



EUROPEAN CENTRAL BANK

EUROSYSTEM

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# Contents

<b>Update on economic, financial and monetary developments</b>	<b>2</b>
Summary	2
1 External environment	7
2 Economic activity	13
3 Prices and costs	21
4 Financial market developments	26
5 Financing conditions and credit developments	29
<b>Boxes</b>	<b>37</b>
1 Supply bottlenecks and price pressures in euro area goods trade and tourism	37
2 Motor vehicle sector: explaining the drop in output and the rise in prices	44
3 Carry-over effects and intra-quarter GDP growth – estimates based on monthly indicators	52
4 The impact of the recent rise in inflation on low-income households	55
5 Main findings from the ECB's recent contacts with non-financial companies	61
6 A closer look at consumers' inflation expectations – evidence from the ECB's Consumer Expectations Survey	64
7 The role of demand and supply in underlying inflation – decomposing HICPX inflation into components	70
8 Euro area linkages with Russia: latest insights from the balance of payments	76
<b>Articles</b>	<b>81</b>
1 Risk sharing in the euro area: a focus on the public channel and the COVID-19 pandemic	81
<b>Statistics</b>	<b>S1</b>

# Update on economic, financial and monetary developments

## Summary

At its meeting on 27 October 2022, the Governing Council decided to raise the three key ECB interest rates by 75 basis points. With this third major policy rate increase in a row, the Governing Council has made substantial progress in withdrawing monetary policy accommodation. The Governing Council took its decision, and expects to raise interest rates further, to ensure the timely return of inflation to the ECB's 2% medium-term inflation target. The Governing Council will base the future policy rate path on the evolving outlook for inflation and the economy, following its meeting-by-meeting approach.

Inflation remains far too high and will stay above the target for an extended period. In September, euro area inflation reached 9.9%. In recent months, soaring energy and food prices, supply bottlenecks and the post-pandemic recovery in demand have led to a broadening of price pressures and an increase in inflation. The Governing Council's monetary policy is aimed at reducing support for demand and guarding against the risk of a persistent upward shift in inflation expectations.

The Governing Council also decided to change the terms and conditions of the third series of targeted longer-term refinancing operations (TLTRO III). During the acute phase of the pandemic, this instrument played a key role in countering downside risks to price stability. Now, in view of the unexpected and extraordinary rise in inflation, it needs to be recalibrated to ensure that it is consistent with the broader monetary policy normalisation process and to reinforce the transmission of policy rate increases to bank lending conditions. The Governing Council therefore decided to adjust the interest rates applicable to TLTRO III from 23 November 2022 and to offer banks additional voluntary early repayment dates. The recalibration of the TLTRO III terms and conditions will contribute to the normalisation of bank funding costs. The ensuing normalisation of financing conditions, in turn, will exert downward pressure on inflation, contributing to restoring price stability over the medium term. The recalibration also removes deterrents to early voluntary repayment of outstanding TLTRO III funds. Earlier voluntary repayments would reduce the Eurosystem balance sheet and, with that, contribute to the overall monetary policy normalisation.

Finally, in order to align the remuneration of minimum reserves held by credit institutions with the Eurosystem more closely with money market conditions, the Governing Council decided to set the remuneration of minimum reserves at the ECB's deposit facility rate.

## Economic activity

Global economic activity contracted in the second quarter of 2022, with survey data indicating that a subdued growth momentum will continue in the near term. Although there are some tailwinds for the world economy from the further easing of global supply chain pressures owing to improvements in supply and weakening of demand, downside risks persist. These are associated with continuing geopolitical uncertainty, in particular potential disruptions related to Russia's unjustified war against Ukraine and a possible worsening of coronavirus (COVID-19) developments in the autumn and winter. Despite easing supply chain pressures, global trade momentum remains moderate amid the deteriorating global economic outlook.

Economic activity in the euro area is likely to have slowed significantly in the third quarter of 2022, and the Governing Council expects a further weakening in the remainder of 2022 and the beginning of 2023. By reducing people's real incomes and pushing up costs for firms, high inflation continues to dampen spending and production. Severe disruptions in the supply of gas have worsened the situation further, and both consumer and business confidence have fallen rapidly, which is also weighing on the economy. Demand for services is slowing, after a strong performance in previous quarters when those sectors most affected by the pandemic-related restrictions reopened, and survey-based indicators for new orders in the manufacturing sector are falling. Moreover, global economic activity is growing more slowly, in a context of persistent geopolitical uncertainty, especially owing to the war in Ukraine, and tighter financing conditions. Worsening terms of trade, as the prices paid for imports rise faster than those received for exports, are weighing on incomes in the euro area.

The labour market continued to perform well in the third quarter, and the unemployment rate remained at the historically low level of 6.6% in August. While short-term indicators suggest that jobs were still being created in the third quarter, the weakening of the economy could lead to somewhat higher unemployment in the future.

To limit the risk of fuelling inflation, fiscal support measures to shield the economy from the impact of high energy prices should be temporary and targeted at the most vulnerable. Policymakers should provide incentives to lower energy consumption and bolster energy supply. At the same time, governments should pursue fiscal policies that show they are committed to gradually bringing down high public debt ratios. Structural policies should be designed to increase the euro area's growth potential and supply capacity and to boost its resilience, thereby contributing to a reduction in medium-term price pressures. The swift implementation of the investment and structural reform plans under the Next Generation EU programme will make an important contribution to these objectives.

## Inflation

Inflation rose to 9.9% in September, reflecting further increases in all components. Energy price inflation, at 40.7%, remained the main driver of overall inflation, with an increasing contribution from gas and electricity prices. Food price inflation also rose further, to 11.8%, as high input costs made food production more expensive.

Supply bottlenecks are gradually easing, though their lagged impact is still contributing to inflation. The impact of pent-up demand, while weakening, is still driving up prices in the services sector. The depreciation of the euro has added to the build-up of inflationary pressures.

Price pressures are evident in more and more sectors, in part owing to the impact of high energy costs feeding through to the whole economy. Measures of underlying inflation have thus remained at elevated levels. Among those measures, inflation excluding energy and food rose further to 4.8% in September.

Strong labour markets are likely to support higher wages, as is some catch-up in wages to compensate for higher inflation. Incoming wage data and recent wage agreements indicate that the growth of wages may be picking up. Most measures of longer-term inflation expectations currently stand at around 2%, although further above-target revisions to some indicators warrant continued monitoring.

## Risk assessment

The incoming data confirm that risks to the economic growth outlook are clearly on the downside, especially in the near term. A long-lasting war in Ukraine remains a significant risk. Confidence could deteriorate further and supply-side constraints could worsen again. Energy and food costs could also remain persistently higher than expected. A weakening world economy could be an additional drag on growth in the euro area.

The risks to the inflation outlook are primarily on the upside. The major risk in the short term is a further rise in retail energy prices. Over the medium term, inflation may turn out to be higher than expected if there are increases in the prices of energy and food commodities and a stronger pass-through to consumer prices, a persistent worsening of the production capacity of the euro area economy, a persistent rise in inflation expectations above the Governing Council's target, or higher than anticipated wage rises. By contrast, a decline in energy costs and a further weakening of demand would lower price pressures.

## Financial and monetary conditions

Bank funding costs are increasing in response to the rise in market interest rates. Borrowing has also become more expensive for firms and households. Bank lending to firms remains robust, as they need to finance high production costs and build up inventories. At the same time, demand for loans to finance investment has continued

to decline. Lending to households is moderating, as credit standards have tightened and demand for loans has decreased in a context of rising interest rates and low consumer confidence.

The most recent euro area bank lending survey reports that credit standards tightened for all loan categories in the third quarter of the year, as banks are becoming more concerned about the deteriorating outlook for the economy and the risks faced by their customers in the current environment. Banks expect to continue tightening their credit standards in the fourth quarter.

## Conclusion

Summing up, the Governing Council decided at its meeting on 27 October 2022 to raise the three key ECB interest rates by 75 basis points, and expects to raise interest rates further, to ensure the timely return of inflation to its medium-term target. With this third major policy rate increase in a row, the Governing Council has made substantial progress in withdrawing monetary policy accommodation. The changes to the terms and conditions of the targeted longer-term refinancing operations will also contribute to the ongoing policy normalisation process.

The Governing Council's future policy rate decisions will continue to be data-dependent and follow a meeting-by-meeting approach. It stands ready to adjust all of its instruments within its mandate to ensure that inflation returns to its medium-term inflation target.

## Monetary policy decisions

The Governing Council decided to raise the three key ECB interest rates by 75 basis points. Accordingly, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will be increased to 2.00%, 2.25% and 1.50% respectively, with effect from 2 November 2022.

The Governing Council decided to recalibrate the conditions of TLTRO III as part of the monetary policy measures adopted to restore price stability over the medium term. In view of the current inflationary developments and outlook, it is necessary to adapt certain parameters of TLTRO III to reinforce the transmission of policy rates to bank lending conditions so that TLTRO III contributes to the transmission of the monetary policy stance needed to ensure the timely return of inflation to the ECB's 2% medium-term target. From 23 November 2022 until the maturity date or early repayment date of each respective outstanding TLTRO III operation, the interest rate on TLTRO III operations will be indexed to the average applicable key ECB interest rates over this period. The Governing Council also decided to offer banks three additional voluntary early repayment dates. In any case, the Governing Council will regularly assess how targeted lending operations are contributing to its monetary policy stance.

The Governing Council decided to set the remuneration of minimum reserves at the Eurosystem's deposit facility rate. The change will become effective as of the beginning of the reserve maintenance period starting on 21 December 2022. Minimum reserves have until now been remunerated at the ECB's main refinancing operations rate. However, under the prevailing market and liquidity conditions, the deposit facility rate better reflects the rate at which funds can be invested in money market instruments if not held as minimum reserves and the rate at which banks borrow funds in the money market to fulfil minimum reserves.

The Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the asset purchase programme for an extended period of time past the date when it started raising the key ECB interest rates and, in any case, for as long as necessary to maintain ample liquidity conditions and an appropriate monetary policy stance.

As concerns the 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 to apply 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.

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



*Global economic activity contracted in the second quarter of 2022, with survey data indicating that a subdued growth momentum will continue in the near term. Although there are some tailwinds for the world economy from further easing of global supply chain pressures owing to improvements in supply and weakening of demand, downside risks persist. These are associated with continuing geopolitical uncertainty, in particular potential war-related disruptions and a possible worsening of coronavirus (COVID-19) developments in the autumn and winter. Despite easing supply chain pressures, global trade momentum remains moderate amid the deteriorating global economic outlook. While headline inflationary pressures seem to be peaking globally, the persistence in core inflation momentum, driven by high services price inflation, suggests only a gradual return of inflation towards targets.*

**Global growth is facing a slowdown amid rising recession concerns.** Global GDP (excluding the euro area) contracted in the second quarter, mainly reflecting a decline in activity in China stemming from its zero-COVID restrictions, a fall in Russia's GDP owing to the war, and a modest contraction in the United States. Overall, however, during the third quarter there was a relatively large degree of synchronisation across countries in terms of softening indicators of global activity, pointing to a deterioration in the outlook for the second half of this year. The global headline manufacturing PMI (excluding the euro area) declined further in September, remaining just above the neutral threshold and indicating continued subdued growth momentum in the third quarter. While the index rebounded somewhat for advanced economies, it fell into contractionary territory for emerging markets.

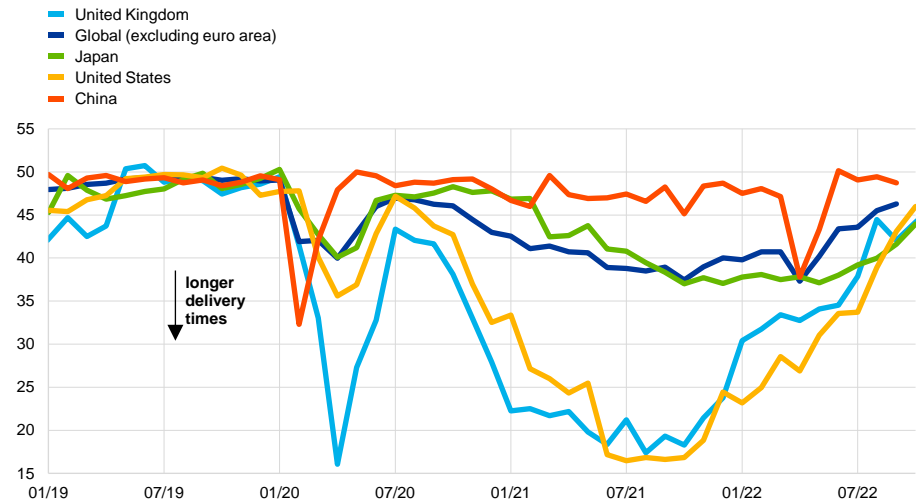
**There are some tailwinds for the world economy from a further easing of global supply chain pressures.** In September the global PMI supply shortages index improved for the fifth consecutive month (Chart 1). Supply pressures declined across all items, and the range across sectors also narrowed. Improvements in supply and a weakening in demand both explain the easing in supply chain bottlenecks, but downside risks persist owing to potential war-related disruptions and a possible worsening of COVID-19 developments in the autumn and winter. On the other hand, businesses seem to have adjusted to longer delivery times by building up larger stocks and strengthening the resilience of their supply chains to shocks. In September the global (excluding the euro area) inventories-to-new orders PMI ratio stood at its highest point since 2009, excluding the COVID-19 crisis in 2020. Accordingly, there is a risk that a further darkening of the outlook for global demand could cause excess inventories later on.



**Chart 1**

**PMI suppliers' delivery times**

(diffusion indices)



Sources: Markit and ECB staff calculations.

Note: The latest observations are for October 2022 (flash estimates for United Kingdom, United States and Japan) and September 2022 for China and Global (excluding euro area).

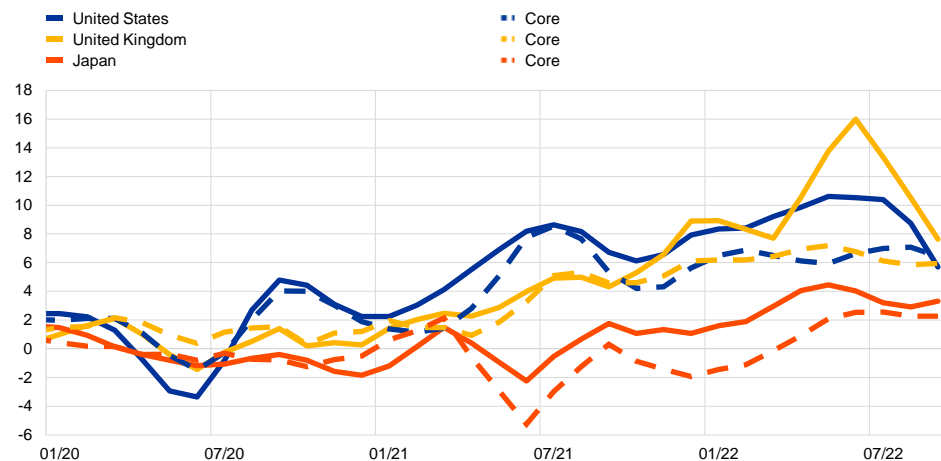
**Despite easing supply chain pressures, global trade momentum remains moderate amid the darkening global economic outlook.**

World (excluding the euro area) merchandise trade remained unchanged in August, after expanding in July. Continued growth in trade in emerging market economies (EMEs) was offset by a decline in trade in advanced economies, particularly in the United States. At the same time, more recent data point to a subdued global trade outlook. In particular, the global (excluding the euro area) PMI manufacturing output for September and the latest indices on export orders moved further into negative territory.

**Global inflationary pressures remain very high.** While annual headline inflation in OECD countries (excluding Turkey) remained stable at 7.9% in August, inflation excluding food and energy increased further to 5.3%. Moreover, core inflation momentum – driven by high services price inflation – remains persistent across countries (Chart 2). This contrasts with headline inflation momentum, which is declining on the back of lower energy prices.

**Chart 2****Headline and core inflation in the United States, United Kingdom and Japan**

(three month-on-three month annualised percentage changes; headline and core inflation)



Sources: OECD, Haver Analytics and ECB staff calculations.

Notes: Core inflation refers to inflation for all items excluding food and energy. The latest observations are for September 2022.

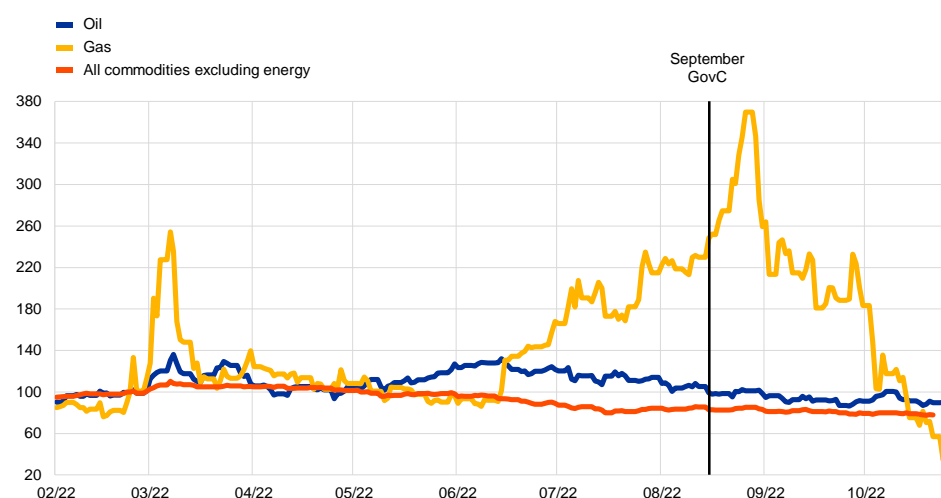
**Prices for energy commodities have eased since the Governing Council's meeting in September amid a gloomier economic outlook and a confluence of factors in the gas market.** Oil prices have been broadly stable since the September Governing Council meeting (+0.7%), because the decision of OPEC+ to cut its oil supply offset the effects of lower demand owing to the moderation in global economic growth. On 5 October the cartel agreed to cut its oil supply target by 2 million barrels per day as of November in response to the recent downward trend in oil prices. However, the impact on actual OPEC+ supply is expected to be smaller, as several countries have been unable to meet production targets over the past year. At the same time, significant uncertainty prevails in the oil market, especially regarding the prospects for Russian oil supply. The G7 countries aim to enforce an oil price cap, which puts a ceiling on the price paid by third parties for Russian oil, by 5 December, when European Union sanctions banning seaborne imports of Russian crude come into force. European gas prices dropped by around 80% amid an easing in gas demand due to warmer than expected weather and the EU's proposed measures to address high European energy prices, including an electricity savings plan that is also expected to reduce gas demand. High levels of EU gas in storage, more wind-generated electricity production, lower industrial gas demand and a higher supply of liquefied natural gas and pipeline gas from Norway also weighed on spot gas prices, outweighing the effects of Russia's complete shutdown of the Nord Stream 1 pipeline. However, the European gas market situation remains fragile. Any factor that increases gas demand, such as a colder than expected winter, would mean continued tight competition over securing gas supplies, adding to price pressures. The uncertainty in the European gas market is also illustrated by the high futures curve throughout 2023, which projects an average gas price of above 130 EUR/MWh, significantly higher than the current spot price.

**The global economic slowdown has weighed further on metal and food prices, but supply risks persist.** Since the September meeting of the Governing Council,

non-energy commodity prices have fallen slightly, by 3.5%, as both metal prices and food prices declined somewhat amid worsening economic growth prospects. The easing of food price pressure was also supported by better supply prospects for some food categories (such as soybeans and coffee). Conversely, grain prices increased, as the recent developments in the war in Ukraine have led to heightened concerns about whether the safe corridor for Ukrainian grain exports at the Black Sea can be maintained.

**Chart 3**  
Commodity price developments

(index: 23 February 2022 = 100)



Sources: Refinitiv, HWWI and ECB calculations.

Notes: Gas refers to the Dutch TTF gas price. The vertical line marks the date of the Governing Council meeting in September 2022. The latest observations are for 26 September 2022 for oil and gas and 21 September 2022 for commodities excluding energy.

**In the United States, following the contraction in activity in the first half of the year, growth is set to remain subdued.<sup>1</sup>** Real GDP growth fell in the second quarter by 0.1% quarter-on-quarter, owing to a negative contribution from inventories and, to a lesser extent, private investment and government consumption. Meanwhile, private consumption slowed, as high inflation has weighed on real incomes since the beginning of the year. Although showing initial signs of cooling down, the labour market remains persistently tight, with robust job gains in September and the unemployment rate still at low levels (3.5%). At the same time, inflation remains high, given the strong inflation momentum in services. Annual headline consumer price inflation eased to 8.2% in September as energy prices continued to decline. Excluding food and energy, annual inflation increased further to 6.6%. Looking ahead GDP growth is expected to remain subdued amid a significant tightening in credit conditions, mainly in response to the Federal Open Market Committee's decisions to raise key interest rates, as well as the overall darkening global economic outlook.

<sup>1</sup> Real GDP increased at an annual rate of 2.6% in the third quarter of 2022, according to the advance estimate released by the Bureau of Economic Analysis after the Governing Council meeting, mostly reflecting a rebound in the contribution from net trade.

**In China, GDP growth rebounded somewhat in the third quarter, but key indicators point to a loss in momentum.**

The economy expanded in the third quarter of 2022, by 3.9% both in quarter-on-quarter and year-on-year terms. This rebound followed a sharp deceleration in the second quarter triggered by a large COVID-19 outbreak and the related severe containment measures. GDP growth was supported by a positive contribution from net trade, and a recovery in investment and consumption, which benefited from authorities' stimulus measures and the reopening of the economy. However, with regard to momentum in September, key monthly indicators are already pointing to a significant slowdown in consumption, as the pace of growth in retail sales also slowed in August. The Chinese economy continues to face persistent headwinds from the zero-COVID policy which remains in place and from protracted weaknesses in the real estate sector. The 20th Congress of the Chinese Communist Party stressed the continuity of President Xi's tenure and policies, focusing on self-reliance, for both economic and security reasons, and the strengthening of state-owned sectors, while playing down the pursuit of GDP growth at all costs.

**In Japan, economic activity is expected to continue to recover in the third quarter despite some headwinds.**

July and August data suggest that private consumption, particularly in services, was resilient in the face of the COVID-19 wave over the summer, supported by pent-up demand. However, the recovery may be hampered by the impact of stronger price increases on consumer sentiment. Headline inflation remained at 3.0% in September, its highest level in about 30 years (excluding periods of VAT hikes). Higher food prices remain a key driver of inflation, mirroring higher international commodity prices and a weaker yen, as well as energy inflation. Core inflation increased but remains at more moderate levels (0.9%). Rising inflation expectations – both among households and firms – may signal a gradual pass-through of cost pressures to final prices. This hints at a potential change in firms' traditionally cautious price-setting behaviour, a factor that has weighed on Japanese price dynamics in the past.

**In the United Kingdom, the growth momentum weakened further.** Monthly GDP in August surprised on the downside, at -0.3% month-on-month, reflecting declines in both the manufacturing and services sectors. Declining retail sales and record-low consumer confidence further underlined the weakness in consumer demand, while short-term indicators also pointed to a deterioration in business sentiment. The UK economy is expected to have entered recession in the third quarter. Consumer price inflation increased to 10.1% in September on account of higher prices for food and non-alcoholic beverages. Core inflation increased to 6.5% in September, driven in particular by rising prices charged by restaurants and hotels.

**The worsening global outlook is weighing on the growth prospects of EMEs.**

Surveys point to weaker output in most EMEs, and new export orders softened, suggesting that activity is set to deteriorate further now that manufacturing firms have largely worked through their backlogs. The global tightening in monetary policy affects financial conditions and weighs on industrial production across EMEs. This is because, compared with advanced economies, they have a larger share of US dollar-denominated external liabilities and invoicing in US dollars is more prevalent.

In Russia, monthly indicators signal a protracted recession, but no further sharp deceleration. In August, headline inflation declined to 14.3% owing to a stronger rouble exchange rate and weaker consumer demand. Overall, owing to the policies pursued and better macroeconomic conditions (i.e. fewer vulnerabilities), EMEs have so far avoided the major market turbulence seen during past episodes of global policy tightening.

*High inflation continues to dampen spending and production by reducing purchasing power and pushing up costs for firms. Severe disruptions in the supply of gas have worsened the situation further, and confidence across sectors has fallen rapidly. After a strong performance in previous quarters, when those sectors most affected by the pandemic-related restrictions reopened, demand for services is now slowing. Moreover, in a context of persistent geopolitical uncertainty and tighter financing conditions, global economic activity is growing more slowly. Worsening terms of trade are weighing on incomes in the euro area, as the prices paid for imports rise faster than those received for exports. At the same time, while the labour market continues to perform well, the weakening of the economy could lead to somewhat higher unemployment in the future. Incoming data confirm that risks to the economic growth outlook are clearly on the downside, especially in the near term.*

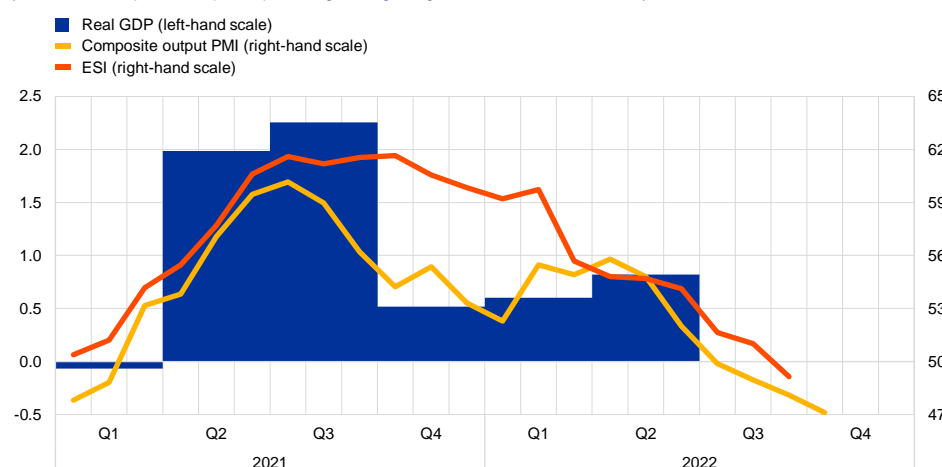
#### **Euro area output displayed solid growth in the first two quarters of the year.**

Following a growth rate of 0.6% in the first quarter of 2022, there was another strong increase in real GDP in the second quarter of 2022, with it rising by 0.8% quarter on quarter (Chart 4). Domestic demand and, albeit to a lesser extent, net trade positively contributed to growth, whereas changes in inventories had a small negative impact. On the production side, output growth was mainly supported by a strong increase in value-added services. The rise in output was relatively broad-based across euro area countries. Growth did vary, largely reflecting the different extents to which countries were affected by the reopening of the services sector and increased tourism. Furthermore, the proximity of the war in Ukraine – and the associated sanctions against Russia and Belarus – had a clear adverse impact on growth in some countries in the second quarter.

**Chart 4**

Euro area real GDP, composite output PMI, and ESI

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



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

Notes: The two lines indicate monthly developments; the bars show quarterly data. The European Commission's Economic Sentiment Indicator (ESI) has been standardised and rescaled to have the same mean and standard deviation as the Purchasing Managers' Index (PMI). The latest observation is for the second quarter of 2022 for "Real GDP", September 2022 for "ESI" and October 2022 for "Composite output PMI".

**Economic activity is expected to slow substantially over the coming quarters.**

The expected deterioration in growth dynamics is mainly owing to four interconnected factors. First, high inflation is dampening spending and production throughout the economy, and these headwinds are reinforced by gas supply disruptions. Second, the strong rebound in demand for services that came with the reopening of the economy will lose steam in the coming months. Third, the weakening in global demand, in addition to tighter monetary policy in many major economies, and the worsening terms of trade will mean less support for the euro area economy. Fourth, uncertainty remains high and confidence is falling sharply.

**This weakening is corroborated by incoming economic data.** The expected modest growth in the third quarter was a result of a positive carry-over effect from the second quarter combined with negative growth dynamics in the third quarter itself.<sup>2</sup> In the first two months of the third quarter industrial production (excluding construction) was 0.5% below its level in the second quarter. In the third quarter the euro area composite output PMI averaged 49.0, well below its level in the second quarter and in line with contracting activity. The PMI continued to decline further, falling to 47.1 in October. The recent deterioration in growth prospects reflects developments in both industry and services, with the former being affected by supply chain disruptions and high commodity prices brought about by Russia's invasion of Ukraine, and the subsequent rise in overall uncertainty (Chart 5). In the latest ECB Survey of Professional Forecasters, which was conducted in early October, respondents forecast three consecutive quarters of contracting output, starting in the third quarter of this year.<sup>3</sup> Incoming data suggest that risks to the economic growth outlook are clearly on the downside, especially in the near term. More fundamentally and beyond any short-term considerations, at the current juncture it is crucial to increase the euro area's growth potential and supply capacity and to boost its resilience. Well-designed structural policies will make an important contribution in this regard. One example would be to swiftly implement the investment and structural reform plans under the Next Generation EU programme.

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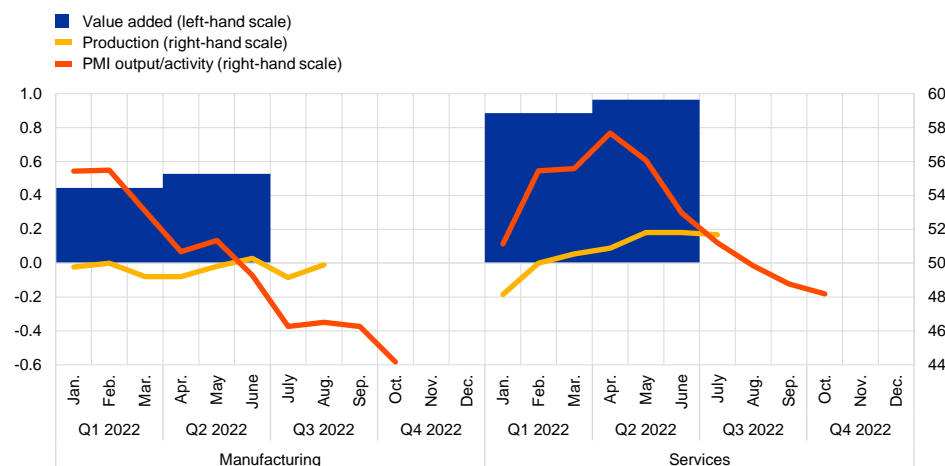
<sup>2</sup> For more details, see the box entitled "[Carry-over effects and intra-quarter GDP growth – estimates based on monthly indicators](#)" in this issue of the Economic Bulletin.

<sup>3</sup> See "[The Survey of Professional Forecasters – Third Quarter of 2022](#)", ECB, Frankfurt am Main, 2022.



**Chart 5****Value added, production and PMI for manufacturing and services**

(left-hand scale: quarter-on-quarter percentage changes; right-hand scale: index, February 2021 = 50, diffusion index)



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

Notes: The latest observation is for the second quarter of 2022 for "Value added" and October 2022 for "PMI output/activity". In the "Manufacturing" panel, the latest observation is for August 2022 for "Production", while in the "Services" panel, the latest observation for "Production" refers to June 2022 (with an estimate for July 2022 based on published country data).

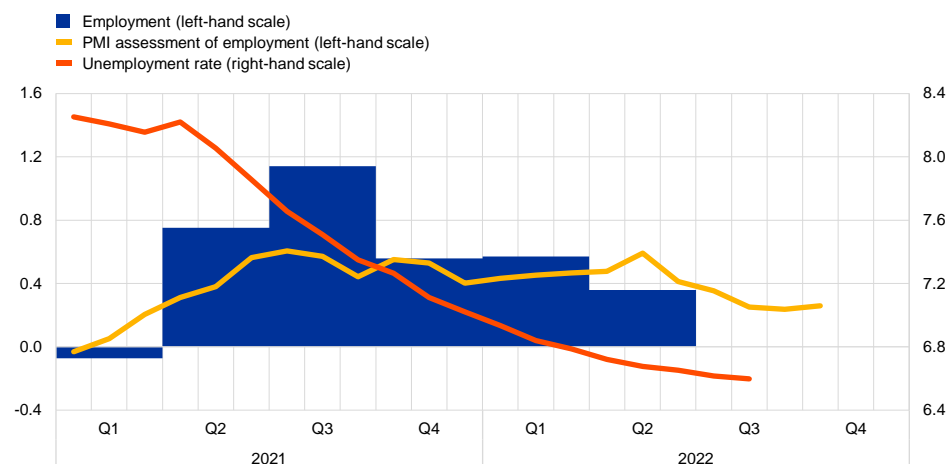
**The labour market in the euro area remains robust, but is losing some momentum.**

The unemployment rate stood at 6.6% in August 2022, unchanged from July 2022 and 0.8 percentage points lower than the pre-pandemic level observed in February 2020 (Chart 6). Quarter on quarter, total employment rose by 0.4% in the second quarter of 2022, after growing by 0.6% in the first quarter, broadly in line with economic activity. As a result of the economic recovery that followed the lifting of pandemic-related restrictions, job retention schemes covered 0.7% of the labour force in the second quarter of 2022, down from around 1.3% in the first quarter. Total hours worked in the second quarter of 2022 were 0.4% above pre-pandemic levels. That said, the recovery of hours worked following the lifting of coronavirus (COVID-19) restrictions remains quite heterogenous across the largest euro area countries and the main sectors of the economy.<sup>4</sup>

<sup>4</sup> For more details, see the box entitled "The role of public employment during the COVID-19 crisis", *Economic Bulletin*, Issue 6, ECB, 2022.

**Chart 6****Euro area employment, PMI employment indicator and the unemployment rate**

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



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

Notes: The two lines indicate monthly developments; the bars show quarterly data. The PMI is expressed as a deviation from 50 divided by 10. The latest observation is for the second quarter of 2022 for "Employment", October 2022 for "PMI assessment of employment" and August 2022 for "Unemployment rate".

**Short-term labour market indicators continue to point to a euro area labour market that is resilient on the whole, albeit with some signs of a deceleration.**

The composite PMI employment indicator for the third quarter of 2022 was 52.8, thus suggesting further growth in employment from the second quarter. However, the PMI employment indicator peaked in May 2022, and developments in recent months indicate an overall loss of momentum. Looking at developments across different sectors, the PMI employment indicator continues to point to robust employment growth in services and manufacturing, while the construction sector is showing signs of deceleration.

**Following a strong rebound of 1% in the second quarter of 2022, household real consumption growth likely moderated in the third quarter and is expected to weaken further in the last quarter of the year.**

Between April and June, spending on services increased strongly, bringing overall consumption close to its pre-pandemic level. In contrast, amid higher inflation, ongoing supply strains and elevated uncertainty, spending on both durable and non-durable goods fell. Consumption growth is estimated to have declined in the third quarter amid rising inflation and uncertainty and weakening demand for both goods and services. This weakness is suggested by the recent developments in retail sales, which, over the course of July and August 2022, stood on average 1.1% below their level in the second quarter. Furthermore, despite a rise in the third quarter, new passenger car registrations remained 17% below their pre-pandemic level. The European Commission's indicator on consumer confidence rose in October but remained very close to its September record low, and much lower than in the second quarter. Households' expected major purchases dropped in September, in line with deteriorating economic and financial expectations. The latest results from the Consumer Expectations Survey (CES) also suggest that households' holiday spending plans moderated by September (Chart 7, panel a) amid the fading

economic rebound that followed the lifting of COVID-19 restrictions. Furthermore, households' intentions to buy major physical items, such as cars and household appliances, remained subdued.

**Household savings might partly buffer the impact of the expected lower real disposable income on consumption.** While accumulated savings in excess of the levels observed in the fourth quarter of 2019 amounted to around €900 billion by the second quarter of 2022, their liquid component, namely deposits in excess of the levels observed in the fourth quarter of 2019, amounted to only around €360 billion by August 2022.<sup>5</sup> Furthermore, these savings are concentrated in medium and high-income groups, which spend a lower share of their income on essentials and are thus less exposed to the cost-of-living crisis. In contrast, households in lower-income groups have accumulated smaller buffers and may need to reduce their real consumption and saving, or take from previous savings, i.e. "dissave", in response to the energy and food price shocks. Lower-income households in particular perceive the recently introduced fiscal support measures as inadequate and have become more pessimistic about their consumption, while more people expect they will not be able to pay their utility bills on time.<sup>6</sup> Overall, despite the strengthened incentives to save due to the environment of elevated uncertainty, further reductions in saving levels are expected to provide some support for private consumption. The saving rate already fell from 15.2% in the first quarter of 2022 to 13.7% in the second quarter. It is expected to decline further in the second half of the year, as it still remains above its 12.9% average for the period 1999-2019.

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<sup>5</sup> The calculations of accumulated savings and deposits in excess of the respective levels of savings and deposit flows observed in the fourth quarter of 2019 disregard the underlying upward trends in nominal variables, including upward trends in income and deposit flows.

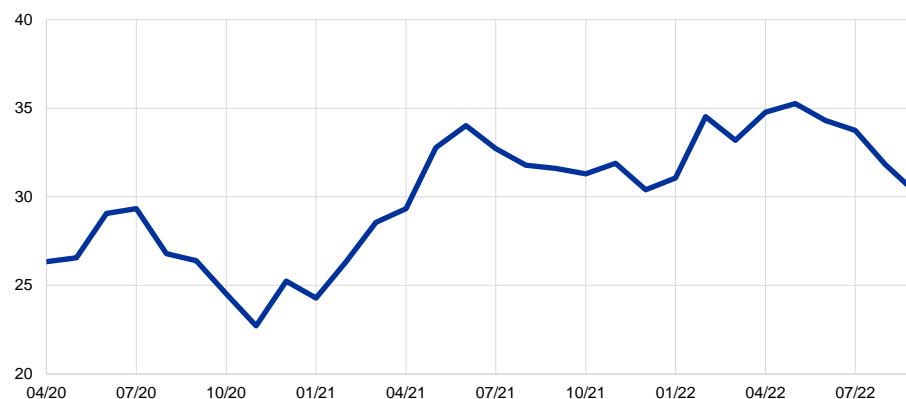
<sup>6</sup> For more details, see the box entitled "[The impact of the recent rise in inflation on low-income households](#)" in this issue of the Economic Bulletin.

## Chart 7

Household holiday spending plans for the next 12 months and PMI output developments by energy dependence and sector

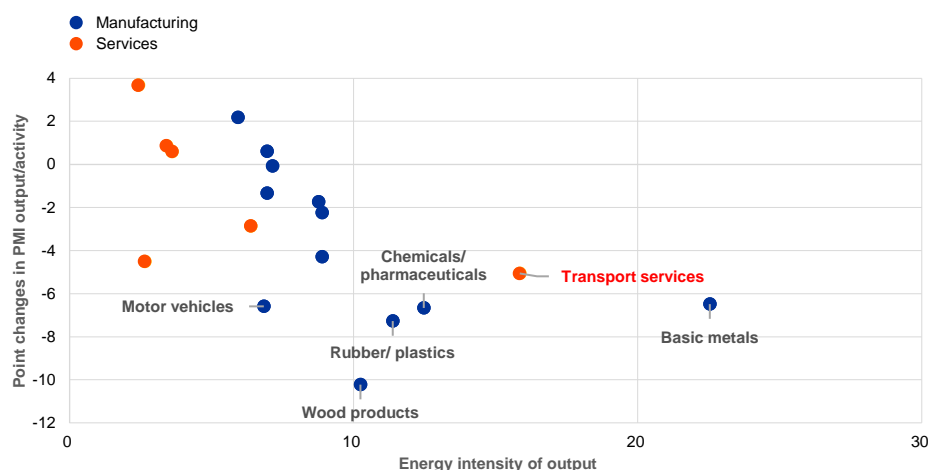
### a) Holiday spending plans for the next 12 months

(percentages of respondents)



### b) PMI output developments by energy dependence and sector

(percentages, point changes in PMI output/activity indicator between the second quarter of 2022 and the third quarter of 2022)



Sources: CES, S&P Global, OECD and ECB calculations.

Note: The latest observations are for September 2022.

**After robust growth in the first half of 2022, business investment is expected to slow significantly in the second half of the year.** Non-construction investment (excluding Ireland) grew by 0.8% quarter on quarter in the second quarter, albeit slowing from the previous two quarters.<sup>7</sup> Investment growth in machinery and equipment slowed markedly in the second quarter, despite a strengthening of investment in transport equipment, potentially reflecting an easing of supply bottlenecks in the sector.<sup>8</sup> However, the available indicators point to a marked slowdown in investment from the third quarter. Growth in industrial production of capital goods fell to around 0.4% quarter on quarter, according to data up to August. PMI new orders for capital goods also declined significantly in the third quarter,

<sup>7</sup> Including Ireland, it rose by 1.8% quarter on quarter, largely reflecting the well-known volatility of intellectual property products.

<sup>8</sup> For more details, see the box entitled "[Motor vehicle sector: explaining the drop in output and the rise in prices](#)" in this issue of the Economic Bulletin.

signalling a worsening outlook going into the final quarter of the year. In the latest round of the ECB Corporate Telephone Survey (CTS), respondents suggested that the current investment hesitancy stems from a combination of high uncertainty, elevated energy prices and rising financing costs.<sup>9</sup> The PMIs suggest that there have already been significant output reductions among the more energy-intensive sectors (Chart 7, panel b). Profitability appears to be declining while uncertainty, which is typically a major disincentive to invest, has risen substantially since the summer, as reflected in the European Commission's survey indicators. The October 2022 euro area bank lending survey<sup>10</sup> also points to a further deterioration in loan demand for fixed investment purposes in the third quarter of the year.

**Housing investment is likely to have recorded a second consecutive decline in the third quarter of 2022.** After dropping in the second quarter by 0.7%, housing investment is estimated to have declined again in the third quarter, according to several short-term indicators. The number of building permits – a leading indicator of construction activity – declined in the second quarter, signalling fewer new projects in the pipeline. Building construction output in July and August stood on average 0.6% below its level in the second quarter (Chart 8). The PMI for residential construction output dipped further into contractionary territory, averaging 44.4 in the third quarter, down from 48.3 in the second quarter. According to a European Commission survey, the index for trends in construction activity also continued its decline in the third quarter. This is mainly due to subsiding demand, deteriorating financial conditions and worsening shortages of material. ECB surveys confirm the weakening in demand for housing investment. In the October round of the CTS, respondents from construction companies indicated abating expectations for activity in the coming months owing to tighter financing conditions, higher costs and greater uncertainty. The CES for August also highlights that households' perceptions of housing as a good investment and expectations for house price increases, especially for higher-income households, have been deteriorating since the start of the year. All things considered, weakening demand is expected to significantly weigh on housing investment going forward.

