18.0	4.3	4.0	3.9	3.0	67.5	7.7	9.5	3.3
2022 Q1	140.9	33.1	15.5	12.7	21.4	6.1	7.4	.	5.5	92.6	10.1	9.8	3.3
Q2	149.3	36.5	20.0	15.8	24.8	7.4	11.6	.	7.5	95.4	12.1	9.3	0.0
Q3	163.2	41.1	17.7	14.7	20.1	7.8	14.0	.	8.6	107.9	.	.	.
2022 May	148.9	36.2	19.9	16.0	25.1	7.5	11.7	.	7.6	93.9	-	-	-
June	150.9	36.1	20.6	15.7	24.0	7.6	12.2	.	8.0	93.4	-	-	-
July	157.0	38.1	18.7	15.1	21.5	7.9	13.3	.	8.4	98.0	-	-	-
Aug.	164.9	43.4	17.5	14.6	20.0	7.8	14.0	.	8.6	117.3	-	-	-
Sep.	167.6	41.9	16.9	14.5	18.9	7.6	14.6	.	8.9	108.0	-	-	-
Oct.	162.8	30.8	16.1	14.0	17.4	7.5	15.3	.	9.3	65.8	-	-	-

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](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 <sup>1)</sup>	Imports <sup>1)</sup>	Import-weighted <sup>2)</sup>			Use-weighted <sup>2)</sup>		
			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	2.2	0.7	0.2	57.2	2.0	4.4	-0.1	3.0	8.2	-2.3
2020	107.3	1.8	1.3	0.6	3.4	1.0	-1.4	-2.8	37.0	1.4	3.3	-0.3	-1.0	-0.3	-1.8
2021	109.5	2.0	2.8	2.3	1.5	3.6	5.8	7.9	59.8	29.5	21.3	37.2	28.8	21.7	37.1
2021 Q4	110.9	3.0	4.5	3.9	2.4	6.1	10.2	14.1	69.4	30.7	30.0	31.3	33.7	33.4	34.0
2022 Q1	112.2	3.5	5.5	4.8	2.5	7.4	11.8	17.0	88.7	32.2	35.0	29.7	35.5	38.5	32.5
Q2	113.4	4.2	6.7	6.3	3.5	8.4	14.6	20.7	106.1	22.5	39.7	9.2	24.2	38.2	10.8
Q3	114.6	4.3	7.1	7.3	4.2	7.4	13.3	19.4	98.3	14.8	30.9	1.5	15.5	28.7	2.3
2022 June	-	-	-	-	-	-	-	-	113.7	17.2	37.6	1.6	18.4	34.7	2.8
July	-	-	-	-	-	-	-	-	106.9	11.8	30.8	-3.1	14.7	31.5	-1.2
Aug.	-	-	-	-	-	-	-	-	97.4	16.1	30.2	4.2	15.9	26.3	5.1
Sep.	-	-	-	-	-	-	-	-	91.0	16.6	31.7	3.7	16.0	28.3	3.2
Oct.	-	-	-	-	-	-	-	-	94.5	10.7	25.3	-1.7	12.7	27.3	-1.9
Nov.	-	-	-	-	-	-	-	-	89.3	6.2	12.3	0.5	5.9	11.0	0.0

Sources: Eurostat, ECB calculations and Bloomberg (col. 9).

1) Deflators for exports and imports refer to goods and services and include cross-border trade within the euro area.

2) Import-weighted: weighted according to 2009-11 average import structure; use-weighted: weighted according to 2009-11 average domestic demand structure.

## 3 Prices and costs

### 3.4 Price-related opinion surveys

(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage 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	-0.4	2.0	-0.6	-5.0	11.4	49.0	52.1	48.7	47.2
2021	31.5	24.0	10.3	20.1	30.3	84.0	61.9	66.8	53.4
2021 Q4	46.3	41.9	19.6	36.5	52.4	88.4	69.5	72.1	56.9
2022 Q1	50.8	49.1	23.6	39.2	59.9	84.2	74.2	72.9	59.8
Q2	55.1	56.2	28.5	48.9	71.6	84.0	78.0	74.8	64.4
Q3	45.9	54.2	27.4	40.7	76.4	74.3	74.9	67.1	61.8
2022 June	50.3	56.4	27.8	45.5	74.8	80.0	77.9	70.9	63.2
July	45.3	54.9	27.1	41.6	75.9	74.8	74.7	67.9	62.1
Aug.	43.7	53.1	26.5	38.5	77.0	71.7	72.5	65.9	59.9
Sep.	48.6	54.6	28.5	41.9	76.3	76.5	77.4	67.4	63.2
Oct.	44.8	56.4	30.4	44.8	77.2	72.0	76.9	66.1	62.7
Nov.	40.4	51.9	30.1	43.0	78.3	64.5	74.3	63.6	62.3

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 <sup>1)</sup>
			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	107.4	2.5	2.7	2.1	2.5	2.5	2.2
2020	110.5	2.9	3.5	1.1	2.6	3.7	1.8
2021	111.8	1.2	1.3	0.9	1.1	1.5	1.5
2021 Q4	119.3	2.5	2.2	3.5	2.6	2.2	1.6
2022 Q1	108.7	4.2	3.7	5.6	4.6	3.2	3.0
Q2	119.2	4.0	4.1	3.8	3.9	4.3	2.5
Q3	.	.	.	.	.	.	2.9

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](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	105.5	1.9	-0.5	2.1	4.0	0.6	0.9	1.5	3.5	2.4	2.7	2.4
2020	110.3	4.6	-1.3	2.7	5.6	7.4	0.3	-0.2	1.4	3.9	6.2	16.1
2021	110.4	0.0	3.4	-2.9	2.4	-1.4	2.2	0.7	4.4	1.2	0.6	1.4
2021 Q4	111.4	1.2	2.8	2.1	4.5	-1.0	1.6	2.8	3.7	1.8	1.2	-6.9
2022 Q1	112.6	2.0	2.4	4.0	3.0	-0.8	2.7	3.2	4.8	2.6	2.4	-4.7
Q2	112.9	3.0	4.6	3.4	5.6	1.6	1.9	4.3	5.8	3.8	3.5	-6.1
Q3	114.1	3.3	2.9	1.7	6.0	1.8	4.0	4.4	7.9	3.9	4.0	-0.5
Compensation per employee												
2019	107.5	2.2	2.8	1.3	1.9	1.5	3.3	2.5	2.8	3.0	2.4	3.6
2020	107.2	-0.3	1.4	-2.0	-0.9	-3.9	0.4	0.3	0.6	0.3	2.3	-1.4
2021	111.4	3.9	3.6	4.2	4.5	5.8	4.3	2.9	5.1	4.3	1.9	4.0
2021 Q4	113.2	3.5	3.0	2.9	2.2	7.1	3.6	4.2	5.0	3.8	1.6	4.5
2022 Q1	114.5	4.5	3.3	4.3	4.2	7.8	3.2	3.8	5.6	4.6	2.7	8.5
Q2	115.4	4.6	3.6	4.2	3.9	8.0	2.8	4.6	5.7	5.6	2.8	6.8
Q3	116.7	3.9	3.3	2.7	3.2	4.7	3.2	4.5	5.2	4.8	3.4	5.0
Labour productivity per person employed												
2019	101.9	0.2	3.3	-0.8	-2.0	0.8	2.3	0.9	-0.6	0.6	-0.2	1.1
2020	97.2	-4.6	2.7	-4.5	-6.2	-10.6	0.1	0.5	-0.8	-3.5	-3.7	-15.1
2021	100.9	3.8	0.2	7.3	2.0	7.3	2.0	2.2	0.7	3.1	1.3	2.6
2021 Q4	101.7	2.3	0.1	0.7	-2.2	8.2	2.0	1.4	1.3	2.0	0.4	12.3
2022 Q1	101.7	2.4	0.9	0.3	1.1	8.7	0.4	0.6	0.8	1.9	0.3	13.8
Q2	102.2	1.6	-1.0	0.7	-1.6	6.2	0.9	0.3	-0.1	1.8	-0.6	13.8
Q3	102.2	0.5	0.4	0.9	-2.7	2.9	-0.9	0.0	-2.5	0.9	-0.6	5.6
Compensation per hour worked												
2019	107.7	2.6	3.0	1.9	2.0	2.1	3.5	1.4	2.6	3.3	2.7	4.8
2020	114.1	5.9	3.7	3.4	5.4	7.2	3.2	2.1	5.5	6.3	5.2	6.4
2021	114.4	0.3	1.1	-0.3	-0.3	0.2	1.9	1.0	0.9	0.5	0.6	0.2
2021 Q4	116.0	1.6	1.0	2.3	2.2	0.3	3.7	4.9	2.6	2.2	2.6	0.0
2022 Q1	116.5	1.2	3.2	3.5	3.3	-2.5	3.1	4.2	3.1	2.0	3.3	0.1
Q2	116.8	3.6	4.9	4.5	5.3	2.1	4.0	6.2	4.7	4.7	4.6	2.7
Q3	118.5	2.9	3.2	1.6	2.9	2.5	2.7	4.1	4.0	3.3	3.6	3.6
Hourly labour productivity												
2019	102.6	0.7	4.3	-0.1	-1.9	1.3	2.6	0.1	-0.7	0.9	0.0	1.9
2020	104.8	2.1	3.5	1.2	0.8	0.8	3.7	2.9	5.5	2.9	-0.6	-6.5
2021	104.5	-0.2	-0.6	2.4	-3.3	1.1	-0.5	0.1	-4.5	-1.2	-0.2	-2.0
2021 Q4	104.9	0.0	0.7	-0.2	-2.7	0.7	1.8	1.6	-1.0	0.1	1.3	5.7
2022 Q1	104.2	-1.0	1.6	-0.7	0.0	-1.7	0.3	1.0	-3.5	-0.3	0.8	3.2
Q2	104.4	0.5	0.3	1.1	-0.9	1.0	1.7	2.0	-2.1	1.1	1.1	8.3
Q3	104.8	-0.2	0.2	0.0	-2.4	1.3	-1.6	-0.1	-4.4	-0.2	-0.3	3.6