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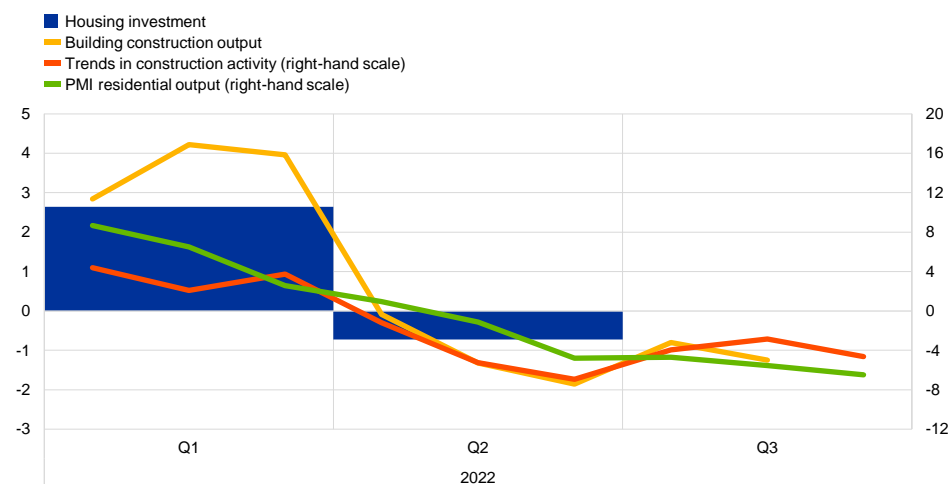
<sup>9</sup> See box "[Main findings from the ECB's recent contacts with non-financial companies](#)", op.cit.

<sup>10</sup> See Section 2.1 of the ECB's [October 2022 euro area bank lending survey](#) and Section 5 of this Issue of the Economic Bulletin.

## Chart 8

### Housing investment and short-term indicators

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



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

Notes: The PMI is expressed as a deviation from 50. The latest observations are for the second quarter of 2022 for "Housing investment", August 2022 for "Building construction output" and September 2022 for "Trends in construction activity" and "PMI residential output".

### Exports of goods rebounded in August, but the near-term outlook has since deteriorated significantly.

In August 2022 nominal extra-euro area goods exports moderately expanded after a decrease in July, while extra-euro area goods imports continued to increase substantially. After stabilising in May and June, the goods trade balance tilted further into a deficit in July and August, mainly driven by rapidly rising import bills for energy. High-frequency data on trade point to a further easing of supply bottlenecks in the third quarter of 2022.<sup>11</sup> Forward-looking indicators point to a slowdown in exports of both goods and services, reflecting further weakness in manufacturing exports and a moderation in consumption growth due to the decline in real incomes. The September PMI indicates that export orders in the manufacturing sector fell deeper into contractionary territory, while export orders for services, following a tentative recovery in August, also point to further weakening. After a strong summer season, in September tourism indicators showed some signs of moderation.

<sup>11</sup> For more details, see the box entitled "Supply bottlenecks and price pressures in euro area goods trade and tourism" in this issue of the Economic Bulletin.

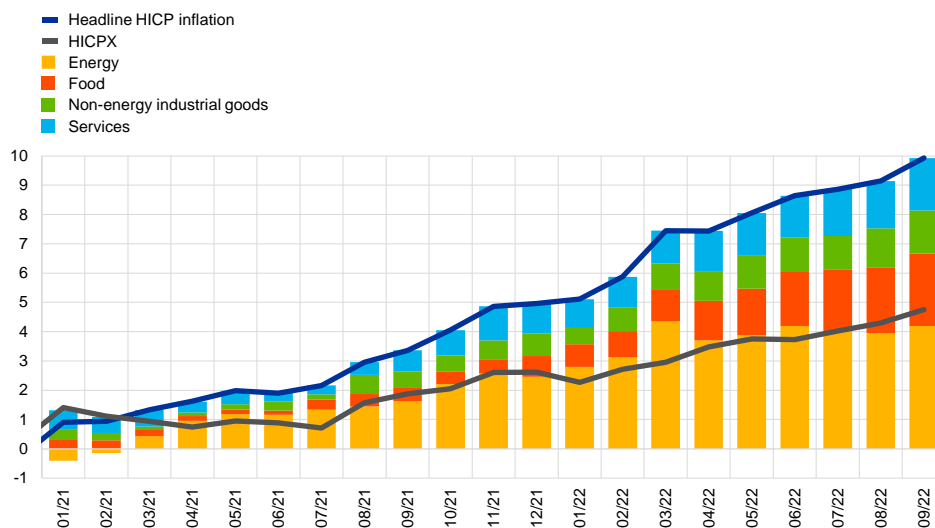
*Inflation rose to 9.9% in September, reflecting further increases in all components. Energy price inflation, at 40.7%, remained the main driver of overall inflation, with an increasing contribution from gas and electricity prices. Food price inflation also rose further, to 11.8%, as high input costs made food production more expensive. Supply bottlenecks are gradually easing, though their lagged impact is still contributing to inflation. The impact of pent-up demand, while weakening, is still driving up prices in the services sector. The depreciation of the euro has added to the build-up of inflationary pressures. Price pressures are evident in more and more sectors, in part owing to the impact of high energy costs feeding through to the whole economy. Measures of underlying inflation have thus remained at elevated levels. Among those measures, inflation excluding energy and food rose further to 4.8% in September.*

**HICP inflation rose from 9.1% in August to 9.9% in September.** This significant further increase was driven by all main components of the HICP. The energy component continued to account for almost half of overall inflation and the food component for another quarter, implying that these more volatile components with a consumption weight of around one-third currently explain three-quarters of headline HICP inflation (Chart 9).

**Chart 9**

Headline inflation and its main components

(annual percentage changes; percentage point contributions)



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

**Energy price developments are influenced by different factors and, in turn, influence other HICP components.** The annual rate of change in HICP energy edged up again to 40.7%, after having declined for two consecutive months in July and August. In terms of sub-components, this rise was driven by gas price inflation, which reached 72.2% in September (63.1% in August), while the annual rates of change for private transportation fuel and electricity prices were broadly unchanged in September, standing at high levels. One special factor behind the increase in the

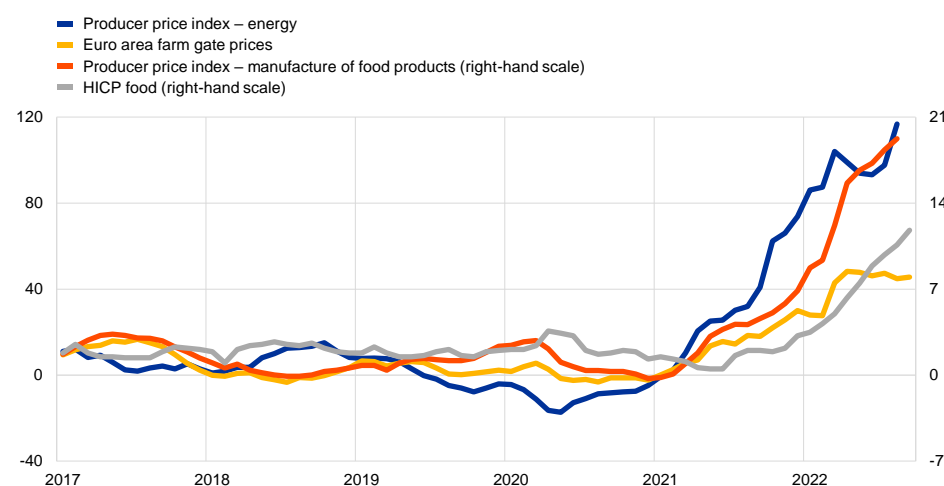


annual rate of change in energy prices was the discontinuation of certain temporary government measures (i.e. discounts for transportation fuels in Germany). The annual growth rates of industrial producer prices for energy increased strongly to 116.8% in August, after having remained somewhat lower between May and July. Food inflation rose substantially, from 10.6% in August to 11.8% in September, reflecting the pass-through of accumulated cost pressures and the impact of the drought this summer. While the increase in the annual growth rate of euro area farm gate prices was relatively small in September, compared with increases at the beginning of this year, the growth rate remains elevated. The growth rate of fertiliser prices picked up again after having declined over the summer, as some production plants closed due to high energy prices. The input cost pressures on food prices are visible in producer price dynamics of food manufacturing industries (Chart 10).

### Chart 10

#### Energy and food input cost pressures on HICP food prices

(annual percentage changes)



Source: Eurostat.

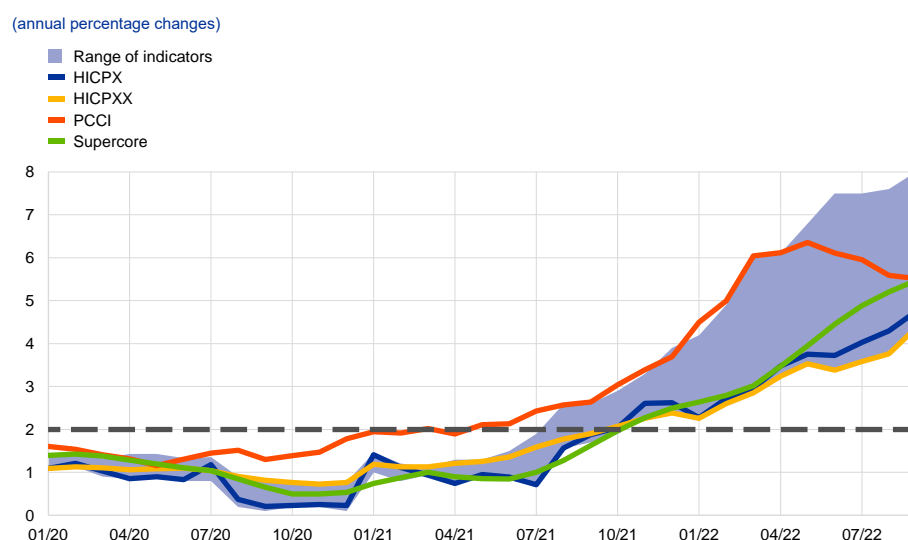
Note: The latest observations are for September 2022 for euro area farm gate prices and HICP food and August 2022 for the remaining items.

**HICP inflation excluding energy and food (HICPX) increased further to 4.8% in September, reflecting rising inflation rates for both non-energy industrial goods (NEIG) and services inflation (Chart 9).** NEIG inflation continued to increase to a record level of 5.5%, driven by prices for semi-durable and non-durable goods. While the durable goods inflation rate remained unchanged at a high level, month-on-month dynamics strengthened, driven by strong increases in the prices for cars and furniture. Services inflation rose to 4.3% in September (from 3.8% in August), with rates for transportation and miscellaneous services picking up the most on account of special factors. For transportation services, the discontinuation of the €9 public transport ticket in Germany was the main driver behind this increase, whereas for miscellaneous services, the largest increase was recorded in costs for education owing to the discontinuation of government discounts on tuition and course fees introduced during the COVID-19 crisis in the Netherlands.

**Most indicators of underlying inflation continued to increase in September (Chart 11).** This reflects the spreading of price pressures across increasingly more

sectors and HICP items. In September, more than half of the items in the HICP showed annual inflation rates of above 4%. When removing from HICPX inflation the more volatile travel-related items, as well as clothing and footwear (HICPXX), this implies an increase in the measure to 4.4%, from 3.8%. The Supercore indicator, which comprises cyclically sensitive HICP items, rose to 5.5%, from 5.2% in August, while the model-based Persistent and Common Component of Inflation (PCCI), which is constructed by filtering out shorter-term disturbances but includes the energy component, declined slightly to 5.5%. While the PCCI has been declining since May, reflecting the lower monthly dynamics of energy inflation, the PCCI excluding energy has been stable at around 4% since June, edging slightly downwards in September. A large part of the underlying inflation dynamics can be attributed to indirect effects from the surge in energy and food prices and from exceptional developments in the balance between supply and demand related to both the pandemic and the Russian invasion of Ukraine. The unprecedented nature of these events makes it difficult to assess how persistent their impact on the different measures of underlying inflation will be. A key factor in underlying inflation developments are wages and labour costs. The latest available data (for the second quarter of 2022) continued to point to relatively moderate annual growth in both negotiated wages (2.4%) and actual wages, where growth in compensation per hour and growth in compensation per employee stood at 3.3% and 4.4% respectively, although the latter was considerably distorted upwards owing to the impact of job retention schemes.

**Chart 11**  
Indicators of underlying inflation



Sources: Eurostat and ECB calculations.

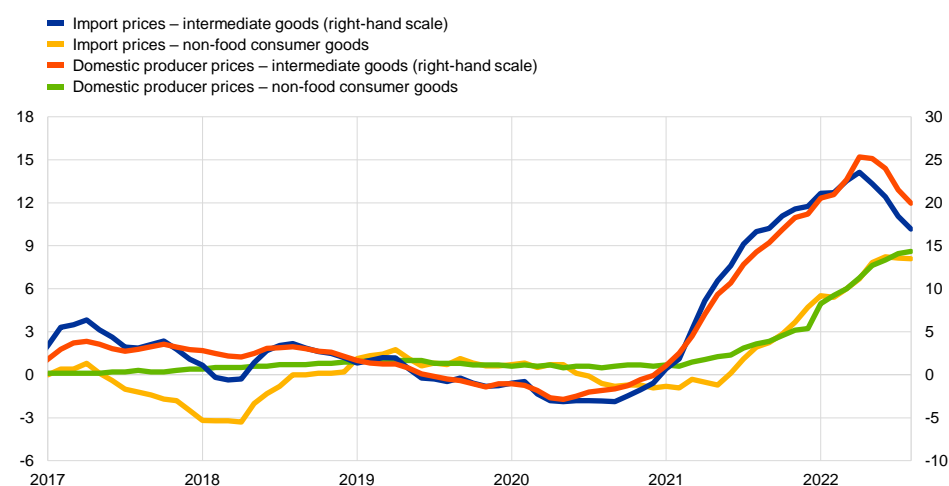
Notes: The range of indicators of underlying inflation includes HICP excluding energy, HICP excluding energy and unprocessed food, HICPX (HICP excluding energy and food), HICPXX (HICP excluding energy, food, travel-related items, clothing and footwear), the 10% and 30% trimmed means, and the weighted median. The grey dashed line represents the ECB's inflation target of 2% over the medium term. The latest observations are for September 2022.

**Pipeline pressures on NEIG inflation remain strong, despite the recent moderation in inflation at early stages of the pricing chain (Chart 12).** At the early stages of the pricing chain, the annual growth rates of import and domestic producer prices of intermediate goods industries declined for the fourth consecutive

month, following a year of persistent increases. The annual growth rate of import prices of intermediate goods decreased by 1.5 percentage points (from 18.4% in July to 16.9% in August) and domestic producer prices decreased by 1.6 percentage points (from 21.5% in July to 19.9% in August). At the same time, developments at the earlier stages of the pricing chain tend to be more strongly shaped by energy prices, for which import prices recorded a renewed strong increase in August. At the later stages of the pricing chain, inflation rates of import and domestic producer prices for non-food consumer goods continued to show somewhat mixed signals. While import prices showed signs of stabilisation, the annual rate of change of producer prices increased to a record high of 8.6%.

**Chart 12**  
Indicators of pipeline pressures

(annual percentage changes)



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

**Survey-based measures of longer-term inflation expectations remained stable, at levels around or slightly above 2%, and are broadly in line with market-based measures of inflation compensation (Chart 13).** According to the ECB's Survey of Professional Forecasters (SPF), for the fourth quarter of 2022, longer-term inflation expectations (for 2027) were unchanged at 2.2%. The same applies to the longer-term expectations from the October Consensus Economics survey (for 2027), at 2.1%, and those from the October ECB Survey of Monetary Analysts (for 2026), at 2.0%. The ECB's Consumer Expectations Survey in August also showed that the longer-term (three-years ahead) inflation expectations remained stable compared with July, after having eased slightly in June and July.<sup>12</sup> Market-based measures of inflation compensation (based on HICP excluding tobacco) continued to be subject to some volatility over the review period. Near-term maturities remained volatile, also following developments in the energy market, while longer-term maturities were more stable. These measures now suggest that inflation may already return to around 2% by the end of 2023, rather than over the course of 2024, as forecast prior to the September Governing Council meeting. However, longer-term measures of

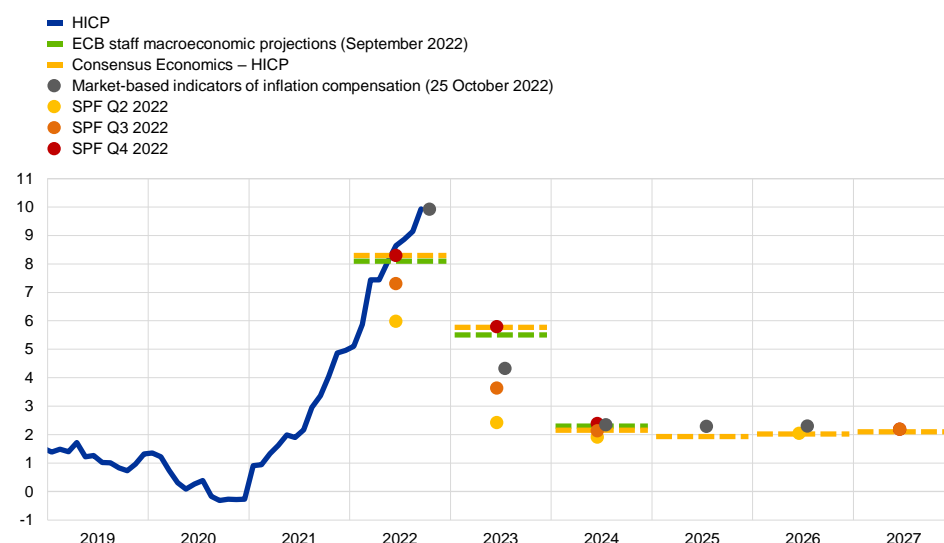
<sup>12</sup> See "ECB's Consumer Expectations Survey results – August 2022", press release, 7 October 2022.

inflation compensation increased slightly over the review period. The five-year forward inflation-linked swap rate five years ahead increased by 10 basis points to 2.3%. Importantly, market-based measures of inflation compensation are not a direct measure of market participants' actual inflation expectations, since these contain inflation risk premia that compensate for inflation uncertainty.

### Chart 13

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

(annual percentage changes)



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

Notes: The market-based indicators of inflation compensation series is based on the one-year spot inflation rate, the one-year forward rate one year ahead, the one-year forward rate two years ahead, the one-year forward rate three years ahead and the one-year forward rate four years ahead. The latest observations for market-based indicators of inflation compensation are for 25 October 2022. The Survey of Professional Forecasters for the fourth quarter of 2022 was conducted between 30 September and 6 October 2022. The cut-off date for the Consensus Economics long-term forecasts was October 2022. The cut-off date for data included in the ECB staff macroeconomic projections was 25 August 2022. The latest observations for the HICP are for September 2022.

**The risks to the inflation outlook are primarily on the upside.** The major risk in the short term is a further rise in retail energy prices. Over the medium term, inflation may turn out to be higher than expected if there are increases in the prices of energy and food commodities and a stronger pass-through to consumer prices, a persistent worsening of the production capacity of the euro area economy, a persistent rise in inflation expectations above the ECB's target, or higher than anticipated wage rises. By contrast, a decline in energy costs and a further weakening of demand would lower price pressures.

*Over the review period (8 September to 26 October 2022) euro area asset prices remained volatile and market participants continued to update their expectations towards faster and more pronounced policy rate hikes in the euro area and globally. This revision in expectations was reflected in the euro area short and long-term risk-free rates, which both increased over the review period. Sovereign bond yields in the euro area increased in line with risk-free rates, meaning that sovereign spreads saw little change, although they displayed some volatility in certain countries. The higher rates and deteriorating growth outlook weighed on risky corporate assets, with European corporate bond spreads widening and equity prices experiencing elevated volatility and differentiation across sectors. The euro appreciated broadly in trade-weighted terms, while it appreciated only slightly against the US dollar.*

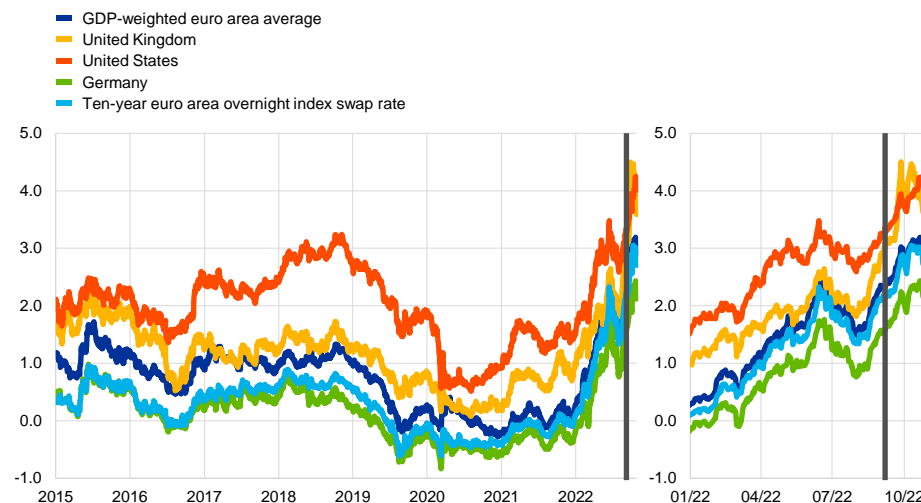
**Following the September Governing Council meeting, the euro area short-term risk-free rates rose as market participants revised their expectations towards a faster and more pronounced tightening of monetary policy.** Over the review period the €STR averaged 57 basis points, which was the weighted average of -8.5 basis points between 8 September and 13 September, and 66 basis points after 14 September, i.e. following the ECB's September interest rate hike. Excess liquidity increased by approximately €86 billion to €4,682 billion. The overnight index swap (OIS) forward curve – based on the benchmark €STR – displayed above-average volatility. Overall, as market participants' inflation concerns outweighed rising fears of a recession, the OIS forward curve increasingly pointed towards expectations for a faster and more pronounced tightening of the ECB's rate policy. At the end of the review period, the OIS forward curve priced in cumulative hikes amounting to 134 basis points by the end of 2022, implying a peak rate of approximately 3.0% in late 2023.

**Long-term bond yields increased amid the market reassessment of the expected future monetary policy path (Chart 14).** This increase came with significant intermediate swings, mostly in response to macroeconomic data releases and energy price developments, as well as the market fluctuations surrounding the announcement of a new expansionary fiscal package in the UK and the Bank of England's subsequent intervention. On balance, euro area long-term bond yields rose markedly: the euro area GDP-weighted average ten-year sovereign bond yield increased to around 2.9%, 48 basis points higher than at the time of the September Governing Council meeting. Likewise, the ten-year US, UK and German sovereign bond yields rose by 68, 42 and 40 basis points to about 4.0%, 3.6% and 2.1% respectively. Sovereign bond yields in the euro area also displayed increased volatility, the extent of which varied across jurisdictions, but they broadly mirrored risk-free rates in terms of overall direction. As a result, the average spread of the aggregate GDP-weighted euro area ten-year sovereign bond over the OIS rate remained relatively stable at around 0.20%.

**Chart 14**

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 26 October 2022.

**Corporate bond spreads widened somewhat during the review period amid higher risk-free rates, with increases most pronounced in the high-yield segment.** Over the review period, increasing concerns about an impending slowdown in economic growth and tighter-than-expected monetary policy contributed to somewhat wider spreads. Spreads on high-yield corporate bonds widened by 49 basis points, while spreads on investment-grade corporate bonds showed some resilience, widening by 22 basis points.

**European equity markets rose over the review period but continued to experience elevated volatility owing to the macroeconomic uncertainties and headwinds.** Beyond the negative impact from higher risk-free rates, market participants were also concerned with the unfolding earnings season and the resulting insights into how companies were coping with rising energy costs and interest rates. While market participants expected most sectors to be negatively impacted by higher interest rates, not all sectors were equally affected, as for example the banking sector could benefit in the short term with an increase of net interest margins. This differentiation was evident in equity prices, which decreased by 0.6% for non-financial corporations (NFCs) while increasing by 6.3% for banks. Overall, stock prices in the euro area were supported by a fall in the equity risk premium (see Section 5). The difference between NFCs and banks was less pronounced in the United States, where equity prices declined by 4.3% for the former and 1.3% for the latter.

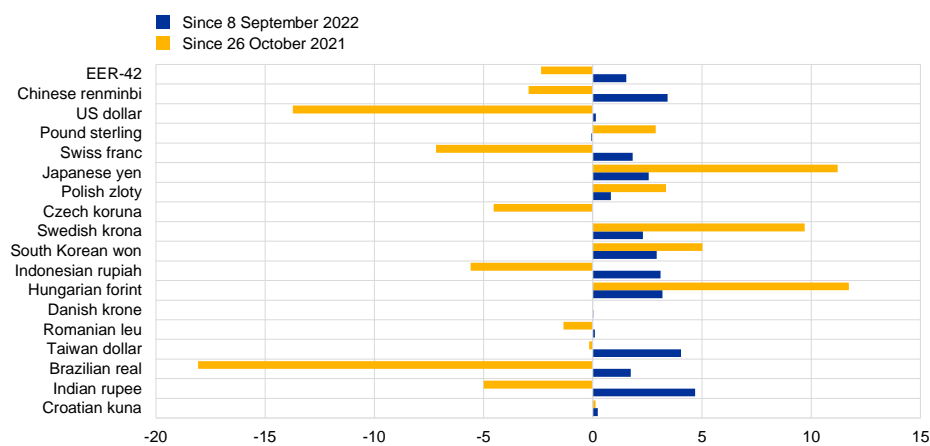
**In foreign exchange markets, the euro broadly strengthened in trade-weighted terms (Chart 15).** During the review period, the nominal effective exchange rate of the euro – as measured against the currencies of 42 of the euro area's most important trading partners – appreciated by 1.5%. In terms of bilateral exchange rate developments, the euro remained broadly unchanged against the US dollar and the

pound sterling, appreciating by 0.1% and depreciating by 0.1% respectively, although with some intermediate swings. The strengthening of the euro was more pronounced vis-à-vis other currencies of major advanced economies, including the Japanese yen and the Swiss franc, against which it appreciated by 2.6% and 1.8% respectively. The euro also broadly strengthened vis-à-vis the currencies of most major emerging economies, including the Chinese renminbi (by 3.4%), as well as against the currencies of non-euro area EU countries.

### Chart 15

#### 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 26 October 2022.



## 5 Financing conditions and credit developments

*Bank lending rates and bank funding costs have increased further, as policy normalisation continues. Bank lending to firms remained robust in September, while lending to households moderated. Over the period from 8 September to 26 October, both the cost of market-based debt and – to a much lesser extent – the cost of equity financing increased. The most recent bank lending survey indicates that credit standards for firms and households tightened substantially in the third quarter of 2022 amid increasing downside risks to economic growth and the ongoing normalisation of monetary policy. The increase in broad money growth in September was driven by a one-off technical factor without which M3 growth would have moderated compared with August.*

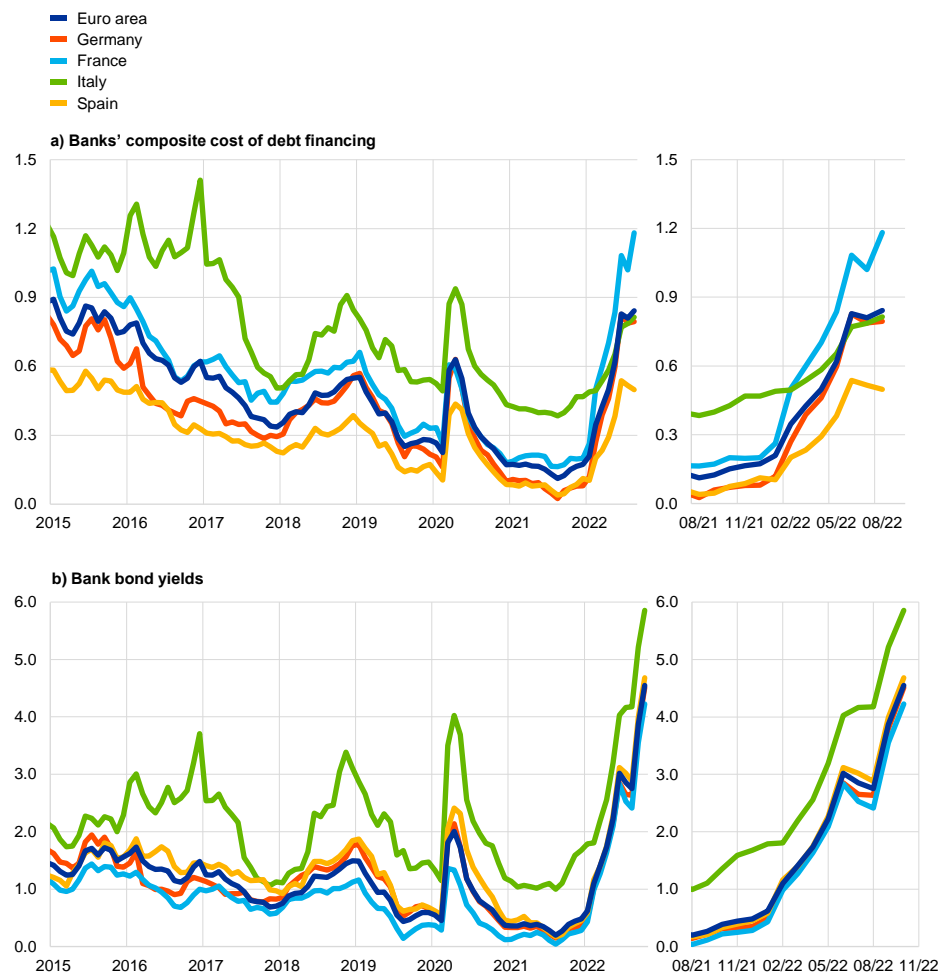
**The funding costs of euro area banks have increased further, reflecting changes in risk-free and market rates, as policy normalisation continues.** In August, the composite cost of the debt financing of euro area banks continued on an upward trend (Chart 16, panel a). This development is explained by two factors. First, as monetary policy normalises, yields on bank bonds have increased steeply along with risk-free and market rates and reached their highest level since 2012 (Chart 16, panel b). Second, the ECB's recent interest rate hikes have provided banks with an incentive to increase the remuneration on their customer deposits. The recent recalibration of the third series of targeted longer-term refinancing operations (TLTRO III) in response to the unexpected and extraordinary rise in inflation will also contribute to the normalisation of bank funding costs.<sup>13</sup> The ensuing normalisation of financing conditions for firms and households, in turn, will exert downward pressure on inflation, contributing to restoring price stability over the medium term. In August, the deposit rate increased to 0.24%, which was 10 basis points above the level recorded before the first hike in July. In keeping with historical regularities, the pass-through of recent monetary policy measures to deposits has been somewhat delayed compared with the more immediate response of bank bond yields.

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<sup>13</sup> See ECB press release "[ECB recalibrates targeted lending operations to help restore price stability over the medium term](#)", 27 October 2022.

**Chart 16****Composite bank funding rates in selected euro area countries**

(annual percentages)



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 August 2022 for composite bank funding rates and 26 October 2022 for bank bond yields.

**Bank lending rates for firms and households have increased further, as banks tighten their loan supply.** Since February 2022, increases in bank funding costs

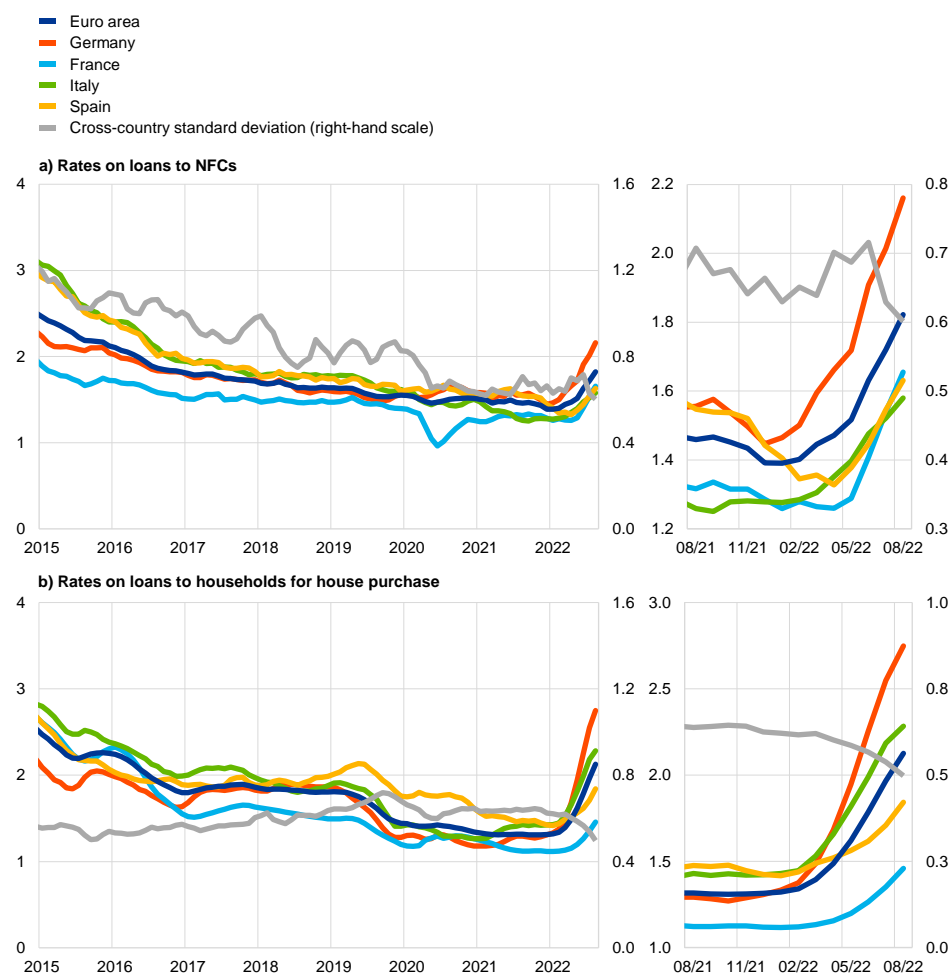
have pushed up lending rates in all euro area countries (Chart 17), while credit standards have become tighter. The composite bank lending rate for loans to households for house purchase increased further in August to stand at 2.26%, a 95 basis point increase from the level recorded at the end of 2021. Results from the August 2022 [Consumer Expectations Survey](#) suggest that consumers expect mortgage rates to increase further over the next 12 months as it will become harder to obtain housing loans. Meanwhile, bank lending rates for loans to non-financial corporations (NFCs) increased to 1.86% in August. The monthly increase of 8 basis points has brought lending rates for firms up by a cumulative 50 basis points since the start of 2022. For the coming months, available evidence based on diffusion

indices suggests that further increases in the lending rates for firms are likely.<sup>14</sup> The spread between bank lending rates on very small loans and on large loans was close to its historical average, and the cross-country dispersion of lending rates to firms and households decreased somewhat, suggesting that the transmission of the ECB's monetary policy tightening is working smoothly so far (Chart 17, panels a and b).

### Chart 17

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

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



Source: ECB.

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

**Over the period from 8 September to 26 October 2022 the cost of market-based debt issuance for NFCs increased substantially.** Due to lags in the data available for the cost of bank borrowing, the overall cost of financing for NFCs, comprising the cost of bank borrowing, the cost of market-based debt and the cost of equity, can be calculated only up to August 2022, when it stood at 5.4%, which is around the same level as the previous month. This was the result of an increase in the cost of market-

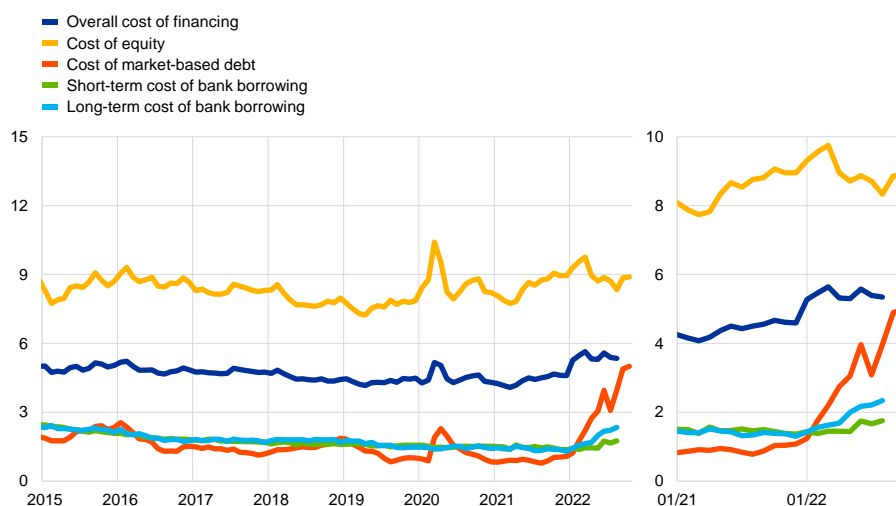
<sup>14</sup> These indices, which are computed from micro data, measure the net number of banks that are raising lending rates for firms and tend to have leading indicator properties.

based as well as short and long-term bank debt financing, which was fully compensated for by a decline in the cost of equity, which as a component of the overall cost of financing index has a weighting of around 50 per cent. The fall in the cost of equity, in turn, was driven by a decline in the equity risk premium that more than compensated for the impact of the increase in the risk-free rate on the cost of equity (Chart 18). The August 2022 data were only slightly lower than the peak recorded earlier in the year and significantly above the levels seen in the previous two years. Continuing the increasing trend observed at the beginning of 2022, since 8 September the cost of market-based debt has recorded a further significant increase of around 70 basis points. This is attributable to an upward adjustment of the risk-free rate as well as a further increase in corporate bond spreads, in both the investment grade segment and – more notably – in the high-yield segment. The cost of equity experienced a more moderate increase of around 10 basis points because the upward impact of the spike in the risk-free rate was almost fully compensated for by a decline in the equity risk premium.

**Chart 18**

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

(annual percentages)



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

Notes: The overall cost of financing for NFCs is calculated as a weighted average of the cost of borrowing from banks, market-based debt and equity, based on their respective outstanding amounts. The latest observations are for 26 October 2022 for the cost of market-based debt (monthly average of daily data), 21 October 2022 for the cost of equity (weekly data) and August 2022 for the overall cost of financing and the cost of borrowing from banks (monthly data).

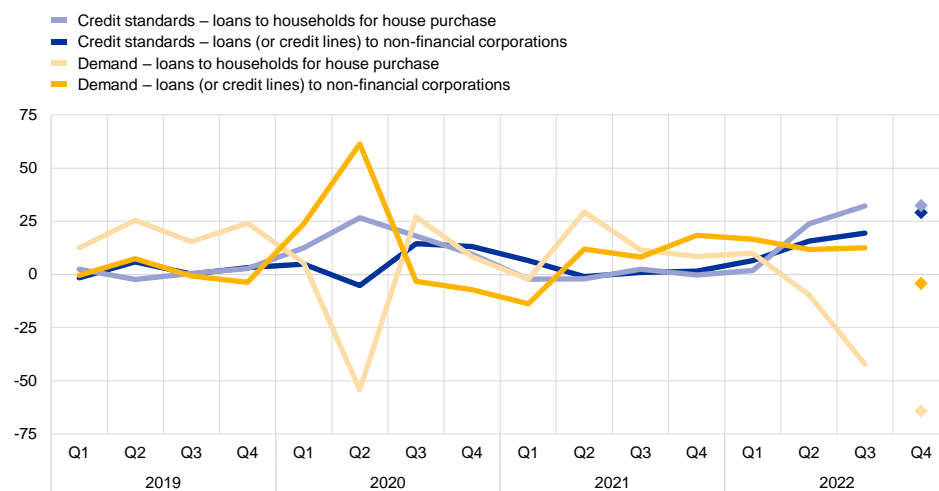
**According to the October 2022 euro area bank lending survey, credit standards for loans to firms and to households for house purchase tightened substantially in the third quarter of 2022 (Chart 19).** Against the background of an

economic slowdown and growing fears of recession, the main factors underlying the tightening of credit standards for firms and households were downside risks related to economic growth and lower risk tolerance by banks. Amid the ongoing normalisation of monetary policy, euro area banks have reported that their cost of funds and balance sheet constraints have also contributed to a tightening of credit standards, which was, in the case of firms, stronger than in previous survey rounds. In the fourth quarter of 2022 banks expect that the tightening of credit standards on loans to firms and to households for house purchase will continue.

**Chart 19**

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

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



Source: Euro area bank lending survey.

Notes: For survey questions on credit standards, "net percentages" are defined as the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably". For survey questions on demand for loans, "net percentages" are defined as the difference between the sum of the percentages of banks responding "increased considerably" and "increased somewhat" and the sum of the percentages of banks responding "decreased somewhat" and "decreased considerably". The diamonds denote expectations reported by banks in the most recent round of the survey for the following quarter. The latest observations are for the third quarter of 2022.

### Loan demand by firms increased in the third quarter of 2022, as input costs and working capital needs increased, while households' demand for housing loans decreased in the context of higher interest rates and lower confidence.

Firms' loan demand continued to be supported by their financing needs for working capital and growing inventories in the light of high input costs, the slowdown in demand and persistent supply bottlenecks. Fixed investment again had a dampening impact on firms' loan demand, in line with the expected slowdown in investment. In the context of monetary policy normalisation, the contribution of the general level of interest rates to loan demand turned negative in the third quarter. The substantial decrease in the demand for housing loans is mainly explained by the increase in the general level of interest rates and lower consumer confidence. For the fourth quarter of 2022, banks expect a decrease in firms' demand for loans and a further strong decrease in the demand for housing loans.

### The survey also suggests that banks' credit intermediation activities have received less support from the ECB's non-standard monetary policy measures, as policy normalises.

Banks indicated that their access to retail funding, securitisation and, in particular, to medium-to-long term debt securities deteriorated in the third quarter of 2022, reflecting the tightening of financial market conditions for banks as monetary policy normalises. Banks reported that the ECB's asset purchase programmes had a negative impact on their liquidity position, market financing conditions and profitability over the past six months, in the context of the ending of net asset purchases. During this period, which partly covered the phase in which the ECB's deposit facility rate (DFR) was still negative, banks reported that the DFR had a positive, albeit small, impact on lending volumes, and a direct negative impact on

bank profitability. Furthermore, banks indicated that TLTRO III had a smaller positive impact on their financial situation and lending volumes, as well as a lower net easing impact on terms and conditions for loans to firms and households compared with the previous survey round.

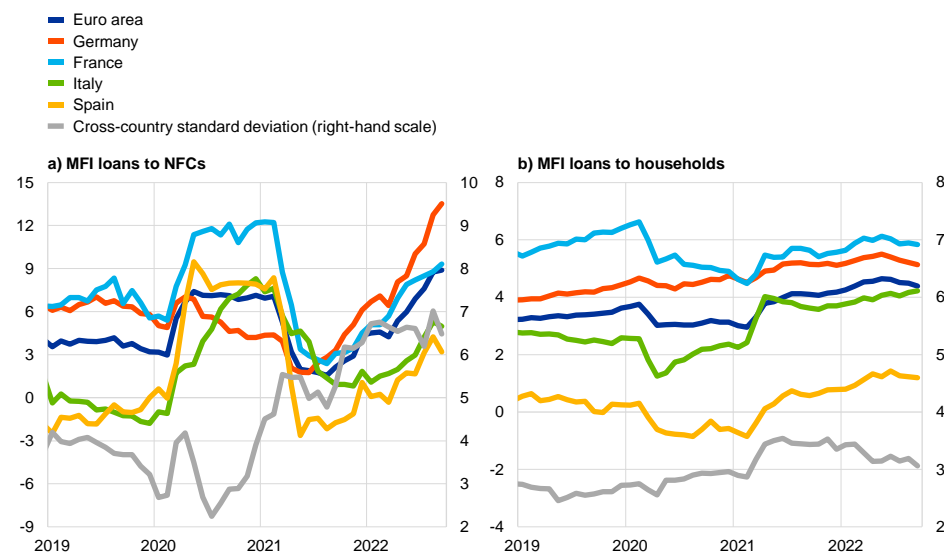
### Bank lending to firms remained robust in September, while lending to households moderated.

The annual growth rate of loans to NFCs increased to 8.9% in September from 8.8% in August despite a smaller flow than in the preceding months (Chart 20, panel a). The strong growth rate of loans to firms reflects high financing needs for inventories and working capital and a move away from the issuance of debt securities – a result of market-based funding costs increasing more sharply than those of bank-based funding. Shorter-term loans made the largest contribution to firms' loan growth given the persistence of supply chain bottlenecks, high input costs and extraordinary uncertainty, all of which raise firms' working capital needs. Longer-term loans made a small contribution, consistent with a weakening of investment and the deterioration in business confidence. The annual growth rate of loans to households decreased to 4.4% in September from 4.5% in August (Chart 20, panel b). Lending for house purchase edged down, confirming the turning point in mortgage lending as banks tightened their credit standards and housing market prospects deteriorated.

### Chart 20

#### 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 September 2022.

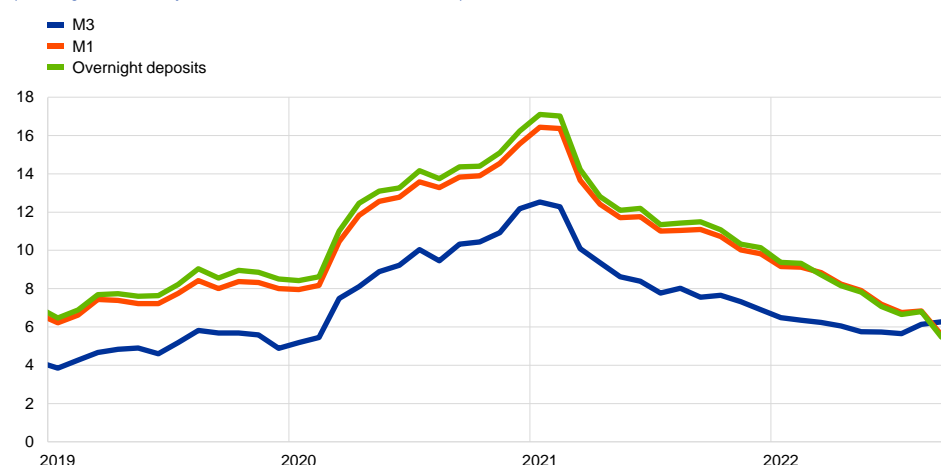
### The pace of overnight deposit accumulation moderated in September amid monetary policy normalisation.

The annual growth rate of overnight deposits showed a strong decrease to 5.6% in September from 6.8% in August (Chart 21). Moreover, this development is overstated due to a one-off technical factor, without

which the annual growth rate for September would be lower and closer to 4.8%.<sup>15</sup> The decline is explained by the large-scale substitution of overnight deposits with time deposits, reflecting the improved remuneration of term deposits for firms and households relative to overnight deposits as policy rates increase. Firms and other financial institutions (OFIs) recorded outflows from overnight deposits accompanied by strong inflows into time deposits. Households also showed interest in time deposits by recording the largest inflow in the last ten years, but nevertheless continued to increase their holdings of overnight deposits. Households' overall deposit inflows are likely a continued reflection of precautionary motives. At the same time, growth in the deposit holdings of firms and households has varied across countries, pointing to differences in their liquidity needs and national fiscal measures.

**Chart 21**  
M3, M1 and overnight deposits

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



Source: ECB.

Note: The latest observations are for September 2022.

**Annual broad money (M3) growth increased in September, though this was due to a one-off technical factor, without which M3 growth would have moderated compared with August.** The annual growth rate of M3 increased to 6.3% in September from 6.1% in August and 5.7% in July (Chart 21). However, this rebound in annual M3 growth was driven by the one-off technical factor mentioned in the previous paragraph, which will be reversed in the next month. Without this factor, the annual growth rate of M3 would have declined to around 5.8% in September. On the components side, the shift into time deposits in September led to a significant decline in the contribution of overnight deposits included in the narrow aggregate M1 to annual M3 growth. Time deposits included in the broad monetary aggregate M3, which benefitted from the portfolio substitution, made a greater contribution to M3 growth compared with the previous month. On the counterparts side, credit to the private sector remained the largest contributor to annual M3 growth. The annual contribution from the Eurosystem's purchases of government securities under the

<sup>15</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. All the aggregates to which these deposits belong are inflated by this one-off technical factor.



asset purchase programme and the pandemic emergency purchase programme continued to decline, reflecting the end of the net asset purchases as of July 2022. Meanwhile, 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.

# Boxes

## 1 Supply bottlenecks and price pressures in euro area goods trade and tourism

Prepared by Tobias Schuler, Hannah-Maria Hildenbrand and Martina di Sano

**This box provides an assessment of recent trends in goods trade and the tourism sector in the euro area based on the Purchasing Managers' Indices (PMIs).** Both sectors have been severely affected by the economic fallout from the coronavirus (COVID-19) pandemic. Regarding goods trade, our analysis shows that bottlenecks in the supply chain have historically preceded upward pressures on import prices, especially for intermediate goods. These pressures are now slowly easing as export demand weakens and supply chains adjust. As regards trade in services, a surge in extra and intra-euro area demand for tourism (which accounts for 19% of services exports and has been one of the sectors most affected by the pandemic) during the summer of 2022 pushed up prices in the tourism and recreation sector. Waning pent-up demand for travel, falling real incomes, rising uncertainty and higher prices may start to dampen overall demand for European tourism services in the coming months.<sup>1</sup>

### Supply chain bottlenecks in goods trade are easing

**Upward pressures on input prices associated with supply-side bottlenecks seemingly diminished in mid-2022 but remain elevated.** The PMI indicators for manufacturing export orders, suppliers' delivery times and input prices tend to be highly correlated and show a consistent lead pattern for turning points. Changes in export orders have historically preceded movements in input prices by two months with a correlation coefficient of 0.70, while changes of supplier delivery times have previously led input prices by one month with a correlation coefficient of 0.84. Turning points in export orders and suppliers' delivery times lead input prices by one to two months on average (Chart A).<sup>2</sup> By mid-2022 suppliers' delivery times started to decline, gradually falling from historically high levels but remaining elevated. Following this easing, input price pressures, as reported by the PMI, have decreased somewhat.

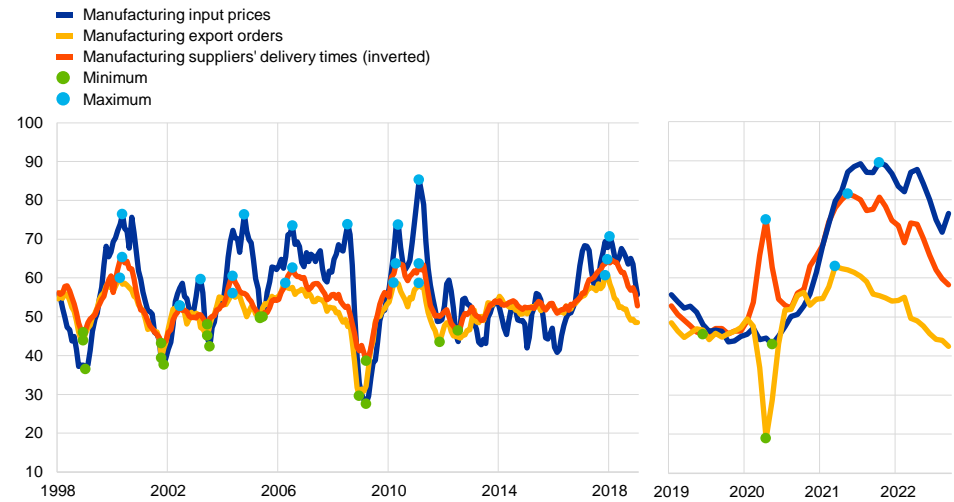
<sup>1</sup> While a direct mapping of tourism activities in the balance of payments is not straightforward, its share in total services exports could be approximated to 19% in 2019. Tourism includes passenger transport services and travel-related services such as accommodation and food, with the exceptions being purchases of goods and services of seasonal and cross-border short-term workers. For additional details see the box entitled "[Impact of the COVID-19 lockdown on trade in travel services](#)", *Economic Bulletin*, Issue 4, ECB, 2020.

<sup>2</sup> In Chart A we inverted the reported numbers for "Manufacturing suppliers' delivery times" to illustrate their co-movement with the other series. In this case a higher reported number implies longer delivery times. The development from 2019 to 2022 is highlighted given the focus of this box on the economic fallout from the COVID-19 pandemic.

## Chart A

### Euro area manufacturing sector PMI

(diffusion index and turning points)



Sources: S&P Global and ECB staff calculations.

Notes: The data are seasonally adjusted. "Manufacturing export orders" includes intra and extra-euro area data. "Manufacturing suppliers' delivery times" includes foreign and domestic deliveries. Note that the complement is constructed as a 100-diffusion index; a higher value of complement means tighter supply bottlenecks. "Minimum" refers to local minima and "Maximum" to local maxima in the cyclical behaviour of the series. The last observations are for September 2022.

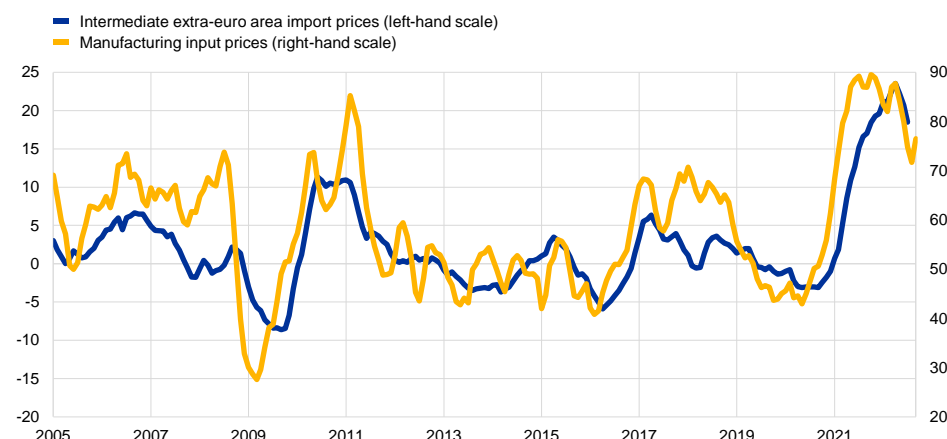
### Growth in extra-euro area import prices for intermediate goods has been slowing since mid-2022.

The PMI indicator for total input prices started declining towards the end of 2021 while remaining at an elevated level, suggesting that the growth in import prices for intermediate goods may also slow somewhat, as these variables tend to be closely related (Chart B). Both variables exhibit a correlation coefficient of 0.80, with the PMI indicator leading intermediate import prices by two months. However, the high level of the PMI input price indicator for September 2022 and the continued weakness of the euro suggest that price pressures in manufacturing will remain high.

## Chart B

### PMI input prices and intermediate goods import prices

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



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

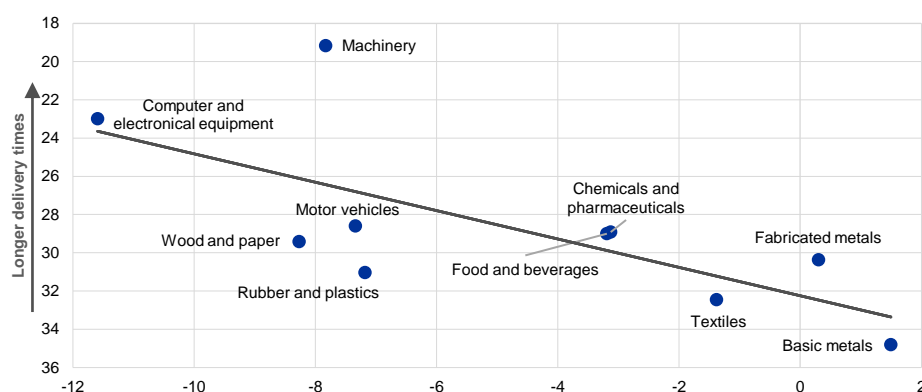
Notes: The correlation amounts to 0.84 with two lags. The PMI input prices cover everything, including domestic and input prices. The latest observation is for July 2022 for intermediate import prices and September 2022 for input prices.

**Sector-level trade data suggest that longer delivery times were associated with weak exports in early 2022.** Industries faced with longer average supplier delivery times in the first quarter of 2022 experienced larger declines in exports compared with the same quarter in the previous year (Chart C). This is illustrated by the downward-sloping line, which reflects a correlation coefficient of 0.70.

## Chart C

### Euro area extra-export growth and suppliers' delivery times by sector in the first quarter of 2022

(x-axis: quarterly year-on-year percentage changes in exports; y-axis: quarterly average diffusion index)



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

Notes: R is 0.70. The diffusion index on the vertical axis indicates increasing delivery times compared with the previous month for values below 50 and decreasing delivery times for values above 50.

**Among the exporting sectors most affected by supply bottlenecks were the computer and electrical equipment sector and the machinery sector.<sup>3</sup>** The

<sup>3</sup> See the box entitled "The impact of supply bottlenecks on trade", *Economic Bulletin*, Issue 6, ECB, 2021, which shows the pattern of high export demand leading to tighter bottlenecks in the initial phase of the recovery.

weakness in motor vehicle exports in the first quarter of 2022 is a reflection of longer delivery times for components, especially in the car subsector, while for basic metals suppliers' delivery times eased somewhat.<sup>4</sup> In the second quarter of 2022 supply bottlenecks eased somewhat and became a less significant explanatory variable for the export performance of the sectors in question. Amid easing bottlenecks, quarterly extra-euro area export growth turned positive in the second quarter for the computer and electronics sector and stabilised for the machinery sector. Wood and paper exports declined further, while reported supply bottlenecks eased only slowly. The very recent easing of bottlenecks has been accompanied by weaker demand for durable goods, a moderation in demand for technological goods and an improvement in the supply of traded goods.

## The recovery of the tourism sector is slowing amid high price pressures

**Turning to services, the strong dynamics in the tourism and recreation sector observed over the spring and summer have started to weaken.**<sup>5</sup> Bookings, which were proxied by PMI new orders, tend to lead prices in the tourism and recreation sector with an average lead of one to two months. The PMIs for the price series are generally quite stable in this sector compared with, for example, the more volatile manufacturing sector, despite some earlier fluctuations related to higher uncertainty surrounding international travel (Chart D). As the tourism and recreation sector in the euro area gradually re-opened after each wave of the COVID-19 pandemic, input price cost pressures and an exceptionally strong recovery of demand for tourism and recreation services increasingly pushed up output prices in this sector.<sup>6</sup>

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<sup>4</sup> See the box entitled “Motor vehicle sector: explaining the drop in output and rise in prices” in this *Economic Bulletin* issue.

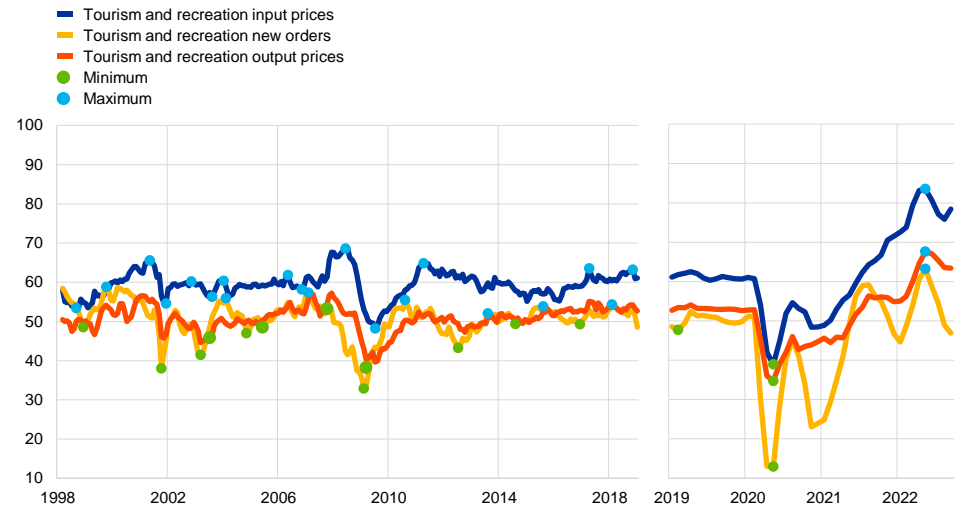
<sup>5</sup> In addition to tourism services, the tourism and recreation PMIs include recreation, and thus domestic, activities.

<sup>6</sup> Data suggest that profit margins in this sector have also come under pressure.

## Chart D

### EU tourism and recreation PMI

(diffusion index weighted average and turning points)



Sources: S&P Global and ECB staff calculations.

Notes: The weighted moving averages are seasonally adjusted. The diffusion indices refer to the EU and include both domestic and foreign orders. "Minimum" refers to local minima and "Maximum" to local maxima in the cyclical behaviour of the series. The data are only available for the EU, not the euro area. The last observations are for September 2022.

**Energy is one of the factors driving movements in input prices in the tourism and recreation sector.** Energy import prices are strongly correlated with the movements of the PMI indicator for input prices. The former can therefore be regarded as a major driving factor behind the increase in input prices in tourism and recreation (Chart E, panel a).<sup>7</sup> Labour cost developments in this sector are less synchronised with the evolution of the PMI tourism and recreation input prices.

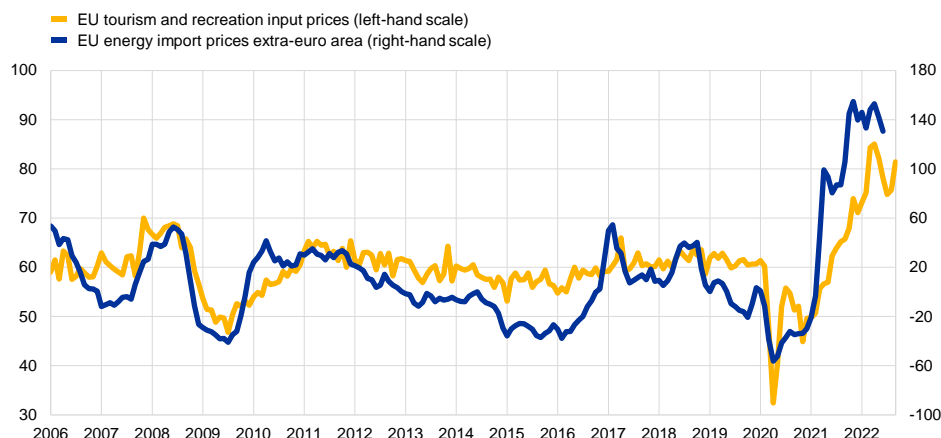
<sup>7</sup> For more details on the methodological background of the PMIs, see the box entitled "PMI survey data on producer input and output prices", *Monthly Bulletin March*, ECB, 2005.

## Chart E

### EU tourism and recreation PMI prices versus energy and accommodation prices

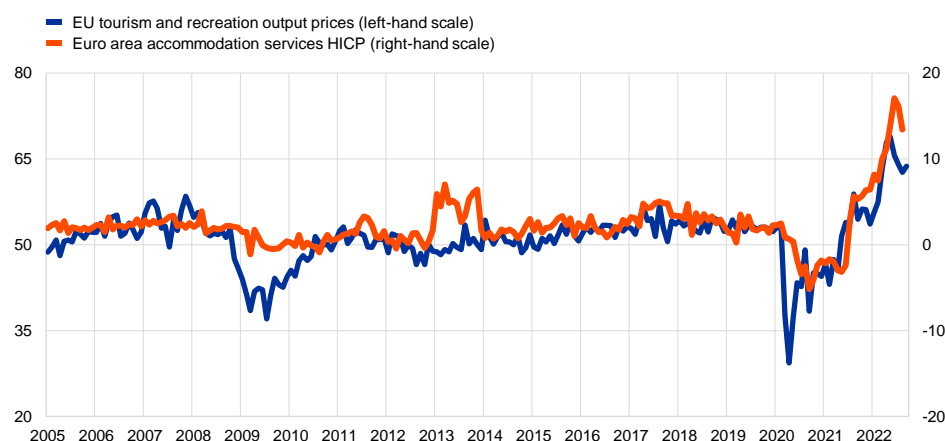
#### a) Tourism and recreation input prices and energy import prices

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



#### b) Tourism output prices and accommodation services HICP

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



Sources: Eurostat for EU energy import prices, HICP for accommodation services, S&P Global for the PMI series and ECB staff calculations.

Notes: Correlation coefficient amounts to 0.80 in panel a) and 0.70 with 2 months lead in panel b). The data are seasonally adjusted. The last observation is for June 2022 for EU energy import prices, August 2022 for accommodation services HICP, and September 2022 for PMI tourism and recreation input and output prices.

**Tourism and recreation output prices peaked earlier this year, suggesting that consumer price dynamics for accommodation services may start to slow, although they will remain strong.** The HICP for accommodation services tends to lag somewhat behind the price increases in tourism and recreation reported by purchasing managers (Chart E, panel b). At the current juncture, both measures indicate that price pressures may have reached their peak.

**Waning pent-up demand for travel, falling real incomes, rising uncertainty and higher prices may start to dampen demand for tourism and recreation services in the coming months.** All the indicators shown in Chart D reached a local maximum in May 2022 and have been declining in line with the lower demand expectations of travel agencies. The deterioration of the economic outlook has been accompanied by other factors, such as the waning pent-up demand for travel, falling

real incomes and rising uncertainty mentioned above. Overall, this points to high but gradually stabilising price pressures in the tourism and recreation sector.



## 2 Motor vehicle sector: explaining the drop in output and the rise in prices

Prepared by Roberto A. De Santis, Martina Di Sano, Vanessa Gunnella and Pedro Neves

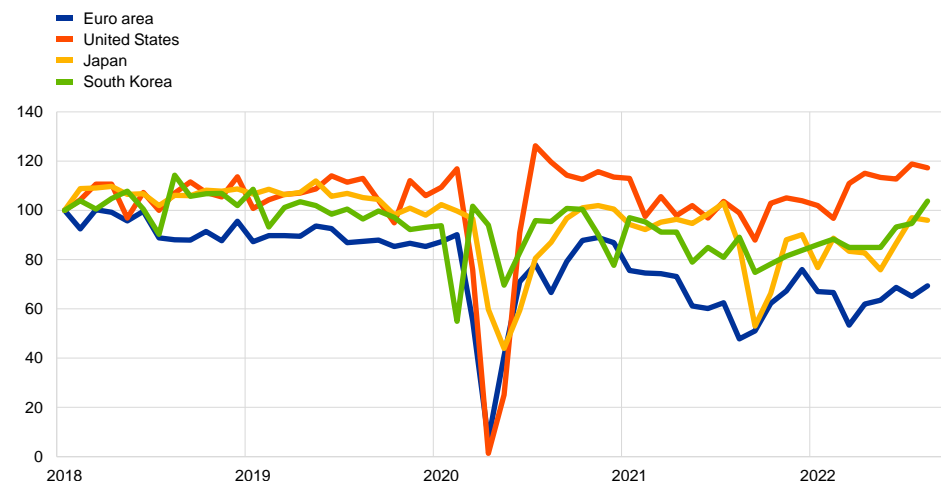
**This box discusses the structural and cyclical factors behind the notable drop in euro area motor vehicle output since mid-2018 and the recent marked increase in car prices.** Euro area motor vehicle output fell by 30.4% between June 2018 and August 2022, of which around 10% occurred before the start of the pandemic and 20% after. This pattern, which is common across the largest euro area countries, was not observed for other major international car producers such as South Korea, the United States and Japan, which recorded rather stable production levels before 2020 and a quicker recovery from the pandemic (Chart A). This box explains that this drop in motor vehicle output and the rise in car prices can be attributed to a combination of factors associated with the more stringent emissions tests implemented in the EU in 2018, the new EU regulation on carbon dioxide (CO<sub>2</sub>) emissions, the transition towards greener cars, supply chain disruptions, the rise in energy costs and, more recently, the uncertainty caused by the war in Ukraine.<sup>1</sup> The last three factors affected euro area automotive production more severely than foreign production, owing to the relatively higher participation of the euro area car sector in global supply chains, the greater dependence of the euro area on Russian energy supplies and the higher uncertainty generated by the euro area's proximity to the war.

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<sup>1</sup> Since September 2018 all new cars must be certified according to the [Worldwide Harmonised Light Vehicle Test Procedure](#). This laboratory test is used to measure fuel consumption and CO<sub>2</sub> emissions from passenger cars, as well as their pollutant emissions. For the regulation on CO<sub>2</sub> emissions, see [Regulation \(EU\) 2019/631](#) of the European Parliament and of the Council of 17 April 2019 setting CO<sub>2</sub> emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011 (OJ L 111, 25.4.2019, p. 13).

**Chart A****Industrial production of motor vehicles across economies**

(index: January 2018 = 100)



Sources: Eurostat, Federal Reserve System, Japanese Ministry of Economy, Trade and Industry and Statistics Korea.  
 Note: The latest observations are for August 2022.

**The decline in motor vehicle activity began in mid-2018, driven by a drop in demand for cars with a combustion engine.** The more stringent emissions tests implemented in the EU in 2018 and the EU agreement on CO<sub>2</sub> emissions targets reached in December 2018 generated an incentive in favour of hybrid and electric cars at the expense of cars with combustion engines. Before the pandemic euro area car producers had intensified their efforts to increase local production and sales of hybrid and electric cars. However, the relatively higher prices of these models contained demand and the required changes in factories entailed production shortfalls. At the same time, expectations of tighter regulations on car emissions probably led to car purchases being postponed as consumers shifted their preferences towards hybrid and electric cars, weakening demand for motor vehicles.<sup>2</sup> A structural vector autoregression model confirms that the drop in motor vehicle output between 2018 and 2019 was driven mainly by a fall in demand for cars and non-energy related supply shocks, such as transport costs and the effects of directives and regulations on supply (Chart B, panel a).

**Car production collapsed at the start of the pandemic.** The lockdowns caused motor vehicle output to fall in the second quarter of 2020. Production recovered in the second half of 2020, but at the end of that year it was still 3.5% below pre-pandemic levels and 10-15% below the output recorded before the introduction of the EU emissions regulations in 2018.

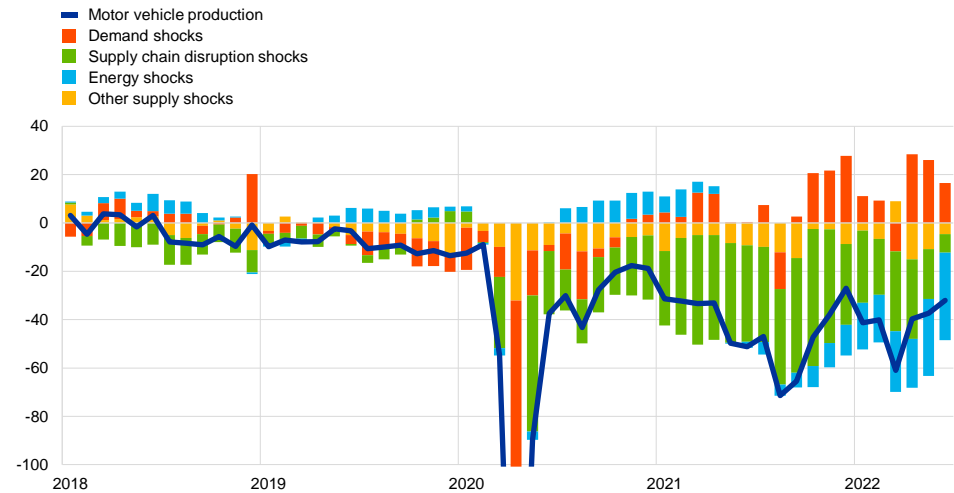
<sup>2</sup> Car registrations fell for three consecutive quarters from the fourth quarter of 2018, after more than two years of consecutive positive quarterly growth rates.

## Chart B

### Car output and changes in car prices – contribution of shocks

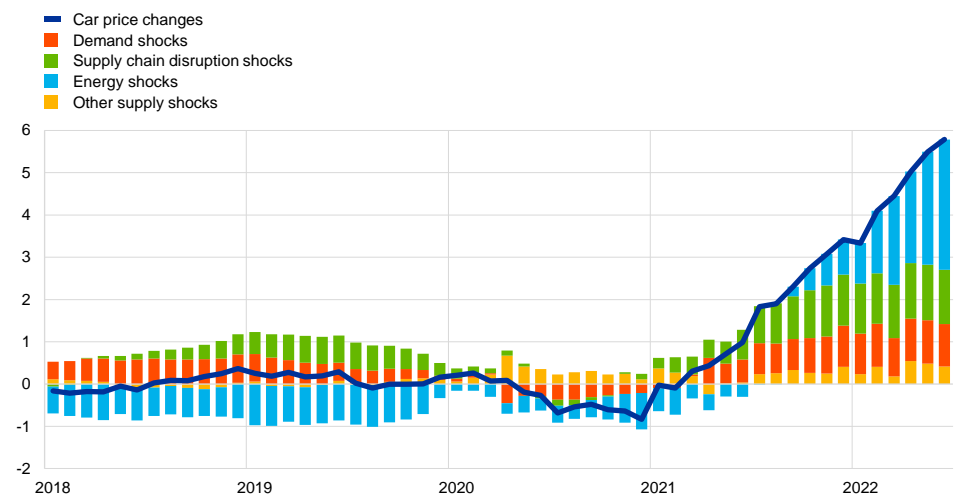
#### a) Motor vehicle production

(percentage deviation from trend)



#### b) Car prices

(year-on-year percentage point deviation from trend)



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

Notes: The model includes motor vehicle industrial production, car prices, Purchasing Managers' Index (PMI) suppliers' delivery times and energy prices. Shocks are identified using sign and narrative restrictions. Sign restrictions at impact: demand shocks imply car prices (+), motor vehicle production (+), and PMI suppliers' delivery times (-); supply chain disruption shocks imply car prices (+), motor vehicle production (-) and PMI suppliers' delivery times (-); energy shocks imply car prices (+), motor vehicle production (-) and energy prices (+); other supply shocks imply car prices (+) and motor vehicle production (-). Sign restrictions alone are not sufficient to identify the three different supply shocks. Narrative restrictions are included to obtain a full orthogonal system: the largest contribution to the forecast errors for PMI suppliers' delivery times in April 2020 is attributed to supply chain disruption shocks, and the energy prices in September and October 2021 are attributed to energy shocks. For visualisation purposes the y-axis of the chart in panel a) does not fully display the developments in April 2020. For this period, demand shocks contributed most to the fall in industrial production, given the harsh lockdowns. Supply chain disruption shocks also contributed significantly, while energy shocks had a minimal negative contribution. Lower (higher) values for PMI suppliers' delivery times imply longer (shorter) delivery times. The sample period covers the period from January 1999 to June 2022. The latest observations are for June 2022.

**Since the beginning of 2021 motor vehicle output has been hit by supply chain disruptions and energy shocks, which have offset the positive demand effects from the reopening of the economy.** In 2021 and 2022 motor vehicle output in the euro area was strongly affected by disruptions in global supply chains (Chart B, panel a), particularly the shortages of specific semiconductors and the logistical

difficulties in the transport sector.<sup>3</sup> Historically high values for material and equipment shortages were recorded in 2021 and 2022.<sup>4</sup> A shortage of chips and other components needed to assemble new vehicles implied a reduction in supply, explaining most of the drop in car production from mid-2021. Euro area car producers were more severely affected by supply chain disruptions than their foreign competitors, owing to the relatively higher participation of the euro area car sector in global supply chains. Moreover, supply disruptions and lockdown measures were more severe in the euro area than in other regions.<sup>5</sup> Since the summer of 2021 the extraordinary increase in energy costs has also contributed to the decline in motor vehicle output (Chart B, panel a).<sup>6</sup> More recently, the uncertainty associated with the war in Ukraine has also been depressing demand for durable goods such as motor vehicles, as shown by the European Commission's business and consumer survey.<sup>7</sup>

**Car prices increased markedly as a result of supply chain disruptions, high energy costs and, to a smaller extent, a rise in demand.** Since the second half of 2021 fewer new cars have reached the market on time, mainly owing to the lack of chips. This has caused consumers to turn to the second-hand car market.<sup>8</sup> Supply constraints and increasing consumer demand linked to the reopening of the economy have resulted in unusually large price increases in both the new and the second-hand car segments since mid-2021.<sup>9</sup> Subsequently, the higher costs resulting from the increase in energy prices were also passed on to consumers, with increases in car prices accelerating to 8.7% in August 2022. Without these supply chain disruptions and energy shocks, the changes in car prices would have amounted to less than half of those recorded (Chart B, panel b). Aggregate demand also contributed to the rise in car prices, albeit to a lesser extent.

**Supply disruptions and energy price shocks have played a key role in explaining the significant losses in euro area export volumes and export market shares over the past few years.** The drop in euro area motor vehicle production is also reflected in euro area exports to the rest of the world (Chart C),

<sup>3</sup> An exogenous increase in demand lengthens suppliers' delivery times. However, the higher demand for hybrid and electric cars might imply an even higher elasticity, as the production of these vehicles requires a larger number of semiconductors.

<sup>4</sup> For an analysis of supply bottlenecks in euro area manufacturing, see the box entitled "[Sources of supply chain disruptions and their impact on euro area manufacturing](#)", *Economic Bulletin*, Issue 8, ECB, 2021.

<sup>5</sup> See the box entitled "[The impact of supply bottlenecks on trade](#)", *Economic Bulletin*, Issue 6, ECB, 2021.

<sup>6</sup> Owing to its use of energy-intensive parts, the car sector ranks relatively highly among manufacturing sectors for its energy use. For an analysis of the energy intensity and dependence of the motor vehicle industry and other manufacturing segments, see the box entitled "[Natural gas dependence and risks to activity in the euro area](#)", *Economic Bulletin*, Issue 1, ECB, 2022.

<sup>7</sup> For an analysis of the macroeconomic implications of the uncertainty generated by the war in Ukraine, see the box entitled "[The impact of the Russian invasion of Ukraine on euro area activity via the uncertainty channel](#)", *Economic Bulletin*, Issue 4, ECB, 2022.

<sup>8</sup> Motor vehicle inflation reached 6.9% in August 2022, while second-hand motor vehicle inflation was 12.8%.

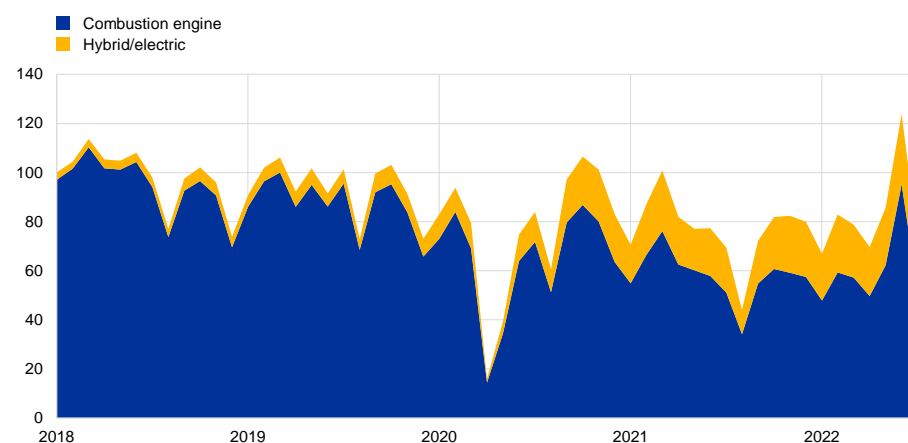
<sup>9</sup> Another key factor putting pressure on prices in the second-hand car market is the postponement of new car purchases in view of the transition towards greener electric vehicles. While this reduces demand for new cars, the unprecedented increase in overall demand following the reopening of the economy still puts upward pressure on prices for new cars.

which in July 2022 stood at 73% of their January 2018 levels.<sup>10</sup> The fall in exports has been particularly pronounced since mid-2021. Euro area export market share in volume terms has fallen substantially in 2021 and 2022 owing to euro area exporters being particularly hard hit by supply bottlenecks. However, euro area car makers maintained their market share in value terms (Chart D, panel a), suggesting a relatively strong increase in the prices charged by euro area exporters, which is reportedly associated with a reorientation of production towards more expensive models (Chart D, panel b).<sup>11</sup> This is notably on account of a compositional shift towards hybrid and electric cars, whose unit export value is higher than that of combustion engine cars.<sup>12</sup>

### Chart C

#### Extra-euro area exports of cars

(volumes; index: January 2018 = 100)



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

<sup>10</sup> The sharp pick-up in export volumes in June can be explained almost entirely by a strong increase in off-road car exports (including for military purposes) from Slovakia to Ukraine (accounting for 78% of total extra-euro area car exports) following the lifting of duties and taxes on car imports to Ukraine.

<sup>11</sup> The recent depreciation of the euro in effective terms and *vis-à-vis* the US dollar may have contributed to some extent to higher export prices in euro terms (and, in turn, to higher export market shares) – provided that some exchange rate pass-through took place – for the share of car export prices fixed in the destination's currency or in US dollars, but not for car export prices fixed in euro (see Chen, N., Chung, W., and Novy, D., "Vehicle Currency Pricing and Exchange Rate Pass-Through", *Journal of the European Economic Association*, Vol. 20, No 1, 2022, pp. 312-351). In 2021 slightly below one-half of extra-EU exports were invoiced in euro. In addition, for export market shares in value terms, the amount of the denominator (*i.e.* the value of imports of all destination markets expressed in euro) should increase as the euro depreciates, leading to a decline in export market shares.

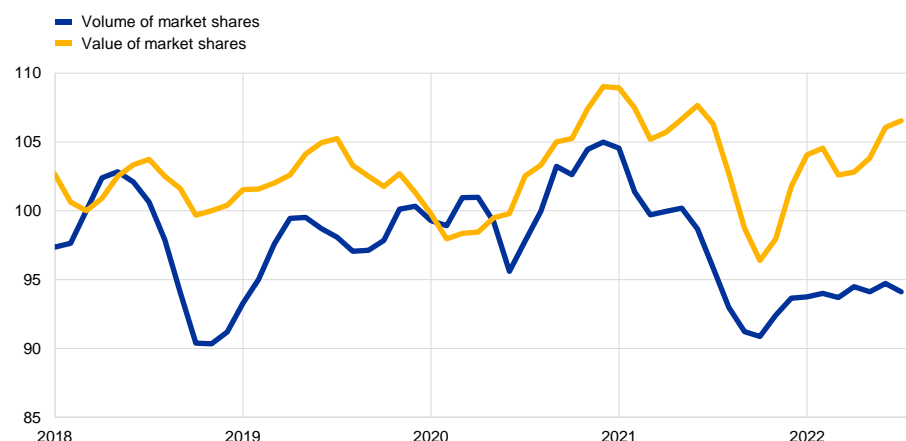
<sup>12</sup> Since the start of 2021 the unit value of hybrid and electric cars has been around 70% higher than that of combustion engine cars.

## Chart D

### Euro area export market shares and export unit values in the car sector

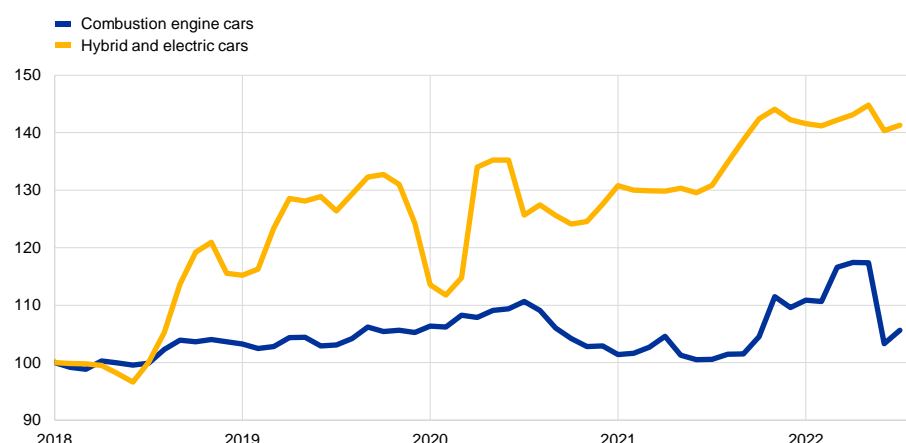
#### a) Export market shares for all cars

(index: Q1 2018 = 100; three-month moving average)



#### b) Export unit values

(index: Q1 2018 = 100; three-month moving average)



Sources: Trade Data Monitor and ECB calculations.

Notes: Export market shares of euro area producers in world trade excluding the euro area (proxied by 83 partners). Export unit values refer to extra-euro area exports of cars. The latest observations are for July 2022.

### Registrations of combustion engine cars have been dropping as green

**vehicles gain prominence.** Similarly to output, on the demand side passenger car registrations have also exhibited a negative trend since mid-2018 (Chart E). This drop has been particularly sharp for combustion engine vehicles, with registration levels in the second quarter of 2022 58.4% lower than at the beginning of 2018. At the same time, demand for electric vehicles has been rising at a rapid pace. In the second quarter of 2022, 42.2% of all passenger car registrations were for either hybrid or fully electric vehicles, compared with 5.0% in mid-2018. This increase is broad-based across euro area countries and is particularly large in Finland, the Netherlands, Germany and Italy. While market shares of hybrid and electric cars skyrocketed after the outbreak of the pandemic, a notable rise in the share of these vehicles had already been observed in the third quarter of 2018, following the introduction of the EU legislation on emissions, and in the fourth quarter of 2019, before the start of the pandemic.

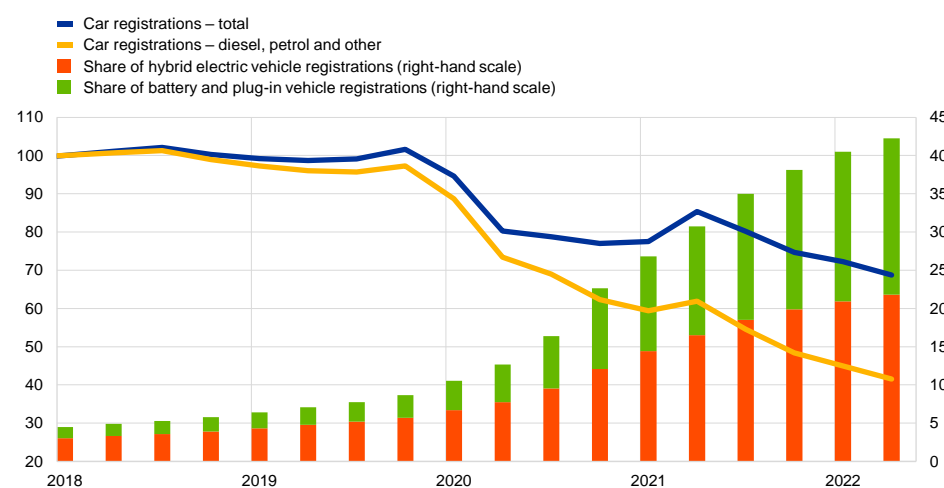
### For euro area exporters, the green transition is key to their efforts to retain market share.