Sources: Eurostat and ECB calculations.

## 4 Financial market developments

### 4.1 Money market interest rates

(percentages per annum; period averages)

	Euro area <sup>1)</sup>					United States	Japan
	Euro short-term rate (€STR) <sup>2)</sup>	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
2019	-0.48	-0.40	-0.36	-0.30	-0.22	2.33	-0.08
2020	-0.55	-0.50	-0.43	-0.37	-0.31	0.64	-0.07
2021	-0.57	-0.56	-0.55	-0.52	-0.49	0.16	-0.08
2022 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
Sep.	0.36	0.57	1.01	1.60	2.23	3.45	-0.02
Oct.	0.66	0.92	1.43	2.00	2.63	4.14	-0.03
Nov.	1.37	1.42	1.83	2.32	2.83	4.65	-0.04

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.

### 4.2 Yield curves

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area <sup>1), 2)</sup>					Euro area <sup>1), 2)</sup>	United States	United Kingdom	Euro area <sup>1), 2)</sup>			
	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 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
Sep.	0.67	1.54	1.67	1.95	2.13	0.59	-0.20	0.53	1.84	1.84	2.30	2.32
Oct.	1.08	1.93	1.92	1.98	2.24	0.31	-0.63	0.51	2.16	1.77	2.32	2.54
Nov.	1.46	2.02	2.04	1.96	1.99	-0.03	-1.13	-0.04	2.23	1.91	1.99	2.01

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											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
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
2021	448.3	4,023.6	962.9	289.8	183.0	95.4	164.4	819.0	874.3	377.7	279.6	886.3	4,277.6	28,836.5
2022 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
Sep.	382.4	3,466.2	857.4	237.7	163.2	104.7	149.3	660.3	670.9	335.8	274.9	746.8	3,850.5	27,419.0
Oct.	378.5	3,464.6	875.2	233.5	158.0	108.5	149.5	666.2	656.6	315.8	258.3	738.9	3,726.1	26,983.2
Nov.	414.2	3,840.0	958.6	253.4	165.1	119.8	165.4	733.5	745.1	346.5	274.1	781.3	3,917.5	27,903.3

Source: Refinitiv.

## 4 Financial market developments

### 4.4 MFI interest rates on loans to and deposits from households (new business) <sup>1), 2)</sup>

(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 <sup>3)</sup>		By initial period of rate fixation					
			Up to 2 years	Over 2 years			Floating rate and up to 1 year	Over 1 year			Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
2021 Nov.	0.01	0.34	0.20	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	0.33	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	0.33	0.20	0.56	4.76	15.82	5.57	5.28	5.87	1.95	1.35	1.46	1.31	1.32	1.61	1.33
Feb.	0.01	0.45	0.18	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	0.46	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	0.46	0.20	0.56	4.75	15.78	5.82	5.39	5.97	2.24	1.43	1.72	1.77	1.58	1.89	1.61
May	0.00	0.45	0.20	0.64	4.80	15.85	5.87	5.58	6.20	2.48	1.52	1.87	2.02	1.74	2.06	1.78
June	0.00	0.45	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	0.01	0.46	0.30	0.88	4.84	15.86	6.18	5.74	6.36	2.81	1.84	2.27	2.54	1.99	2.36	2.15
Aug.	0.01	0.70	0.40	1.02	4.97	15.89	6.67	5.91	6.51	2.96	2.07	2.44	2.63	2.08	2.49	2.26
Sep.	0.02	0.71	0.60	1.27	5.27	15.83	6.57	5.96	6.58	3.09	2.27	2.59	2.84	2.25	2.67	2.45
Oct. <sup>6)</sup>	0.03	0.73	0.90	1.60	5.59	15.80	6.88	6.21	6.87	3.56	2.67	2.81	3.05	2.40	2.89	2.66

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) <sup>1), 2)</sup>

(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 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.	-0.05	-0.33	0.17	1.67	1.84	1.96	1.95	1.51	1.43	1.32	1.14	0.97	1.19	1.35
2022 Jan.	-0.05	-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.	-0.05	-0.32	0.41	1.67	1.77	1.93	2.08	1.50	1.43	1.42	1.07	1.07	1.46	1.42
Mar.	-0.06	-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.	-0.05	-0.30	0.44	1.67	1.88	1.98	2.24	1.52	1.45	1.67	1.19	1.12	1.57	1.51
May	-0.06	-0.27	0.52	1.67	1.81	2.02	2.40	1.52	1.49	1.79	1.15	1.22	1.95	1.55
June	-0.05	-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	0.00	0.04	1.20	1.78	1.90	2.44	2.78	1.69	1.86	2.14	1.40	1.77	2.11	1.79
Aug.	0.01	0.15	1.61	1.86	2.08	2.49	2.94	1.86	2.13	2.31	1.55	1.88	2.22	1.87
Sep.	0.05	0.70	1.79	2.23	2.48	2.91	3.24	2.31	2.55	2.45	2.31	2.34	2.38	2.40
Oct. <sup>6)</sup>	0.09	0.92	1.91	2.54	2.98	3.52	3.62	2.75	3.02	2.74	2.45	2.75	2.81	2.72