As the production of hybrid and electric vehicles picked up, euro area producers also increased the volume exported outside the euro area, notably during the pandemic recovery period (Chart C), and charged higher prices for these cars than for cars with a combustion engine (Chart D, panel b).<sup>13</sup> The strong increase in hybrid and electric vehicle exports and the gains in export market shares for these vehicles helped cushion some of the euro area's overall losses in export market shares. Euro area export market shares for hybrid and electric cars in value terms increased substantially, from about 27% of extra-euro area export market shares in January 2018 to 45% in July 2022. However, other global competitors may soon challenge the euro area's relative technological advantage in the production of electric cars.

### Chart E

#### Share of hybrid and electric vehicles and registration of vehicles by fuel type

(left-hand scale: percentages; index: Q1 2018 = 100; right-hand scale: annualised percentage point increases)



Sources: European Automobile Manufacturers' Association and ECB staff calculations.

Notes: Data are based on a four-quarter moving average of non-seasonally adjusted data. The latest observations are for the second quarter of 2022.

### A robust increase in motor vehicle output from the current low levels might be expected as the green transition progresses and supply bottlenecks and energy shocks ease.

The new equilibrium will depend on consumer preferences, the importance of other means of transport and the ongoing shift of vehicle production to locations outside the euro area, which is likely to reflect pressures to compete internationally. However, the transition to a new equilibrium will only be gradual, as green mobility still requires significant infrastructure investment in the EU. As electric vehicles require fewer parts, fewer workers for assembly and more software-engineers, labour demand will gradually become geared towards fewer workers and a different skill set. Since the third quarter of 2021 there has been a significant fall in employment in the automotive manufacturing industry. This will need to be monitored closely to determine whether it is related to the factors mentioned, namely the successive reduction in automotive production over past few years and

<sup>13</sup> Electric and hybrid vehicles have contributed up to 50% of export unit values since the start of 2022, despite accounting for less than 30% of euro area car export volumes.

the less labour-intensive production process, or to idiosyncratic factors that will reverse over time.



### 3 Carry-over effects and intra-quarter GDP growth – estimates based on monthly indicators<sup>1</sup>

Prepared by Magnus Forsells and Johannes Gareis

**The annual average growth rate of real GDP for a given year partly reflects developments in the previous year.** The annual growth rate of real GDP for a given year is determined by the growth dynamics of real GDP not only in that particular year but also in the previous year, which results in a “carry-over effect”. The carry-over effect captures how much annual GDP would grow if all quarterly growth rates in that year were zero. The growth dynamics in the year in question can then simply be calculated as the difference between the annual growth rate and the carry-over effect. The carry-over effect is a useful metric as it gives some early indication of growth in the current year as a whole.<sup>2</sup>

**Similarly, the quarterly growth rate of real GDP can in part be explained by developments in the previous quarter.** This is particularly useful in the current environment, with sharp and sudden fluctuations in economic developments related in large part to the ongoing war in Ukraine and the consequences of the coronavirus (COVID-19) pandemic. This box presents estimates of carry-over effects and intra-quarter growth rates in recent quarters as well as the respective contributions from the main economic sectors. Specifically, a measure of monthly real GDP is estimated from January to September 2022 by interpolating actual quarterly real GDP into monthly observations using monthly indicator variables.<sup>3</sup> The monthly indicators are used up to their latest available observation and an unchanged level thereafter until the end of the third quarter. This approach allows an estimation of the carry-over effect on the third-quarter growth rate and an assessment of the growth dynamics within the quarter based on the latest available indicator values in the third quarter. Finally, a sectoral approach to measuring monthly GDP is adopted by using industrial production, construction production and an indicator for services production.<sup>4</sup>

**In the third quarter of 2022, monthly data point to a lower, but positive, carry-over effect on growth from the preceding quarter, while the dynamics within**

<sup>1</sup> This box includes data released after the cut-off date for data for the main text (26 October 2022).

<sup>2</sup> For a more detailed explanation of the carry-over effect on annual growth from quarterly developments, see, for example, the box entitled “[The carry-over effect on annual average real GDP growth](#)”, *Monthly Bulletin*, ECB, March 2010.

<sup>3</sup> The interpolation method used is a variant of the method described in Chow, G.C. and Lin, A., “Best Linear Unbiased Interpolation, Distribution, and Extrapolation of Time Series by Related Series”, *The Review of Economics and Statistics*, Vol. 53, No 4, November 1971, pp. 372-375. Specifically, the model treats monthly GDP as an unobserved component in a state-space model and uses the observation equation to ensure that quarterly GDP is the sum of monthly GDP within a given quarter. The regression equation that links monthly GDP to monthly indicator variables is expressed in logarithms, and the regression residual is assumed to follow a random walk. For a related model for the euro area, see “[The monthly development of aggregate output in the euro area](#)”, *Monthly Report*, Deutsche Bundesbank, May 2020.

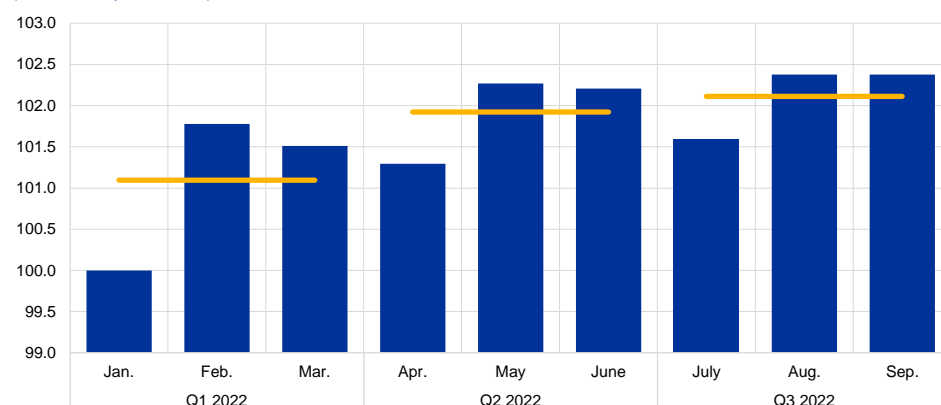
<sup>4</sup> The indicator for services production refers to the production of services of the business economy. This indicator includes service activities that were most affected by the pandemic, such as accommodation and food services, but excludes trade and financial and insurance services and is only available as of January 2015. For the purposes of this analysis, it is estimated back to 2006 using available historical data for services production.

**the quarter are likely to have turned negative.** The bars in Chart A show the profile of estimated monthly real GDP from January to September 2022. The yellow horizontal lines represent the actual quarterly GDP levels in the three quarters shown in the chart. Thus, the difference between the second and the first line in the chart corresponds to the actual quarterly growth rate of real GDP in the second quarter of 2022 (0.8%). The difference between the estimated level of real GDP in March 2022 (the final month of the first quarter) and the first-quarter average is the estimated carry-over effect on growth in the second quarter (0.4%). This is what growth would have been in the second quarter if the level of GDP were unchanged from March throughout the second quarter. This implies that the difference between the second-quarter average and the level in March is equivalent to the estimated growth dynamics within the second quarter (0.4%). For the third quarter of 2022, when GDP increased by 0.2% according to the preliminary flash estimate, the same decomposition of growth can be applied. While the carry-over effect on third-quarter growth is still positive at 0.3%, the intra-quarter growth dynamics in the third quarter turned negative and are estimated at -0.1%.<sup>5</sup>

### Chart A

#### Quarterly and estimated monthly real GDP levels for the euro area

(index: January 2022 = 100)



Sources: Eurostat and ECB calculations.

Notes: The chart shows the profile of estimated monthly real GDP from January to September 2022 based on an interpolation of actual quarterly GDP using monthly industrial, construction and services production as explanatory variables. The monthly indicators are used up to their latest available observations in the third quarter and an unchanged level thereafter up to September. The latest observations are for the third quarter of 2022 for quarterly GDP, August 2022 for industrial and construction production and June 2022 for services production (with estimates for July and August based on available country data).

#### **A sectoral breakdown of growth suggests that the slowdown in the third quarter reflects a smaller carry-over effect and heterogeneous intra-quarter growth in services and industry.**

The method described above allows a sectoral analysis of growth dynamics in recent quarters. While industry was more affected by the impact of the war and input shortages, the services sector was boosted by the reopening of contact-intensive services following the pandemic. Indeed, the results show that both the carry-over effect on second-quarter growth and the growth dynamics within the second quarter were largely driven by the services sector (Chart B). In the third quarter, however, the growth impetus from the services sector is set to weaken. This is reflected not only in a weaker contribution of the services sector to

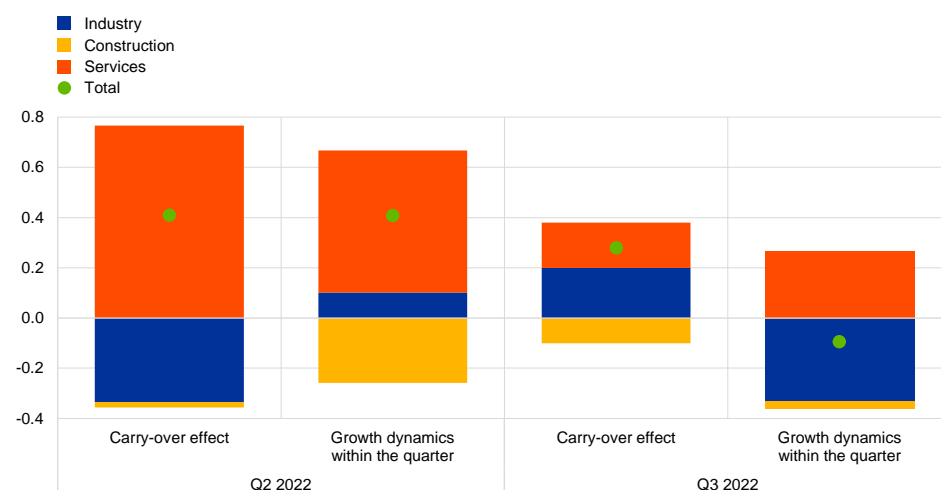
<sup>5</sup> It should be noted that the monthly input variables are inherently volatile and prone to revisions, which means that the results presented in this box may change in later releases.

the carry-over effect on growth in the third quarter but also in a smaller contribution to growth within the third quarter. In addition, industrial activity is likely to weigh on growth within the third quarter, reflecting a deterioration in industrial production on average in the first two months of the third quarter.

### Chart B

#### Estimated sectoral contributions to carry-over effects and intra-quarter growth dynamics in the second and third quarters of 2022

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



Sources: Eurostat and ECB calculations.

Notes: The chart shows model-implied sectoral contributions to carry-over effects and the growth dynamics within the quarter for quarterly real GDP growth. For details on the monthly GDP estimates, see the notes to Chart A.

#### To conclude, monthly indicators suggest that industrial output dynamics remained weak in the third quarter, while services sector growth declined.

While output is estimated to have stagnated towards the end of the second quarter of 2022, it fell going into the third quarter. The deterioration in the short-term dynamics was broad-based across sectors, with both the industry and services sectors contributing to slower intra-quarter dynamics in the third quarter. This is in line with most forecasts, including the [September 2022 ECB staff macroeconomic projections for the euro area](#), which indeed see a slowdown in economic activity in the second half of the year.

## The impact of the recent rise in inflation on low-income households

Prepared by Evangelos Charalampakis, Bruno Fagandini, Lukas Henkel and Chiara Osbat

**The effects of the recent increase in euro area HICP inflation significantly differ for low and high-income households.** This box explores how recent high inflation levels are affecting low-income and high-income households differently in two main areas: their effective inflation rate due to different spending patterns, and their ability to buffer cost of living increases through savings or borrowing. The gap between the effective inflation rates experienced by those in the lowest and highest income quintiles, calculated using data on household consumption patterns, is at its greatest since 2006. Additionally, low-income households consume a larger share of their income, save less and are more liquidity-constrained than high-income households; they therefore have less room to buffer sharp increases in their cost of living through savings.

**Consumption baskets vary across income groups, with low-income households spending proportionally more on essentials.** Low-income households in the euro area spend a higher proportion of their total consumption expenditures on food, electricity, gas and heating and a lower proportion on transport<sup>1</sup>, recreation, restaurants and household goods relative to high-income households (Chart A). The income-specific consumption baskets reported in the Eurostat Household Budget Survey (HBS) allow effective inflation rates to be calculated by income quintile. As “owner-occupied housing costs” are not covered by the HICP, both owner-occupied housing costs and rents were excluded from the calculations of quintile-specific effective inflation rates in this box to avoid distortions due to composition effects in measuring the cost of housing across income classes.<sup>2</sup>

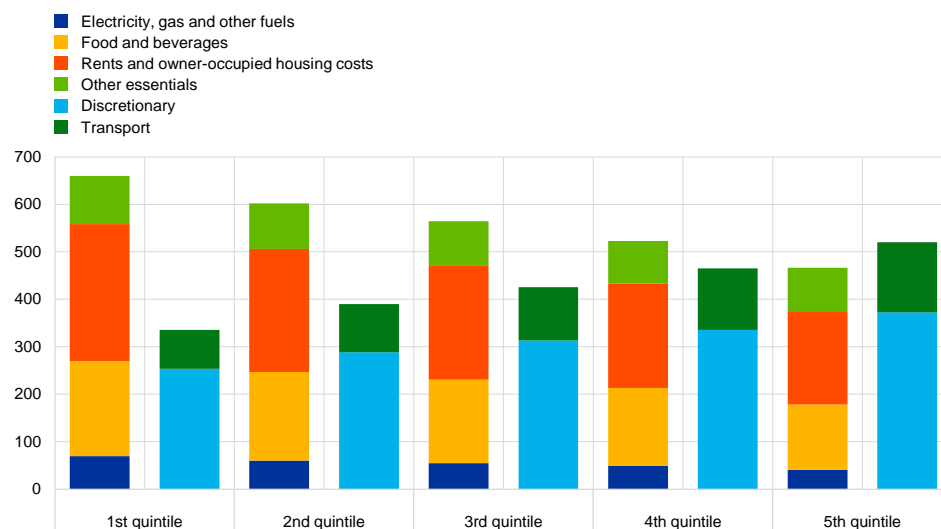
<sup>1</sup> In Chart A, “Transport” includes spending on motor vehicles, transport fuels (petrol and diesel) and transport services (e.g. domestic and international flights and train travel). As such, it contains some essential expenditures such as for commuting, as well as discretionary ones such as for holiday flights.

<sup>2</sup> When calculating income quintile-specific inflation rates, the raw weights reported in the HBS are not directly used, but are adjusted in line with the methodology for the HICP. As the HICP does not include owner-occupied housing, the HBS item “rents and owner-occupied housing costs” is excluded. In addition, the weights are adjusted as follows: for a given two-digit classification of individual consumption by purpose (COICOP) item quintile weight, the difference between the item weight used for the HICP calculation and the aggregate item weight from the HBS is added on an annual basis. Furthermore, the item “Housing, water, electricity, gas and other fuels” is not entered as a COICOP two-digit series; instead three-digit series are used (excluding rents and owner-occupied housing). For information on the exclusion of owner-occupied housing from the HICP, see Work stream on inflation measurement, “[Inflation measurement and its assessment in the ECB’s monetary policy strategy review](#)”, *Occasional Paper Series*, No 265, ECB, Frankfurt am Main, September 2021.

## Chart A

### Euro area consumption baskets for 2015 by income quintile

(share of total expenditure, scaled to 1,000)



Sources: Eurostat Household Budget Survey, ISTAT and ECB calculations.

Notes: "Other essentials" includes expenditures on health, communications, education, water supply and services relating to housing. "Discretionary" includes clothing and footwear, furnishings, household equipment and routine household maintenance, recreation and culture, restaurants and hotels, miscellaneous goods and services, and the maintenance and repair of the dwelling. Bars are ordered by income quintile, with the lowest quintile on the left.

### The difference between the effective inflation rate in the lowest and highest income quintiles is currently at its greatest since 2006.

Between 2011 and November 2021, the gap has mostly remained small, fluctuating between -0.25 and 0.25 percentage points, which also reflected the low inflation environment. However, it increased sharply from 0.1 percentage points in September 2021 to 1.9 percentage points in September 2022 (Chart B).<sup>3</sup> This inflation gap between poorer and richer households is mainly driven by energy and food prices. Decomposing the inflation gap, "electricity, gas and other fuels" and, increasingly, food prices are the main drivers of the higher inflation faced by lower-income households. However, the energy price increase embedded in higher transport prices (which includes petrol and diesel, but also flights for tourism) mitigates this gap (Chart C). In addition, richer households tend to consume more expensive varieties of items within the same goods category (for example, buying branded products instead of cheaper white-label products). These differing shopping behaviours also highlight that high-income households have another avenue available to reduce their spending – by substituting expensive products with cheaper alternatives – whereas low-income households tend to already buy cheaper varieties and are thus less able to buffer the impact of inflation through substitution. However, the calculations in Chart B do not account for these substitutions.

<sup>3</sup> As mentioned above, the expenditure weights reported in the HBS include expenditures on owner-occupied housing (in addition to rents), which differ significantly across income groups. As the HICP does not include owner-occupied housing, the calculation method used here for income-specific inflation rates excludes "rents and owner-occupied housing" from the quintile-specific consumption baskets. If the "raw" weights reported in the HBS are used instead and changes in the HICP weights over time are not accounted for, this gap increases to 2.3 percentage points (1.8 percentage points when housing costs are included) for September 2022.

### Chart B

Inflation difference between the lowest and highest income quintile households in the euro area

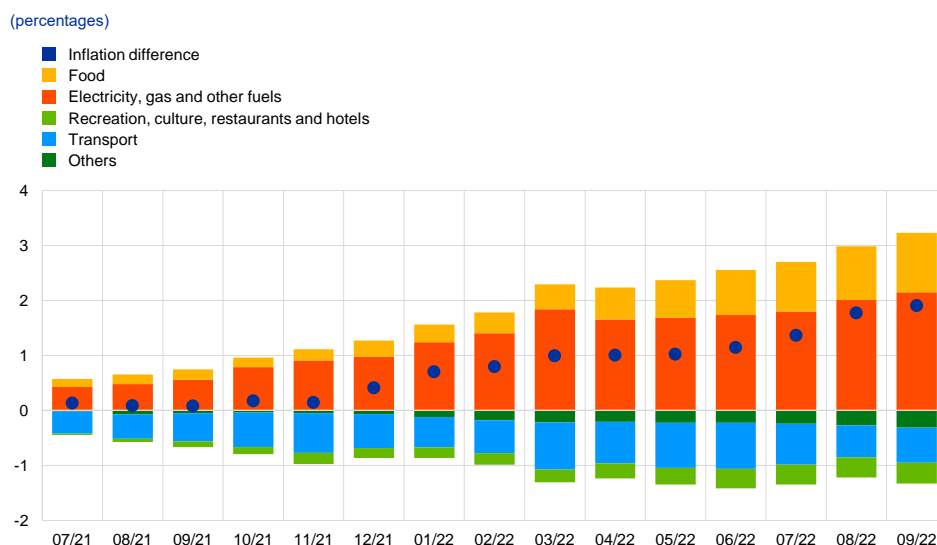


Sources: Eurostat Household Budget Survey, ISTAT and ECB calculations.

Notes: Chart B shows the difference between the effective inflation rates for low-income households (first quintile) and high-income households (fifth quintile). Quintile-specific inflation rates are calculated based on quintile-specific consumption baskets (Chart A) excluding spending on "rents and owner-occupied housing costs". Weights based on the HBS are updated annually in line with updates to the official HICP weights.

### Chart C

Decomposition of the inflation difference between the lowest and highest income quintile households



Sources: Eurostat Household Budget Survey, ISTAT and ECB calculations.

Notes: The contributions of individual components are calculated as the component-level inflation rate multiplied by the difference in the weights of the component in the quintile-specific consumption baskets. Quintile-specific inflation rates are calculated excluding spending on "rents and owner-occupied housing costs". Weights based on the HBS are updated annually in line with updates to the official HICP weights.

**Low-income households also have less room to buffer sharp increases in their cost of living through savings.** They tend to consume a larger share of their income, save less and face liquidity constraints more often than high-income households. Data from the 2017 wave of the Household Finance and Consumption Survey (HFCS) show that households at the bottom of the income distribution have the lowest median value of liquid financial assets, whereas households in the top

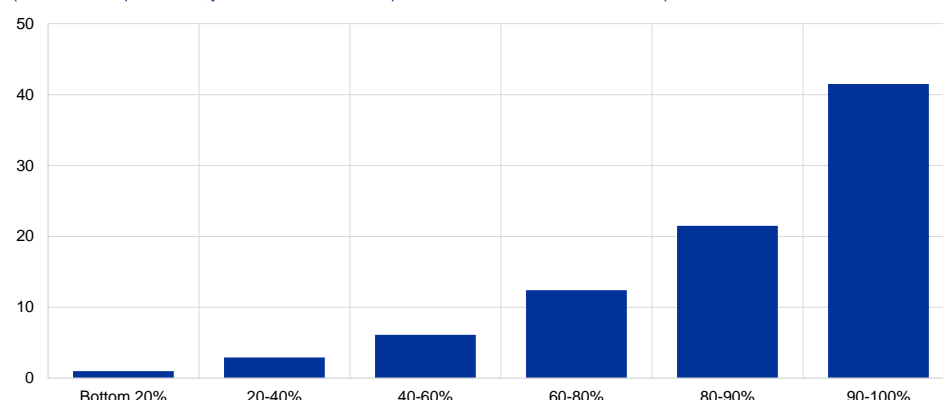
income percentiles have the highest (Chart D, panel a). This means that low-income households have a lower capacity to absorb sharp, inflation-driven increases in living costs. In addition, the median saving rate as a percentage of household disposable income increases in higher income quintiles. Low-income households dissave, with a median saving rate of -6.4% at the bottom income quintile, whereas those in the top income quintile save 39.3% (Chart D, panel b).

## Chart D

### Liquid financial assets and saving rates of households in the euro area

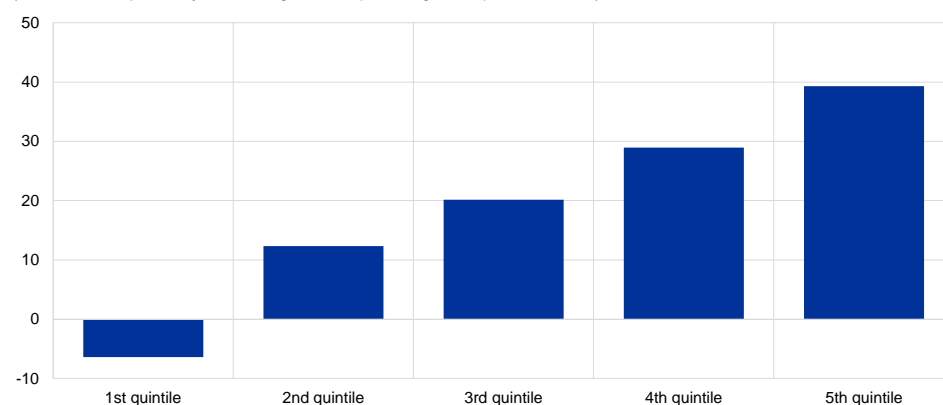
#### a) Liquid financial assets

(x-axis: income percentiles, y-axis: median value of liquid financial assets in EUR thousands)



#### b) Saving rates

(x-axis: income quintiles, y-axis: saving rate as a percentage of disposable income)



Sources: Household Finance and Consumption Survey (2017 wave) and Eurostat experimental data for 2015.

Notes: Liquid financial assets include deposits, mutual funds, bonds, value of private business (excluding self-employment), publicly traded shares and managed accounts. Medians are conditional and are calculated among households in the euro area owning any sort of liquid financial asset (panel a). Median saving rates are calculated as a percentage of disposable income (panel b).

**The higher incidence of liquidity constraints experienced by poorer households is reflected in the rise in households expecting to make late payments on their utility bills.** Evidence based on the ECB's Consumer Expectations Survey (CES) indicates that, for the same increase in energy spending, the reduction in savings for households in the lowest income quintile is more than five or six times greater than for households in the highest income quintile.<sup>4</sup> In this respect, a salient piece of information from the CES is that the proportion of

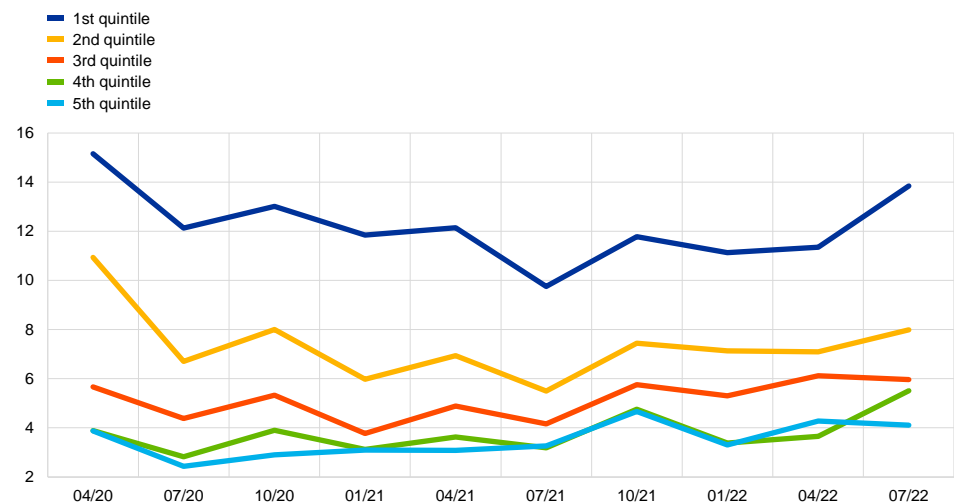
<sup>4</sup> See the article entitled "[Energy prices and private consumption: what are the channels?](#)", *Economic Bulletin*, Issue 3, ECB, 2022.

consumers who expect to be late in paying their utility bills has risen more for low-income households than for high-income households since April 2020 (Chart E). This could mean that the financial stability of low-income households is even more threatened, given the inflationary pressures on energy and food prices.

### Chart E

#### Proportion of consumers expecting to pay utility bills late

(percentage of respondents)



Sources: Consumer Expectations Survey and ECB calculations.

Notes: Chart E shows the proportion of CES respondents that expected to pay utility bills late in the three months immediately after the relevant survey date (between April 2020 and July 2022) across the five income quintiles.

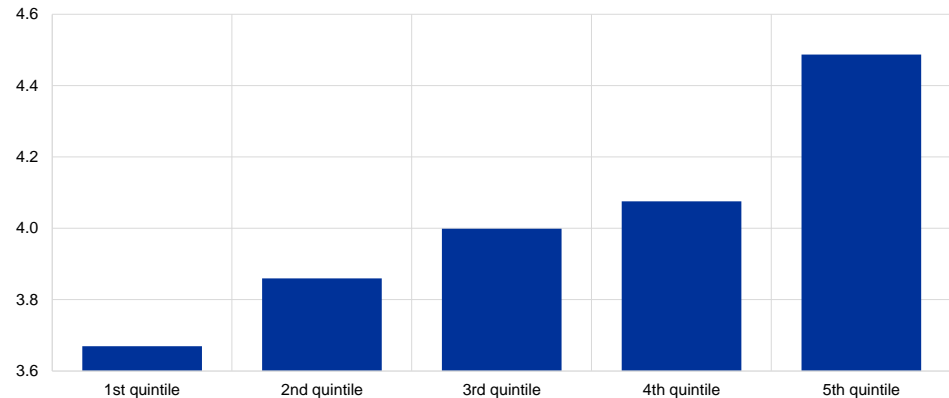
**Low-income households perceived the recent government measures aimed at easing the impact of higher energy prices as less adequate than high-income households did.** The CES asked respondents to what extent they perceived these measures as sufficient to maintain their usual essential spending on goods and services. The average government intervention adequacy score was lowest for the bottom income quintile and highest for the top income quintile (Chart F). This may suggest that there is scope for more effectively targeting government measures towards low-income households.



**Chart F**

**Perceived adequacy of government intervention to combat higher energy prices**

(perceived adequacy of intervention on a scale of 0 to 10)



Sources: Consumer Expectations Survey and ECB calculations.

Notes: Chart F shows the average government intervention adequacy score across the five income quintiles. The question was formulated as follows: "Many governments are currently taking measures to ease the burden on households of higher energy prices. To what extent do you think that the measures in your country will be sufficient to maintain your household's usual spending on goods and services?" The question was asked in October 2022.

Scale: 0 = completely insufficient, 10 = fully sufficient.

**Inflation in energy and food prices has major distributional effects across low and high-income households.** Low-income households are more vulnerable to these price shifts, as they spend a higher proportion of their total consumption expenditure on essentials such as food, electricity, gas and heating, tend to save less and are more subject to liquidity constraints. Euro area governments have taken measures to cushion the impact of recent inflation on households, but so far all income groups perceive these measures as insufficient – especially low-income households. This indicates that there is room for improvement in the way that support measures are targeted towards low-income households.

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

Prepared by Gabe de Bondt, Evangelos Charalampakis, Friderike Kuik and Richard Morris

This box summarises the results of contacts between ECB staff and representatives of 69 leading non-financial companies operating in the euro area. The exchanges mainly took place between 26 September and 6 October 2022.<sup>1</sup>

**In aggregate terms, contacts reported a marked slowdown in activity, broadly consistent with stagnation, in the third quarter.** Reports of declining sales and/or production were focused mainly in the intermediate goods sector (particularly in energy-intensive branches) and in parts of the consumer goods sector (including, mainly, home equipment). This was driven by rising production costs and by apparent and/or anticipated declines in final consumer demand, as spending shifted from goods to services, high inflation ate into purchasing power and some firms moved from restocking to destocking mode. This notwithstanding, many contacts in the manufacturing sector (particularly those producing investment goods, including motor vehicles) reported stable or growing production volumes against a backdrop of continuing long order backlogs and only gradually easing supply constraints. Energy producers pointed to a significant decline in industrial consumption of gas and increased demand for alternatives. Residential construction and commercial real estate were also weakening – reflecting high building costs and rising interest rates – while infrastructure investment was more resilient. Most contacts in the services sector described continued growth in activity, driven partly by the digital economy and by a strong recovery in tourism over the summer, which might have been even stronger were it not hampered by labour shortages. Among retailers and their suppliers, there was widespread evidence of consumers saving money by “down-branding” both in relation to food and non-food purchases. This, however, seemed to be focused within the lower- to middle-value product ranges, while demand for high-end products seemed unaffected.

**Looking ahead, contacts anticipated a further deterioration in activity, implying a contraction in the fourth quarter.** In sectors that had already been contracting, this trend was generally expected to continue over the coming months. In sectors where supply constraints had given rise to long order backlogs, current or increased levels of production were likely to be sustained, at least until early next year, after which the outlook was uncertain. Tourism and travel were expected to continue their recovery through the winter and into the next summer, although at a slower pace than in recent quarters. Elsewhere, despite many contacts saying that the sales and orders of their own firm were better than expected given the global geopolitical and economic environment, they were concerned about smaller suppliers and customers coping with rising costs, particularly for energy. They were also concerned about a

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<sup>1</sup> For further information on the nature and purpose of these contacts, see the article entitled “[The ECB's dialogue with non-financial companies](#)”, *Economic Bulletin*, Issue 1, ECB, 2021.

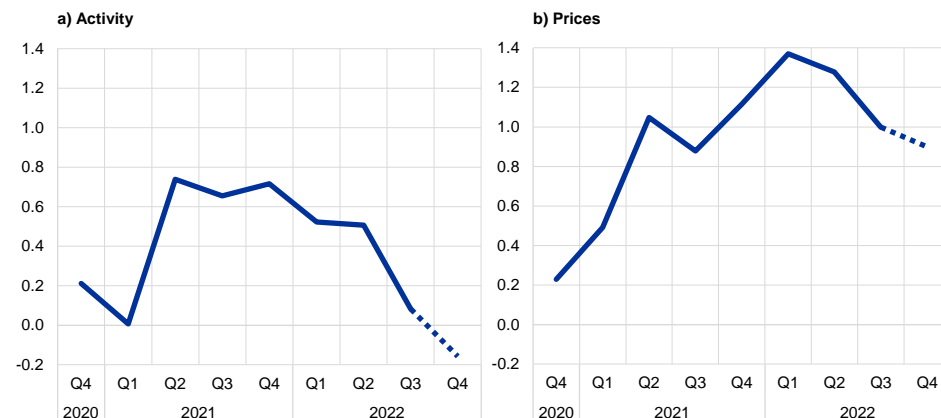
retrenchment in consumer spending in response to the rising cost of living. This was, therefore, leading to “heightened vigilance”. Moreover, the possibility of energy shortages or rationing during the winter was a substantial tail risk that had generally not been assumed in the baseline of business plans. Contacts’ budget plans for next year were overwhelmingly reported to be on the cautious side due to the extremely challenging global geopolitical and economic environment and widespread talk of a looming recession. The overall outlook for 2023 was thus perceived as bleak and highly uncertain.

**Contacts signalled a modest slowdown in employment growth amid continued tight labour market conditions.** Despite the slowdown and expected deterioration in economic activity, most contacts anticipated a rather muted impact on employment. While some firms had become more hesitant about hiring and a few had begun to lay off staff, most said a reduction in headcount was unlikely, as recent experience had shown how difficult it was to recruit, train and retain the necessary staff. Labour and skill shortages, despite easing in some areas, remained a challenge for many companies. Employment agencies meanwhile pointed to continued strong growth in permanent placements, while growth in demand for temporary workers had slowed down somewhat.

### Chart A

#### Summary of views on developments in and the outlook for activity and prices

(average of ECB staff scores, ranging from -2 (significant decrease) to +2 (significant increase))



Source: ECB.

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

**Most contacts reported continued strong price dynamics, but the average rate of increase was moderating slightly as prices either stabilised or fell in a few sectors.** Notably, contacts in parts of the intermediate goods sector had seen prices falling from very high peaks in some product segments. The prices of some raw materials and commodities had either stabilised or had been falling in recent months, although the effect of this on input costs was often either muted or more than offset by the weak euro exchange rate and the fact that past increases in costs (including for energy) were still in the process of being passed on by many suppliers. Prices for transport and logistics continued to increase overall; and while spot freight rates had fallen on some key shipping routes, this was hardly reflected in shipping costs, as

these were mostly determined by long-term contracts. Meanwhile, the extent of the (direct and indirect) pass-through of the extremely strong increase in gas and electricity prices to firms' costs and selling prices varied considerably. While many said that much of the increased cost had already been passed through in a more-favourable-than-usual pricing environment, a substantial share of contacts said that the impact on their firm's cost base would be felt mainly, or only, in 2023 and beyond as long-term energy hedging and supply contracts expired. Overall, therefore, most contacts still perceived strong cost pressures and continued to adjust their prices more frequently and by a greater order of magnitude than usual, with only a modest slowdown in the sequential rate of change currently anticipated in the next one or two quarters.

**Wage pressures continued to build and were increasingly becoming an additional cost concern for many firms.** Wage growth in 2022 was still described by most contacts as contained or modest. In many firms, wages were still largely determined by agreements concluded in 2021 or earlier. Several contacts pointed to employees being given temporary payments to help them deal with the higher cost of living (particularly in cases where wage negotiations had not taken place yet). As time went by, however, there was a growing tendency to expect wage agreements to lock in permanent increases. Among those who gave quantitative indications of their expectations for wage growth, a large majority expected increases of 4% or higher (and in many cases substantially higher) as likely to take effect in 2023. While some contacts considered it appropriate to offer higher wages to compensate employees for the higher cost of living, many were concerned about the impact of rising labour costs on profitability.

## A closer look at consumers' inflation expectations – evidence from the ECB's Consumer Expectations Survey

Prepared by Lucyna Gornicka, Justus Meyer and Aidan Meyler

**With the strong increase in euro area HICP inflation over the past 18 months, monitoring and understanding the behaviour of consumers' inflation expectations have become increasingly important.** In this box, we analyse developments in consumers' inflation expectations<sup>1</sup> using data from the ECB's Consumer Expectations Survey (CES), which was launched in 2020.<sup>2</sup> We look at changes in the entire distribution of inflation expectations, focusing on both mean and median inflation expectations, as the two measures can differ owing to skew in survey responses. We present the findings for consumers' inflation expectations for one year ahead and three years ahead. Expectations for one year ahead measure shorter-term inflation expectations and are found to be more responsive to current inflation developments than those for longer horizons. Expectations for three years ahead measure more medium-term inflation expectations and, as such, better capture the potential risks of the de-anchoring of inflation expectations from a central bank's inflation target.

**After HICP inflation rose above 2% in July 2021, consumers' inflation perceptions and expectations started to move upwards too.** Between April 2020 – when the CES started – and July 2021, inflation was relatively low and consumers' inflation perceptions and expectations were relatively stable at around 2% (Chart A).<sup>3</sup> As HICP inflation rose above 2% in the summer of 2021, shorter-term inflation

<sup>1</sup> Available measures of inflation expectations vary across many dimensions, including agents (households/consumers, firms, professional macroeconomic forecasters and financial markets); type (survey-based or financial market prices); and horizon (short, medium and long-term). The inflation expectations of forecasters and financial markets represent those of professional macroeconomists. Household expectations are likely to be more varied depending on their knowledge of macroeconomic developments. In this context, relatively small movements should not be over interpreted, but clearer shifts do provide important information.

<sup>2</sup> The CES started in April 2020 and is an ongoing monthly panel survey of more than 10,000 respondents from the six largest euro area countries (Belgium, Germany, Spain, France, Italy and the Netherlands). The survey is administered by the ECB and collects fully harmonised data on consumer expectations from a representative sample of the underlying population via the internet. For further methodological information, a user's guide and recent updates on the ECB's CES, see the dedicated [web page](#). A more detailed account is provided in "ECB Consumer Expectations Survey: an overview and first evaluation", *Occasional Paper Series*, No 287, ECB, Frankfurt am Main, December 2021, as well as in Georgarakos, D. and G. Kenny, "Household spending and fiscal support during the COVID-19 pandemic: Insights from a new consumer survey", *Journal of Monetary Economics*, Vol. 129, 2022, pp. 1-14.

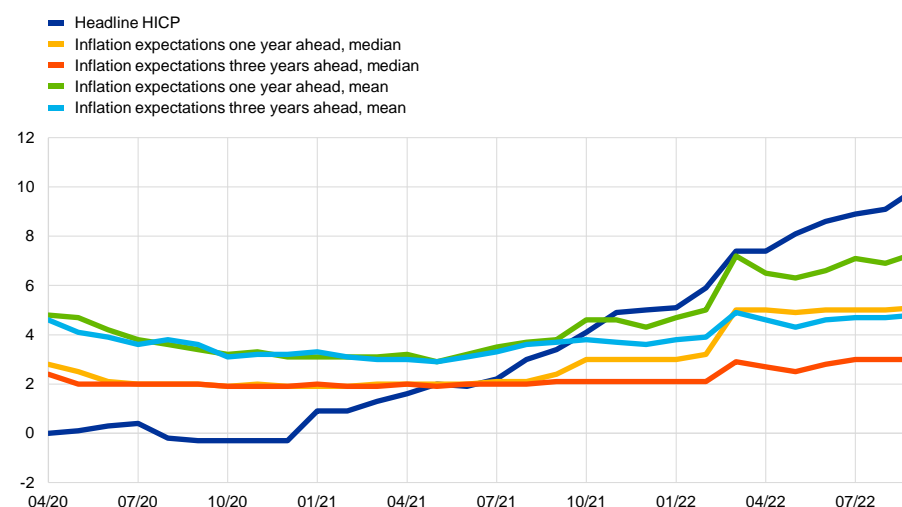
<sup>3</sup> Inflation expectations in April 2020 were slightly elevated owing to the heightened uncertainty caused by the pandemic and initial lockdowns. It is a known stylised fact that consumers' inflation expectations tend to be higher than those of professional macroeconomists. This owes in part to the tendency of some consumers to report inflation expectations as rounded figures (frequently to multiples of five), especially when they are more uncertain. For a more detailed discussion, see the article entitled "Making sense of consumers' inflation perceptions and expectations – the role of (un)certainty", *Economic Bulletin*, Issue 2, ECB, 2021.

expectations also gradually rose.<sup>4</sup> More medium-term inflation expectations remained broadly unchanged until March 2022, when median inflation expectations for three years ahead increased to 3% following the Russian invasion of Ukraine. They have, however, remained relatively stable since then, despite further substantial increases in headline inflation. Mean inflation expectations, which are more susceptible to outliers, have shown somewhat more movement.

## Chart A

### Consumers' mean and median inflation expectations and HICP inflation

(percentages; annual percentage changes)



Sources: ECB's Consumer Expectations Survey and Eurostat.

Notes: Weighted estimates. The median is computed on the basis of a symmetric linear interpolation that accounts for rounding of responses. Mean values are winsorised at the 2nd and 98th percentiles of each survey round and country.

**The distributions of consumers' inflation expectations have moved to the right, but the tails have not become substantially fatter.** Chart B shows the histograms of consumers' shorter-term and more medium-term inflation expectations, both on average over the period from April 2020 to February 2022 and in September 2022. While zero remains the most frequent response, the number of respondents expecting higher inflation has increased over time. Between April 2020 and February 2022, 2% and 3% were the second and third most frequent responses for both shorter-term and more medium-term expectations. However, in September 2022 these rose to 5% and 10% for shorter-term expectations and 3% and 5% for medium-term expectations.<sup>5</sup> At the same time, the higher moments of the distribution of expectations that capture movements of its tails – such as kurtosis and skewness – have not gone up substantially since inflation started rising in July 2021.

<sup>4</sup> In this box, we do not discuss differences across countries or by sociodemographic groupings. Further information can be found on the dedicated CES web page. Overall, while there are some specific differences, the broad profile of movement in aggregate perceptions and expectations is largely similar along different subgroups of the population. For a recent discussion of gender differences in inflation expectations, see Di Nino, V., Kolndrekaj, A. and Meyler, A., "[What drives inflation expectations of women and men?](#)", *The ECB Blog*, 14 September 2022.

<sup>5</sup> One feature of consumers' quantitative inflation perceptions and expectations is heaping at certain values, most notably at multiples of 1, 5 and 10. This feature has been observed for US, euro area, Japanese and Australian data. For a recent discussion, see Y. Haidari and G. Nolan, "[Sentiment, Uncertainty and Households' Inflation Expectations](#)", *Bulletin September 2022*, Reserve Bank of Australia, 2022.

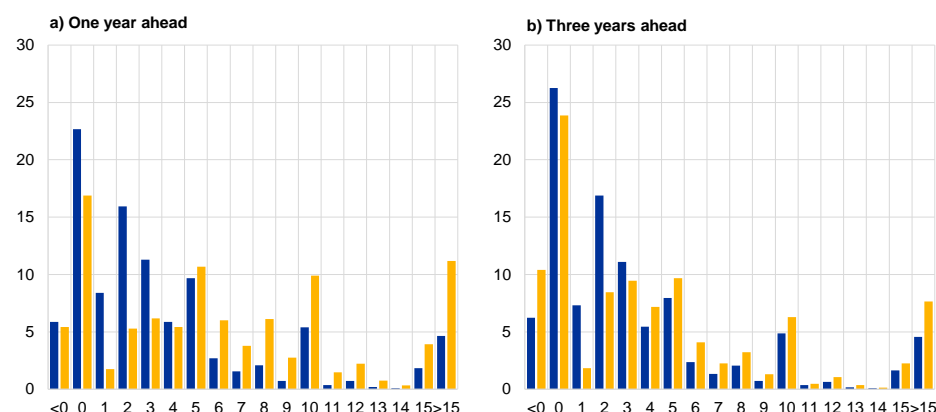
This suggests that the upward movements of the distributions of expectations have not been driven by a fattening of the tails.

## Chart B

### Histogram of consumers' inflation expectations

(percentages)

■ April 2020-February 2022  
■ September 2022



Source: ECB's Consumer Expectations Survey.

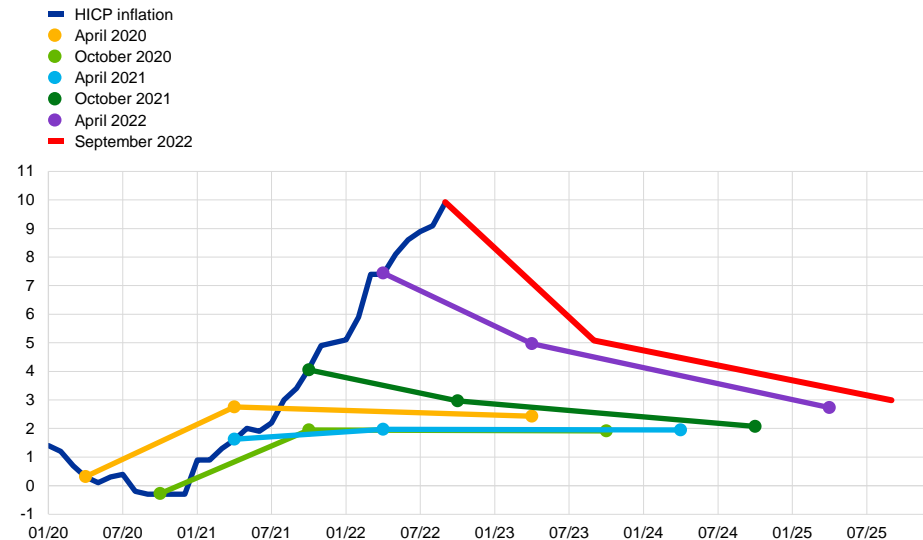
Notes: The chart shows histograms of inflation expectations one year ahead (left-hand chart) and three years ahead (right-hand chart) in the period from April 2020 to February 2022 (i.e. before the Russian invasion of Ukraine) on average (blue bars) and in September 2022 (orange bars).

**Although perceptions of actual inflation and short-term inflation expectations have risen, the term structure of consumers' inflation expectations has remained strongly downward sloping.** By combining information on inflation expectations at different horizons, a term structure of consumers' inflation expectations can be constructed. Chart C shows that the term structure remains strongly downward sloping. In other words, consumers in the euro area continue to see that the current spike in perceived inflation has a significant transitory component and expect inflation to return closer to the levels seen in the past over the medium term, albeit above 2%.

## Chart C

### Term structure of median inflation expectations

(percentages; annual percentage changes)



Sources: ECB's Consumer Expectations Survey and Eurostat.

Notes: The chart shows median consumers' inflation expectations at different horizons, over time. The lines are constructed by combining information about inflation expectations one year ahead and three years ahead for selected monthly waves of the CES.

**The responsiveness of inflation expectations to inflation perceptions has increased slightly, but it remains noticeably lower for medium-term inflation expectations.** A high sensitivity of longer-term inflation expectations to changes in current inflation (or inflation perceptions) could indicate potential risks of the de-anchoring of expectations, as it implies that shocks to current inflation could move expectations far away from a central bank's target.<sup>6</sup> Chart D shows the estimated responsiveness of consumers' inflation expectations to revisions in inflation perceptions, both one year and three years ahead.<sup>7</sup> The sensitivity of expectations to revisions in inflation perceptions has increased slightly since July 2020 and the upward shift has been of a broadly similar order of magnitude for both shorter-term and more medium-term expectations. In line with past evidence, the responsiveness of more medium-term expectations remains noticeably below that of short-term expectations.<sup>8</sup>

<sup>6</sup> For a more detailed discussion, see Stanislawski, E. and M. Paloviita, "Responsiveness of consumers' medium-term inflation expectations: evidence from a new euro area survey", *Bank of Finland Research Discussion Paper 10/2021*, Bank of Finland, 2021.

<sup>7</sup> For a discussion of US data, see Armantier, O., Goldman, L., Koşar, G., Topa, G., van der Klaauw, W. and Williams, J.C., "What Are Consumers' Inflation Expectations Telling Us Today?", *Liberty Street Economics*, Federal Reserve Bank of New York, 2022.

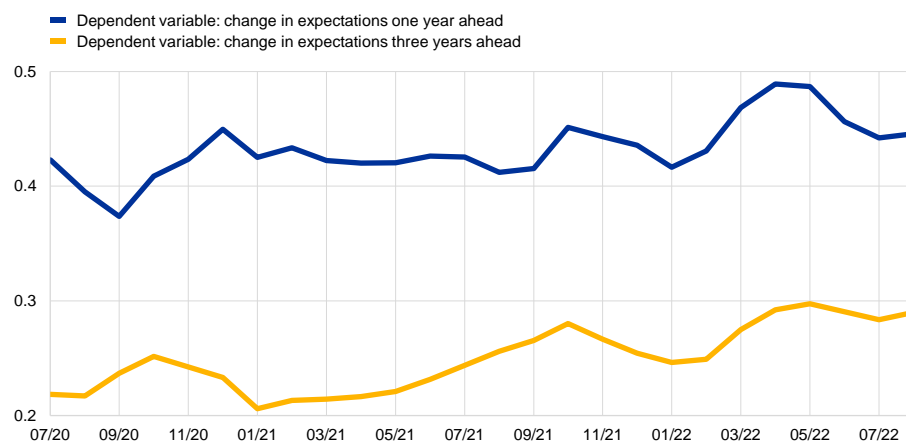
<sup>8</sup> Qualitatively similar results are found in the regressions of one-year ahead and three-years ahead inflation expectations on actual inflation outcomes.



## Chart D

### Inflation perceptions in the regressions of short-term and medium-term inflation expectations

(coefficient on revisions to inflation perceptions)



Source: ECB's Consumer Expectations Survey.

Notes: This chart plots estimates of the coefficients on the revisions to inflation perceptions from regressions of revisions to consumer inflation expectations one year ahead (blue line) and three years ahead (orange line). The respondent-level regressions are conducted on a rolling window of three CES waves while controlling for country-fixed effects. In all regressions, the coefficient on the revisions to inflation perceptions is statistically significant at a level of 1%.

### Consumers' uncertainty surrounding their inflation expectations has increased.

One important feature of the ECB's CES is that it contains a direct (probabilistic) question aimed at ascertaining how uncertain consumers are about their inflation expectations.<sup>9</sup> Specifically, consumers are asked to attribute probabilities to the likelihood of inflation being in specific ranges.<sup>10</sup> An indirect measure of consumer uncertainty is the frequency at which consumers report perceptions and expectations in multiples of five.<sup>11</sup> Chart E illustrates that the direct and indirect measures have co-moved very closely and show a similar U-shaped profile over the period from April 2020 to September 2022. Uncertainty was relatively high in April 2020 at the outset of the pandemic and lockdown measures. It then gradually eased back during 2020 and remained relatively low until around July 2021 when it started to increase again. A further rise in uncertainty occurred in the immediate aftermath of the Russian invasion of Ukraine. Uncertainty has remained at relatively elevated levels since then.

<sup>9</sup> For a discussion and comparison of point expectations and probabilistic expectations of professional forecasters, see Engelberg, J., Manski, C.F. and Williams, J., "Comparing the Point Predictions and Subjective Probability Distributions of Professional Forecasters", *Journal of Business & Economic Statistics*, Vol. 27, No 1, 2009, pp. 30-41.

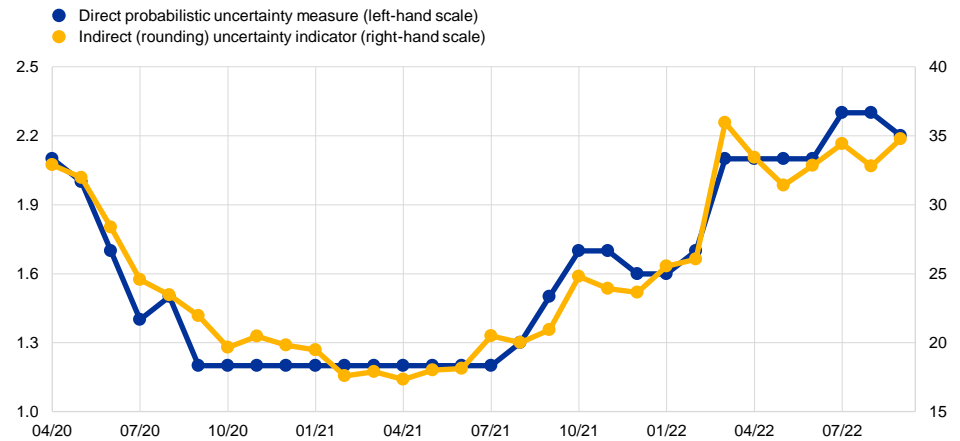
<sup>10</sup> From April 2020 to June 2022, these ranges were bins of 2 percentage points from -8% to +8% (e.g. 0-2%; 2-4%, etc.). In July 2022, the ranges were widened to -12% to +12%.

<sup>11</sup> Rounding to multiples of five is one of the reasons why mean perceptions and expectations tend to be above median perceptions and expectations and can also help explain why the gap between the mean and median may increase as inflation uncertainty increases. For a more detailed discussion of the use of rounding as an indicator of uncertainty in the context of US and euro area consumers' inflation expectations, see Reiche and Meyler (2022, op. cit.) and Binder, C., "Measuring uncertainty based on rounding: New method and application to inflation expectations", *Journal of Monetary Economics*, Vol. 90, 2017, pp. 1-12.

## Chart E

### Indicators of consumers' uncertainty about their inflation expectations one year ahead

(left-hand scale: percentage points; right-hand scale: percentage of respondents)



Source: ECB's Consumer Expectations Survey.

Notes: This chart plots: (i) the probabilistic-based indicator of uncertainty about inflation expectations reported by respondents on average (blue line); and (ii) the share of round responses (i.e. multiples of five) in total answers/responses (orange line) by CES wave (x-axis).

### Overall, although consumers' inflation expectations have reacted to higher inflation and heightened uncertainty, the term structure of inflation expectations remains strongly downward sloping.

The movements in inflation expectations have not been driven by a fattening of the tails as such, but a shift in the main part of distribution, as well as an increased tendency to report rounded expectations of multiples of five, which reflects heightened uncertainty about the inflation outlook. The upward movement in expectations, the increase in uncertainty surrounding them and the increased sensitivity of medium-term expectations to perceived current inflation all call for continued close monitoring and analysis of consumers' inflation expectations.

## The role of demand and supply in underlying inflation – decomposing HICPX inflation into components

Prepared by Eduardo Gonçalves and Gerrit Koester<sup>1</sup>

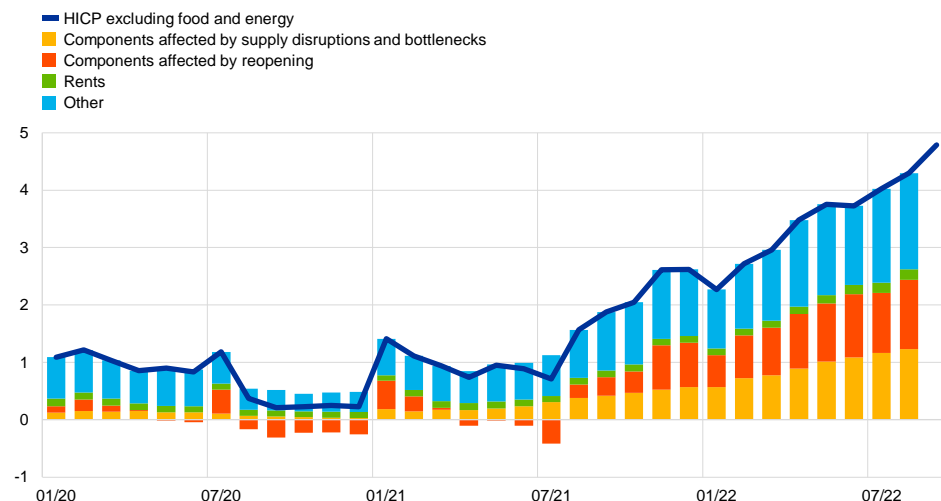
**HICP inflation excluding energy and food (HICPX inflation) has continued to increase and reached 4.8% in September 2022 according to Eurostat's flash release.** Headline HICP inflation, which also includes energy and food, increased to 10% in September – with energy and food contributing around two-thirds and HICPX inflation around one-third to overall inflation. In the increase in HICPX inflation, both supply and demand factors played an important role. Persistent supply bottlenecks for industrial goods and input shortages, including shortages of labour due in part to the effects of the coronavirus (COVID-19) pandemic, led to a sharp increase in inflation. Since pandemic restrictions were lifted, a recovery in demand has also contributed to the current high rates of inflation, especially in the services sector. Components in the HICP basket that anecdotally are strongly affected by supply disruptions and bottlenecks and components that are strongly affected by the effects of reopening following the pandemic together contributed around half (2.4 percentage points) of HICPX inflation in the euro area in August 2022 – the last month for which detailed data are available (Chart A). However, this ad hoc decomposition leaves out a large part of HICPX inflation, calling for further distinction between the roles of demand and supply factors in underlying inflation in the euro area. Monetary policy works mainly via the demand channel, so it is important to assess to what extent developments in underlying inflation can be attributed to either supply or demand factors.

<sup>1</sup> We are grateful to Adam Shapiro for his guidance and support in applying his approach to the euro area and to Omiros Kouvavas for his help in matching data on prices and activity for the euro area.

## Chart A

### Decomposition of HICPX inflation in the euro area

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: Components affected by supply disruptions and bottlenecks comprise new motor cars, second-hand motor cars, spare parts and accessories for personal transport equipment, and household furnishings and equipment (including major household appliances). Components affected by the reopening of the economy comprise clothing and footwear, recreation and culture, recreation services, hotels/motels, and domestic and international flights. The latest observations are for September 2022 (flash) for HICPX and August 2022 for the rest.

### A disaggregated approach to analysing the role of supply and demand factors in each HICPX component can help to form a view about the overall role of supply and demand factors in HICPX inflation.

This framework for monitoring inflation was originally developed for the United States by Adam Shapiro.<sup>2</sup> Prices and activity developments are affected by many factors, of which some have led to unexpected changes in supply and some have shifted demand. To attribute a component of HICPX inflation (e.g. motor cars or accommodation services) to the set predominantly driven by supply factors or the set predominantly driven by demand factors, this approach exploits the fact that a supply shock affects activity and inflation in opposite directions while a demand shock affects them in the same direction. More precisely, to attribute a component in a binary way to either supply or demand, the approach considers errors that a time series model made at each point in time: if the errors in prices and activity have the same sign, the component is labelled “demand-driven”, otherwise it is labelled “supply-driven”.<sup>3</sup> Only components whose errors are statistically significant are classified this way; components for which the unexpected changes in prices and activity are not significantly different

<sup>2</sup> See Shapiro, A.H., “[How Much Do Supply and Demand Drive Inflation?](#)”, *FRBSF Economic Letter*, 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, September 2022.

<sup>3</sup> Ten-year-window rolling regressions (starting in January 2002) are run which include monthly data on both activity and prices and 12 lags in a standard two-equation vector autoregression (VAR) model. If the residuals for quantities and prices in the final months of each window have the same sign, that component is labelled as “demand-driven”, whereas, if they have opposite signs, it is identified as “supply-driven”. If the residual for either the price or the quantity series is statistically indistinguishable from zero, the category is labelled as “ambiguous” for that month.

from model predictions are classified as ambiguous.<sup>4</sup> Based on this approach, for each month each HICPX category can then be labelled as predominantly demand-driven (unexpected changes in prices and activity move in the same direction), as predominantly supply-driven (unexpected changes in prices and activity move in opposite directions) or as ambiguous. After this classification is made, the individual contributions of components are added up (applying their consumption weights) to derive a decomposition of HICPX for each month.<sup>5</sup> It should be noted that this approach is binary and does not quantify how much supply and demand factors influence the levels of components. So, for example, supply factors could also play a role in inflation developments for a component that is classified as demand-driven.

**Data on activity and inflation for each HICPX category must be collected to perform this decomposition.** Seasonally adjusted price indices for each component included in the HICPX are available at a fine level of disaggregation in a timely manner (72 HICPX components about 20 days after the end of each month), but activity data for the corresponding components are not readily available.<sup>6</sup> This complicates the analysis in comparison to the United States, where data on prices and activity are available at the same time for each component in the personal consumption expenditure (PCE) deflator. To address this issue for the HICPX, turnover indices were used as a proxy for consumption, after seasonally adjusting and deflating them.<sup>7</sup> Based on this matching exercise, price-activity pairs for all 72 HICPX sub-components can be derived.<sup>8</sup>

**The decomposition suggests that the increase in euro area HICPX inflation starting in the third quarter of 2021 was initially mainly supply-driven, but the importance of demand factors has gradually increased over time.** Over recent months, supply and demand factors have played broadly similar roles in HICPX inflation (Chart B). Robustness checks using HICPX series at constant tax rates (to account, for example, for the temporary cut in VAT in Germany in the second half of 2020) lead to similar results.

<sup>4</sup> To identify these ambiguous cases, we follow Shapiro's baseline approach and label the middle 20% of the residuals in the respective regression sample distributions as ambiguous. This means that we compare the final month's residuals discussed above with all residuals obtained in that window and assess whether or not it is in the middle 20% of the distribution. In the baseline specification, post-2020 residuals in the sample are excluded when running this test. However, a robustness test shows that the ambiguous component increases only slightly when post-2020 results are also included and that the overall results are not substantially affected.

<sup>5</sup> Following Shapiro, the year-on-year supply and demand-driven contributions are then defined as the running total of the last 12 monthly supply and demand-driven contributions.

<sup>6</sup> Based on the four-digit COICOP classification.

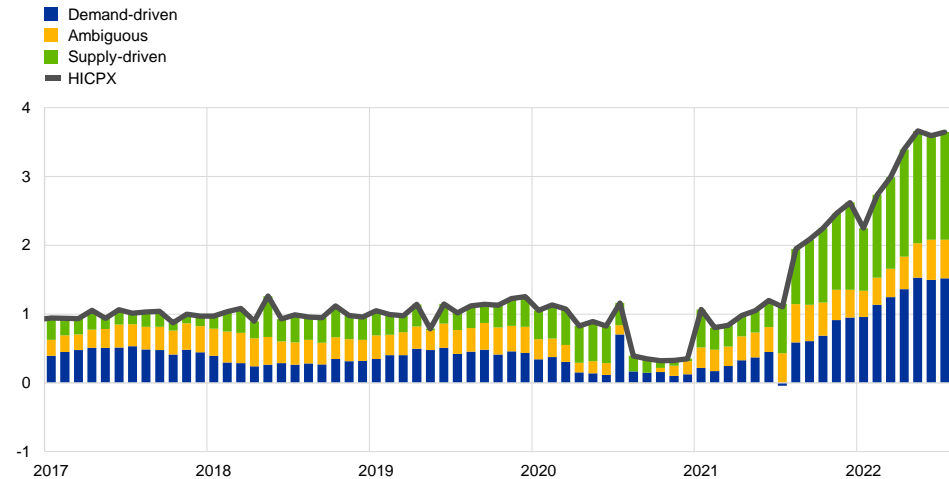
<sup>7</sup> Turnover data are provided by Eurostat as part of short-term business statistics (see "[Short-term business statistics introduced](#)", *Statistics Explained*, Eurostat). Data on services turnover (sts\_setu\_q) and retail trade turnover (sts\_trtu\_q) are used. The turnover series for services are deflated by the HICP in order to analyse turnover developments in real terms. Retail trade turnover series are already available deflated and non-deflated.

<sup>8</sup> One caveat is that, for this analysis, the 72 HICPX components can only be matched to 45 turnover series (that are available in a sufficiently timely manner). Hence, some HICPX series (especially in NEIG) are matched to the same turnover series. The same matching approach is also used in, for example, "[Consumption patterns and inflation measurement issues during the COVID-19 pandemic](#)", *Economic Bulletin*, Issue 7, ECB, 2020.

**Chart B**

**HICPX inflation – decomposition into supply and demand-driven factors**

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB staff calculations.

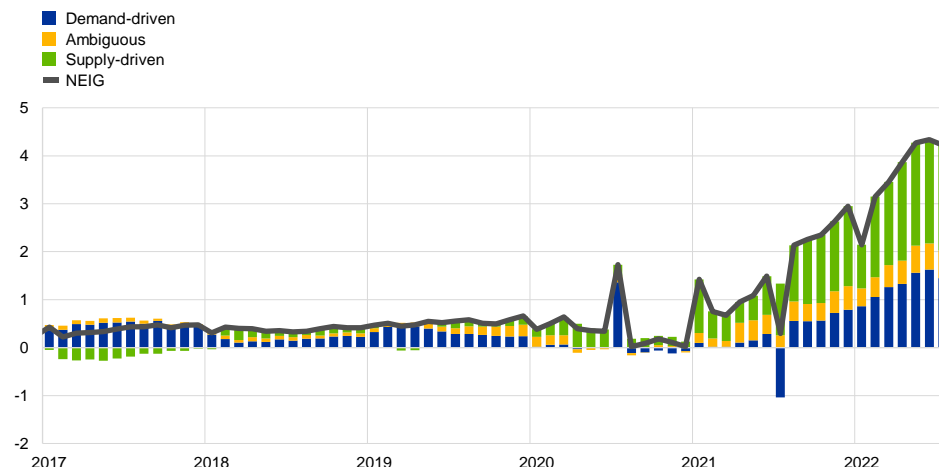
Notes: Seasonally adjusted data. Based on the approach developed by Adam Shapiro. HICPX inflation reflects the sum of demand-driven, supply-driven and ambiguous components, calculated as the trailing sum of the last 12 monthly contributions. While price data are available for August 2022, the latest observation is for July 2022 as the turnover series used as a proxy for activity are published with some delay.

**Looking at the main components of HICPX inflation, supply factors have played a somewhat bigger role in non-energy industrial goods (NEIG) inflation since early 2021 (Chart C).** Changes in both demand and supply have strongly contributed to the increase in NEIG inflation since autumn 2021. Changes in supply did not play a significant role in NEIG inflation developments from 2017 to 2020, but they became the main driver of NEIG inflation in 2021, reflecting the effects of supply bottlenecks. Since late 2021, with the reopening of the economy, changes in demand are increasingly at play, but supply factors have remained dominant. Looking at individual components, components that contribute most to current NEIG inflation, such as motor cars and major household appliances, are classified as mainly supply-driven, while the rise in furniture prices, for example, is classified as mainly demand-driven.

## Chart C

### Decomposition of NEIG inflation

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB staff calculations.

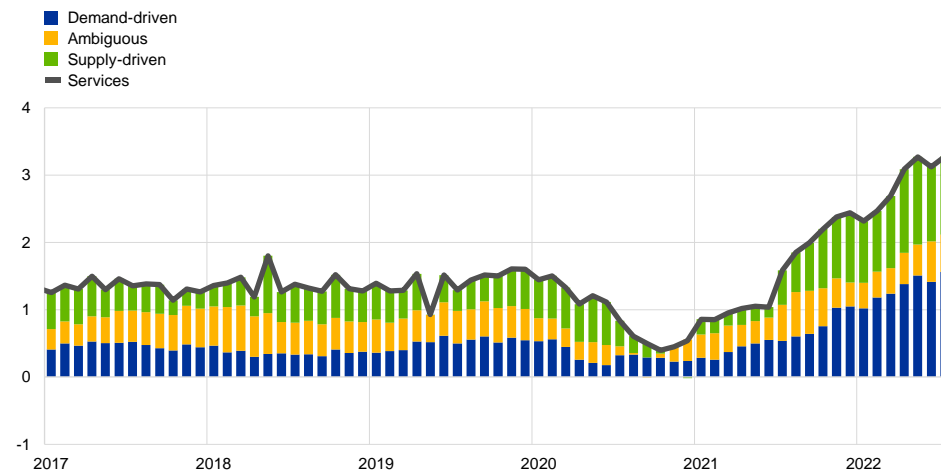
Notes: Seasonally adjusted data. Based on the approach developed by Adam Shapiro. NEIG inflation reflects the sum of demand-driven, supply-driven and ambiguous components, calculated as the trailing sum of the last 12 monthly contributions. While price data are available for August 2022, the latest observation is for July 2022 as the turnover series used as a proxy for activity are published with some delay.

**The strong increase in services inflation since mid-2021 has been driven by both demand and supply factors, with demand factors being more important for services inflation than for NEIG inflation (Chart D).** Supply and demand factors tended to contribute broadly similarly to services inflation from 2017 to 2020, when services inflation was quite stable in the euro area. The strong increase in services inflation from mid-2021 onwards was initially driven mainly by supply factors. Contributions from predominantly supply-driven components increased strongly in the second half of 2021, but then remained relatively stable until mid-2022. The role of demand factors in services inflation began to increase only in the last months of 2021 – with the intensification of reopening effects – and continued to increase until mid-2022. More recently the contributions of predominantly demand-driven components to services inflation have outweighed those of predominantly supply-driven components. Zooming in on components, under the disaggregated approach inflation for package holidays and air flights is found to be mainly demand-driven, while inflation for maintenance and repair services for dwellings is found to be predominantly supply-driven.

## Chart D

### Decomposition of services inflation

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB staff calculations.

Notes: Seasonally adjusted data. Based on the approach developed by Adam Shapiro. Services inflation reflects the sum of demand-driven, supply-driven and ambiguous components, calculated as the trailing sum of the last 12 monthly contributions. While price data are available for August 2022, the latest observation is for July 2022 as the turnover series used as a proxy for activity are published with some delay.

**The disaggregated approach to the decomposition of HICPX inflation helps to show the role of supply and demand factors in underlying inflation, but there are important caveats with this method.** The key advantage of this approach is

that it allows each HICPX component to be classified as predominantly demand-driven or predominantly supply-driven. This makes the results very transparent and allows them to be cross-checked against other evidence available for inflation developments for various components. This transparency is especially valuable in the current environment of very high uncertainty resulting from the effects of the pandemic and the war in Ukraine on changes in activity and prices. But some caveats need to be kept in mind. First, there are different options for matching data on prices and activity, which is complicated by the fact that separate turnover series are not available for every HICPX component (this requires some HICPX components to be matched to the same turnover series, particularly in the case of NEIG inflation). Second, the disaggregated approach cannot quantify how large the supply and demand contributions are for each component. This could introduce a bias if, for example, the role of supply factors for components classified as predominantly demand-driven is on average much larger than the role of demand factors for components classified as predominantly supply-driven. In addition, developments in quantities and prices have clearly been exceptional since the start of the pandemic and have been influenced by many special factors, making it more difficult to build a reliable model as a basis for classification based on the signs of its errors.



## 8 Euro area linkages with Russia: latest insights from the balance of payments

Prepared by Lorenz Emter, Michael Fidora, Fausto Pastoris, Martin Schmitz

**This box provides an analysis of recent developments in trade and financial linkages between the euro area and Russia as recorded in the euro area balance of payments.** Euro area trade and financial linkages with Russia are in the spotlight due to Russia's invasion of Ukraine and the sanctions that have subsequently been imposed on Russia by the European Union (EU) as well as the United States and other countries. This box documents how the record deficit in the trade balance between the euro area and Russia – due to steep price increases for imported energy and lower exports amid EU sanctions – contributed to a sizeable shift in the euro area's overall current account balance. Moreover, it documents how bilateral financial linkages, which were already limited prior to the invasion, were affected by the impact of sanctions and volatility in financial markets.

### Current account

**The euro area current account balance vis-à-vis Russia turned from a small surplus into a deficit of 0.5% of euro area GDP between the second quarter of 2021 and the second quarter of 2022, thus contributing significantly to the sharp reduction in the euro area's current account surplus over the same period (Chart A).** Due to Russia's role as a major exporter of energy products and other commodities, the euro area has typically recorded a current account deficit vis-à-vis Russia. The bilateral deficit was largest over the period 2010-14 when it averaged 0.3% of euro area GDP, as energy prices were at elevated levels. The deficit started to trend downwards thereafter, averaging 0.1% of GDP over the period 2015-19, before turning into a small surplus in 2020 in line with reduced energy imports during the coronavirus (COVID-19) pandemic. However, in the first quarter of 2022 the bilateral current account balance recorded – in annual terms – a deficit in excess of 0.3% of euro area GDP for the first time since 2014. The deficit increased further to 0.5% of GDP in the second quarter of 2022, constituting the historically largest euro area deficit vis-à-vis Russia and the euro area's second largest bilateral deficit in that quarter, exceeded only by the deficit vis-à-vis China (which reached 1% of euro area GDP).<sup>1</sup> Overall, the worsening of the euro area's bilateral current account balance with Russia between the second quarter of 2021 and the second quarter of 2022, amounting to 0.6 percentage points of GDP, accounted for about a quarter of the narrowing of the euro area current account surplus from 2.8% to 0.6% of GDP over that period.

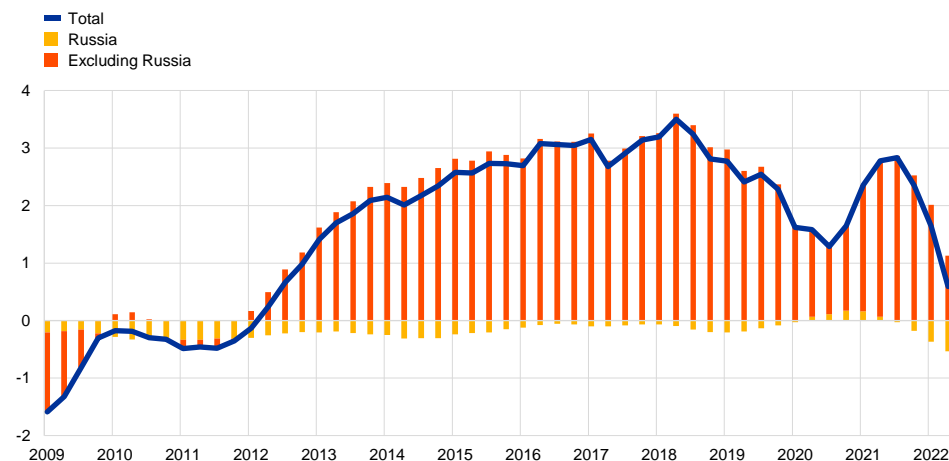
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<sup>1</sup> The bilateral euro area current account series are available since 2008.

## Chart A

### Euro area current account

(four-quarter cumulated flows, percentage of GDP)



Sources: ECB and Eurostat.

**The bilateral current account deficit vis-à-vis Russia increased on account of the rising value of nominal imports, largely in the form of energy products, and the fall in exports driven by the EU sanctions (see Chart B).<sup>2</sup>** Energy imports

from Russia were the primary contributor to the worsening of the bilateral current account balance, as the value of energy imports reached 1% of euro area GDP in the first half of 2022 – almost doubling year on year. This was driven by the surge in energy prices leading to rising nominal imports, despite the fact that lower quantities were imported from Russia: at the end of Q2 2022, values for energy imports were 60% above 2021 average levels, while volumes were 16% below them.<sup>3</sup> In addition, the value of non-energy goods and services imports from Russia also rose in the first half of 2022 amid increasing prices. At the same time, euro area goods and services exports to Russia decreased sharply in the first half of 2022 as the EU implemented sanction packages against Russia following its invasion of Ukraine, with exports of goods subject to sanctions driving this decline (e.g. electrical machinery and vehicles and transport equipment).<sup>4</sup> In particular, exports of goods to Russia almost halved in value from a multi-year peak of around €21 billion in the last quarter of 2021 to a historical low of around €11 billion in the second quarter of 2022<sup>5</sup>, underpinned by a steep decline in the quantities of goods exported. A similar picture emerges for euro area exports of services to Russia, as transport and other business-related services recorded considerable declines in the first half of 2022, while exports of travel services to Russian tourists dropped in the second quarter of 2022, to a low

<sup>2</sup> See [Council of the EU: EU sanctions against Russia explained](#).

<sup>3</sup> The latest monthly trade in goods data show that volumes of euro area energy imports from Russia continue to decrease sharply, with the volume of energy imports in August 2022 being more than 30% lower than the 2021 average levels.

<sup>4</sup> For details on the effect of sanctions on global trade flows to Russia, see the box entitled “[Trade flows with Russia since the start of its invasion of Ukraine](#)”, *Economic Bulletin*, Issue 5, ECB, 2022.

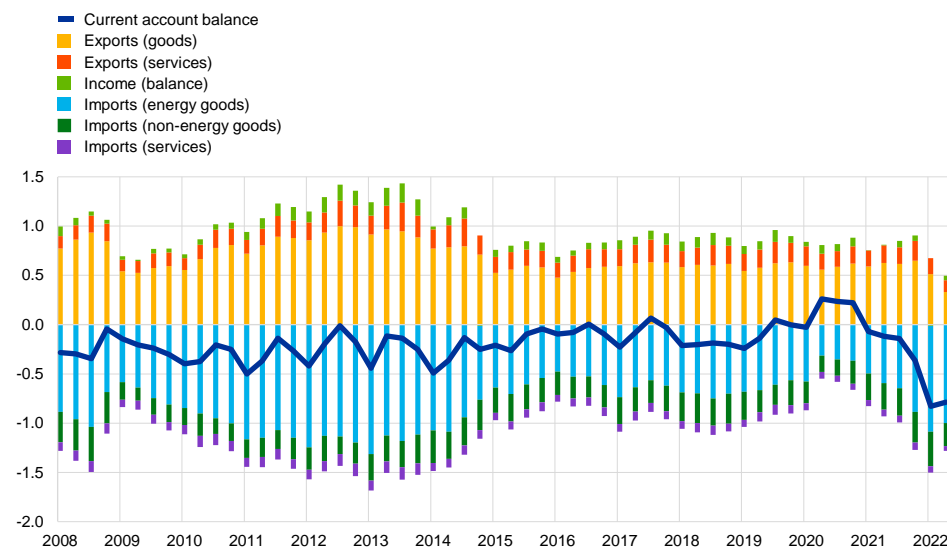
<sup>5</sup> Comparable drops in the value of euro area goods exports to Russia were also seen in the aftermath of the 2008 financial crisis and the 2014 Crimea invasion, when bilateral euro area exports almost halved compared with previous periods. The decline in exports in the first half of 2022 is however steeper than in these two earlier episodes as the value of euro area exports to Russia halved – reaching a historical low – in just two quarters.

previously only seen in 2020 when movement across borders was severely limited due to the pandemic.

## Chart B

### Euro area current account vis-à-vis Russia

(quarterly flows, percentage of GDP)



Sources: ECB and Eurostat.

Notes: Euro area imports are shown with a minus sign. Total goods trade is included as published in the ECB's balance of payments statistics, while energy goods trade is based on Eurostat trade statistics. Income balance includes the balances on primary income (e.g. compensation of employees, dividends and interest) and on secondary income (such as international cooperation and workers' remittances).

## Financial linkages

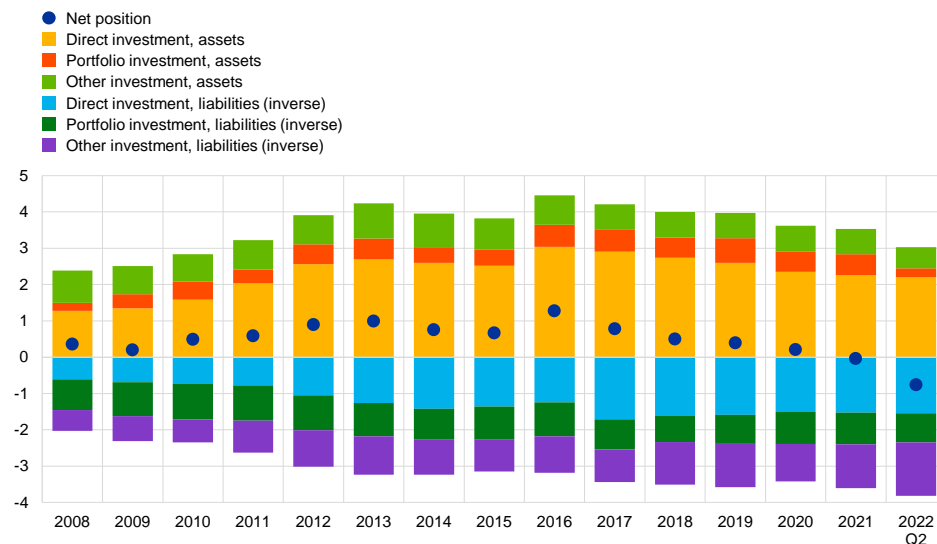
**Euro area financial exposures to Russia before Russia's invasion of Ukraine were relatively limited, with foreign direct investment (FDI) being the most important component.** At the end of 2021 total assets and total liabilities vis-à-vis Russia amounted to less than 4% of euro area GDP, compared to total foreign assets and liabilities of the euro area of close to 250% of GDP (Chart C). FDI accounted for the largest share of bilateral investment<sup>6</sup> (63% and 42% of total assets and liabilities respectively), followed by other investment (19% and 33% of total assets and liabilities respectively) and portfolio investment (16% and 24% of total assets and liabilities respectively).

<sup>6</sup> Bilateral euro area FDI figures are strongly affected by the structure of multinational corporations, which often set up holding companies in euro area financial centres, implying a distorted view of the size, geography and economic sectors involved in FDI linkages. Around two-thirds of the bilateral FDI linkages between Russia and the euro area involve Cyprus and the Netherlands, with large bilateral positions both in assets and liabilities, suggesting that entities resident in these two euro area countries are acting as intermediaries within complex FDI arrangements.

**Chart C**

### Euro area international investment position vis-à-vis Russia

(end-of-period values, percentage of GDP)



Sources: ECB and Eurostat.

Notes: Euro area liabilities are shown with a minus sign. Bilateral positions in financial derivatives are not shown separately, as data are available only from the end of 2013 and account for a small proportion of bilateral assets and liabilities (less than 0.1% of GDP).

### Euro area holdings of Russian assets have declined since the start of the war, while liabilities vis-à-vis Russia have increased due to the impact of EU sanctions.

Euro area holdings of Russian assets declined by 10% between the end of the fourth quarter of 2021 and the end of the second quarter of 2022. This drop was mainly due to a reduction in the value of euro area holdings of Russian portfolio investment securities, which decreased by 55% over this period, while other investment assets decreased by 12%. FDI positions remained broadly unchanged as a result of the euro exchange rate changes vis-à-vis the rouble that offset euro area companies' disinvestment. Over the same period, euro area liabilities vis-à-vis Russia increased by 11%. This was mainly driven by a 28% increase in liabilities in other investment, resulting from the EU sanctions. In particular, the restrictions on payments to Russian residents and asset freezes led to increased deposits in euro area banks vis-à-vis Russian residents as funds owned by Russian residents (e.g. generated by blocked coupon payments and redemptions of securities held in custody in the euro area) were prohibited from being transferred to Russia.<sup>7</sup>

### Following Russia's invasion of Ukraine euro area residents broadly divested from Russian assets (see Chart D).

While euro area investors had already started to retrench from Russian assets after the outbreak of the coronavirus (COVID-19) pandemic in 2020 – mainly affecting FDI – the divestment in the first half of 2022 also involved portfolio and other investment. Amid the turbulences in Russian financial markets following Russia's invasion of Ukraine, euro area residents divested more than €10 billion from Russian portfolio investment equity and debt instruments. Several euro area companies also started to close down and sell their

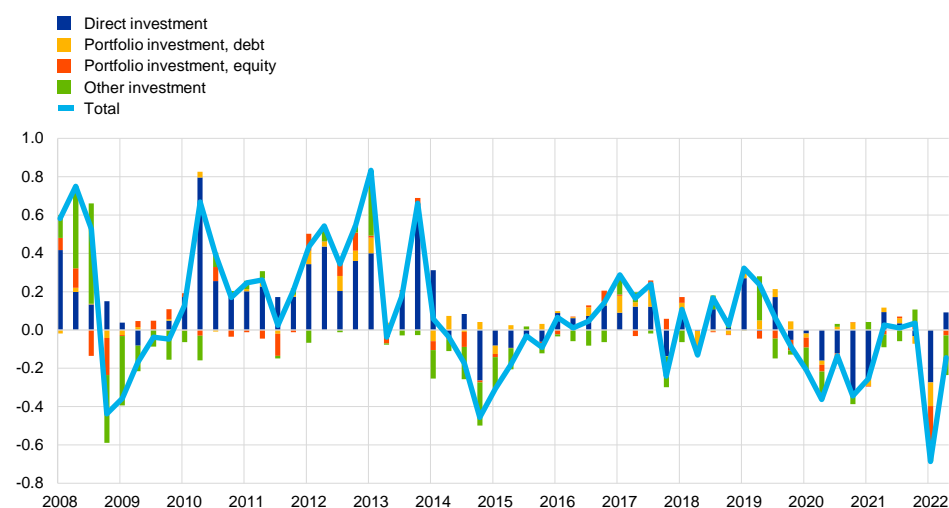
<sup>7</sup> For instance, the sanctions affected the balance sheet of financial market infrastructure services provider [Euroclear](#).

Russian subsidiaries, resulting in net divestments in FDI. Taking a longer term perspective, euro area investors' activities in Russian assets had already been rather subdued over the past decade, in particular as euro area investors divested from Russian assets in the aftermath of the Russian annexation of Crimea in 2014, which led to several EU sanctions packages.

#### Chart D

##### Euro area net purchases of Russian financial assets

(quarterly flows, percentage of GDP)



Source: ECB.

Note: A positive (negative) number indicates net purchases (sales) of Russian instruments by euro area investor.

# Article

## 1 Risk sharing in the euro area: a focus on the public channel and the COVID-19 pandemic

Prepared by Jacopo Cimadomo

### 1 Introduction

**The reform of the architecture of Economic and Monetary Union (EMU) has been at the centre of an economic and policy debate which has, recently, also been shaped by the events related to the coronavirus (COVID-19) pandemic and Russia's war in Ukraine.** There are two fundamental dimensions in this debate. The first concerns the measures a country can take to reduce exposure to economic risks or to mitigate their effects (e.g. eliminating price and wage rigidities, building fiscal buffers or strengthening macroeconomic resilience). The second involves the notion of international risk sharing, which relates to the cross-border channels available to insure domestic disposable income and consumption against country-specific output shocks (as opposed to shocks hitting the euro area as a whole).