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 <sup>1)</sup>						
	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
Short-term														
2019	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	1,500.3	429.8	141.1	53.0	96.3	833.1	719.4	.	.	.	.	.	.	.
2021	1,431.7	428.7	153.9	62.2	87.7	761.5	671.7	387.7	138.9	79.8	26.1	31.8	137.3	104.6
2022 June	1,381.3	413.8	158.4	57.8	104.8	704.4	620.8	448.5	150.7	119.0	52.6	48.6	130.2	86.3
July	1,349.3	422.8	161.5	61.6	104.2	660.8	600.3	510.2	199.6	121.6	56.8	55.4	133.7	87.5
Aug.	1,344.2	420.9	158.7	60.2	105.7	658.9	597.7	470.6	188.1	113.6	49.5	45.3	123.6	92.0
Sep.	1,360.8	448.6	140.9	48.4	102.3	668.9	602.4	557.0	218.3	133.1	56.7	65.5	140.0	104.1
Oct.	1,360.9	463.6	139.9	50.3	100.3	657.0	596.8	566.7	250.5	134.0	57.9	57.5	124.7	98.0
Nov.	1,376.2	482.6	130.6	44.6	93.3	669.7	621.7	585.4	263.9	137.0	59.8	45.5	139.0	119.8
Long-term														
2019	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	19,499.1	4,105.6	3,309.4	1,324.9	1,546.3	10,537.6	9,752.1	.	.	.	.	.	.	.
2021	20,067.5	4,190.2	3,562.6	1,329.7	1,590.5	10,724.3	9,903.3	317.0	66.2	82.9	32.0	24.1	143.8	130.4
2022 June	18,697.8	4,058.0	3,461.9	1,332.1	1,397.7	9,780.1	9,023.1	298.7	80.5	65.3	22.7	12.2	140.8	132.4
July	19,235.2	4,146.5	3,545.9	1,342.8	1,453.7	10,089.1	9,309.0	236.5	51.7	61.0	31.8	8.7	115.1	110.3
Aug.	18,652.4	4,044.0	3,492.0	1,335.4	1,411.5	9,704.9	8,952.2	190.1	53.4	43.3	10.5	8.5	85.0	79.0
Sep.	18,113.4	3,975.3	3,431.4	1,307.0	1,362.4	9,344.4	8,613.7	319.6	94.5	74.8	28.3	19.3	131.0	120.9
Oct.	18,243.1	4,011.9	3,472.7	1,300.7	1,362.7	9,395.7	8,669.8	333.8	78.4	73.5	24.3	12.6	169.4	161.3
Nov.	18,612.8	4,077.2	3,521.5	1,311.5	1,409.9	9,604.2	8,866.1	322.4	78.5	75.9	34.2	32.3	135.7	122.1

Source: ECB.

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

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

(EUR billions and percentage changes; market values)

	Debt securities							Listed shares							
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations				
			Financial corporations other than MFIs	FVCs	Non-financial corporations	of which central government									
							1					2	3	4	5
Outstanding amount															
2019	.	.	.	.	.	.	.	.	.	.	.	8,560.4	537.8	1,410.5	6,612.1
2020	20,999.4	4,535.4	3,450.6	1,377.9	1,642.7	11,370.7	10,471.6	8,500.9	468.9	1,347.1	6,683.9	10,348.0	609.3	1,579.8	8,158.0
2021	21,499.3	4,618.9	3,716.4	1,391.9	1,678.1	11,485.8	10,575.0	10,348.0	609.3	1,579.8	8,158.0	10,348.0	609.3	1,579.8	8,158.0
2022 June	20,079.2	4,471.8	3,620.3	1,389.9	1,502.5	10,484.5	9,643.8	8,287.0	474.0	1,272.8	6,539.2	8,287.0	474.0	1,272.8	6,539.2
July	20,584.5	4,569.3	3,707.4	1,404.4	1,557.9	10,749.9	9,909.2	8,902.1	482.1	1,355.5	7,063.6	9,909.2	482.1	1,355.5	7,063.6
Aug.	19,996.6	4,464.9	3,650.7	1,395.6	1,517.2	10,363.8	9,549.8	8,483.2	475.5	1,311.1	6,695.6	9,549.8	475.5	1,311.1	6,695.6
Sep.	19,474.2	4,423.9	3,572.3	1,355.4	1,464.7	10,013.3	9,216.1	7,916.4	460.6	1,231.3	6,223.9	9,216.1	460.6	1,231.3	6,223.9
Oct.	19,604.0	4,475.5	3,612.7	1,351.0	1,463.0	10,052.8	9,266.6	8,469.5	506.9	1,292.0	6,669.9	9,266.6	506.9	1,292.0	6,669.9
Nov.	19,989.1	4,559.8	3,652.1	1,356.2	1,503.2	10,273.9	9,487.8	9,054.0	540.0	1,401.5	7,111.8	9,054.0	540.0	1,401.5	7,111.8
Growth rate <sup>1)</sup>															
2019	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2021	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2022 June	4.0	2.6	7.7	4.7	4.0	3.4	3.7	1.0	-0.2	3.3	0.7	1.0	-0.2	3.3	0.7
July	3.4	2.4	6.9	5.3	3.0	2.8	3.3	0.9	-0.4	3.3	0.5	0.9	-0.4	3.3	0.5
Aug.	3.5	2.4	7.0	4.4	3.4	2.8	3.2	0.8	-0.7	2.6	0.5	0.8	-0.7	2.6	0.5
Sep.	3.2	3.4	5.6	2.4	2.5	2.4	2.9	0.9	-0.9	2.3	0.7	0.9	-0.9	2.3	0.7
Oct.	3.3	4.5	3.7	0.8	1.6	2.9	3.4	0.9	-1.1	2.3	0.7	0.9	-1.1	2.3	0.7
Nov.	3.7	5.3	4.4	0.9	1.2	3.1	3.7	0.7	-1.3	1.8	0.6	0.7	-1.3	1.8	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 <sup>1)</sup>

(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	92.3	88.8	76.9	87.1	115.4	92.3
2020	99.6	93.5	93.4	89.4	75.9	87.8	119.4	93.8
2021	99.6	93.4	93.3	88.7	71.2	86.0	120.8	94.2
2021 Q4	97.7	91.7	91.8	86.6	69.7	84.0	119.1	92.7
2022 Q1	96.4	91.4	92.6	84.8	69.0	82.5	118.6	92.5
Q2	95.6	90.3	93.2	83.4	67.1	80.9	116.4	90.1
Q3	94.0	89.2	92.1	.	.	.	114.4	88.9
2022 June	95.9	90.5	93.6	-	-	-	116.5	90.1
July	94.1	89.1	92.0	-	-	-	114.6	88.8
Aug.	93.6	88.7	91.7	-	-	-	114.1	88.6
Sep.	94.2	89.7	92.6	-	-	-	114.5	89.2
Oct.	94.8	91.0	93.3	-	-	-	115.4	90.5
Nov.	95.9	92.4	94.4	-	-	-	117.1	92.2
	<i>Percentage change versus previous month</i>							
2022 Nov.	1.2	1.6	1.1	-	-	-	1.5	1.9
	<i>Percentage change versus previous year</i>							
2022 Nov.	-1.7	0.8	3.0	-	-	-	-1.4	-0.4

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 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
Q3	6.898	7.518	24.579	7.439	403.430	139.164	4.744	0.856	4.9138	10.619	0.973	1.007
2022 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
Sep.	6.951	7.522	24.576	7.437	404.186	141.568	4.741	0.875	4.9097	10.784	0.964	0.990
Oct.	7.069	7.530	24.528	7.439	418.308	144.725	4.804	0.871	4.9259	10.950	0.979	0.983
Nov.	7.317	7.543	24.369	7.439	406.683	145.124	4.696	0.869	4.9142	10.880	0.984	1.020
	<i>Percentage change versus previous month</i>											
2022 Nov.	3.5	0.2	-0.6	0.0	-2.8	0.3	-2.2	-0.2	-0.2	-0.6	0.5	3.8
	<i>Percentage change versus previous year</i>											
2022 Nov.	0.3	0.3	-4.0	0.0	11.6	11.5	1.1	2.5	-0.7	8.3	-6.5	-10.6

Source: ECB.