**In this context, risk sharing is the capacity of an economy to absorb country-specific shocks by insuring against them in capital markets or by buffering through credit or fiscal transfers.** When an economy is hit by a shock specific to that country or suffers more than others from a shock common to a group of countries, such as a pandemic or a war, there are three main channels through which the impact on disposable income and consumption can be smoothed out: the capital channel, the credit channel and the fiscal channel. The first two are predominantly private channels, while the last is public. The different channels can be interrelated. For example, they can reinforce each other or they can work as substitutes, e.g. one channel may become more powerful and in part replace another. They can operate at the international level, or between regions or federal states within a single country.

**As regards the first channel, the effects of a shock may be dampened if the households and firms in the country hit by the shock obtain income flows from other countries (or regions) not affected by the shock.** This is generally referred to as the “capital” channel and mainly operates through revenues from financial assets held abroad.<sup>1</sup> The strength of this channel is greater the deeper the cross-regional financial integration.

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<sup>1</sup> This channel also includes workers' remittances from other countries or regions. For large advanced economies, these are typically very small (i.e. less than 1% of GDP), but for small advanced economies they can be more sizeable (i.e. up to around 3% of GDP). See [World Bank data on migration and remittances](#).

**The second channel (the “credit” channel) operates when households and firms in the country hit by an adverse shock protect their consumption by resorting to savings in the domestic economy or credit from other countries.**

This primarily includes credit from (domestic and foreign) financial intermediaries, but also from foreign governments and/or European and international institutions (e.g. the European Union and the International Monetary Fund), which provide loans in the context of economic adjustment or other programmes.

**The third channel operates if the effects of the shock are smoothed out through fiscal transfers and is typically referred to as the “fiscal” or “budgetary” channel.** Such transfers are drawn from a central or federal budget.

This channel may operate across countries or between states and regions in a single country. Until the Next Generation EU (NGEU) programme was launched, the budgetary channel was very small in the euro area. The resources were largely limited to EU structural and cohesion funds, which are in fact disbursed to promote convergence between national economies rather than to achieve stabilisation. In the United States, however, this channel is estimated to cushion between 10% and 20% of adverse shocks, owing to the sizeable US federal budget.

**This article reviews the literature on risk sharing, puts forward some estimates of how risk sharing has operated in the euro area over the last 25 years, and finally discusses some reform proposals.**

The proposed reforms may help to increase fiscal risk sharing in the euro area, which is still substantially underdeveloped. The review highlights that risk-sharing mechanisms across euro area countries have been weaker than in the United States, mainly because of a lower degree of risk sharing through European capital markets.

**Empirical analysis points to an improvement in risk sharing since the start of the pandemic, i.e. between 2020 and 2022, which is explained mainly by a stronger credit channel.<sup>2</sup>** While an exact identification of the drivers of this channel is not possible, this evidence suggests that the provision of unprecedented policy support reduced the risk of cross-border financial flows coming to a sudden halt, thus preventing a severe disruption of private risk sharing.

**Evaluating risk sharing is paramount for countries in a monetary union, given that these economies cannot react to a country-specific shock or impact from a common shock through autonomous monetary policy or nominal exchange rate adjustment.** Building national fiscal buffers, eliminating structural rigidities and also strengthening private and public risk-sharing channels are central to enhancing the capacity of the euro area to cope with future shocks. This is the main rationale for most proposals to improve the institutional architecture of EMU, some of which are reviewed in this article.

This article is organised as follows. Section 2 reviews selected contributions from the vast body of risk-sharing literature. Section 3 presents our empirical analysis.

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<sup>2</sup> See Cimadomo, J., Gordo Mora, E. and Palazzo, A.A., “[Enhancing private and public risk sharing: Lessons from the literature and reflections on the COVID-19 crisis](#)”, *Occasional Paper Series*, No 306, ECB, September 2022.

Section 4 discusses some existing reform proposals for enhancing public risk sharing in the euro area, and Section 5 sets out the conclusions.

## 2 Findings from the literature

**The literature on international risk sharing has grown considerably over the past three decades, especially since the seminal paper on risk sharing in the United States by Asdrubali, Sørensen and Yosha in 1996.**<sup>3</sup> The paper finds that, between 1963 and 1990, 75% of shocks to the per capita gross product of individual US states were smoothed out, leaving a relatively small share of shocks that were not absorbed. Looking at the different channels, 39% of income shocks were smoothed out by cross-ownership of assets and 23% by borrowing or lending. Only 13% of income shocks were absorbed by federal tax transfers and grant schemes.<sup>4</sup> Overall, the paper shows that in the United States state-specific shocks were, for the most part, smoothed out through private risk-sharing channels, i.e. market transactions, rather than through public channels.

**The literature suggests that the level of risk sharing among the EU countries has been significantly lower not only than in the United States but also than between regions within EU countries such as Germany, France, Italy and, to a lesser extent, Spain.** This is reflected in Table 1, which presents some results from the literature. Papers are grouped according to whether they focus on EU countries, the United States or other countries. The table also shows the specific estimates for each channel. Chart 1 summarises the findings of the papers referred to in Table 1 by showing the average, for each country and the EU countries as a group, for each risk-sharing channel.

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<sup>3</sup> Asdrubali, P., Sørensen, B.E. and Yosha, O., "Channels of Interstate Risk Sharing: United States 1963-1990", *The Quarterly Journal of Economics*, Vol. 111, No 4, November 1996, pp. 1081-1110.

<sup>4</sup> Malkin, I. and Wilson, D.J., "Taxes, Transfers, and State Economic Differences", *FRBSF Economic Letter*, Federal Reserve Bank of San Francisco, No 2013-36, December 2013, showed that the fiscal channel in the United States operates mainly through differences in federal tax payments across US states, rather than through transfer payments from federal programmes and services.



**Table 1**

Summary of the findings of the literature on risk sharing

**EU countries**

			Capital markets	Public transfers	Credit channel	Non- smoothed
Del Negro (1998)	1967-1990		0.00	0.02	---	---
Asdrubali and Kim (2004)	1960-1990	Impact	0.04	0.00	0.43	0.53
		Cumulative	-0.01	-0.01	0.24	0.79
Poncela et al. (2016)	1960-2014	Impact	0.00	0.00	0.25	0.75
		Cumulative	0.03	0.02	0.18	0.78
	1999-2014	Impact	0.01	0.00	0.13	0.86
		Cumulative	0.09	0.02	0.00	0.89
Ferrari and Rogantini Pico (2017)	1990-2014	All countries	---	0.07	0.42	0.55
		Non-stressed	-0.20	0.08	0.61	0.50
		Stressed	---	0.07	0.39	0.52
Furceri and Zdzienicka (2015)	1979-2010	Normal times	0.08	0.04	0.31	0.66
		Financial crises and downturns	-0.07	0.02	0.15	0.90
Nikolov (1996)	2000-2015		0.06	0.00	0.18	0.76
Kalemli-Ozcan et al. (2013)	1990-2007	All countries	0.05	0.00	0.49	0.46
		Stressed	0.12	0.00	0.31	0.57
Milano (2017)	1970-2014		0.01	0.00	0.27	0.72
	1999-2014		0.03	0.00	0.30	0.67
	2007-2014		0.02	0.00	0.39	0.59
Afonso and Furceri (2008)	1980-2005		0.01	0.02	0.39	0.58
	1998-2005		0.14	0.01	0.25	0.60
Hoffmann, Maslov, Sørensen and Stewen (2018)	1998-2013		0.01	0.02	0.39	0.58
	1998-2005		0.14	0.01	0.25	0.60
Alcidi et al. (2017)	1998-2013		0.10	0.01	0.14	0.75
Cimadomo et al. (2018)	1998-2016		0.20	0.05	-0.05	0.80

**United States**

			Capital markets	Public transfers	Credit channel	Non- smoothed
Del Negro (1998)	1969-1994		0.40	0.14	---	---
Asdrubali, Sørensen, Yosha (1996)	1963-1990		0.39	0.13	0.23	0.25
Asdrubali and Kim (2004)	1960-1990	Impact	0.34	0.07	0.21	0.38
		Cumulative	0.36	0.15	0.14	0.36
Nikolov (1996)	1964-2013		0.45	0.08	0.27	0.18
Melitz and Zumer (1999)	1964-1990		0.24	0.13	0.24	0.39
Alcidi et al. (2017)	1998-2013		0.48	0.08	0.27	0.17
Cimadomo et al. (2018)	1998-2016		0.30	0.10	0.20	0.40

## Other countries

			Capital markets	Public transfers	Credit channel	Non-smoothed
Hepp and Von Hagen (2013)	1970-1994	Western Germany	0.20	0.54	0.17	0.09
	1995-2006	Germany	0.50	0.11	0.18	0.22
Hauptmeier, Holm-Hadulla, Renault (forthcoming)	2000-2018	France	0.81	0.06	0.04	0.09
Melitz and Zumer (1999)	1984-1992	Italy	0.49	-0.01	-0.04	0.55
Dedola et al. (1998)	1983-1992	Italy	0.67	0.18	0.15	0.00
Fiorelli, Giannini, Martini (2020)	2000-2016	Italy	0.43	0.17	0.16	0.24
Alberola and Asdrubali (1997)	1973-1993	Spain	0.25	0.03	0.23	0.49
Melitz and Zumer (1999)	1972-1996	United Kingdom	0.34	0.00	0.05	0.61
Dedola et al. (1998)	1978-1994	United Kingdom	0.40	0.00	0.27	0.33
Melitz and Zumer (1999)	1962-1994	Canada	0.30	0.08	0.25	0.37

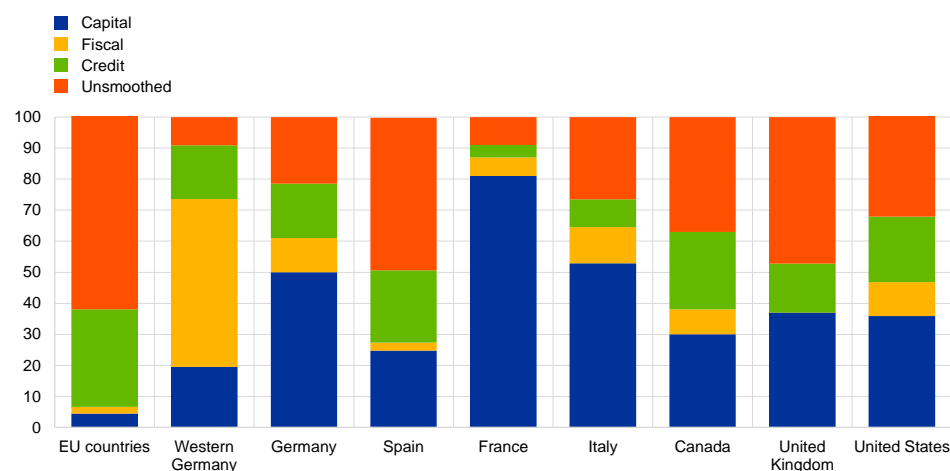
Source: Cimadomo, Gordo Mora and Palazzo, see footnote 2.

Note: The table shows the share of country-specific output shocks that were smoothed out through the capital, credit and fiscal channels in the United States, EU countries and other countries, together with the share of unsmoothed shocks, as estimated in the papers selected. The sum of the four columns is by construction equal to one. Full references for the papers shown are available in the paper cited in footnote 2.

## Chart 1

Strength of the risk-sharing channels in the countries covered by the literature reviewed in this article

(percentages)



Source: Cimadomo, Gordo Mora and Palazzo, see footnote 2.

Note: The chart shows the average values for the country or countries and for each channel referred to in Table 1.

**The degree to which risk is shared through capital markets is the key difference between the United States and Europe, with the capital market playing a much more important role in the United States.** This channel smooths out close to 40% of shocks to domestic income in the United States. In the EU, however, the role it plays is comparatively small. This may be due to the fact that equity markets are less developed in Europe, to the greater propensity to invest inter-regionally (i.e. across states) in the United States, and to the fact that cross-

border investment in the EU is concentrated in just a few Member States.<sup>5</sup> The bulk of risk sharing in the euro area and the EU takes place through the credit channel, but this channel appears to be insufficient to compensate for the weaknesses of the other channels.

**Some papers have focused on different groups of countries within the euro area and on sub-samples, distinguishing in particular between the pre- and post-global financial crisis periods.** Kalemli-Ozcan et al.<sup>6</sup> were among the first to look at the global financial crisis of 2008-10 and to focus separately on more and less stressed euro area countries. Their findings suggest that, during that crisis, the capital channel did not provide any risk sharing for stressed countries. On the contrary, it may have acted as a shock amplifier. More recently, Cimadomo et al.<sup>7</sup> looked at intra-euro area financial flows on the basis of a sample of 11 euro area countries, finding that only about 40% of shocks were absorbed in the early years of EMU, while in the aftermath of the sovereign debt crisis that began in 2009 around 65% of shocks were smoothed out. This can be attributed in part to the activation of official financial assistance for countries under stress, namely the Greek Loan Facility, the European Financial Stability Facility, the European Financial Stabilisation Mechanism and the European Stability Mechanism (ESM) (see also Milano and Reichlin<sup>8</sup>).

**As regards individual countries, the literature generally suggests that the effectiveness of risk sharing at the inter-regional level tends to be higher than at the international level.** For Germany, Hepp and von Hagen found a very high level of risk sharing across western German regions in the period from 1970 to 1994 (before and immediately after unification): 91% of shocks to per capita state gross product were smoothed out.<sup>9</sup> In the post-unification period this level – for the unified country – decreased somewhat but remained high (at about 80%). A significant contribution in the post-unification period came from federal tax transfers and the grant system, but also from the capital channel.<sup>10</sup> The analysis presented in Hauptmeier et al. also points to a very high degree of inter-regional risk sharing in France, mainly owing to a strong capital channel.<sup>11</sup> Risk sharing appears to be of a

<sup>5</sup> See Milano, V. and Reichlin, P., “Risk-sharing across the US and EMU: The role of public institutions”, *Policy Brief*, No 9, LUISS School of European Political Economy, January 2017; and Véron, N. and Wolff, G.B., “Capital Markets Union: A Vision for the Long Term”, *Journal of Financial Regulation*, Vol. 2, No 1, March 2016, pp. 130-153.

<sup>6</sup> Kalemli-Ozcan, S., Luttini, E. and Sørensen, B., “Debt Crises and Risk-Sharing: The Role of Markets versus Sovereigns”, *The Scandinavian Journal of Economics*, Vol. 116, No 1, January 2014, pp. 253-276.

<sup>7</sup> Cimadomo, J., Ciminelli, G., Furtuna, O. and Giuliadori, M., “Private and public risk sharing in the euro area”, *European Economic Review*, Vol. 121, January 2020.

<sup>8</sup> Milano, V. and Reichlin, P., op. cit.

<sup>9</sup> Hepp, R. and von Hagen, J., “Interstate risk sharing in Germany: 1970–2006”, *Oxford Economic Papers*, Vol. 65, No 1, January 2013, pp. 1-24. See also Buettner, T., “Fiscal federalism and interstate risk sharing: empirical evidence from Germany”, *Economics Letters*, Vol. 74, No 2, January 2002, pp. 195-202, for an analysis of the smoothing of state-specific shocks in western Germany through fiscal institutions over the period 1970-97.

<sup>10</sup> The ECB’s 2020 [Financial Integration and Structure Report](#) looked at unlisted shares, i.e. private ownership (including cross-border) of non-listed companies, which were found to account for a larger share of financing in the EU than in the United States. This may explain why Hepp and von Hagen (see footnote 9) and Hauptmeier et al. (see footnote 11) found that risk sharing through capital markets in Germany and France is surprisingly high.

<sup>11</sup> Hauptmeier, S., Holm-Hadulla, F. and Renault, T., “Risk-sharing and monetary policy transmission”, *Working Paper Series*, ECB, forthcoming.

similar order of magnitude for Italy (around 75% of shocks smoothed out), whereas it seems to have been lower, i.e. about 50%, for Spanish regions (Alberola and Asdrubali).<sup>12</sup> Canada and the United Kingdom exhibit a slightly lower level of risk sharing than the United States, but higher than the level across EU countries (see Chart 1).

### 3 Estimates of risk sharing for the euro area

**New empirical analysis has been carried out for the euro area estimating the overall degree of risk sharing and the contribution of the different risk-sharing channels for the period 1997-2022.**<sup>13</sup> The analysis covers first the full sample, then is based on 12-year windows to evaluate how risk sharing has evolved over time.

**The analysis focuses on how country-specific GDP shocks affect consumption and the role played by the three risk-sharing channels in absorbing these shocks.**<sup>14</sup> Chart 2 shows the effect of a country-specific GDP shock on consumption growth at various time horizons. The panels depict the response of each channel in the same year and then the cumulative responses after one, two, three and four years. The total impact is normalised at 100 at every horizon. For example, if a recession occurs in year  $t$  and there is no risk sharing, this will translate into a one-to-one contraction of consumption and the “unsmoothed” bar will take a value of 100, while the other bars will be at zero. In the opposite case, where there is full risk sharing, the unsmoothed bar will be at zero, and the sum of the capital, fiscal and credit channels will be 100.

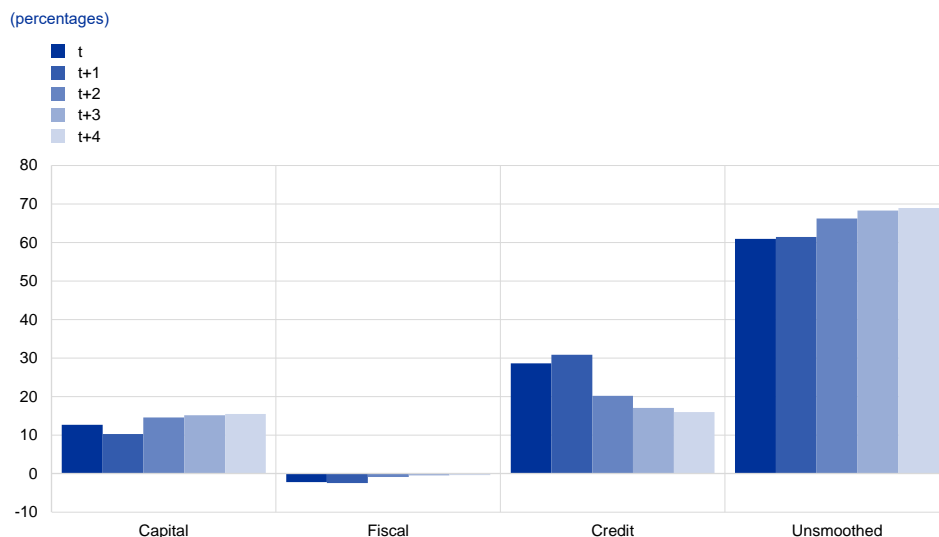
<sup>12</sup> Alberola, E. and Asdrubali, P., “How Do Countries Smooth Regional Disturbances? Risk sharing in Spain: 1973-1993”, *Documento de Trabajo*, No 9724, Servicio de Estudios, Banco de España, Madrid, January 1997. See also Burriel, P., Chronis, P., Freier, M., Hauptmeier, S., Reiss, L., Stegarescu, D. and Van Parys, S., “A fiscal capacity for the euro area: lessons from existing fiscal-federal systems”, *Occasional Paper Series*, No 239, ECB, April 2020, for a comparative analysis of the degree of fiscal risk sharing in selected European countries.

<sup>13</sup> See Cimadomo, J., Gordo Mora, E. and Palazzo, A.A., op. cit. The empirical analysis is based on the methodology developed in Asdrubali, P. and Kim, S., “Dynamic risk sharing in the United States and Europe”, *Journal of Monetary Economics*, Vol. 51, No 4, May 2004, pp. 809-836. The same methodology was used in *Financial Integration in Europe*, ECB, May 2017 and in the article entitled “Risk sharing in the euro area”, *Economic Bulletin*, Issue 3, ECB, 2018.

<sup>14</sup> The capital channel is reflected in the difference between gross domestic product (GDP) and gross national product (GNP). This difference is equal to income from financial assets held abroad and from employment abroad of citizens of the domestic country. The fiscal channel is captured by the difference between GNP and gross domestic income (GDI), which stems partly from cross-border transfers between governments (e.g. structural funds in the case of the EU). The credit channel is reflected in the difference between GDI and consumption (both private and public). This includes, for example, borrowing abroad by individuals and governments, either in credit markets or through supranational insurance mechanisms such as the ESM. Recovery and Resilience Facility loans would also fall under this channel. In the empirical model, a “panel VAR” model, a GDP shock is defined as a (positive or negative) unexpected change in a country’s GDP which does not depend on a common (euro area-wide) shock.

## Chart 2

### Euro area: transmission of output shocks to consumption and the smoothing channels



Source: Cimadomo, Gordo Mora and Palazzo, see footnote 2.

Notes: The chart depicts the effect of a GDP shock on consumption growth at various time horizons on the basis of impulse responses generated by a panel VAR model. The first bar represents the contemporaneous response of each channel, i.e. in the same year in which the output shock occurred. The cumulative responses after one, two, three and four years are then given. The sum of all channels and the unsmoothed part is normalised at 100 at every horizon. Generally, bars are statistically significant at conventional levels when they are larger than 10%. The sample is for the period 1997-2022.

**The sample used in the empirical analysis encompasses 11 euro area countries: Belgium, Germany, Greece, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal and Finland.<sup>15</sup>** Data were retrieved from the European Commission's annual macroeconomic database (AMECO), spring 2022 vintage.<sup>16</sup>

**Chart 2 shows that risk sharing operated more effectively in the short to medium term, i.e. in the year of the shock and the following year (t and t+1).**

The effectiveness of risk-sharing mechanisms weakens over time, as reflected in the “unsmoothed” bars, which increase over the four-year horizon. The largest contribution was from the credit channel, which dampened about 30% of the output shock within the first two years. The contribution of the capital channel was relatively stable, at around 10% over the horizon, while the contribution of the fiscal channel was, on the whole, negligible. The share of unsmoothed shocks increased from around 60% to around 70% at the four-year horizon. This might be due to offsetting forces occurring over time: for example, if credit from abroad is received by domestic residents (credit channel) one or two years after a recession starts, there might be other developments in international credit markets at that time which blur the smoothing effect to some extent.

**To evaluate how risk sharing has evolved over the last two decades, the effects of a GDP shock on consumption are estimated on the basis of 12-year**

<sup>15</sup> Ireland was excluded from the analysis owing to unusually large revisions, made in July 2016, of some of the country's main macroeconomic statistics for 2015.

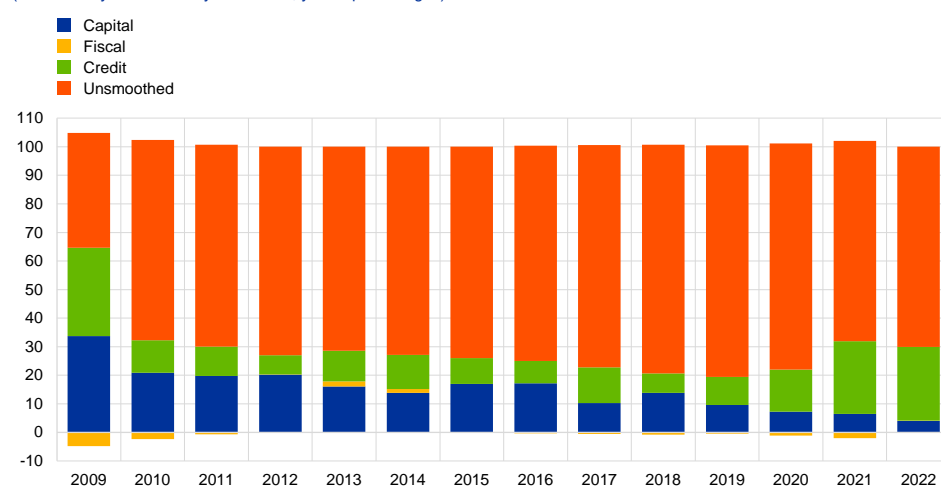
<sup>16</sup> The sample also includes preliminary forecasts for 2022 which, although they might be revised to some extent in the future, help to provide initial insights into developments during the COVID-19 crisis.

**rolling windows.** The results are reported in Chart 3. In the chart, each bar represents the contributions of the three channels – together with the share of unsmoothed shocks – in a specific 12-year window (which ends in the year shown on the x-axis). For example, the 2022 bar shows estimates for the sample 2010-22.<sup>17</sup> Year-on-year variation in the channel shares shown reflects changes in the model parameters for each window. As in Chart 2, the remaining portion represents the share of the shock to country-specific real GDP growth that remains unsmoothed and is therefore fully reflected in country-specific consumption growth.

### Chart 3

#### Euro area: changes in consumption risk sharing and the smoothing channels

(x-axis: end-year of the 12-year window; y-axis: percentages)



Source: Cimadomo, Gordo Mora and Palazzo, see footnote 2.

Notes: The chart shows the percentage of consumption growth that is smoothed out through the capital, fiscal and credit channels, as well as the unsmoothed component, following a shock to domestic GDP. These contributions are computed on the basis of the cumulative impact of the shock at the two-year horizon. The contributions of the channels are calculated using a panel VAR model based on parameters estimated over a 12-year rolling window of annual data. The x-axis shows the end-year for the 12-year window. The sample is for the period 1997-2022.

**Chart 3 shows that the share of unsmoothed shocks increased in the euro area when the global financial crisis of 2008-10 was included in the sample.** Indeed, over that period the role of the capital and credit markets became progressively less important, possibly reflecting financial market investor flight to safety and procyclical cross-border lending. It could also reflect the limited progress in the EU on the banking union and capital markets union, which, if fully operative, could have prevented such a large decline in the capital and credit channels. However, the significant decline in risk sharing slowed in the period 2011-12. This might be in part attributable to the activation of official assistance programmes in the euro area, which are likely to have had a positive effect on risk sharing (see Cimadomo et al.<sup>18</sup>). Moreover, the then ECB President Mario Draghi's "*whatever it takes*" speech on 26 July 2012, the ECB's announcement of the introduction of Outright Monetary Transactions on 2 August 2012 and its subsequent monetary policy measures probably further contributed to the prevention of financial fragmentation in EMU.

<sup>17</sup> The bars represent the cumulative responses two years after the shock has occurred. This is comparable to the t+2 bars in Chart 2, although the latter are estimated over the full sample.

<sup>18</sup> Cimadomo, J., Ciminelli, G., Furtuna, O. and Guiliadori, M., op. cit.

**When the sample included the COVID-19 crisis, there was an improvement in risk sharing, mainly attributable to the credit channel.** While an exact identification of the drivers of this channel is not possible in this framework, this evidence suggests that the provision of very strong policy support probably prevented a severe disruption of private risk sharing, reducing the risk of cross-border financial flows coming to a sudden halt.<sup>19</sup>

**In particular, on top of the fiscal support provided at the national level, which helped to prevent economic fragmentation, there were significant advances in the provision of public support at the EU level.** This included, initially, a safety net that made a total of €540 billion available in three distinct forms: (i) loans through the ESM to help finance pandemic-related government expenditure; (ii) credit guarantees provided to firms through the European Investment Bank; and (iii) funding of national short-time work schemes.<sup>20</sup> While only the latter measure – the European instrument for temporary Support to mitigate Unemployment Risks in an Emergency” (SURE) – was used to a significant extent, the announcement of these public support initiatives boosted confidence and helped to prevent sudden interruptions of cross-border financial flows.<sup>21</sup>

**By far the most important step forward was the introduction of the EU’s Recovery and Resilience Facility (RRF), the main component of the NGEU package.**<sup>22</sup> This facility is a temporary instrument designed to bolster the recovery and structural transformation of the EU economies through a combination of grants and loans to be financed via debt issuance by the European Commission on behalf of the EU. It amounts to almost €724 billion (in current prices 90% of the total NGEU envelope), and it is estimated that more than four-fifths will be taken up by euro area

<sup>19</sup> Other studies also show that risk sharing was relatively resilient during the COVID-19 crisis. For example, Giovannini, A., Horn, C.-W. and Mongelli, F.P., “An early view on euro area risk-sharing during the COVID-19 crisis”, *VoxEU*, January 2021, suggested that lockdown measures taken to reduce the spread of COVID-19 prevented households from consuming a large share of their normal consumption basket. Consequently, it was suggested that the analysis for this period should focus on income risk sharing, i.e. the ability of a country to separate the change in its GDP from changes in its output, rather than on consumption risk sharing. The findings of these authors indicated that income risk sharing was relatively stable during the crisis. European Commission, Directorate-General for Financial Stability, Financial Services and Capital Markets Union, Alcidi, C., Postica, D., Shamsfakhr, F., et al., *Study on the Analysis of Developments in EU Capital Flows in the Global Context (2021) - Rise and fall after the COVID-19 outbreak*, Publications Office of the European Union, 2022, showed that, unlike in the global financial crisis of 2008-10, the COVID-19 pandemic did not reverse previous trends in global capital flows, which further underpinned income and consumption smoothing.

<sup>20</sup> Other measures adopted at the EU level included the European Investment Bank’s Pan-European Guarantee Fund, and the European Commission’s Coronavirus Response Investment Initiative and REACT-EU programme.

<sup>21</sup> See Bańkowski, K., Bouabdallah, O., Domingues Semeano, J., Dorrucci, E., Freier, M., Jacquinet, P., Modery, W., Rodríguez Vives, M., Valenta, V. and Zorell, N., “The economic impact of Next Generation EU: a euro area perspective”, *Occasional Paper Series*, No 291, ECB, April 2022, for an analysis of the potential macroeconomic impact of the NGEU programme and, in particular, the importance of the confidence effects generated by the launch of SURE and NGEU.

<sup>22</sup> Even in 2020, before the finalisation of countries’ recovery and resilience plans in 2021-22, NGEU had a major effect. Together with the PEPP, NGEU was the “game changer” that restored market confidence for the most vulnerable euro area economies after the sizeable net portfolio outflows and widening spreads they recorded in March 2020 as a result of the pandemic shock.

countries, in particular the countries worst hit by the crisis.<sup>23</sup> In addition, monetary policy measures taken by the ECB, and particularly its targeted longer-term refinancing operations (TLTROs), collateral and prudential measures and pandemic emergency purchase programme (PEPP), have reduced the risk of financial fragmentation during the COVID crisis, thus indirectly preventing a breakdown in risk sharing through the credit and capital channels in this period.<sup>24</sup>

**The COVID-19 pandemic is providing clear and tangible evidence of the benefits of having risk-sharing mechanisms to cope with unexpected and unprecedented shocks with asymmetric effects.** These effects have been shown to depend on, among other things, the stringency of the mitigation strategies applied to contain the crisis, as well as the existing productive structures.<sup>25</sup> In general, what emerges clearly from Chart 3 is the relative weakness of both the private risk-sharing channels (capital and credit) and the fiscal channel in the euro area, at least until the start of the pandemic, after which risk sharing improved to some extent. This suggests that further measures should be taken to help strengthen these channels.

## Box 1

### Risk sharing and monetary policy transmission

Prepared by Sebastian Hauptmeier, Frédéric Holm-Hadulla and Théodore Renault

The literature on optimal currency areas establishes a clear division of labour in the pursuit of macroeconomic stabilisation objectives. The role of monetary policy is to achieve price stability for the currency union as a whole. It therefore aims to limit fluctuations in average macroeconomic outcomes in response to common shocks by adjusting its stance in a way that stabilises inflation at the target. Risk sharing via public and market-based mechanisms can limit the dispersion in macroeconomic outcomes across the currency union by facilitating a geographically differentiated adjustment to asymmetric shocks. Recent research suggests that a particular interaction between these macroeconomic stabilisation tools may arise if monetary policy has uneven effects on different members of a currency union.<sup>26</sup>

Applying the well-established framework proposed by Asdrubali et al.<sup>27</sup> to regionally disaggregated data shows that there is substantial variation in the overall prevalence of intra- and international risk sharing across euro area countries (Chart A, panel a).<sup>28</sup> The extent to which regional fluctuations in GDP were smoothed by the capital market, credit markets and the public sector varied between

<sup>23</sup> These measures are an important milestone in public risk-sharing arrangements, but they are temporary in nature. Codogno, L. and van den Noord, P., "Assessing Next Generation EU", *LSE 'Europe in Question' Discussion Paper Series*, LEQS Paper No 144, London School of Economics and Political Science, February 2021, applied a stylised macroeconomic model and argued that an alternative approach with ex ante risk sharing through the creation of a Eurobond and permanent central fiscal capacity would be at least as powerful, but more sustainable, automatic and timely.

<sup>24</sup> The PEPP is likely to have influenced both the capital channel and the credit channel. However, the methodology used here does not make it possible to clearly isolate the contribution of monetary policy to the effectiveness of these two channels.

<sup>25</sup> See the box entitled "The impact of containment measures across sectors and countries during the COVID-19 pandemic", *Economic Bulletin*, Issue 2, ECB, 2021.

<sup>26</sup> See Hauptmeier, S., Holm-Hadulla, F. and Renault, T., "Risk-sharing and monetary policy transmission", op. cit.

<sup>27</sup> See Asdrubali, P., Sørensen, B.E. and Yosha, O., op. cit.

<sup>28</sup> The analysis relies on NUTS-2 level data, following Eurostat's NUTS classification, which subdivides national territories into regions. The use of regional data allows the amount of risk shared within a country (intranational risk sharing) and between countries (international risk sharing) to be captured.



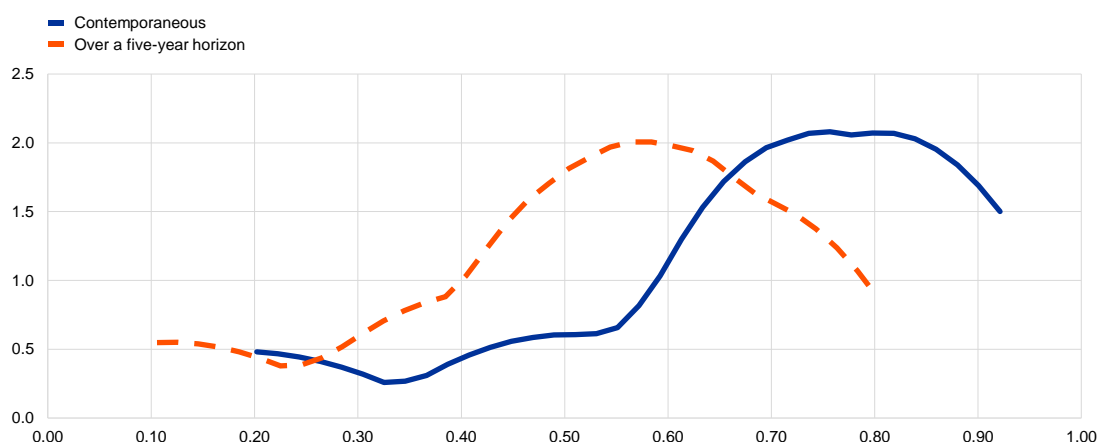
32% and 97% over the period 2000-18.<sup>29</sup> In terms of strength, the capital channel generally emerges as the dominant channel in smoothing out contemporaneous fluctuations. While the credit market and fiscal channels are found to be weaker, the latter – operating via the public transfer and tax system – becomes more impactful over longer horizons. This cross-country variation in risk-sharing intensity and the relative strength of individual channels can be used to empirically assess the implications of inter-regional risk sharing for the real effects of monetary policy.

## Chart A

### The degree of risk sharing in EMU: regional heterogeneity and time profile

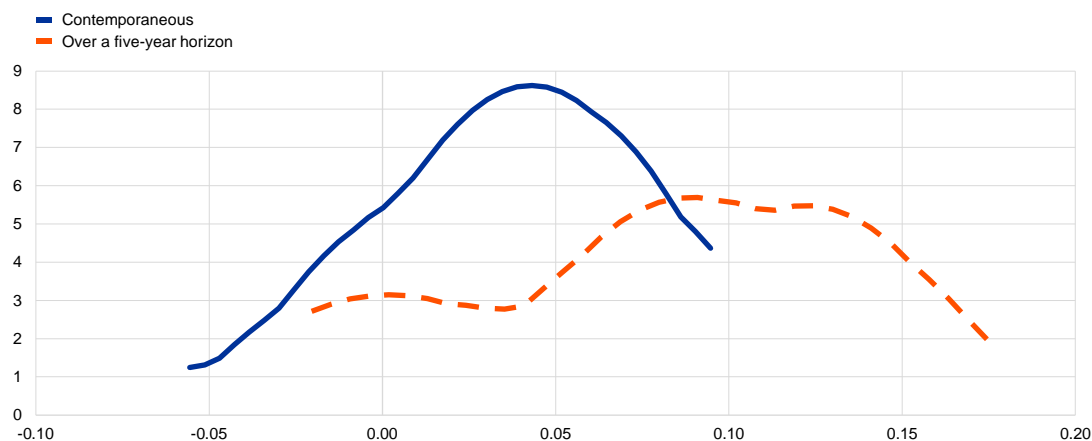
#### a) Degree of risk sharing through the capital channel

(x-axis: percentages; y-axis: density)



#### b) Degree of fiscal risk sharing

(x-axis: percentages; y-axis: density)



Source: Hauptmeier, Holm-Hadulla and Renault, see footnote 11.

Notes: Panels a) and b) show the cross-country density function of the estimated total degree of risk sharing via the capital and fiscal channels respectively. The solid blue line corresponds to the amount of risk sharing achieved contemporaneously; the dashed red line shows risk sharing over a five-year horizon.

Risk sharing plays a key role in shaping the real effects of monetary policy shocks. Panel a) of Chart B shows the estimated impact of a tightening monetary shock on regional output in the euro

<sup>29</sup> These estimates are not directly comparable with those in Section 3 because they refer to inter-regional risk sharing within countries, while those in Section 3 refer to risk sharing across euro area countries.

area, conditional on the degree of inter-regional risk sharing.<sup>30</sup> The regional output contraction after a 100 basis point policy-rate hike is around 1 percentage point shallower for regions attaining the maximum degree of risk sharing in the sample than for those attaining the minimum degree. Moreover, regions with a high degree of risk sharing are less prone to policy-induced hysteresis, i.e. persistent economic effects of interest rate changes: while output in regions with minimum risk sharing remains around 1.5% below its initial level five years after a monetary policy tightening shock, it recovers fully over this period in regions with maximum risk sharing.

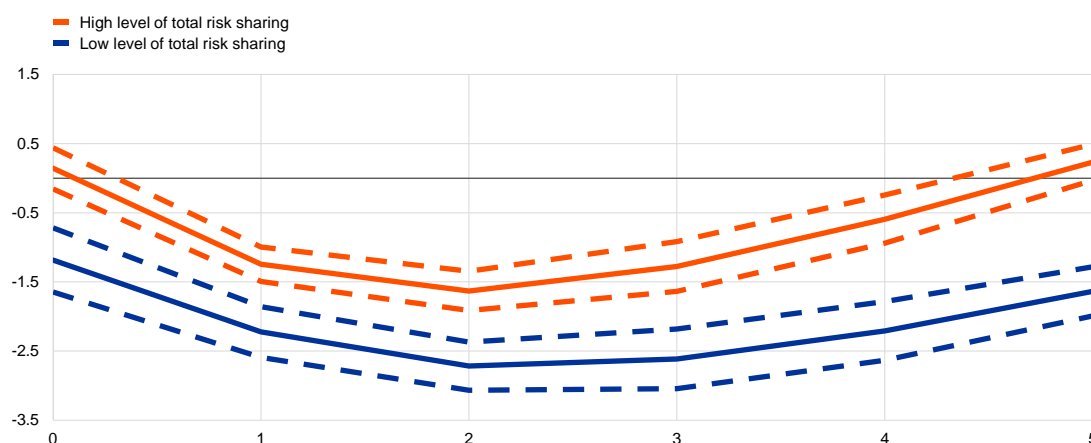
As regards individual channels, fiscal risk sharing proves particularly forceful in determining the persistence of monetary policy effects on poorer regions<sup>31</sup> (Chart B, panel b). For instance, with weak fiscal risk sharing, these regions experience a prolonged output contraction in response to a policy-rate hike. With strong fiscal risk sharing, poorer regions not only face a weaker output contraction but are also insulated from such hysteresis effects. For richer regions, the degree of risk sharing has a more limited differential impact on output. These results suggest that fiscal risk sharing can help prevent economic divergence stemming from regional hysteresis.

## Chart B

Impact of monetary policy on regional output when risk sharing is high or low

### a) Impact on regional output

(x-axis: years; y-axis: percentages)

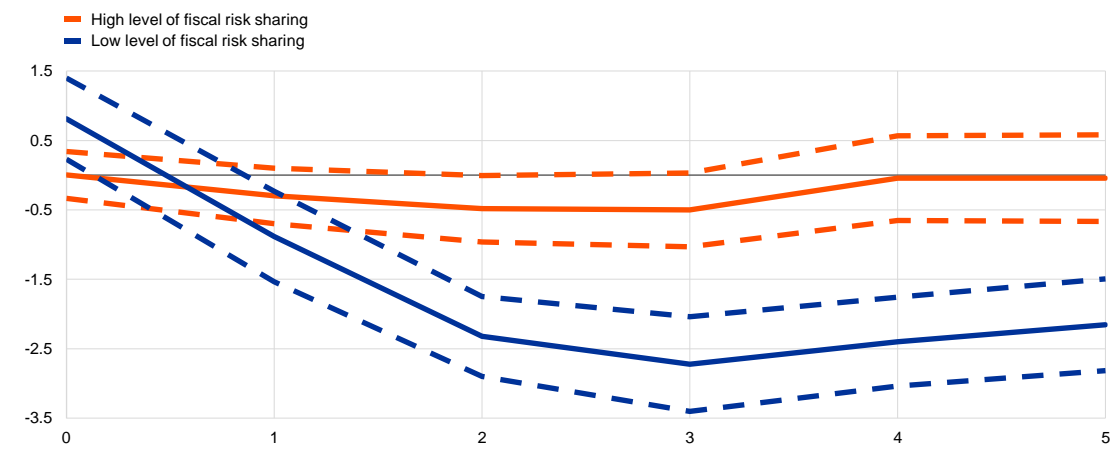


<sup>30</sup> The analysis relies on local linear estimation techniques (see Jordà, O., “Estimation and Inference of Impulse Responses by Local Projections”, *American Economic Review*, Vol. 95, No 1, March 2005, pp. 161-182) and includes an interaction term between the monetary policy rate and the amount of risk sharing in the economy. This captures the extent to which the impact of a monetary policy shock varies with the degree of risk sharing (see Hauptmeier, S., Holm-Hadulla, F. and Renault, T., op. cit., for details of the empirical model and estimation techniques).

<sup>31</sup> Poorer regions are defined as the lowest decile of the GDP distribution.

## b) Impact on output in poorer regions

(x-axis: years; y-axis: percentages)



Source: Hauptmeier, Holm-Hadulla and Renault, see footnote 11.

Notes: Panel a) shows the impact of a 100 basis point policy-rate hike on regional output for low (blue) and high (red) levels of total risk sharing for a sample consisting of 155 regions from ten euro area countries over the period 2000-18 at annual frequency. Panel b) shows the impact of a similar shock on regional output in poorer regions (lowest decile of the GDP distribution) for low (blue) and high (red) levels of fiscal risk sharing. The x-axis refers to the horizon in years of the output response. The effect of the monetary policy shock is estimated with local linear projections, see footnote 30.