## 4 Financial market developments

### 4.10 Euro area balance of payments, financial account

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

	Total <sup>1)</sup>			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 Q3	31,263.5	31,402.4	-138.9	11,750.6	9,540.7	12,244.2	14,342.7	-95.7	6,362.0	7,519.0	1,002.4	15,727.6
Q4	32,242.9	32,211.0	31.9	11,943.4	9,754.8	12,864.4	14,684.3	-98.5	6,476.6	7,771.9	1,057.0	15,928.9
2022 Q1	32,216.0	32,024.2	191.8	11,986.7	9,892.1	12,340.0	13,991.7	-55.4	6,841.9	8,140.4	1,102.8	16,353.9
Q2	31,940.2	31,588.2	352.1	12,315.2	10,161.0	11,505.1	13,056.4	-16.6	7,014.5	8,370.8	1,122.1	16,462.2
<i>Outstanding amounts as a percentage of GDP</i>												
2022 Q2	248.6	245.9	2.7	95.8	79.1	89.5	101.6	-0.1	54.6	65.1	8.7	128.1
<i>Transactions</i>												
2021 Q4	222.3	192.6	29.7	-7.5	-66.5	155.9	73.3	40.2	30.7	185.8	2.9	-
2022 Q1	367.5	372.8	-5.3	55.2	32.8	-16.1	34.9	-2.1	331.3	305.1	-0.9	-
Q2	-29.3	-48.3	18.9	59.0	-42.2	-114.7	-96.8	23.9	0.1	90.8	2.3	-
Q3	-53.2	-65.1	11.9	98.9	16.1	-191.8	-32.9	32.2	0.1	-48.3	7.4	-
2022 Apr.	-17.6	32.4	-50.0	11.4	16.8	-31.4	-58.3	32.9	-29.9	74.0	-0.6	-
May	67.0	20.7	46.3	86.3	-15.2	-55.0	-76.4	1.1	33.4	112.2	1.2	-
June	-78.7	-101.3	22.6	-38.7	-43.9	-28.3	37.9	-10.0	-3.4	-95.4	1.7	-
July	49.9	27.8	22.1	13.0	19.6	-22.5	-62.4	-1.1	59.0	70.6	1.6	-
Aug.	118.6	106.5	12.2	60.2	43.5	-33.4	51.0	10.7	78.9	11.9	2.2	-
Sep.	-221.7	-199.3	-22.4	25.7	-47.0	-135.8	-21.5	22.6	-137.8	-130.8	3.6	-
<i>12-month cumulated transactions</i>												
2022 Sep.	507.3	452.1	55.2	205.7	-59.9	-166.6	-21.5	94.2	362.2	533.5	11.7	-
<i>12-month cumulated transactions as a percentage of GDP</i>												
2022 Sep.	3.9	3.5	0.4	1.6	-0.5	-1.3	-0.2	0.7	2.8	4.1	0.1	-

Source: ECB.

1) Net financial derivatives are included in total assets.

## 5 Financing conditions and credit developments

### 5.1 Monetary aggregates <sup>1)</sup>

(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	1,224.4	7,718.3	8,942.7	1,067.9	2,363.9	3,431.8	12,374.4	79.5	521.9	2.6	604.0	12,978.4
2020	1,363.7	8,876.5	10,240.2	1,033.2	2,449.4	3,482.6	13,722.8	101.8	627.0	4.4	733.2	14,455.9
2021	1,469.7	9,784.0	11,253.8	925.7	2,506.4	3,432.1	14,685.9	118.0	647.5	21.7	787.2	15,473.1
2021 Q4	1,469.7	9,784.0	11,253.8	925.7	2,506.4	3,432.1	14,685.9	118.0	647.5	21.7	787.2	15,473.1
2022 Q1	1,520.4	9,925.8	11,446.3	936.6	2,519.3	3,456.0	14,902.2	123.2	591.2	44.7	759.1	15,661.3
Q2	1,528.0	10,054.8	11,582.8	973.9	2,529.6	3,503.6	15,086.4	115.9	609.1	64.6	789.7	15,876.0
Q3	1,538.1	10,177.5	11,715.5	1,180.8	2,551.8	3,732.6	15,448.2	120.4	598.0	49.5	767.9	16,216.1
2022 May	1,525.1	10,013.0	11,538.1	940.2	2,525.5	3,465.7	15,003.8	124.1	599.0	56.8	779.8	15,783.6
June	1,528.0	10,054.8	11,582.8	973.9	2,529.6	3,503.6	15,086.4	115.9	609.1	64.6	789.7	15,876.0
July	1,531.7	10,105.3	11,637.0	1,006.1	2,537.7	3,543.8	15,180.9	125.2	593.7	30.7	749.6	15,930.4
Aug.	1,536.4	10,186.1	11,722.5	1,032.7	2,546.8	3,579.5	15,302.0	123.7	595.5	38.4	757.7	16,059.7
Sep.	1,538.1	10,177.5	11,715.5	1,180.8	2,551.8	3,732.6	15,448.2	120.4	598.0	49.5	767.9	16,216.1
Oct. <sup>(p)</sup>	1,541.2	10,023.6	11,564.7	1,254.9	2,555.4	3,810.3	15,375.1	124.9	619.7	21.1	765.8	16,140.9
	Transactions											
2019	58.2	604.4	662.6	-61.8	62.2	0.4	663.0	4.3	-5.1	-58.0	-58.9	604.1
2020	139.2	1,244.1	1,383.4	-28.7	86.3	57.6	1,440.9	19.6	111.0	1.3	131.9	1,572.9
2021	107.4	898.5	1,005.9	-118.4	66.7	-51.8	954.1	12.1	21.2	14.5	47.8	1,001.8
2021 Q4	25.4	171.8	197.2	10.1	13.6	23.7	220.9	-4.5	41.5	-8.2	28.8	249.7
2022 Q1	50.7	134.1	184.8	14.1	10.5	24.6	209.4	4.9	-56.2	23.0	-28.3	181.1
Q2	7.6	109.8	117.4	31.6	10.6	42.2	159.5	-8.6	18.0	17.0	26.4	185.9
Q3	10.1	111.7	121.8	164.5	21.9	186.4	308.2	2.6	-11.0	39.3	30.9	339.1
2022 May	4.8	48.3	53.1	-10.9	5.0	-5.9	47.2	7.2	0.8	-2.5	5.5	52.6
June	2.9	33.3	36.2	31.1	4.1	35.1	71.3	-8.8	10.2	6.3	7.7	79.0
July	3.7	39.5	43.3	28.6	8.0	36.6	79.9	8.3	-15.4	14.4	7.3	87.1
Aug.	4.7	87.4	92.1	24.9	9.0	33.9	126.0	-1.8	1.9	10.9	11.0	137.0
Sep.	1.7	-15.2	-13.5	110.9	4.9	115.9	102.4	-3.8	2.5	13.9	12.7	115.0
Oct. <sup>(p)</sup>	3.2	-148.6	-145.5	76.4	3.3	79.7	-65.8	4.9	21.7	-27.5	-0.9	-66.7
	Growth rates											
2019	5.0	8.5	8.0	-5.5	2.7	0.0	5.7	5.6	-1.0	-	-8.9	4.9
2020	11.4	16.2	15.5	-2.7	3.7	1.7	11.7	24.4	21.3	-	21.8	12.1
2021	7.9	10.1	9.8	-11.4	2.7	-1.5	6.9	12.0	3.4	367.6	6.5	6.9
2021 Q4	7.9	10.1	9.8	-11.4	2.7	-1.5	6.9	12.0	3.4	367.6	6.5	6.9
2022 Q1	9.4	8.7	8.8	-6.0	2.0	-0.3	6.6	9.4	-3.9	71.0	0.6	6.3
Q2	7.8	7.1	7.2	2.5	1.8	2.0	5.9	-2.6	-1.1	95.4	2.6	5.8
Q3	6.5	5.5	5.6	24.0	2.3	8.1	6.2	-4.5	-1.3	367.1	7.8	6.3
2022 May	8.4	7.9	7.9	-3.7	1.8	0.3	6.1	10.5	-2.3	28.7	1.5	5.8
June	7.8	7.1	7.2	2.5	1.8	2.0	5.9	-2.6	-1.1	95.4	2.6	5.8
July	7.4	6.7	6.8	6.3	2.1	3.3	5.9	3.8	-5.1	101.1	1.6	5.7
Aug.	7.1	6.8	6.8	10.8	2.3	4.6	6.3	3.6	-4.8	190.7	3.4	6.1
Sep.	6.5	5.5	5.6	24.0	2.3	8.1	6.2	-4.5	-1.3	367.1	7.8	6.3
Oct. <sup>(p)</sup>	6.0	3.4	3.8	30.0	2.3	9.9	5.2	-8.0	-0.7	77.5	3.2	5.1

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
<b>Outstanding amounts</b>													
2019	2,480.7	2,068.0	255.5	150.5	6.6	7,044.9	4,399.9	491.7	2,152.4	0.9	1,023.4	216.1	464.4
2020	2,968.8	2,517.0	308.2	140.2	3.3	7,665.2	4,967.3	437.0	2,260.1	0.9	1,094.3	235.3	497.3
2021	3,234.7	2,810.2	288.9	128.7	6.9	8,090.5	5,383.9	372.5	2,333.4	0.7	1,235.0	227.8	546.3
2021 Q4	3,234.7	2,810.2	288.9	128.7	6.9	8,090.5	5,383.9	372.5	2,333.4	0.7	1,235.0	227.8	546.3
2022 Q1	3,268.6	2,839.5	289.1	129.7	10.3	8,187.2	5,478.3	358.0	2,349.8	1.0	1,263.9	231.7	553.5
Q2	3,303.4	2,857.6	304.4	130.6	10.8	8,252.4	5,538.1	354.0	2,359.6	0.7	1,316.9	231.3	570.3
Q3	3,382.7	2,852.2	388.4	133.3	8.8	8,371.0	5,620.1	369.9	2,380.0	1.0	1,481.0	243.9	551.9
2022 May	3,280.4	2,852.9	287.0	130.2	10.3	8,235.1	5,523.6	354.6	2,356.2	0.8	1,288.2	231.7	567.4
June	3,303.4	2,857.6	304.4	130.6	10.8	8,252.4	5,538.1	354.0	2,359.6	0.7	1,316.9	231.3	570.3
July	3,331.4	2,869.3	321.8	130.4	9.8	8,294.2	5,571.1	354.1	2,368.3	0.8	1,339.8	241.0	567.9
Aug.	3,387.3	2,899.2	347.4	132.5	8.2	8,330.3	5,596.6	357.0	2,375.8	0.8	1,367.6	237.5	566.5
Sep.	3,382.7	2,852.2	388.4	133.3	8.8	8,371.0	5,620.1	369.9	2,380.0	1.0	1,481.0	243.9	551.9
Oct. (p)	3,408.2	2,821.2	446.1	131.6	9.3	8,385.0	5,613.7	385.4	2,384.8	1.1	1,354.4	254.1	557.2
<b>Transactions</b>													
2019	148.4	166.0	-19.0	1.8	-0.4	396.2	361.4	-26.3	61.6	-0.5	26.5	9.2	28.7
2020	511.7	466.2	55.3	-6.8	-3.0	612.8	561.7	-53.8	105.0	0.0	143.1	20.6	33.1
2021	252.0	277.0	-21.4	-6.9	3.3	424.5	412.7	-65.1	77.0	-0.2	145.2	-9.5	46.6
2021 Q4	69.0	68.7	5.0	-2.0	-2.7	68.0	67.6	-16.2	16.4	0.1	25.7	1.2	27.2
2022 Q1	28.3	24.4	-0.3	0.9	3.3	95.3	93.2	-10.6	12.4	0.3	28.4	4.1	7.5
Q2	22.4	8.9	12.5	0.8	0.2	62.9	57.9	-4.8	10.1	-0.3	42.1	-0.6	16.5
Q3	69.0	-11.8	80.5	2.7	-2.3	113.1	77.4	15.1	20.4	0.3	125.7	11.4	-18.5
2022 May	1.4	11.2	-11.3	0.7	0.7	29.3	26.1	-2.2	5.5	-0.2	9.4	4.6	5.1
June	17.6	0.9	15.9	0.3	0.4	15.8	13.4	-0.9	3.4	-0.1	23.5	-0.1	2.8
July	23.5	8.9	15.9	-0.2	-1.1	38.3	29.8	-0.2	8.6	0.1	16.1	8.8	-2.4
Aug.	54.1	29.0	24.8	2.1	-1.7	35.3	24.9	2.8	7.5	0.1	34.9	-3.5	-1.4
Sep.	-8.6	-49.7	39.8	0.8	0.5	39.4	22.6	12.5	4.2	0.1	74.7	6.1	-14.7
Oct. (p)	28.8	-29.1	58.9	-1.6	0.6	14.9	-5.3	15.8	4.4	0.1	-123.5	10.4	5.4
<b>Growth rates</b>													
2019	6.4	8.7	-6.9	1.2	-5.9	6.0	9.0	-5.1	2.9	-35.6	2.7	4.5	6.6
2020	20.6	22.5	21.5	-4.5	-46.6	8.7	12.8	-10.9	4.9	-5.4	14.4	9.5	7.1
2021	8.5	11.0	-7.0	-4.9	99.4	5.5	8.3	-14.9	3.4	-18.3	13.2	-4.0	9.4
2021 Q4	8.5	11.0	-7.0	-4.9	99.4	5.5	8.3	-14.9	3.4	-18.3	13.2	-4.0	9.4
2022 Q1	6.9	8.7	-5.0	-4.2	39.8	4.6	7.1	-14.3	2.6	26.1	13.5	5.7	12.6
Q2	6.0	6.7	2.5	-1.2	22.5	4.1	6.2	-12.5	2.3	-15.0	11.9	2.7	15.8
Q3	5.9	3.3	34.0	1.8	-15.2	4.2	5.6	-4.2	2.6	55.7	18.1	7.2	6.4
2022 May	6.5	8.1	-4.4	-2.6	40.4	4.4	6.7	-13.2	2.4	-13.1	11.1	0.1	15.1
June	6.0	6.7	2.5	-1.2	22.5	4.1	6.2	-12.5	2.3	-15.0	11.9	2.7	15.8
July	6.1	6.1	9.5	-0.9	16.4	4.2	6.1	-10.8	2.5	-4.5	11.9	5.7	13.3
Aug.	7.2	6.3	19.4	1.3	-18.5	4.2	5.8	-8.9	2.7	6.7	14.8	3.9	12.3
Sep.	5.9	3.3	34.0	1.8	-15.2	4.2	5.6	-4.2	2.6	55.7	18.1	7.2	6.4
Oct. (p)	6.0	1.4	50.8	1.8	2.6	4.1	5.0	1.3	2.5	7.6	7.0	8.0	7.4