## 4 Proposals to enhance public risk sharing

**Market-based risk-sharing mechanisms alone may be not sufficient to allow an economy to withstand severe shocks.**<sup>32</sup> As highlighted in Farhi and Werning, there is an embedded need in a monetary union for government intervention to complement market-driven risk sharing.<sup>33</sup> This is ultimately due to the fact that even with complete markets, market-based insurance is suboptimal in monetary unions, where private agents tend to ignore the macroeconomic stabilisation effects of portfolio choices.<sup>34</sup>

**A central fiscal capacity (CFC) at the euro area level could increase the ability of budgetary policy to absorb common shocks, which can have asymmetric effects on different countries, and country-specific shocks.** This would have the dual aim of softening the effects on individual countries and safeguarding stability in the euro area as a whole in the event of extreme shocks, such as those experienced

<sup>32</sup> See also the discussion in Giovannini, A., Ioannou, D. and Stracca, L., “Public and private risk sharing: friends or foes? The interplay between different forms of risk sharing”, *Occasional Paper Series*, No 295, ECB, June 2022.

<sup>33</sup> Farhi, E. and Werning, I., “Fiscal Unions”, *American Economic Review*, Vol. 107, No 12, December 2017, pp. 3788-3834.

<sup>34</sup> Farhi and Werning do not reach the same conclusion for countries outside a currency union, with flexible exchange rates. As long as these countries exercise independent monetary policy, they can fully offset shocks. Farhi and Werning’s argument for government involvement in international risk sharing relies on membership in a currency union precisely because this constrains monetary policy and prevents the stabilisation of asymmetric shocks. They argue therefore that fiscal and currency unions should go hand in hand.

in the past two decades.<sup>35</sup> A CFC could be particularly powerful when the single monetary policy is constrained by the effective lower bound and therefore has less scope to counteract common shocks. In fact, the presence of a CFC could itself reduce the incidence of episodes where the lower bound constraint becomes relevant, because an aggregate fiscal stimulus via the CFC would alleviate deflationary pressures.

**Some significant institutional advances that could reinforce public risk sharing have been achieved in EMU.**<sup>36</sup> In particular, the ESM could play a role in absorbing country-specific shocks or preventing future crises through its precautionary programmes. In addition, the RRF programme could be seen as an “embryo” of a future CFC, as it provided instruments to counteract the recession caused by the pandemic shock. Despite this progress, however, EMU is still not equipped with a fully fledged CFC aimed at business cycle stabilisation and/or the provision of European public goods.

**Indeed, a CFC could be designed to provide (a) macroeconomic stabilisation and/or (b) other common public goods (e.g. common investments in the green and digital transitions, the attainment of energy autonomy, etc.).**<sup>37</sup> While it is generally thought that only macroeconomic stabilisation can affect risk sharing, the provision of other common public goods may also indirectly influence it, especially during downturns, as this would avoid procyclical cuts in the related public expenditure items and reduce the scale of deficit financing (thus enhancing the capacity to smooth shocks). While both types of fiscal capacity have been addressed in the debate (often mixing elements of the two), the specific proposals reviewed below focus on the function of direct macroeconomic stabilisation.

**Several proposals have been discussed for designing additional cross-country public insurance mechanisms within the euro area, requiring different degrees**

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<sup>35</sup> The Eurosystem reply to the Communication from the European Commission “the EU economy after COVID-19: implications for economic governance” of 19 October 2021, 1 December 2021, states that “a permanent central fiscal capacity, if appropriately designed, could play a role in enhancing macroeconomic stabilisation and convergence in the euro area in the longer run”. See also the [Opinion of the European Central Bank of 9 November 2018 on a proposal for a regulation on the establishment of a European Investment Stabilisation Function](#) (CON/2018/51), OJ C 444, 10.12.2018, p. 11, which mentions that a fiscal capacity “exists in all monetary unions, to better deal with economic shocks that cannot be managed at the national level. If appropriately designed, a common macroeconomic stabilisation function would increase the economic resilience of the individual participating Member States and of the euro area as a whole, thereby also supporting the single monetary policy”.

<sup>36</sup> The Five Presidents’ Report (Juncker, J.-C., Tusk, D., Dijsselbloem, J., Draghi, M. and Schulz, M., *Completing Europe’s Economic and Monetary Union*, European Commission, 2015) describes the institutional development of EMU and provides an initial blueprint for a CFC to be introduced as a permanent euro area macroeconomic stabilisation function to enhance price stability and prevent sovereign contagion and financial fragmentation.

<sup>37</sup> See also “[Europe as a common shield: protecting the euro area economy from global shocks](#)”, keynote speech by Fabio Panetta, Member of the Executive Board of the ECB, at the European Parliament’s Innovation Day “The EU in the world created by the Ukraine war”, 1 July 2022.

**of political ambition.**<sup>38</sup> The existing proposals focus mainly on providing macroeconomic stabilisation via direct transfers to countries in need (Beetsma et al.), through a European investment protection scheme that would shield investment in the event of a downturn (Bara et al.) or, alternatively, through a European unemployment reinsurance scheme (Balassone et al.; Bénassy-Quéré et al.; Dolls).<sup>39</sup> Other proposals envisage a “rainy-day” fund, with countries experiencing a boom being the net payers and countries in downturns being the net receivers (Carnot et al.; Furceri and Zdzienicka; Beetsma et al.).<sup>40</sup> The most ambitious proposals include the creation of an economic government for the euro area, with its own budget for macroeconomic stabilisation, which would have responsibility for a European debt agency entrusted with issuing joint debt instruments.<sup>41</sup>

**All these instruments would reallocate resources inter-temporally, but also across countries in different positions along the economic cycle, thereby contributing to the synchronisation of business cycles in the euro area.** Some papers have simulated what would have happened had such mechanisms been in place since the creation of the euro area (see, for example, Furceri and Zdzienicka; and Koester and Sondermann<sup>42</sup>). Their findings suggest that a CFC of a relatively moderate size would enable the euro area to achieve a stabilising power close to that of federal budget transfers in the United States.

**There are two main potential objections to CFC schemes proposed so far: first, they may create moral hazard and, second, they may lead to permanent transfers among countries.** Moral hazard pertains to the risk that, if a country receives transfers from a central budget, this may weaken its incentive to pursue sound national fiscal policy and implement structural reforms to increase its ability to withstand shocks. This may imply that the country permanently underperforms other euro area countries with respect to some indicators (e.g. per capita GDP growth,

<sup>38</sup> Surveys are included in Balassone, F., Momigliano, S., Romanelli, M. and Tommasino, P., “Just round the corner? Pros, cons, and implementation issues of a fiscal union for the euro area”, *Economia Pubblica*, vol. 2018(1), FrancoAngeli Editore, Milan, 2018, pp. 5-34; Arnold, N.G., Barkbu, B.B., Ture, H.E., Wang, H. and Yao, J., “A Central Fiscal Stabilization Capacity for the Euro Area”, *IMF Staff Discussion Note*, No SDN/18/03, International Monetary Fund, March 2018; Beetsma, R., Cima, S. and Cimadomo, J., “Fiscal Transfers without Moral Hazard?”, *International Journal of Central Banking*, Vol. 17, No 3, September 2021, pp. 95-153; and Beetsma, R., Cimadomo, J. and van Spronsen, J., “One scheme fits all: a central fiscal capacity for the EMU targeting eurozone, national and regional shocks”, *Working Paper Series*, No 2666, ECB, May 2022.

<sup>39</sup> Beetsma, R. et al., “Fiscal Transfers without Moral Hazard?”, op. cit.; Bara, Y.-E., Castets, L., Ernoul, T. and Zakhartchouk, A., “A contribution to the work on the strengthening of the euro area”, *Trésor-Economics*, No 190, Ministère de l'Economie et des Finances, February 2017; Balassone, F. et al., op. cit.; Bénassy-Quéré, A., Brunnermeier, M., Enderlein, H., Farhi, E., Fratzscher, M., Fuest, C., Gourinchas, P.-O., Martin, P., Pisani-Ferry, J., Rey, H., Schnabel, I., Véron, N., Weder di Mauro, B. and Zettelmeyer, J., “Reconciling risk sharing with market discipline: A constructive approach to euro area reform”, *CEPR Policy Insight*, No 91, Centre for Economic Policy Research, London, January 2018; Dolls, M., “An Unemployment Re-Insurance Scheme for the Eurozone? Stabilizing and Redistributive Effects”, *CESifo Working Paper Series*, No 8219, CESifo, Munich, April 2020.

<sup>40</sup> Carnot, N., Kizior, M., and Mourre, G., “Fiscal Stabilisation in the Euro-Area: A Simulation Exercise”, *Working Papers* CEB, No 17/025, ULB – Université Libre de Bruxelles, October 2017; Furceri, D. and Zdzienicka, A., “The Euro Area Crisis: Need for a Supranational Fiscal Risk Sharing Mechanism?”, *Open Economies Review*, Vol. 26, No 4, September 2015, pp. 683-710; and Beetsma, R. et al., “One scheme fits all: a central fiscal capacity for the EMU targeting eurozone, national and regional shocks”, op. cit.

<sup>41</sup> See the [European Commission's 2017 roadmap for deepening EMU](#).

<sup>42</sup> Furceri, D. and Zdzienicka, A., op. cit.; Koester, G. and Sondermann, D., “A euro area macroeconomic stabilisation function: assessing options in view of their redistribution and stabilisation properties”, *Occasional Paper Series*, No 216, ECB, October 2018.

green investments, digitalisation). If this is the case, and depending on how the capacity is designed, such a country could in principle become a permanent recipient of transfers from countries which perform better on the same indicators.

**While some risks of moral hazard are inherently present in any transfer scheme, different mechanisms to mitigate such risks have been discussed in the literature.**<sup>43</sup> For example, some proposals call for the introduction of safeguards in the form of strengthened surveillance and coordination mechanisms.

## 5 Concluding remarks

**This article has surveyed the literature on consumption risk sharing, focusing on the findings for the euro area but also presenting evidence for individual countries.** The literature found that risk sharing is stronger in mature federations, such as the United States, than in the euro area. The papers surveyed also suggest that state/country-specific output shocks are smoothed primarily through the capital and credit channels, whereas the fiscal channel tends to be quantitatively less important, especially in the euro area, at least until recently.

**Yet, in the COVID-19 crisis, risk sharing in the euro area was somewhat stronger than in episodes such as the global financial crisis of 2008-10.** This is likely to be explained not only by the fiscal support granted by national governments, but also by common EU initiatives, in particular the RRF. From a normative perspective, these findings speak in favour of some form of common public risk-sharing mechanism in the euro area. At the same time, this would call for the right balance to be found between additional, centralised euro area risk-sharing instruments and strong risk-reduction tools, such as a credible enforcement of fiscal rules that anchors market expectations of sound public finances.

**All in all, the findings of this article suggest that decisive progress should be made to complete the architecture of EMU, which would also reinforce risk sharing as a by-product.** Indeed, significant progress on completing the banking union and capital markets union, as well as steps towards fiscal union, would reinforce the operation of risk-sharing channels and thus create welfare gains for European citizens.

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<sup>43</sup> See for example Beetsma, R. et al., "Fiscal transfers without moral hazard?", op. cit. and Beetsma, R. et al., "One scheme fits all: a central fiscal capacity for the EMU targeting eurozone, national and regional shocks", op. cit.

# 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	-4.6	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	1.7	8.1	5.3	4.0	2.9	4.7	2.6	-0.3	0.9	2.6
2021 Q3	1.0	0.7	1.8	-0.4	0.4	2.3	4.4	3.1	5.3	2.8	-0.2	0.8	2.8
Q4	1.7	1.7	1.6	1.0	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	0.1	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	0.9	-2.6	0.8	9.7	6.4	8.6	9.2	2.5	2.2	8.0
2022 Apr.	-	-	-	-	-	-	9.2	6.3	8.3	9.0	2.5	2.1	7.4
May	-	-	-	-	-	-	9.7	6.4	8.6	9.1	2.5	2.1	8.1
June	-	-	-	-	-	-	10.3	6.5	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.	-	-	-	-	-	-	.	.	8.2	10.1	.	.	9.9

Sources: Eurostat (col. 6, 13); BIS (col. 9, 10, 11, 12); OECD (col. 1, 2, 3, 4, 5, 7, 8).

1) Quarterly data seasonally adjusted; annual data unadjusted.

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

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports <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	-4.0	-4.2	-3.8
2021	54.9	59.6	55.9	49.4	52.0	54.9	53.7	55.2	52.1	10.9	9.4	12.6
2021 Q4	54.6	57.3	56.3	52.1	51.9	54.3	52.2	55.5	50.4	2.0	2.3	1.7
2022 Q1	52.2	54.9	58.3	48.7	48.0	54.2	51.0	52.6	49.1	1.8	3.4	0.1
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	50.1	47.2	50.3	50.2	51.8	49.0	49.9	50.1	47.6	.	.	.
2022 May	50.7	53.6	53.1	52.3	42.2	54.8	49.3	51.1	48.0	-0.6	0.4	-1.7
June	53.8	52.3	53.7	53.0	55.3	52.0	52.9	54.0	50.1	0.2	-0.2	0.6
July	51.0	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	-0.4	2.9
Sep.	50.0	49.5	49.1	51.0	48.5	48.1	49.2	50.2	46.5	.	.	.
Oct.	.	47.3	.	.	.	47.1	.	.	.	.	.	.

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>			
		Total	Private consumption	Government consumption	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					
	1	2	3	4	5	6	7	8	9	10	11	12
Current prices (EUR billions)												
2019	11,986.1	11,579.0	6,381.8	2,456.1	2,657.2	1,252.2	770.7	627.4	83.9	407.1	5,769.0	5,361.8
2020	11,456.4	11,046.3	5,924.4	2,565.7	2,515.9	1,221.9	685.3	601.9	40.3	410.1	5,184.2	4,774.1
2021	12,313.1	11,834.5	6,288.8	2,717.9	2,701.9	1,369.6	761.4	563.5	125.9	478.7	6,066.8	5,588.1
2021 Q3	3,127.6	2,998.4	1,622.1	681.3	674.6	347.2	187.7	137.7	20.5	129.1	1,550.4	1,421.2
Q4	3,173.6	3,091.5	1,642.7	692.1	707.1	355.7	193.6	155.9	49.8	82.1	1,634.1	1,552.0
2022 Q1	3,232.5	3,152.9	1,678.4	700.7	718.6	373.3	199.2	144.1	55.1	79.6	1,711.2	1,631.6
Q2	3,295.8	3,229.5	1,724.9	710.6	738.8	383.5	205.6	147.8	55.2	66.3	1,819.9	1,753.6
as a percentage of GDP												
2021	100.0	96.1	51.1	22.1	21.9	11.1	6.2	4.6	1.0	3.9	-	-
Chain-linked volumes (prices for the previous year)												
quarter-on-quarter percentage changes												
2021 Q3	2.3	2.3	4.7	-0.2	-0.7	-0.5	-2.1	0.7	-	-	2.2	2.3
Q4	0.5	1.4	-0.2	0.7	3.4	0.3	1.6	13.4	-	-	2.6	4.7
2022 Q1	0.6	-0.2	-0.1	0.2	-0.8	2.1	1.3	-9.5	-	-	1.5	-0.2
Q2	0.8	0.8	1.0	0.6	0.7	-0.4	1.7	2.2	-	-	1.7	1.6
annual percentage changes												
2019	1.6	2.4	1.4	1.7	6.9	3.2	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	9.2	-7.5	-	-	10.5	8.3
2021 Q3	3.9	3.6	3.0	2.8	2.1	3.0	1.6	0.4	-	-	10.5	10.3
Q4	4.8	5.0	5.9	2.6	2.0	1.6	1.5	3.0	-	-	8.4	9.3
2022 Q1	5.5	5.7	7.9	2.9	3.6	4.3	1.8	4.3	-	-	9.0	10.0
Q2	4.3	4.3	5.5	1.3	2.6	1.5	2.4	5.6	-	-	8.1	8.6
contributions to quarter-on-quarter percentage changes in GDP; percentage points												
2021 Q3	2.3	2.2	2.4	0.0	-0.2	-0.1	-0.1	0.0	0.0	0.1	-	-
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	-0.2	0.0	0.0	-0.2	0.2	0.1	-0.5	-0.1	0.8	-	-
Q2	0.8	0.7	0.5	0.1	0.2	0.0	0.1	0.1	-0.1	0.1	-	-
contributions to annual percentage changes in GDP; percentage points												
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 Q3	3.9	3.4	1.6	0.6	0.4	0.3	0.1	0.0	0.8	0.5	-	-
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	5.5	3.9	0.6	0.8	0.5	0.1	0.2	0.1	-0.1	-	-
Q2	4.3	4.1	2.8	0.3	0.6	0.2	0.1	0.3	0.5	0.1	-	-

Sources: Eurostat and ECB calculations.

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

2) Including acquisitions less disposals of valuables.

## 2 Economic activity

### 2.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											Taxes less subsidies on products
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services	
	1	2	3	4	5	6	7	8	9	10	11	12
Current prices (EUR billions)												
2019	10,743.7	176.7	2,103.9	555.5	2,041.9	531.6	481.7	1,203.9	1,251.8	2,027.1	369.6	1,242.4
2020	10,326.2	175.2	1,994.3	543.8	1,794.3	544.6	483.1	1,207.7	1,200.6	2,060.2	322.3	1,130.2
2021	11,041.7	188.0	2,166.3	594.7	1,996.4	586.2	497.1	1,242.7	1,285.9	2,151.6	332.7	1,271.5
2021 Q3	2,802.5	47.8	546.2	149.2	521.9	146.7	124.4	310.9	326.3	541.5	87.5	325.1
Q4	2,835.9	49.8	555.4	152.1	536.7	149.5	124.8	312.7	330.7	539.8	84.4	337.8
2022 Q1	2,889.9	50.9	578.5	157.7	544.7	150.0	125.7	315.9	334.6	545.5	86.3	342.5
Q2	2,952.9	53.6	596.6	160.9	568.0	154.2	127.6	317.3	341.9	542.9	89.8	342.9
as a percentage of value added												
2021	100.0	1.7	19.6	5.4	18.1	5.3	4.5	11.3	11.6	19.5	3.0	-
Chain-linked volumes (prices for the previous year)												
quarter-on-quarter percentage changes												
2021 Q3	2.5	-0.2	0.8	-0.4	7.6	1.3	0.2	0.7	2.1	1.3	12.0	0.2
Q4	0.2	-0.1	0.2	0.4	0.5	2.5	-0.1	0.5	0.9	-0.8	-2.4	3.4
2022 Q1	0.8	-1.0	0.4	2.3	0.8	0.5	0.3	1.2	0.9	0.8	1.7	-1.5
Q2	0.8	-0.8	0.5	-0.7	1.9	2.3	0.1	0.0	1.6	-0.5	4.3	1.4
annual percentage changes												
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 Q3	4.0	-0.2	4.5	2.3	7.8	4.9	2.0	1.0	6.4	1.4	4.2	3.5
Q4	4.6	-1.0	1.9	0.8	11.7	8.6	2.1	1.8	5.7	2.0	14.2	5.9
2022 Q1	5.3	-0.7	1.7	4.6	14.1	6.2	0.6	3.3	6.1	1.8	16.9	7.1
Q2	4.3	-2.0	2.0	1.6	11.1	6.7	0.4	2.4	5.6	0.8	16.0	3.4
contributions to quarter-on-quarter percentage changes in value added; percentage points												
2021 Q3	2.5	0.0	0.2	0.0	1.3	0.1	0.0	0.1	0.3	0.3	0.4	-
Q4	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	-0.2	-0.1	-
2022 Q1	0.8	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.2	0.1	-
Q2	0.8	0.0	0.1	0.0	0.4	0.1	0.0	0.0	0.2	-0.1	0.1	-
contributions to annual percentage changes in value added; percentage points												
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 Q3	4.0	0.0	0.9	0.1	1.4	0.3	0.1	0.1	0.7	0.3	0.1	-
Q4	4.6	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	0.3	0.3	2.4	0.3	0.0	0.4	0.7	0.4	0.5	-
Q2	4.3	0.0	0.4	0.1	2.0	0.4	0.0	0.3	0.7	0.2	0.5	-

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									
		Employ- ees	Self- employed	Agricul- ture, forestry and fishing	Manufac- turing, energy and utilities	Con- struc- tion	Trade, transport, accom- modation and food services	Infor- mation and com- munica- tion	Finance and insur- ance	Real estate	Professional, business and support services	Public adminis- tration, edu- cation, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
as a percentage of total persons employed													
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
annual percentage changes													
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	-1.1	-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 Q3	2.4	2.7	0.9	-0.2	0.6	3.2	2.6	5.7	1.4	0.8	4.5	2.2	1.5
Q4	2.4	2.7	0.3	-1.4	1.2	3.1	3.3	6.5	0.9	0.4	3.6	1.7	1.7
2022 Q1	3.1	3.4	1.2	-1.4	1.5	3.4	5.1	6.1	-0.1	2.3	4.3	1.7	3.0
Q2	2.7	3.0	0.6	-0.6	1.3	3.1	4.6	6.1	0.3	2.0	3.2	1.5	2.1
Hours worked													
as a percentage of total hours worked													
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
annual percentage changes													
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	6.5	0.6	4.5	8.9	6.7	7.5	2.9	6.4	7.3	3.7	5.2
2021 Q3	3.6	4.1	1.8	-1.8	2.4	3.0	5.5	7.9	1.7	3.8	6.9	2.0	1.2
Q4	4.8	4.6	5.3	-1.9	2.1	3.7	10.8	6.7	0.7	2.8	5.6	0.8	8.1
2022 Q1	6.5	6.5	6.4	-2.2	2.6	4.6	15.6	6.4	-0.6	6.7	6.5	1.2	13.5
Q2	3.9	4.2	2.6	-2.1	1.1	2.4	10.1	5.3	-1.3	4.2	4.0	0.0	7.5
Hours worked per person employed													
annual percentage changes													
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 Q3	1.2	1.4	0.9	-1.6	1.8	-0.1	2.8	2.1	0.3	3.0	2.2	-0.2	-0.3
Q4	2.3	1.9	5.0	-0.5	0.9	0.5	7.2	0.2	-0.2	2.4	1.9	-0.8	6.3
2022 Q1	3.3	3.0	5.1	-0.8	1.0	1.1	10.0	0.3	-0.4	4.3	2.2	-0.5	10.3
Q2	1.2	1.2	2.0	-1.5	-0.2	-0.7	5.3	-0.7	-1.5	2.1	0.8	-1.5	5.4

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				
						Adult		Youth		Male		Female		
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	% of total posts
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
% of total in 2020			100.0			80.1		19.9		51.3		48.7		
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 Q3	164.084	3.3	12.379	7.5	3.1	9.949	6.7	2.431	16.3	6.300	7.2	6.080	7.9	2.6
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
2022 Mar.	-	-	11.246	6.8	-	9.093	6.0	2.152	14.2	5.646	6.4	5.600	7.2	-
Apr.	-	-	11.150	6.7	-	8.952	5.9	2.197	14.3	5.604	6.3	5.546	7.2	-
May	-	-	11.091	6.7	-	8.944	5.9	2.147	13.9	5.575	6.3	5.516	7.1	-
June	-	-	11.059	6.7	-	8.854	5.9	2.205	14.3	5.569	6.3	5.490	7.1	-
July	-	-	10.996	6.6	-	8.843	5.9	2.153	14.0	5.529	6.2	5.467	7.0	-
Aug.	-	-	10.966	6.6	-	8.831	5.9	2.136	13.9	5.488	6.2	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						Con- struction produc- tion	Retail sales				Services turnover <sup>1)</sup>	New passenger car regis- trations
	Total (excluding construction)		Main Industrial Groupings					Total	Food, beverages, tobacco	Non-food	Fuel		
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2015	100.0	88.7	32.1	34.5	21.8	11.6	100.0	100.0	40.4	52.5	7.1	100.0	100.0
annual percentage changes													
2019	-0.7	-0.6	-2.6	0.0	1.4	-1.8	2.2	2.4	0.9	3.7	0.8	2.9	1.8
2020	-7.7	-8.2	-7.2	-11.3	-4.3	-4.4	-5.7	-0.8	3.8	-2.3	-14.4	-8.8	-25.1
2021	8.0	8.7	9.6	9.1	7.8	1.6	4.7	5.1	0.9	7.8	9.4	13.3	-3.1
2021 Q4	0.2	0.1	2.2	-3.9	4.0	2.1	0.3	4.0	-0.9	6.4	13.9	16.9	-25.0
2022 Q1	-0.3	-0.2	1.2	-5.0	5.7	-0.7	5.9	5.0	-2.2	9.9	12.0	-	-13.0
Q2	0.4	0.7	-0.1	-0.2	2.4	-0.5	2.3	0.6	-3.3	2.5	7.2	-	-16.3
Q3	.	.	.	.	.	.	.	.	.	.	.	-	2.2
2022 Apr.	-2.5	-2.4	-0.3	-9.0	3.5	-0.1	2.7	4.4	-3.4	9.2	15.7	-	-18.3
May	1.6	2.1	0.2	1.0	6.2	-1.9	2.9	0.7	-3.9	3.1	5.9	-	-17.4
June	2.1	2.4	-0.3	8.0	-2.3	0.4	1.3	-3.0	-2.7	-3.8	1.3	-	-13.5
July	-2.5	-2.7	-1.9	-5.0	-1.1	0.4	2.1	-1.2	-2.2	-1.3	0.7	-	-6.4
Aug.	2.5	3.2	-0.5	8.2	1.3	-2.9	2.3	-2.0	-2.0	-3.0	5.1	-	4.4
Sep.	.	.	.	.	.	.	.	.	.	.	.	-	10.3
month-on-month percentage changes (s.a.)													
2022 Apr.	0.0	0.1	0.6	0.9	1.4	2.3	-1.4	-0.4	-1.7	-0.5	1.5	-	2.4
May	1.3	1.8	0.2	2.7	2.5	-3.5	0.3	0.1	-0.8	1.7	0.0	-	0.5
June	1.0	0.6	0.0	3.2	-4.2	1.1	-1.2	-1.0	-0.1	-1.7	-1.0	-	0.5
July	-2.3	-1.8	-0.9	-3.8	1.5	-0.2	0.3	-0.4	-0.2	-0.7	0.6	-	1.3
Aug.	1.5	1.7	-0.5	2.8	1.4	-2.1	-0.6	-0.3	-0.8	0.2	3.2	-	11.9
Sep.	.	.	.	.	.	.	.	.	.	.	.	-	7.4

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

1) Including wholesale trade.

## 2 Economic activity

### 2.6 Opinion surveys

(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances, unless otherwise indicated)								Purchasing Managers' Surveys (diffusion indices)			
	Economic sentiment indicator (long-term average = 100)	Manufacturing industry		Consumer confidence indicator	Construction confidence indicator	Retail trade confid- ence indicator	Service industries		Purchasing Managers' Index (PMI) for manu- facturing	Manu- facturing 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	115.9	13.9	82.5	-7.6	10.0	3.1	16.6	88.8	58.2	53.6	54.5	54.3
2022 Q1	111.2	11.9	82.5	-13.6	9.5	1.9	12.5	88.9	57.8	54.7	54.1	54.2
Q2	104.1	6.9	82.5	-22.3	5.5	-4.6	13.2	90.3	54.1	50.4	55.6	54.2
Q3	96.5	1.3	.	-27.0	2.6	-7.4	7.6	.	49.3	46.3	49.9	49.0
2022 May	104.4	6.1	-	-21.2	6.2	-4.4	13.1	-	54.6	51.3	56.1	54.8
June	103.3	6.9	-	-23.7	3.5	-5.2	13.6	-	52.1	49.3	53.0	52.0
July	98.5	3.2	82.4	-27.1	3.0	-7.3	9.9	90.9	49.8	46.3	51.2	49.9
Aug.	97.3	1.0	-	-25.0	3.4	-6.5	8.1	-	49.6	46.5	49.8	49.0
Sep.	93.7	-0.4	-	-28.8	1.6	-8.4	4.9	-	48.4	46.3	48.8	48.1
Oct.	.	.	-	-27.6	.	.	.	-	46.6	44.2	48.2	47.1

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>	Hous- ing wealth	Profit rate <sup>3)</sup>	Saving rate (gross)	Debt ratio <sup>4)</sup>	Financial investment	Non-financial investment (gross)	Finan- cing
	Percentage of gross disposable income (adjusted) <sup>1)</sup>		Annual percentage changes					Percentage of gross value added		Percent- age 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	2.6	3.9	5.9	3.6	47.8	24.2	74.9	2.2	7.8	2.0
2020	19.7	95.6	0.0	4.1	-2.5	4.7	3.8	46.1	24.7	81.6	3.3	-12.4	2.1
2021	17.9	95.6	1.7	3.4	16.8	7.5	7.9	48.9	26.0	79.5	5.2	7.9	3.1
2021 Q3	19.0	95.9	1.1	3.9	14.8	7.7	7.2	48.8	26.6	79.3	4.5	13.1	2.4
Q4	17.9	95.6	1.0	3.4	15.7	7.5	7.9	48.9	26.0	79.5	5.2	14.5	3.1
2022 Q1	16.3	95.3	0.4	3.0	15.6	5.6	8.3	48.6	25.5	78.6	5.1	16.8	3.2
Q2	15.1	95.0	0.0	2.7	14.9	2.7	8.1	48.3	23.9	77.2	5.1	-2.6	3.3

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 Q3	1,124.2	1,058.5	65.7	626.2	555.3	257.4	242.7	200.8	182.6	39.7	77.9	27.7	13.7
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	1,317.6	-39.6	717.8	746.9	305.2	267.3	214.4	219.5	40.6	83.9	110.3	11.8
2022 Mar.	408.4	411.6	-3.2	227.8	231.4	98.9	85.9	68.7	70.9	13.0	23.4	12.7	10.2
Apr.	418.1	431.6	-13.5	233.2	242.8	100.5	88.5	70.5	72.8	13.8	27.5	6.8	4.7
May	427.3	443.3	-16.1	240.5	248.5	101.9	89.0	71.3	78.2	13.6	27.6	95.4	3.4
June	432.6	442.6	-10.0	244.1	255.6	102.8	89.8	72.6	68.5	13.1	28.7	8.1	3.6
July	433.1	453.1	-20.0	245.2	264.1	103.5	92.2	72.0	70.0	12.3	26.8	5.7	3.4
Aug.	439.9	466.2	-26.3	252.6	273.9	102.2	95.0	72.6	69.9	12.4	27.4	4.6	3.0
12-month cumulated transactions													
2022 Aug.	4,941.1	4,959.7	-18.6	2,760.9	2,770.0	1,173.3	1,036.8	852.9	834.2	154.0	318.6	219.9	90.5
12-month cumulated transactions as a percentage of GDP													
2022 Aug.	38.5	38.7	-0.1	21.5	21.6	9.1	8.1	6.6	6.5	1.2	2.5	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	Consump- tion goods		Intermediate goods	Capital goods	Consump- tion goods	Manu- facturing	Oil		
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2021 Q3	13.7	23.0	607.5	306.0	118.3	171.1	502.2	580.4	346.0	94.1	134.8	416.3	58.5
Q4	12.1	32.4	637.0	323.2	116.0	187.6	524.7	653.4	400.1	97.5	148.3	450.0	71.4
2022 Q1	17.2	40.5	676.0	343.0	124.1	196.4	553.9	717.2	452.6	104.2	151.5	477.9	85.6
Q2	20.3	45.9	714.4	360.6	125.7	215.7	573.7	810.5	525.6	111.1	163.5	516.4	107.8
2022 Mar.	14.7	36.6	227.7	116.3	40.6	65.3	182.9	247.2	158.8	34.9	51.2	160.2	31.3
Apr.	12.7	40.5	231.1	116.4	41.3	70.1	186.9	264.6	172.0	35.9	53.4	167.5	33.5
May	28.6	53.5	241.8	122.2	41.6	73.3	193.5	271.2	175.0	37.3	55.3	174.4	34.3
June	19.9	44.1	241.5	121.9	42.9	72.3	193.3	274.7	178.6	37.9	54.8	174.5	40.0
July	13.1	43.8	237.2	119.6	42.5	70.9	189.1	277.7	183.8	36.5	54.0	172.6	36.6
Aug.	24.0	53.7	245.5	.	.	.	196.8	292.8	.	.	.	180.6	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2021 Q3	4.4	5.2	103.4	110.2	100.4	96.3	102.2	107.6	108.9	112.5	104.6	110.8	85.4
Q4	0.7	7.1	105.1	112.3	96.3	102.7	104.2	112.8	115.3	109.8	110.6	114.8	93.8
2022 Q1	2.4	10.2	106.1	111.3	101.6	103.5	105.7	114.9	117.6	115.0	110.5	117.8	93.0
Q2	2.7	11.1	106.8	110.4	99.9	108.6	105.6	121.1	124.4	120.2	115.3	122.9	95.1
2022 Feb.	3.1	11.3	106.7	112.7	101.4	103.8	107.4	115.4	117.9	115.7	110.3	118.2	97.8
Mar.	-0.6	5.7	105.3	110.5	99.0	102.0	103.7	115.5	118.6	115.3	111.6	117.7	88.6
Apr.	-2.6	6.8	105.3	108.7	99.6	107.7	104.1	119.5	123.1	117.2	114.3	121.1	93.7
May	9.7	17.7	108.3	112.4	98.8	110.5	106.8	122.3	125.2	122.2	117.3	124.8	94.3
June	1.3	9.2	106.8	110.1	101.4	107.7	105.8	121.4	124.8	121.3	114.3	122.7	97.4
July	-3.7	8.9	104.0	107.4	99.8	104.3	102.9	118.8	123.3	114.5	111.6	120.1	.

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 excluding food and energy									Total HICP excluding administered prices	Administered prices
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	100.0	68.7	58.2	41.8	100.0	16.7	5.1	26.9	9.5	41.8	86.7	13.3
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	1.7	1.0	1.1	0.3	9.1	1.0	4.6	5.1
2022 Q1	112.3	6.1	2.7	8.8	2.5	2.7	1.8	3.3	1.5	14.4	0.7	6.0	6.9
Q2	116.1	8.0	3.7	11.4	3.4	2.3	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	2.7	1.8	4.4	1.0	9.5	7.8
2022 Apr.	115.1	7.4	3.5	10.4	3.3	0.1	1.4	2.3	0.4	-4.0	0.5	7.4	8.0
May	116.1	8.1	3.8	11.4	3.5	0.7	1.4	-0.1	0.5	1.9	0.4	8.1	7.6
June	117.0	8.6	3.7	12.5	3.4	0.8	1.3	1.5	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	0.6	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	0.9	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	1.3	0.2	2.9	0.9	9.9	10.4
	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 Apr.	6.3	5.4	9.2	12.9	3.8	37.5	2.1	1.3	5.4	0.5	5.2	1.7	
May	7.5	7.0	9.0	13.6	4.2	39.1	2.3	1.5	5.2	-0.1	5.9	1.8	
June	8.9	8.2	11.2	14.5	4.3	42.0	2.4	1.6	2.7	0.0	6.7	1.7	
July	9.8	9.4	11.1	14.3	4.5	39.6	2.6	1.8	3.7	-0.2	7.0	1.8	
Aug.	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	

Sources: Eurostat and ECB calculations.

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

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

## 3 Prices and costs

### 3.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction <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	3.1	4.2	4.5
2020	102.0	-2.6	-1.7	-0.1	-1.6	0.9	1.0	1.1	0.6	-9.7	2.0	5.3	1.6
2021	114.5	12.3	7.4	5.8	10.9	2.5	2.1	2.0	1.8	32.3	5.3	8.1	0.8
2021 Q3	115.6	14.0	9.3	7.5	14.1	3.0	2.8	2.9	2.1	34.3	7.0	9.2	1.5
Q4	127.3	24.0	12.3	9.7	18.0	4.3	4.0	3.9	3.0	67.5	7.2	9.5	3.3
2022 Q1	140.9	33.1	15.5	12.7	21.4	6.1	7.4	.	5.5	92.6	9.6	9.8	3.3
Q2	149.2	36.5	20.0	15.8	24.8	7.4	11.6	.	7.5	95.4	11.7	9.3	0.0
2022 Mar.	146.3	36.9	17.8	13.7	22.7	6.5	8.7	.	6.0	104.1	-	-	-
Apr.	148.0	37.2	19.4	15.7	25.3	7.2	11.0	.	6.8	99.1	-	-	-
May	148.9	36.2	19.9	16.0	25.1	7.5	11.7	.	7.6	93.9	-	-	-
June	150.8	36.0	20.6	15.7	24.0	7.6	12.2	.	8.0	93.2	-	-	-
July	156.9	38.0	18.7	15.1	21.5	7.8	13.2	.	8.4	97.6	-	-	-
Aug.	164.8	43.3	17.4	14.5	19.9	7.8	14.0	.	8.6	116.8	-	-	-

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	110.8	3.0	4.5	3.9	2.5	6.1	10.1	14.1	69.4	30.7	30.0	31.3	33.7	33.4	34.0
2022 Q1	112.2	3.5	5.5	4.9	2.5	7.4	11.6	16.6	88.7	32.2	35.0	29.7	35.5	38.5	32.5
Q2	113.5	4.2	6.8	6.3	3.1	8.2	14.0	20.2	106.1	22.6	39.8	9.2	24.3	38.3	10.8
Q3	.	.	.	.	.	.	.	.	98.3	15.2	31.7	1.5	15.8	29.2	2.3
2022 Apr.	-	-	-	-	-	-	-	-	98.2	30.9	42.0	22.0	32.6	41.7	23.7
May	-	-	-	-	-	-	-	-	106.2	19.8	39.5	4.9	22.0	38.3	6.6
June	-	-	-	-	-	-	-	-	113.7	17.4	38.0	1.6	18.5	35.0	2.8
July	-	-	-	-	-	-	-	-	106.9	12.2	31.8	-3.1	15.0	32.1	-1.2
Aug.	-	-	-	-	-	-	-	-	97.4	16.3	30.7	4.2	16.1	26.7	5.1
Sep.	-	-	-	-	-	-	-	-	91.0	17.0	32.5	3.7	16.3	28.8	3.2

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

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

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



## 3 Prices and costs

### 3.4 Price-related opinion surveys

(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 12 months	Input prices		Prices charged	
	Manu- facturing	Retail trade	Services	Construction		Manu- facturing	Services	Manu- facturing	Services
	1	2	3	4	5	6	7	8	9
1999-15	4.3	5.7	-	-4.4	32.4	56.7	56.3	-	49.7
2019	4.4	7.4	9.1	7.7	18.1	48.8	57.1	50.4	52.4
2020	-0.3	2.0	-0.6	-5.0	11.4	49.0	52.1	48.7	47.2
2021	31.5	24.0	10.3	20.1	30.3	84.0	61.9	66.8	53.4
2021 Q4	45.9	41.9	19.7	36.5	52.4	88.4	69.5	72.1	56.9
2022 Q1	50.2	48.9	23.6	39.2	59.9	84.2	74.2	72.9	59.8
Q2	55.2	56.2	28.4	48.8	71.6	84.0	78.0	74.8	64.4
Q3	46.9	54.5	27.3	40.7	76.4	74.3	74.9	67.1	61.8
2022 May	55.5	56.2	28.3	49.2	71.6	84.2	77.4	76.2	64.6
June	50.6	56.5	27.7	45.5	74.8	80.0	77.9	70.9	63.2
July	45.9	55.1	27.1	41.6	75.9	74.8	74.7	67.9	62.1
Aug.	44.6	53.4	26.4	38.4	77.0	71.7	72.5	65.9	59.9
Sep.	50.3	55.0	28.4	42.2	76.3	76.5	77.4	67.4	63.2
Oct.	.	.	.	.	.	72.9	77.5	67.0	63.1

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 Q3	109.1	2.1	2.1	1.8	2.3	1.5	1.3
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	2.4

Sources: Eurostat and ECB calculations.

1) Experimental data based on non-harmonised sources (see [https://www.ecb.europa.eu/stats/ecb\\_statistics/governance\\_and\\_quality\\_framework/html/experimental-data.en.html](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	-0.2	2.1	4.0	0.7	0.9	1.5	3.3	2.4	2.7	2.4
2020	110.3	4.6	-1.7	2.9	5.7	7.4	0.3	-0.5	1.5	3.6	6.2	16.1
2021	110.4	0.1	3.7	-2.9	2.4	-1.4	2.2	0.7	4.3	1.2	0.5	1.6
2021 Q3	110.5	1.6	3.5	-0.5	2.5	-0.3	4.6	2.2	3.4	1.5	2.9	0.2
Q4	111.4	1.2	3.4	2.1	4.4	-1.0	1.6	2.9	3.7	1.8	1.3	-6.8
2022 Q1	112.4	1.9	2.4	3.9	3.0	-0.8	2.5	2.8	4.7	2.8	2.5	-4.4
Q2	112.7	2.8	4.8	3.3	5.4	1.5	1.5	4.3	6.2	3.4	3.1	-6.2
Compensation per employee												
2019	107.5	2.2	3.1	1.5	2.1	1.7	3.1	2.2	2.9	2.7	2.3	3.6
2020	107.2	-0.3	0.7	-1.8	-1.2	-4.1	0.4	0.5	1.0	0.1	2.3	-1.6
2021	111.4	4.0	3.8	4.1	4.5	6.1	4.3	3.0	4.9	4.3	1.8	4.6
2021 Q3	112.5	3.2	3.6	3.5	1.6	5.1	3.7	2.8	3.5	3.1	1.9	3.2
Q4	113.3	3.6	3.8	2.8	2.1	7.3	3.8	4.1	5.0	3.7	1.5	5.4
2022 Q1	114.3	4.3	3.3	4.2	4.1	7.7	2.7	3.6	5.6	4.6	2.5	8.5
Q2	115.1	4.4	3.4	4.1	3.9	7.8	2.2	4.5	6.3	5.6	2.4	6.9
Labour productivity per person employed												
2019	101.9	0.3	3.4	-0.6	-1.8	1.0	2.2	0.7	-0.4	0.4	-0.4	1.2
2020	97.2	-4.7	2.4	-4.5	-6.5	-10.7	0.1	1.1	-0.5	-3.3	-3.7	-15.2
2021	100.9	3.9	0.0	7.3	2.0	7.7	2.1	2.3	0.6	3.1	1.2	2.9
2021 Q3	101.7	1.6	0.1	3.9	-0.9	5.4	-0.8	0.6	0.1	1.6	-1.0	3.0
Q4	101.8	2.4	0.4	0.7	-2.3	8.4	2.2	1.2	1.3	1.9	0.2	13.1
2022 Q1	101.7	2.3	0.9	0.2	1.1	8.5	0.2	0.7	0.8	1.8	0.0	13.5
Q2	102.1	1.6	-1.4	0.7	-1.4	6.2	0.7	0.2	0.1	2.1	-0.7	14.0
Compensation per hour worked												
2019	107.6	2.5	3.8	2.1	2.3	2.1	3.3	1.7	2.8	3.0	2.5	4.0
2020	113.8	5.7	3.4	3.9	5.0	7.0	2.9	2.3	5.9	5.5	4.5	7.7
2021	114.2	0.4	1.1	-0.3	-0.2	0.4	2.1	1.2	0.8	0.5	0.6	0.7
2021 Q3	115.4	1.9	3.2	1.8	2.0	1.9	1.7	2.8	0.2	0.9	2.5	2.9
Q4	115.8	1.7	2.2	2.2	2.2	0.1	4.2	4.8	2.5	2.2	2.7	1.0
2022 Q1	115.9	1.3	2.7	3.5	3.1	-2.1	2.6	3.9	3.2	2.1	3.3	0.5
Q2	116.2	3.3	4.2	4.2	4.9	1.9	3.1	5.7	5.4	4.9	4.2	2.5
Hourly labour productivity												
2019	102.5	0.7	4.4	0.0	-1.6	1.4	2.4	0.4	-0.4	0.7	-0.1	1.3
2020	104.5	1.9	3.1	1.4	0.8	0.2	3.5	3.6	6.3	2.9	-1.1	-6.0
2021	104.4	-0.1	-1.4	2.4	-3.2	1.3	-0.3	0.3	-4.6	-1.2	-0.2	-1.7
2021 Q3	105.1	0.4	1.0	2.2	-0.4	2.6	-2.7	0.4	-2.2	-0.6	-0.5	3.2
Q4	104.8	0.1	0.3	-0.1	-2.6	0.8	2.2	1.4	-0.9	0.1	1.3	6.6
2022 Q1	103.8	-1.0	1.1	-0.7	-0.2	-1.4	0.0	1.2	-3.6	-0.4	0.6	3.4
Q2	104.0	0.3	-0.1	1.0	-1.0	0.9	1.3	1.6	-1.9	1.4	0.8	8.2

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>	Overnight deposits (EONIA) <sup>3)</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	8
2019	-0.48	-0.39	-0.40	-0.36	-0.30	-0.22	2.33	-0.08
2020	-0.55	-0.46	-0.50	-0.43	-0.37	-0.31	0.64	-0.07
2021	-0.57	-0.48	-0.56	-0.55	-0.52	-0.49	0.16	-0.08
2022 Mar.	-0.58	-	-0.54	-0.50	-0.42	-0.24	0.84	-0.01
Apr.	-0.58	-	-0.54	-0.45	-0.31	0.01	1.10	-0.01
May	-0.58	-	-0.55	-0.39	-0.14	0.29	1.47	-0.02
June	-0.58	-	-0.52	-0.24	0.16	0.85	1.97	-0.03
July	-0.51	-	-0.31	0.04	0.47	0.99	2.61	-0.02
Aug.	-0.08	-	0.02	0.39	0.84	1.25	2.95	-0.01
Sep.	0.36	-	0.57	1.01	1.60	2.23	3.45	-0.02

Source: Refinitiv and ECB calculations.