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 <sup>1)</sup>

(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 <sup>3)</sup>	To households <sup>4)</sup>	To financial corporations other than MFIs and ICPFs <sup>3)</sup>	To insurance corporations and pension funds			
					Adjusted loans <sup>2)</sup>							
1	2	3	4	5	6	7	8	9	10	11	12	
<b>Outstanding amounts</b>												
2019	4,649.0	988.6	3,648.7	13,851.6	11,442.4	11,830.2	4,473.1	5,930.8	888.6	149.8	1,560.1	849.2
2020	5,906.9	998.1	4,896.9	14,324.9	11,912.9	12,291.7	4,706.6	6,132.9	906.7	166.8	1,547.5	864.5
2021	6,542.7	996.6	5,544.3	14,802.5	12,332.2	12,716.4	4,861.4	6,373.6	937.4	159.7	1,582.3	888.1
2021 Q4	6,542.7	996.6	5,544.3	14,802.5	12,332.2	12,716.4	4,861.4	6,373.6	937.4	159.7	1,582.3	888.1
2022 Q1	6,550.9	1,001.6	5,546.6	15,018.2	12,561.3	12,699.2	4,915.7	6,472.2	1,020.1	153.3	1,587.9	869.0
Q2	6,502.9	1,000.6	5,478.2	15,180.6	12,788.4	12,926.3	5,020.4	6,552.7	1,051.7	163.6	1,561.3	830.9
Q3	6,359.9	1,002.3	5,333.3	15,417.5	13,047.0	13,181.9	5,165.8	6,612.6	1,107.5	161.2	1,545.9	824.6
2022 May	6,502.3	999.1	5,478.3	15,114.0	12,707.7	12,843.9	4,983.3	6,521.5	1,040.4	162.5	1,555.3	851.0
June	6,502.9	1,000.6	5,478.2	15,180.6	12,788.4	12,926.3	5,020.4	6,552.7	1,051.7	163.6	1,561.3	830.9
July	6,537.0	998.0	5,514.8	15,253.6	12,857.7	12,992.0	5,068.8	6,576.3	1,052.6	160.0	1,564.5	831.4
Aug.	6,426.8	998.3	5,404.3	15,320.4	12,941.5	13,073.2	5,132.8	6,595.7	1,060.0	153.0	1,548.9	830.0
Sep.	6,359.9	1,002.3	5,333.3	15,417.5	13,047.0	13,181.9	5,165.8	6,612.6	1,107.5	161.2	1,545.9	824.6
Oct. <sup>(p)</sup>	6,378.5	996.2	5,358.0	15,405.7	13,035.0	13,168.3	5,187.4	6,622.3	1,065.6	159.6	1,537.2	833.5
<b>Transactions</b>												
2019	-88.6	-23.3	-65.6	446.9	373.8	420.6	114.5	200.2	39.4	19.7	29.9	43.2
2020	1,039.9	13.5	1,026.3	734.0	535.3	556.1	287.6	209.3	21.2	17.1	170.6	28.2
2021	665.7	-0.4	675.7	559.9	472.0	505.4	176.0	261.8	44.3	-10.2	78.8	9.2
2021 Q4	185.3	-0.3	185.4	206.9	157.2	207.5	93.5	61.5	-11.9	14.1	57.7	-7.9
2022 Q1	100.4	4.3	96.1	197.4	192.6	186.5	46.3	71.8	80.3	-5.9	18.6	-13.9
Q2	68.7	-0.9	69.6	210.2	229.1	237.8	100.9	84.7	33.3	10.3	-14.0	-4.9
Q3	-36.4	1.9	-38.5	220.8	230.5	234.3	139.3	58.5	36.1	-3.2	-9.3	-0.5
2022 May	21.6	-3.0	24.6	59.8	88.1	76.8	36.3	30.9	18.2	2.8	-38.9	10.6
June	32.4	1.5	31.5	81.2	78.1	87.3	36.5	33.1	7.6	0.9	14.0	-10.9
July	-15.4	-2.7	-12.7	54.0	60.7	60.3	45.2	21.3	-1.5	-4.3	-5.0	-1.8
Aug.	-26.9	0.8	-27.7	85.0	92.3	92.0	63.8	19.4	16.1	-7.0	-8.4	1.1
Sep.	6.0	3.9	1.9	81.8	77.5	82.0	30.2	17.8	21.4	8.1	4.2	0.1
Oct. <sup>(p)</sup>	11.0	-6.0	17.0	-2.6	-5.1	-3.3	25.0	11.1	-39.7	-1.5	-5.4	7.9
<b>Growth rates</b>												
2019	-1.9	-2.3	-1.8	3.3	3.4	3.7	2.6	3.5	4.6	15.9	2.0	5.5
2020	22.1	1.4	27.8	5.3	4.7	4.7	6.4	3.5	2.4	10.2	11.4	3.4
2021	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	4.9	-4.6	5.2	1.0
2021 Q4	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	4.9	-4.6	5.2	1.0
2022 Q1	10.1	0.8	11.9	4.2	4.3	4.6	3.5	4.4	8.6	-1.2	6.6	-1.7
Q2	8.4	-0.2	10.1	5.2	5.8	6.2	6.0	4.6	13.6	7.8	5.0	-2.8
Q3	5.0	0.5	5.8	5.7	6.6	7.0	8.0	4.4	14.5	10.0	3.5	-3.0
2022 May	8.9	-0.2	10.7	4.8	5.3	5.7	5.1	4.5	11.9	2.3	4.8	-1.2
June	8.4	-0.2	10.1	5.2	5.8	6.2	6.0	4.6	13.6	7.8	5.0	-2.8
July	7.0	-0.9	8.5	5.2	5.9	6.3	6.6	4.5	12.3	4.9	4.3	-2.7
Aug.	5.5	-0.5	6.7	5.6	6.4	6.8	7.8	4.4	13.8	-0.7	3.7	-3.0
Sep.	5.0	0.5	5.8	5.7	6.6	7.0	8.0	4.4	14.5	10.0	3.5	-3.0
Oct. <sup>(p)</sup>	4.6	0.8	5.3	5.2	6.2	6.5	8.1	4.2	10.7	3.2	1.2	-1.8

Source: ECB.

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

2) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

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

4) Including non-profit institutions serving households.

## 5 Financing conditions and credit developments

### 5.4 MFI loans to euro area non-financial corporations and households <sup>1)</sup>

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

	Non-financial corporations <sup>2)</sup>					Households <sup>3)</sup>				
	Total	Adjusted loans <sup>4)</sup>	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total	Adjusted loans <sup>4)</sup>	Loans for consumption	Loans for house purchase	Other loans
	1					2				
<b>Outstanding amounts</b>										
2019	4,473.1	4,575.8	962.7	877.1	2,633.4	5,930.8	6,223.0	720.0	4,523.9	686.9
2020	4,706.6	4,828.7	893.8	1,009.1	2,803.6	6,132.9	6,402.6	700.7	4,725.1	707.1
2021	4,861.4	4,993.3	885.1	1,005.8	2,970.5	6,373.6	6,638.4	698.5	4,971.1	704.0
2021 Q4	4,861.4	4,993.3	885.1	1,005.8	2,970.5	6,373.6	6,638.4	698.5	4,971.1	704.0
2022 Q1	4,915.7	4,890.2	909.5	1,003.0	3,003.2	6,472.2	6,672.1	701.5	5,063.2	707.4
Q2	5,020.4	4,995.6	949.9	1,028.3	3,042.2	6,552.7	6,742.3	709.0	5,138.6	705.1
Q3	5,165.8	5,136.6	1,008.0	1,067.9	3,089.8	6,612.6	6,801.3	713.1	5,194.4	705.2
2022 May	4,983.3	4,952.0	936.3	1,017.2	3,029.8	6,521.5	6,723.0	706.0	5,108.5	707.0
June	5,020.4	4,995.6	949.9	1,028.3	3,042.2	6,552.7	6,742.3	709.0	5,138.6	705.1
July	5,068.8	5,041.3	962.2	1,042.0	3,064.6	6,576.3	6,763.4	711.3	5,159.5	705.4
Aug.	5,132.8	5,098.4	987.7	1,063.0	3,082.0	6,595.7	6,784.7	711.5	5,178.7	705.5
Sep.	5,165.8	5,136.6	1,008.0	1,067.9	3,089.8	6,612.6	6,801.3	713.1	5,194.4	705.2
Oct. <sup>(p)</sup>	5,187.4	5,153.5	1,006.5	1,077.4	3,103.6	6,622.3	6,812.9	715.3	5,201.7	705.3
<b>Transactions</b>										
2019	114.5	142.2	-11.7	44.7	81.6	200.2	216.8	40.9	168.5	-9.1
2020	287.6	324.9	-53.5	138.5	202.6	209.3	193.7	-11.6	210.8	10.2
2021	176.0	208.2	-1.5	2.7	174.9	261.8	267.2	10.7	255.0	-3.8
2021 Q4	93.5	124.4	48.1	36.7	8.7	61.5	73.5	6.4	56.2	-1.2
2022 Q1	46.3	53.5	20.6	-3.2	28.9	71.8	80.5	5.1	65.0	1.7
Q2	100.9	106.6	40.5	22.6	37.7	84.7	74.6	7.5	75.7	1.5
Q3	139.3	139.7	55.4	39.6	44.3	58.5	58.5	4.0	55.3	-0.8
2022 May	36.3	30.4	14.5	5.3	16.5	30.9	26.7	3.1	27.1	0.6
June	36.5	48.1	13.3	10.1	13.1	33.1	22.2	2.1	30.1	0.8
July	45.2	44.3	11.1	13.2	20.9	21.3	19.6	2.3	20.7	-1.7
Aug.	63.8	58.8	26.6	21.6	15.5	19.4	21.4	-0.2	19.4	0.3
Sep.	30.2	36.6	17.7	4.7	7.8	17.8	17.6	1.9	15.2	0.6
Oct. <sup>(p)</sup>	25.0	24.0	-0.5	10.5	15.0	11.1	12.9	2.4	8.0	0.7
<b>Growth rates</b>										
2019	2.6	3.2	-1.2	5.3	3.2	3.5	3.6	6.0	3.9	-1.3
2020	6.4	7.1	-5.6	15.9	7.7	3.5	3.1	-1.6	4.7	1.5
2021	3.8	4.3	-0.2	0.3	6.2	4.3	4.2	1.5	5.4	-0.5
2021 Q4	3.8	4.3	-0.2	0.3	6.2	4.3	4.2	1.5	5.4	-0.5
2022 Q1	3.5	4.2	2.4	-0.8	5.4	4.4	4.5	2.6	5.4	-0.2
Q2	6.0	6.9	14.1	5.9	3.7	4.6	4.6	3.4	5.4	0.0
Q3	8.0	8.9	19.6	9.9	4.0	4.4	4.4	3.3	5.1	0.2
2022 May	5.1	6.0	7.4	4.6	4.6	4.5	4.7	3.3	5.3	-0.1
June	6.0	6.9	14.1	5.9	3.7	4.6	4.6	3.4	5.4	0.0
July	6.6	7.6	15.5	7.5	3.8	4.5	4.5	3.5	5.3	-0.3
Aug.	7.8	8.7	18.8	9.7	4.1	4.4	4.5	3.3	5.3	0.0
Sep.	8.0	8.9	19.6	9.9	4.0	4.4	4.4	3.3	5.1	0.2
Oct. <sup>(p)</sup>	8.1	8.9	16.9	11.0	4.7	4.2	4.2	3.3	4.8	0.3

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 <sup>1)</sup>

(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 <sup>2)</sup>	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 <sup>3)</sup>	Reverse repos to central counterparties <sup>3)</sup>	
1	2	3	4	5	6	7	8	9	10	
<b>Outstanding amounts</b>										
2019	358.5	7,050.7	1,943.5	50.2	2,154.1	2,902.8	1,477.9	409.1	178.9	187.2
2020	723.2	6,955.9	1,913.6	42.2	1,990.8	3,009.2	1,441.4	461.8	130.1	139.2
2021	762.6	6,883.4	1,837.3	37.1	1,997.3	3,011.6	1,372.5	401.3	118.8	136.8
2021 Q4	762.6	6,883.4	1,837.3	37.1	1,997.3	3,011.6	1,372.5	401.3	118.8	136.8
2022 Q1	740.2	6,882.4	1,848.2	35.9	1,988.7	3,009.7	1,361.1	353.8	153.0	164.4
Q2	757.5	6,801.3	1,843.8	31.6	2,008.5	2,917.3	1,313.5	437.7	159.3	157.3
Q3	642.5	6,782.4	1,801.9	31.3	2,096.4	2,852.9	1,319.1	544.4	142.9	145.8
2022 May	735.3	6,806.6	1,845.2	32.1	1,990.4	2,938.9	1,242.8	466.4	178.3	170.8
June	757.5	6,801.3	1,843.8	31.6	2,008.5	2,917.3	1,313.5	437.7	159.3	157.3
July	741.2	6,902.2	1,833.1	31.2	2,059.3	2,978.6	1,345.4	437.9	169.5	159.1
Aug.	649.5	6,827.0	1,813.2	31.9	2,080.4	2,901.6	1,362.0	427.0	154.6	145.7
Sep.	642.5	6,782.4	1,801.9	31.3	2,096.4	2,852.9	1,319.1	544.4	142.9	145.8
Oct. <sup>(p)</sup>	678.2	6,745.5	1,789.6	31.6	2,100.7	2,823.5	1,283.0	497.2	140.4	155.6
<b>Transactions</b>										
2019	-28.9	105.5	-5.8	-2.9	27.8	86.4	312.2	10.2	-2.7	-2.5
2020	299.6	-35.8	-15.1	-8.0	-101.0	88.3	-59.6	122.3	-48.8	-48.0
2021	40.0	-37.1	-75.1	-5.0	-39.7	82.7	-115.8	-105.1	-11.3	-2.3
2021 Q4	65.7	4.9	-15.4	-1.5	3.4	18.5	-56.8	-15.1	-20.2	-9.2
2022 Q1	-19.0	-28.0	-19.5	-1.3	-25.0	17.8	-32.7	-131.0	34.0	34.7
Q2	17.2	19.8	-8.1	-4.2	-16.1	48.3	-61.0	4.9	7.6	-7.1
Q3	-115.0	-4.4	-47.0	-0.2	-2.4	45.2	-25.7	61.0	-16.4	-11.5
2022 May	-26.0	-12.8	-0.2	-3.4	-18.6	9.4	-57.0	-10.7	-1.1	-0.9
June	22.2	10.5	-3.2	-0.5	0.6	13.6	42.9	-44.8	-19.0	-13.5
July	-16.2	-2.7	-12.6	-0.4	-5.3	15.6	-4.2	33.9	10.2	1.8
Aug.	-91.7	-8.3	-20.6	0.7	4.6	7.0	30.6	-51.7	-14.9	-13.4
Sep.	-7.1	6.6	-13.8	-0.4	-1.7	22.5	-52.1	78.8	-11.7	0.1
Oct. <sup>(p)</sup>	35.7	-7.0	-11.6	0.1	16.7	-12.2	7.0	-53.5	-2.5	9.8
<b>Growth rates</b>										
2019	-7.4	1.5	-0.3	-5.3	1.3	3.1	-	-	-1.5	-1.5
2020	84.6	-0.5	-0.8	-15.8	-4.7	3.0	-	-	-27.3	-25.7
2021	5.5	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2021 Q4	5.5	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2022 Q1	5.8	-0.7	-4.0	-13.1	-2.0	2.3	-	-	20.1	31.9
Q2	12.2	0.0	-3.0	-21.2	-1.5	3.2	-	-	29.6	22.2
Q3	-7.4	-0.1	-4.8	-18.7	-2.0	4.5	-	-	3.4	4.3
2022 May	4.9	0.1	-3.1	-21.0	-1.7	3.6	-	-	34.5	36.4
June	12.2	0.0	-3.0	-21.2	-1.5	3.2	-	-	29.6	22.2
July	7.8	-0.1	-3.4	-21.0	-2.2	3.8	-	-	27.9	24.8
Aug.	-8.2	-0.1	-4.1	-18.4	-1.7	3.8	-	-	24.1	18.6
Sep.	-7.4	-0.1	-4.8	-18.7	-2.0	4.5	-	-	3.4	4.3
Oct. <sup>(p)</sup>	-8.0	-0.4	-5.0	-17.3	-2.1	3.9	-	-	1.0	10.1

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	-0.6	-1.0	0.1	0.1	0.3	1.0
2020	-7.0	-5.8	-0.4	0.0	-0.9	-5.5
2021	-5.1	-5.1	-0.1	0.1	-0.1	-3.7
2021 Q3	-6.1	.	.	.	.	-4.7
Q4	-5.1	.	.	.	.	-3.7
2022 Q1	-4.0	.	.	.	.	-2.5
Q2	-2.9	.	.	.	.	-1.4

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

### 6.2 Revenue and expenditure

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

	Revenue						Expenditure						
	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	46.5	46.0	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	5.4	1.6	22.4	3.8
2020	46.4	45.9	12.9	12.7	15.5	0.5	53.5	48.9	10.6	5.9	1.5	25.3	4.5
2021	47.2	46.5	13.3	13.1	15.3	0.7	52.3	47.5	10.2	6.0	1.5	24.2	4.8
2021 Q3	46.7	46.0	12.9	13.0	15.3	0.7	52.8	48.1	10.4	5.9	1.4	24.5	4.7
Q4	47.2	46.5	13.3	13.1	15.3	0.7	52.3	47.5	10.2	5.9	1.5	24.2	4.8
2022 Q1	47.1	46.4	13.3	13.2	15.2	0.7	51.1	46.4	10.1	5.9	1.5	23.7	4.7
Q2	47.3	46.6	13.5	13.2	15.1	0.7	50.2	45.6	10.0	5.9	1.5	23.3	4.6

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	86.0	3.1	13.8	69.0	48.3	32.6	37.6	8.2	77.8	16.1	28.3	41.5	84.5	1.5
2019	83.9	3.0	13.0	67.9	45.5	30.7	38.4	7.7	76.2	15.6	27.7	40.6	82.6	1.3
2020	97.0	3.2	14.2	79.7	54.4	39.1	42.6	11.1	85.9	18.9	31.0	47.2	95.4	1.7
2021	95.4	3.0	13.6	78.7	55.5	41.6	39.9	9.9	85.4	17.8	30.3	47.3	93.9	1.4
2021 Q3	97.3	3.0	13.9	80.4	.	.	.	.	.	.	.	.	.	.
Q4	95.4	3.0	13.6	78.7	.	.	.	.	.	.	.	.	.	.
2022 Q1	95.2	2.9	13.4	78.9	.	.	.	.	.	.	.	.	.	.
Q2	94.2	3.0	13.3	77.9	.	.	.	.	.	.	.	.	.	.

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

## 6 Fiscal developments

### 6.4 Annual change in the government debt-to-GDP ratio and underlying factors <sup>1)</sup>

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

	Change in debt-to-GDP ratio <sup>2)</sup>	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	0.0	0.0	0.2	-0.2	0.0	-1.1	0.9
2020	13.1	5.5	2.2	2.5	2.0	0.4	-0.1	0.1	-0.3	0.0	5.4	9.5
2021	-1.7	3.7	-0.1	0.6	0.4	0.1	0.0	0.1	-0.1	-0.6	-5.3	5.1
2021 Q3	0.6	4.7	-1.1	-0.4	-0.8	0.2	0.0	0.2	-0.2	-0.6	-3.0	5.2
Q4	-1.7	3.7	-0.1	0.6	0.4	0.1	0.0	0.1	-0.1	-0.6	-5.3	5.1
2022 Q1	-4.4	2.5	0.4	0.8	0.5	0.1	0.0	0.2	0.0	-0.4	-7.3	4.4
Q2	-3.7	1.4	0.8	1.1	0.9	0.1	0.0	0.2	0.1	-0.4	-5.8	3.6

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 <sup>1)</sup>

(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 <sup>2)</sup>					Average residual maturity in years <sup>3)</sup>	Average nominal yields <sup>4)</sup>						
	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
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	13.5	4.2	1.4	0.4	7.6	1.8	1.2	-0.2	2.2	2.1	0.0	0.8
2021	14.1	12.8	4.2	1.3	0.3	7.9	1.6	1.1	-0.4	1.9	1.9	-0.1	0.5
2021 Q3	14.5	13.2	4.4	1.3	0.3	7.9	1.7	1.1	-0.3	2.0	1.8	-0.1	0.5
Q4	14.1	12.8	4.2	1.3	0.3	7.9	1.6	1.1	-0.4	1.9	1.9	-0.1	0.5
2022 Q1	14.7	13.4	5.0	1.3	0.3	8.0	1.5	1.1	-0.3	1.9	1.7	-0.1	0.4
Q2	14.6	13.4	4.8	1.3	0.3	8.0	1.6	1.1	-0.2	1.9	1.8	0.1	0.4
2022 May	14.5	13.2	4.0	1.3	0.3	8.1	1.6	1.1	-0.3	1.9	1.8	0.0	0.5
June	14.6	13.4	4.8	1.3	0.3	8.0	1.6	1.1	-0.2	1.9	1.8	0.1	0.4
July	14.3	13.0	4.6	1.3	0.3	8.1	1.6	1.1	-0.2	1.9	1.7	0.2	0.5
Aug.	14.5	13.3	4.7	1.3	0.3	8.0	1.6	1.1	-0.1	1.9	1.7	0.3	0.3
Sep.	14.1	12.8	4.0	1.3	0.3	8.1	1.6	1.1	0.0	1.9	1.9	0.6	0.4
Oct.	14.4	13.1	3.8	1.3	0.3	8.1	1.6	1.1	0.1	1.9	1.9	0.7	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	-1.9	1.5	0.1	0.5	1.1	-3.1	-3.1	-1.5	1.3	
2020	-9.0	-4.3	-5.5	-5.0	-9.9	-10.1	-9.0	-9.5	-5.8	
2021	-5.6	-3.7	-2.4	-1.7	-7.5	-6.9	-6.5	-7.2	-1.7	
2021 Q3	-7.0	-4.3	-3.8	-3.1	-9.7	-7.7	-8.0	-7.9	-4.8	
Q4	-5.6	-3.7	-2.4	-1.7	-7.4	-6.9	-6.5	-7.2	-1.7	
2022 Q1	-5.5	-2.9	-1.8	-0.1	-5.0	-5.4	-5.1	-6.4	-0.1	
Q2	-4.3	-1.9	-0.4	0.1	-2.3	-4.5	-4.0	-5.3	1.3	
Government debt										
2018	99.9	61.3	8.2	63.0	186.4	100.4	97.8	134.4	98.1	
2019	97.6	58.9	8.5	57.0	180.6	98.2	97.4	134.1	90.4	
2020	112.0	68.0	18.5	58.4	206.3	120.4	115.0	154.9	113.5	
2021	109.2	68.6	17.6	55.4	194.5	118.3	112.8	150.3	101.0	
2021 Q3	111.9	68.6	19.1	57.4	201.6	121.9	115.4	154.2	106.5	
Q4	109.2	68.6	17.6	55.4	193.3	118.3	112.8	150.3	101.1	
2022 Q1	109.0	67.4	17.2	53.2	188.4	117.4	114.6	152.1	102.1	
Q2	108.3	67.2	16.7	51.4	182.1	116.1	113.1	150.2	95.2	
	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	1.5	0.2	-0.3	0.7	-1.0	-0.9
2019	-0.6	0.5	2.2	0.6	1.8	0.6	0.1	0.6	-1.2	-0.9
2020	-4.3	-7.0	-3.4	-9.4	-3.7	-8.0	-5.8	-7.7	-5.4	-5.5
2021	-7.0	-1.0	0.8	-7.8	-2.6	-5.9	-2.9	-4.7	-5.5	-2.7
2021 Q3	-5.8	-3.6	-0.2	-7.9	-3.6	-8.2	-3.9	-6.1	-5.4	-4.3
Q4	-7.0	-1.0	0.8	-7.8	-2.6	-5.9	-2.9	-4.7	-5.5	-2.7
2022 Q1	-5.2	0.0	0.6	-7.8	-1.5	-3.5	-1.6	-3.6	-4.8	-2.0
Q2	-3.6	1.0	0.6	-6.9	0.1	-1.4	0.2	-3.0	-3.8	-1.4
Government debt										
2018	37.0	33.7	20.9	43.7	52.4	74.1	121.5	70.3	49.4	64.9
2019	36.5	35.8	22.4	40.7	48.5	70.6	116.6	65.4	48.0	64.9
2020	42.0	46.3	24.5	53.3	54.7	82.9	134.9	79.6	58.9	74.8
2021	43.6	43.7	24.5	56.3	52.4	82.3	125.5	74.5	62.2	72.4
2021 Q3	42.3	44.6	25.5	56.2	52.8	83.6	129.1	79.5	60.4	73.8
Q4	43.6	43.7	24.5	56.3	52.4	82.3	125.5	74.5	62.2	72.4
2022 Q1	41.7	39.8	22.6	57.4	50.7	83.4	124.8	74.7	61.6	72.1
Q2	41.6	39.6	25.4	55.1	50.9	82.7	123.4	73.5	60.3	71.6

Source: Eurostat.

© **European Central Bank, 2023**

Postal address 60640 Frankfurt am Main, Germany  
Telephone +49 69 1344 0  
Website [www.ecb.europa.eu](http://www.ecb.europa.eu)

All rights reserved. Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

This Bulletin was produced under the responsibility of the Executive Board of the ECB. Translations are prepared and published by the national central banks.

The cut-off date for the statistics included in this issue was 14 December 2022.

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

PDF ISSN 2363-3417, QB-BP-22-008-EN-N  
HTML ISSN 2363-3417, QB-BP-22-008-EN-Q