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

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

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

### 4.2 Yield curves

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area <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 Mar.	-0.70	-0.49	-0.09	0.42	0.62	1.11	0.73	0.35	-0.05	0.58	0.81	0.81
Apr.	-0.59	-0.26	0.21	0.74	0.94	1.20	0.85	0.42	0.30	0.94	1.13	1.14
May	-0.38	-0.08	0.36	0.97	1.22	1.30	0.78	0.58	0.40	1.10	1.47	1.47
June	-0.42	0.31	0.64	1.11	1.50	1.19	0.21	0.38	0.86	1.07	1.72	1.95
July	0.04	0.16	0.25	0.55	0.93	0.77	-0.30	0.09	0.27	0.44	1.05	1.44
Aug.	-0.19	0.66	1.08	1.36	1.57	0.91	-0.33	0.00	1.36	1.53	1.65	1.84
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

Source: ECB calculations.

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

2) ECB calculations based on underlying data provided by Euro MTS Ltd and ratings provided by Fitch Ratings.

### 4.3 Stock market indices

(index levels in points; period averages)

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

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						
	Over-night	Redeem-able 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				APRC <sup>3)</sup>	Composite cost-of-borrowing indicator	
			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	Sep.	0.01	0.34	0.18	0.57	4.90	15.93	5.50	5.25	5.88	1.93	1.31	1.45	1.25	1.29	1.59	1.30
	Oct.	0.01	0.34	0.19	0.58	4.82	15.91	5.61	5.21	5.85	2.00	1.32	1.47	1.26	1.30	1.60	1.31
	Nov.	0.01	0.34	0.19	0.57	4.82	15.86	5.11	5.20	5.83	2.06	1.32	1.48	1.30	1.32	1.61	1.32
	Dec.	0.01	0.35	0.17	0.60	4.74	15.89	5.11	5.05	5.66	1.87	1.34	1.46	1.30	1.30	1.60	1.31
2022	Jan.	0.01	0.35	0.20	0.56	4.76	15.82	5.58	5.28	5.87	1.95	1.35	1.46	1.31	1.32	1.61	1.33
	Feb.	0.01	0.46	0.19	0.56	4.81	15.78	5.28	5.27	5.87	2.09	1.35	1.49	1.39	1.38	1.66	1.38
	Mar.	0.01	0.47	0.19	0.52	4.81	15.76	5.45	5.24	5.81	2.08	1.40	1.53	1.54	1.47	1.75	1.47
	Apr.	0.01	0.47	0.20	0.56	4.75	15.78	5.82	5.38	5.97	2.24	1.43	1.72	1.77	1.58	1.89	1.61
	May	0.01	0.47	0.20	0.64	4.80	15.84	5.87	5.58	6.20	2.48	1.52	1.87	2.02	1.74	2.05	1.78
	June	0.01	0.47	0.22	0.71	4.80	15.87	5.70	5.56	6.15	2.51	1.68	2.06	2.28	1.87	2.21	1.97
	July	0.01	0.46	0.30	0.88	4.83	15.86	6.17	5.74	6.36	2.81	1.84	2.26	2.53	1.99	2.36	2.15
	Aug.	0.01	0.70	0.40	1.02	4.96	15.89	6.62	5.94	6.50	2.96	2.08	2.44	2.63	2.07	2.49	2.26
	Aug. <sup>(p)</sup>	0.01															

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	Sep.	-0.03	-0.35	0.15	1.77	1.79	1.99	1.99	1.51	1.43	1.34	1.27	1.25	1.28	1.49
	Oct.	-0.03	-0.36	0.17	1.71	1.79	2.09	1.99	1.54	1.42	1.32	1.15	1.19	1.24	1.43
	Nov.	-0.03	-0.35	0.16	1.68	1.78	2.01	2.03	1.49	1.43	1.36	1.07	1.11	1.23	1.38
	Dec.	-0.03	-0.33	0.17	1.67	1.84	1.96	1.95	1.51	1.43	1.32	1.14	0.97	1.19	1.36
2022	Jan.	-0.04	-0.32	0.20	1.67	1.91	1.94	2.00	1.52	1.41	1.37	1.13	1.24	1.29	1.43
	Feb.	-0.04	-0.32	0.41	1.67	1.77	1.93	2.08	1.50	1.43	1.42	1.07	1.08	1.46	1.42
	Mar.	-0.04	-0.30	0.64	1.69	1.77	1.96	2.11	1.50	1.45	1.52	1.25	1.17	1.54	1.49
	Apr.	-0.04	-0.30	0.44	1.67	1.88	1.98	2.24	1.52	1.46	1.67	1.19	1.12	1.57	1.51
	May	-0.04	-0.27	0.52	1.69	1.81	2.02	2.40	1.52	1.50	1.79	1.14	1.22	1.95	1.55
	June	-0.04	-0.14	1.05	1.72	1.83	2.18	2.56	1.60	1.56	1.94	1.81	1.55	2.14	1.83
	July	-0.01	0.04	1.19	1.74	1.89	2.44	2.78	1.68	1.86	2.14	1.40	1.77	2.11	1.78
	Aug. <sup>(p)</sup>	0.01	0.14	1.62	1.86	2.08	2.49	2.94	1.85	2.13	2.30	1.54	1.87	2.20	1.86

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	3	4	5	6	7	8	9	10	11	12	13	14	
Short-term															
2019															
2020	1,500.3	429.8	141.1	53.0	96.3	833.1	719.4								
2021	1,420.7	429.6	141.9	53.1	87.8	761.4	671.7	387.8	138.9	79.8	26.1	31.8	137.3	104.6	
2022	Apr.	1,444.3	440.4	159.7	54.7	107.7	736.5	638.3	458.3	163.3	104.8	36.0	43.1	147.1	97.4
	May	1,388.8	420.4	161.2	50.2	107.2	700.1	613.4	441.8	160.0	111.7	41.4	42.5	127.6	86.7
	June	1,372.2	415.5	146.0	47.2	105.3	705.4	622.0	450.4	150.8	119.5	52.5	48.6	131.4	87.5
	July	1,338.0	424.3	148.3	50.4	104.7	660.6	600.3	508.4	199.4	121.2	56.4	55.4	132.5	86.3
	Aug.	1,334.6	424.2	145.2	49.3	106.1	659.0	597.8	473.5	191.0	113.3	49.1	45.3	123.9	92.2
	Sep.	1,349.1	441.0	144.0	45.6	95.4	668.7	605.6	527.8	207.5	123.6	51.5	58.4	138.3	105.2
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	20,119.8	4,205.2	3,584.6	1,366.7	1,597.0	10,733.0	9,912.5	317.1	66.2	83.7	32.8	23.3	143.9	130.4	
2022	Apr.	19,207.4	4,111.6	3,555.8	1,382.8	1,480.5	10,059.6	9,286.3	290.3	65.3	83.9	27.6	14.2	126.9	118.1
	May	19,033.6	4,130.4	3,531.3	1,364.4	1,463.7	9,908.2	9,134.4	338.8	98.2	68.0	14.0	26.7	145.9	130.7
	June	18,744.6	4,066.2	3,485.1	1,358.2	1,402.2	9,791.1	9,034.5	309.4	83.1	69.5	20.0	13.0	143.9	135.5
	July	19,287.3	4,162.6	3,563.1	1,367.3	1,458.3	10,103.4	9,323.7	240.9	52.0	60.9	30.6	9.1	118.9	114.1
	Aug.	18,695.7	4,069.2	3,505.5	1,360.7	1,416.2	9,704.8	8,952.7	195.9	55.5	44.1	10.9	8.9	87.4	81.4
	Sep.	18,199.7	4,010.6	3,478.3	1,364.4	1,368.6	9,342.2	8,612.1	301.1	90.5	54.6	12.1	19.5	136.5	126.4

Source: ECB.

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

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

(EUR billions and percentage changes; market values)

	Debt securities							Listed shares			
	Total	MFIs	Non-MFI corporations		General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations	
			Financial corporations other than MFIs	FVCs	Non-financial corporations	of which central government					
	1	2	3	4	5	6	7	8	9	10	11
Outstanding amount											
2019	.	.	.	.	.	.	.	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
2021	21,540.5	4,634.8	3,726.5	1,419.8	1,684.8	11,494.4	10,584.2	10,341.6	609.3	1,558.1	8,173.2
2022 Apr.	20,651.8	4,551.9	3,715.5	1,437.5	1,588.2	10,796.1	9,924.6	9,221.1	521.2	1,391.3	7,307.7
May	20,422.4	4,550.8	3,692.5	1,414.6	1,570.8	10,608.2	9,747.9	9,081.2	536.9	1,351.6	7,191.7
June	20,116.9	4,481.7	3,631.1	1,405.4	1,507.5	10,496.5	9,656.5	8,286.0	474.1	1,263.7	6,547.3
July	20,625.3	4,586.9	3,711.4	1,417.6	1,563.0	10,764.0	9,924.0	8,901.2	482.2	1,347.6	7,070.5
Aug.	20,030.4	4,493.4	3,650.7	1,410.0	1,522.3	10,363.8	9,550.5	8,481.9	475.5	1,298.8	6,706.7
Sep.	19,548.9	4,451.6	3,622.3	1,410.0	1,464.0	10,010.9	9,217.7	7,917.4	460.7	1,219.8	6,236.3
Growth rate <sup>1)</sup>											
2019	.	.	.	.	.	.	.	.	.	.	.
2020	.	.	.	.	.	.	.	.	.	.	.
2021	.	.	.	.	.	.	.	.	.	.	.
2022 Apr.	4.5	2.7	8.7	5.2	4.3	3.9	4.1	1.1	0.1	3.7	0.7
May	4.5	3.8	8.4	3.9	4.1	3.6	3.8	1.0	0.0	3.3	0.6
June	4.2	2.8	8.3	5.0	3.5	3.6	3.9	1.0	-0.7	3.3	0.7
July	3.6	2.5	7.5	5.5	2.4	2.9	3.4	0.9	-0.9	3.2	0.6
Aug.	3.7	2.7	7.5	4.4	2.8	3.0	3.4	0.8	-1.3	2.5	0.5
Sep.	3.4	3.4	6.6	3.8	1.6	2.6	3.1	0.4	-1.4	2.1	0.2

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	77.0	86.9	115.4	92.3
2020	99.6	93.5	93.4	89.4	75.4	87.2	119.4	93.8
2021	99.6	93.4	93.3	88.8	71.3	85.7	120.8	94.2
2021 Q4	97.7	91.8	91.7	86.6	69.8	83.7	119.1	92.7
2022 Q1	96.4	91.4	92.7	84.9	69.2	82.2	118.6	92.5
Q2	95.6	90.3	93.4	83.7	67.3	80.8	116.4	90.1
Q3	94.0	89.0	92.4	.	.	.	114.4	88.7
2022 Apr.	95.2	89.9	92.8	-	-	-	116.4	90.2
May	95.6	90.3	93.5	-	-	-	116.2	90.0
June	95.9	90.5	93.9	-	-	-	116.5	90.1
July	94.1	89.0	92.1	-	-	-	114.6	88.8
Aug.	93.6	88.7	92.1	-	-	-	114.1	88.5
Sep.	94.2	89.3	92.9	-	-	-	114.5	88.8
<i>Percentage change versus previous month</i>								
2022 Sep.	0.6	0.7	0.8	-	-	-	0.3	0.3
<i>Percentage change versus previous year</i>								
2022 Sep.	-5.3	-4.2	-0.3	-	-	-	-4.9	-5.3

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 Apr.	6.960	7.558	24.435	7.439	374.865	136.606	4.649	0.837	4.9442	10.318	1.021	1.082
May	7.083	7.536	24.750	7.441	384.454	136.241	4.648	0.850	4.9460	10.496	1.035	1.058
June	7.073	7.525	24.719	7.439	396.664	141.569	4.647	0.858	4.9444	10.601	1.024	1.057
July	6.854	7.519	24.594	7.443	404.098	139.174	4.768	0.850	4.9396	10.575	0.988	1.018
Aug.	6.888	7.514	24.568	7.439	402.097	136.855	4.723	0.845	4.8943	10.502	0.969	1.013
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
<i>Percentage change versus previous month</i>												
2022 Sep.	0.9	0.1	0.0	0.0	0.5	3.4	0.4	3.5	0.3	2.7	-0.5	-2.2
<i>Percentage change versus previous year</i>												
2022 Sep.	-8.6	0.4	-3.2	0.0	14.7	9.2	3.8	2.1	-0.8	6.0	-11.2	-15.9

Source: ECB.

## 4 Financial market developments

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

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

	Total <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
Outstanding amounts (international investment position)												
2021 Q3	31,266.0	31,399.9	-133.8	11,758.1	9,533.2	12,244.3	14,342.7	-95.7	6,357.0	7,524.0	1,002.4	15,732.6
Q4	32,245.4	32,208.5	36.9	11,950.9	9,747.3	12,864.4	14,684.3	-98.5	6,471.6	7,776.9	1,057.0	15,933.9
2022 Q1	32,218.5	32,021.7	196.8	11,994.2	9,884.6	12,340.0	13,991.7	-55.4	6,836.9	8,145.5	1,102.8	16,358.9
Q2	31,942.8	31,585.7	357.0	12,317.7	10,158.5	11,510.1	13,051.4	-16.6	7,009.5	8,375.8	1,122.1	16,467.3
Outstanding amounts as a percentage of GDP												
2022 Q2	248.6	245.9	2.8	95.9	79.1	89.6	101.6	-0.1	54.6	65.2	8.7	128.2
Transactions												
2021 Q3	421.4	345.9	75.5	73.6	-47.4	128.6	109.9	23.3	72.8	283.3	123.1	-
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	305.2	-0.9	-
Q2	-29.3	-48.3	18.9	54.0	-37.2	-109.7	-101.8	23.9	0.1	90.8	2.3	-
2022 Mar.	-11.7	42.8	-54.4	-0.7	-6.6	-38.9	62.6	-2.9	31.0	-13.2	-0.1	-
Apr.	-26.2	39.1	-65.2	7.8	21.8	-33.1	-56.7	29.6	-29.9	74.0	-0.6	-
May	71.3	17.3	53.9	85.6	-15.2	-51.6	-79.7	2.7	33.4	112.2	1.2	-
June	-74.4	-104.7	30.2	-39.4	-43.9	-25.0	34.6	-8.4	-3.4	-95.4	1.7	-
July	50.9	27.1	23.8	14.0	19.8	-22.6	-62.6	-1.1	59.0	69.9	1.6	-
Aug.	117.7	104.7	12.9	59.5	44.1	-33.6	48.4	10.9	78.7	12.2	2.2	-
12-month cumulated transactions												
2022 Aug.	775.1	713.5	61.6	186.4	-2.8	38.0	41.7	74.5	466.7	674.5	9.5	-
12-month cumulated transactions as a percentage of GDP												
2022 Aug.	6.0	5.6	0.5	1.5	0.0	0.3	0.3	0.6	3.6	5.3	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								
	Currency in circulation	Overnight deposits		Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months		Repos	Money market fund shares	Debt securities with a maturity of up to 2 years		
	1	2	3	4	5	6	7	8	9	10	11
Outstanding amounts											
2019	1,222.4	7,721.9	8,944.3	1,069.7	2,364.2	3,433.9	12,378.2	79.3	528.8	-1.4	606.6
2020	1,360.8	8,886.2	10,247.0	1,034.9	2,450.1	3,485.0	13,731.9	101.5	636.5	-0.7	737.2
2021	1,464.8	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.6	12.1	788.2
2021 Q4	1,464.8	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.6	12.1	788.2
2022 Q1	1,525.0	9,938.9	11,463.8	936.3	2,519.9	3,456.2	14,920.1	123.0	593.2	32.2	748.4
Q2	1,530.4	10,040.2	11,570.6	970.8	2,528.0	3,498.8	15,069.5	113.6	606.7	60.3	780.5
Q3 <sup>(p)</sup>	1,535.8	10,169.1	11,704.9	1,140.6	2,552.1	3,692.7	15,397.5	118.9	599.2	58.9	776.9
2022 Apr.	1,524.4	9,965.2	11,489.6	954.6	2,519.0	3,473.6	14,963.2	115.3	602.3	49.5	767.1
May	1,528.7	10,005.2	11,533.9	935.3	2,524.7	3,460.0	14,993.8	124.2	600.2	43.6	768.1
June	1,530.4	10,040.2	11,570.6	970.8	2,528.0	3,498.8	15,069.5	113.6	606.7	60.3	780.5
July	1,532.7	10,094.7	11,627.4	1,005.6	2,536.3	3,541.9	15,169.3	126.9	584.9	28.0	739.8
Aug.	1,535.9	10,189.8	11,725.7	1,030.0	2,547.7	3,577.7	15,303.4	123.2	587.4	39.7	750.3
Sep. <sup>(p)</sup>	1,535.8	10,169.1	11,704.9	1,140.6	2,552.1	3,692.7	15,397.5	118.9	599.2	58.9	776.9
Transactions											
2019	57.7	604.8	662.5	-61.6	62.4	0.8	663.3	4.2	-4.1	-58.5	-58.3
2020	138.4	1,250.1	1,388.5	-28.9	86.7	57.8	1,446.3	19.5	113.7	0.1	133.4
2021	105.3	901.6	1,006.8	-118.5	67.2	-51.3	955.5	12.0	22.7	10.0	44.7
2021 Q4	21.2	190.9	212.1	16.9	14.4	31.3	243.4	-3.5	57.7	-29.7	24.5
2022 Q1	60.2	134.4	194.6	12.1	9.9	22.0	216.6	5.1	-65.2	20.1	-40.0
Q2	5.4	82.2	87.6	28.8	8.4	37.2	124.8	-10.7	13.3	25.1	27.7
Q3 <sup>(p)</sup>	5.3	118.2	123.5	161.6	23.8	185.4	308.9	3.4	-7.4	51.8	47.8
2022 Apr.	-0.5	10.1	9.5	13.4	-0.6	12.8	22.3	-8.7	8.9	15.5	15.7
May	4.2	45.6	49.8	-17.5	5.7	-11.7	38.1	9.3	-2.1	-5.5	1.7
June	1.7	26.6	28.3	32.8	3.2	36.1	64.4	-11.2	6.5	15.1	10.4
July	2.3	43.6	45.8	31.3	8.2	39.4	85.2	12.3	-21.8	16.1	6.5
Aug.	3.2	101.7	104.8	22.7	11.3	34.0	138.9	-4.0	2.6	14.7	13.2
Sep. <sup>(p)</sup>	-0.1	-27.1	-27.2	107.6	4.3	111.9	84.8	-4.8	11.8	21.1	28.1
Growth rates											
2019	5.0	8.5	8.0	-5.4	2.7	0.0	5.7	5.5	-0.8	-	-8.8
2020	11.3	16.2	15.6	-2.7	3.7	1.7	11.7	24.4	21.6	-	22.0
2021	7.7	10.1	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1
2021 Q4	7.7	10.1	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1
2022 Q1	9.6	8.7	8.8	-6.0	2.0	-0.3	6.6	9.4	-3.9	74.3	-0.2
Q2	7.9	7.1	7.2	2.5	1.8	2.0	5.9	-2.8	-1.1	78.2	2.0
Q3 <sup>(p)</sup>	6.4	5.5	5.6	24.0	2.3	8.1	6.2	-4.6	-0.3	324.2	8.2
2022 Apr.	8.8	8.1	8.2	-2.8	1.7	0.4	6.3	1.3	-1.8	71.7	1.3
May	8.4	7.8	7.9	-3.7	1.8	0.3	6.0	10.5	-2.2	16.2	0.6
June	7.9	7.1	7.2	2.5	1.8	2.0	5.9	-2.8	-1.1	78.2	2.0
July	7.4	6.7	6.8	6.3	2.1	3.3	5.9	4.1	-5.4	85.3	0.7
Aug.	7.0	6.8	6.8	10.8	2.3	4.6	6.3	3.5	-4.9	181.3	2.8
Sep. <sup>(p)</sup>	6.4	5.5	5.6	24.0	2.3	8.1	6.2	-4.6	-0.3	324.2	8.2

Source: ECB.

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



## 5 Financing conditions and credit developments

### 5.2 Deposits in M3 <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>					Financial corporations other than MFIs and ICPFs <sup>2)</sup>	Insurance corporations and pension funds	Other general government <sup>4)</sup>
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2019	2,483.9	2,070.3	256.7	150.5	6.4	7,044.4	4,399.1	492.0	2,152.4	1.0	1,026.5	215.7	464.7
2020	2,976.1	2,522.8	309.9	140.1	3.2	7,663.7	4,965.2	437.3	2,260.4	0.9	1,097.0	234.6	501.2
2021	3,244.4	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.9	228.4	551.6
2021 Q4	3,244.4	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.9	228.4	551.6
2022 Q1	3,269.8	2,841.9	287.3	129.8	10.8	8,189.8	5,480.1	358.0	2,350.6	1.1	1,272.3	230.5	555.7
Q2	3,296.4	2,851.5	303.1	130.5	11.2	8,243.9	5,532.0	353.2	2,358.0	0.6	1,305.4	230.1	576.8
Q3 <sup>(p)</sup>	3,376.0	2,844.1	389.4	133.5	8.9	8,376.2	5,625.5	369.7	2,380.0	1.0	1,435.1	244.3	549.1
2022 Apr.	3,278.5	2,841.6	297.9	129.5	9.6	8,202.8	5,495.4	357.2	2,349.3	1.0	1,282.3	224.4	566.1
May	3,278.7	2,851.6	286.3	130.3	10.4	8,235.3	5,524.4	354.5	2,355.6	0.7	1,275.6	231.1	568.7
June	3,296.4	2,851.5	303.1	130.5	11.2	8,243.9	5,532.0	353.2	2,358.0	0.6	1,305.4	230.1	576.8
July	3,326.0	2,867.4	318.7	130.1	9.9	8,294.2	5,572.7	353.5	2,367.3	0.7	1,333.5	242.7	567.1
Aug.	3,391.2	2,905.4	345.5	132.8	7.6	8,334.3	5,599.8	357.2	2,376.5	0.8	1,360.7	238.0	566.4
Sep. <sup>(p)</sup>	3,376.0	2,844.1	389.4	133.5	8.9	8,376.2	5,625.5	369.7	2,380.0	1.0	1,435.1	244.3	549.1
Transactions													
2019	149.5	167.0	-18.9	1.8	-0.4	396.1	361.2	-26.3	61.7	-0.5	25.1	9.8	29.3
2020	515.9	469.8	55.8	-6.8	-2.9	611.8	560.4	-53.8	105.3	0.0	142.6	20.4	36.7
2021	254.4	279.6	-21.3	-6.9	3.0	423.5	411.2	-65.1	77.5	-0.2	144.3	-8.2	48.2
2021 Q4	85.1	84.8	5.7	-2.3	-3.1	60.4	59.3	-16.1	17.2	0.1	38.1	2.4	32.7
2022 Q1	19.7	18.3	-3.9	1.1	4.2	100.3	98.5	-11.0	12.3	0.4	34.9	2.3	4.3
Q2	14.3	0.4	13.2	0.6	0.1	51.7	50.0	-5.6	7.8	-0.5	22.3	-0.6	21.0
Q3 <sup>(p)</sup>	69.3	-13.5	82.5	2.9	-2.6	126.9	88.9	15.8	21.8	0.4	125.6	12.9	-27.9
2022 Apr.	-0.1	-6.6	8.4	-0.5	-1.5	10.2	12.8	-1.5	-0.9	-0.2	0.5	-6.8	10.3
May	2.1	10.9	-10.6	0.9	0.9	34.4	30.7	-2.4	6.4	-0.3	-2.9	7.0	2.6
June	12.4	-3.9	15.4	0.2	0.7	7.1	6.5	-1.6	2.3	-0.1	24.6	-0.8	8.0
July	25.1	13.0	14.0	-0.4	-1.4	46.9	37.6	0.0	9.2	0.1	21.3	11.7	-9.8
Aug.	63.4	37.1	26.0	2.6	-2.3	39.3	26.4	3.5	9.2	0.1	34.4	-4.7	-0.7
Sep. <sup>(p)</sup>	-19.2	-63.6	42.5	0.7	1.2	40.7	24.9	12.2	3.4	0.3	70.0	5.9	-17.4
Growth rates													
2019	6.4	8.8	-6.8	1.2	-6.5	6.0	8.9	-5.1	3.0	-35.6	2.5	4.8	6.7
2020	20.8	22.7	21.6	-4.5	-47.0	8.7	12.7	-10.9	4.9	-5.2	14.3	9.4	7.9
2021	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.1	-3.5	9.6
2021 Q4	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.1	-3.5	9.6
2022 Q1	6.8	8.6	-5.1	-4.2	40.4	4.6	7.1	-14.3	2.6	27.6	13.4	5.7	12.7
Q2	5.8	6.5	2.4	-1.2	23.1	4.1	6.1	-12.6	2.3	-15.9	12.0	2.8	16.1
Q3 <sup>(p)</sup>	6.0	3.3	33.8	1.8	-15.0	4.2	5.6	-4.3	2.6	56.9	18.3	7.6	5.8
2022 Apr.	6.9	8.3	-0.8	-4.1	22.0	4.4	6.9	-13.8	2.2	8.1	12.3	-1.1	14.3
May	6.5	8.1	-4.4	-2.5	40.5	4.4	6.7	-13.2	2.4	-13.6	10.7	0.4	15.1
June	5.8	6.5	2.4	-1.2	23.1	4.1	6.1	-12.6	2.3	-15.9	12.0	2.8	16.1
July	6.1	6.0	9.3	-1.0	16.5	4.2	6.2	-10.8	2.5	-5.1	11.7	5.8	13.1
Aug.	7.4	6.6	19.3	1.3	-19.3	4.2	5.8	-8.9	2.7	5.7	14.6	3.9	12.4
Sep. <sup>(p)</sup>	6.0	3.3	33.8	1.8	-15.0	4.2	5.6	-4.3	2.6	56.9	18.3	7.6	5.8

Source: ECB.

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

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

3) Including non-profit institutions serving households.

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

## 5 Financing conditions and credit developments

### 5.3 Credit to euro area residents <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
Outstanding amounts												
2019	4,654.5	989.2	3,653.5	13,856.8	11,446.4	11,835.1	4,474.3	5,930.1	891.0	151.0	1,560.5	849.9
2020	5,914.6	998.8	4,903.9	14,333.2	11,919.8	12,299.4	4,708.3	6,132.0	911.7	167.8	1,548.2	865.3
2021	6,552.1	997.2	5,553.1	14,813.8	12,341.5	12,726.4	4,863.8	6,372.5	943.7	161.5	1,583.3	889.0
2021 Q4	6,552.1	997.2	5,553.1	14,813.8	12,341.5	12,726.4	4,863.8	6,372.5	943.7	161.5	1,583.3	889.0
2022 Q1	6,553.9	1,002.7	5,548.5	15,022.9	12,562.4	12,692.8	4,917.2	6,472.1	1,020.0	153.0	1,593.7	866.8
Q2	6,513.6	1,002.0	5,487.5	15,182.6	12,791.8	12,930.8	5,018.2	6,555.0	1,054.2	164.3	1,561.4	829.4
Q3 <sup>(p)</sup>	6,354.4	1,003.4	5,326.6	15,376.1	13,008.1	13,144.0	5,163.1	6,612.4	1,071.6	161.0	1,542.1	825.9
2022 Apr.	6,526.0	1,004.2	5,497.0	15,072.3	12,632.0	12,778.6	4,943.9	6,491.7	1,035.7	160.8	1,600.8	839.5
May	6,507.2	999.8	5,482.6	15,114.3	12,707.2	12,843.6	4,976.3	6,522.4	1,045.2	163.3	1,556.8	850.4
June	6,513.6	1,002.0	5,487.5	15,182.6	12,791.8	12,930.8	5,018.2	6,555.0	1,054.2	164.3	1,561.4	829.4
July	6,539.6	998.4	5,517.0	15,244.0	12,851.2	12,987.0	5,067.5	6,578.6	1,045.8	159.4	1,562.7	830.1
Aug.	6,419.9	998.6	5,397.1	15,311.4	12,937.8	13,070.5	5,136.9	6,596.8	1,054.0	150.1	1,543.9	829.7
Sep. <sup>(p)</sup>	6,354.4	1,003.4	5,326.6	15,376.1	13,008.1	13,144.0	5,163.1	6,612.4	1,071.6	161.0	1,542.1	825.9
Transactions												
2019	-88.4	-23.2	-65.6	449.6	376.1	422.9	115.0	200.3	40.6	20.2	30.2	43.4
2020	1,042.1	13.5	1,028.4	737.0	538.1	559.0	288.2	209.1	23.9	16.9	170.7	28.2
2021	667.4	-0.5	677.5	563.0	474.5	507.7	176.7	261.6	45.5	-9.4	79.2	9.3
2021 Q4	201.1	-1.1	202.1	228.8	174.9	225.4	98.5	60.5	-0.4	16.4	62.7	-8.7
2022 Q1	94.0	4.8	89.2	190.6	183.6	169.4	45.2	72.8	74.1	-8.5	23.6	-16.5
Q2	76.5	-0.7	77.2	207.5	231.4	248.6	97.2	87.0	35.8	11.3	-19.6	-4.3
Q3 <sup>(p)</sup>	-52.3	1.7	-54.3	201.6	212.4	216.2	139.0	55.7	22.0	-4.2	-13.2	2.4
2022 Apr.	16.8	1.6	14.6	68.0	63.2	81.0	23.5	20.6	11.6	7.5	10.0	-5.1
May	21.5	-4.5	25.9	56.6	86.2	75.6	32.5	31.8	18.9	2.9	-42.3	12.6
June	38.2	2.2	36.7	82.9	82.0	92.1	41.2	34.6	5.3	0.9	12.7	-11.8
July	-23.3	-3.7	-19.6	43.0	51.4	51.3	46.3	21.3	-10.6	-5.6	-6.9	-1.5
Aug.	-36.6	0.7	-37.3	85.5	95.1	94.2	69.4	18.2	16.9	-9.4	-11.6	1.9
Sep. <sup>(p)</sup>	7.6	4.8	2.6	73.1	65.9	70.7	23.3	16.1	15.6	10.8	5.3	1.9
Growth rates												
2019	-1.9	-2.3	-1.8	3.4	3.4	3.7	2.6	3.5	4.8	16.0	2.0	5.5
2020	22.2	1.4	27.8	5.4	4.7	4.7	6.4	3.5	2.7	10.3	11.4	3.4
2021	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	5.0	-4.5	5.2	1.1
2021 Q4	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	5.0	-4.5	5.2	1.1
2022 Q1	10.1	0.8	11.9	4.2	4.3	4.6	3.5	4.4	8.5	-1.1	6.6	-1.7
Q2	8.5	-0.2	10.1	5.2	5.8	6.2	5.9	4.6	13.6	8.0	5.0	-2.8
Q3 <sup>(p)</sup>	5.0	0.5	5.9	5.7	6.6	6.9	8.0	4.4	13.9	10.1	3.5	-3.0
2022 Apr.	9.6	0.4	11.4	4.7	4.8	5.3	4.5	4.3	10.1	3.7	7.5	-1.7
May	8.9	-0.2	10.7	4.8	5.3	5.7	5.1	4.4	12.0	2.4	4.8	-1.1
June	8.5	-0.2	10.1	5.2	5.8	6.2	5.9	4.6	13.6	8.0	5.0	-2.8
July	7.0	-0.9	8.5	5.2	5.9	6.3	6.6	4.5	12.2	4.8	4.3	-2.7
Aug.	5.5	-0.5	6.7	5.6	6.4	6.8	7.8	4.4	13.7	-0.7	3.7	-3.0
Sep. <sup>(p)</sup>	5.0	0.5	5.9	5.7	6.6	6.9	8.0	4.4	13.9	10.1	3.5	-3.0

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					6				
	2	3	4	5	6	7	8	9	10	
Outstanding amounts										
2019	4,474.3	4,576.5	966.7	877.5	2,630.1	5,930.1	6,221.7	720.1	4,523.5	686.5
2020	4,708.3	4,829.7	897.2	1,009.7	2,801.4	6,132.0	6,400.5	700.6	4,724.7	706.7
2021	4,863.8	4,994.8	888.7	1,006.4	2,968.6	6,372.5	6,635.8	698.2	4,970.9	703.5
2021 Q4	4,863.8	4,994.8	888.7	1,006.4	2,968.6	6,372.5	6,635.8	698.2	4,970.9	703.5
2022 Q1	4,917.2	4,892.5	911.4	1,002.2	3,003.7	6,472.1	6,672.0	701.1	5,063.3	707.7
Q2	5,018.2	4,994.4	948.8	1,027.9	3,041.5	6,555.0	6,745.8	707.4	5,140.2	707.5
Q3 <sup>(p)</sup>	5,163.1	5,134.9	1,002.7	1,067.8	3,092.6	6,612.4	6,801.3	713.7	5,194.2	704.6
2022 Apr.	4,943.9	4,920.7	924.0	1,012.0	3,007.8	6,491.7	6,697.3	702.9	5,082.2	706.6
May	4,976.3	4,945.9	936.5	1,016.1	3,023.7	6,522.4	6,725.2	705.6	5,109.9	706.9
June	5,018.2	4,994.4	948.8	1,027.9	3,041.5	6,555.0	6,745.8	707.4	5,140.2	707.5
July	5,067.5	5,039.6	958.4	1,042.4	3,066.6	6,578.6	6,765.8	709.9	5,161.8	706.8
Aug.	5,136.9	5,106.0	985.2	1,064.5	3,087.2	6,596.8	6,786.7	709.4	5,180.0	707.4
Sep. <sup>(p)</sup>	5,163.1	5,134.9	1,002.7	1,067.8	3,092.6	6,612.4	6,801.3	713.7	5,194.2	704.6
Transactions										
2019	115.0	142.5	-13.0	44.8	83.2	200.3	216.2	41.0	168.5	-9.2
2020	288.2	325.3	-54.1	138.7	203.6	209.1	193.0	-11.8	210.7	10.2
2021	176.7	208.6	-1.3	2.8	175.2	261.6	266.6	10.7	255.0	-4.0
2021 Q4	98.5	127.6	55.9	37.1	5.5	60.5	71.0	6.5	55.7	-1.7
2022 Q1	45.2	54.0	18.8	-4.7	31.2	72.8	83.0	5.1	65.2	2.5
Q2	97.2	103.0	37.7	23.1	36.5	87.0	78.2	7.8	76.9	2.3
Q3 <sup>(p)</sup>	139.0	139.6	53.0	38.0	47.9	55.7	54.6	6.6	53.3	-4.2
2022 Apr.	23.5	24.7	11.4	7.8	4.3	20.6	25.0	2.4	18.5	-0.3
May	32.5	25.4	14.2	4.6	13.8	31.8	29.6	3.2	28.1	0.5
June	41.2	52.9	12.1	10.7	18.4	34.6	23.6	2.2	30.3	2.0
July	46.3	44.1	8.3	14.2	23.8	21.3	18.5	2.7	21.2	-2.5
Aug.	69.4	68.2	27.9	22.7	18.8	18.2	21.1	-0.9	18.4	0.7
Sep. <sup>(p)</sup>	23.3	27.3	16.8	1.1	5.3	16.1	15.1	4.8	13.7	-2.4
Growth rates										
2019	2.6	3.2	-1.3	5.3	3.2	3.5	3.6	6.0	3.9	-1.3
2020	6.4	7.1	-5.7	15.9	7.8	3.5	3.1	-1.6	4.7	1.5
2021	3.8	4.3	-0.1	0.3	6.3	4.3	4.2	1.6	5.4	-0.6
2021 Q4	3.8	4.3	-0.1	0.3	6.3	4.3	4.2	1.6	5.4	-0.6
2022 Q1	3.5	4.2	2.4	-0.8	5.4	4.4	4.5	2.6	5.4	-0.2
Q2	5.9	6.9	14.0	5.9	3.7	4.6	4.6	3.4	5.4	0.1
Q3 <sup>(p)</sup>	8.0	8.9	19.8	9.6	4.1	4.4	4.4	3.8	5.1	-0.2
2022 Apr.	4.5	5.3	5.7	1.9	5.1	4.3	4.6	3.1	5.2	-0.2
May	5.1	6.0	7.4	4.6	4.6	4.4	4.6	3.4	5.3	-0.2
June	5.9	6.9	14.0	5.9	3.7	4.6	4.6	3.4	5.4	0.1
July	6.6	7.6	15.4	7.5	3.8	4.5	4.5	3.6	5.3	-0.2
Aug.	7.8	8.8	18.8	9.8	4.1	4.4	4.5	3.4	5.2	0.0
Sep. <sup>(p)</sup>	8.0	8.9	19.8	9.6	4.1	4.4	4.4	3.8	5.1	-0.2

Source: ECB.

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

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

3) Including non-profit institutions serving households.

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

## 5 Financing conditions and credit developments

### 5.5 Counterparts to M3 other than credit to euro area residents <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		
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2019	363.4	7,055.1	1,944.5	50.2	2,155.2	2,905.3	1,474.7	417.4	178.9	187.2
2020	744.6	6,961.4	1,914.8	42.1	1,991.8	3,012.7	1,437.6	489.8	130.1	139.2
2021	797.1	6,889.8	1,838.8	37.1	1,998.1	3,015.9	1,363.8	441.9	118.8	136.8
2021 Q4	797.1	6,889.8	1,838.8	37.1	1,998.1	3,015.9	1,363.8	441.9	118.8	136.8
2022 Q1	740.4	6,875.0	1,847.5	35.8	1,985.8	3,005.8	1,359.4	347.8	153.0	164.4
Q2	757.6	6,803.7	1,848.1	31.6	2,005.7	2,918.3	1,302.5	412.6	159.3	157.3
Q3 <sup>(p)</sup>	635.5	6,784.7	1,802.7	31.3	2,092.9	2,857.8	1,310.8	553.4	142.9	145.6
2022 Apr.	768.6	6,897.0	1,845.5	35.6	2,017.7	2,998.1	1,357.9	439.6	180.7	171.7
May	725.3	6,803.4	1,847.3	32.2	1,985.9	2,937.9	1,236.4	432.7	178.3	170.8
June	757.6	6,803.7	1,848.1	31.6	2,005.7	2,918.3	1,302.5	412.6	159.3	157.3
July	735.1	6,903.1	1,835.7	31.2	2,056.0	2,980.2	1,335.1	428.6	169.5	159.1
Aug.	647.0	6,823.3	1,811.9	31.9	2,077.9	2,901.7	1,372.3	420.4	154.6	145.7
Sep. <sup>(p)</sup>	635.5	6,784.7	1,802.7	31.3	2,092.9	2,857.8	1,310.8	553.4	142.9	145.6
Transactions										
2019	-25.0	107.2	-5.5	-2.9	28.0	87.6	311.8	14.2	-2.7	-2.5
2020	316.3	-34.8	-14.9	-8.0	-101.1	89.1	-60.2	142.3	-48.8	-48.0
2021	53.1	-36.1	-74.8	-5.0	-39.8	83.5	-120.5	-92.6	-11.3	-2.3
2021 Q4	106.7	10.0	-13.5	-1.6	6.1	18.9	-71.3	25.9	-20.2	-9.2
2022 Q1	-53.2	-42.4	-21.6	-1.3	-28.8	9.3	-25.6	-177.9	34.0	34.7
Q2	17.1	29.7	-3.2	-4.1	-16.0	53.2	-70.6	-14.0	7.6	-7.1
Q3 <sup>(p)</sup>	-122.0	-3.1	-50.6	-0.3	-2.9	50.7	-1.7	83.8	-16.4	-11.7
2022 Apr.	28.1	29.8	-5.1	-0.2	4.5	30.6	-32.4	43.5	27.7	7.3
May	-43.3	-16.3	2.9	-3.4	-22.8	6.9	-76.3	-21.5	-1.1	-0.9
June	32.2	16.1	-1.1	-0.6	2.3	15.6	38.1	-36.0	-19.0	-13.5
July	-22.4	-3.4	-14.3	-0.5	-5.9	17.1	-3.7	49.8	10.2	1.8
Aug.	-88.1	-12.8	-24.5	0.7	5.6	5.5	51.7	-49.4	-14.9	-13.4
Sep. <sup>(p)</sup>	-11.5	13.2	-11.8	-0.6	-2.6	28.1	-49.7	83.4	-11.7	-0.1
Growth rates										
2019	-6.4	1.6	-0.3	-5.3	1.3	3.1	-	-	-1.5	-1.5
2020	87.4	-0.5	-0.8	-15.9	-4.7	3.0	-	-	-27.3	-25.7
2021	7.1	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2021 Q4	7.1	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2022 Q1	5.7	-0.7	-4.0	-13.1	-1.9	2.3	-	-	20.1	31.9
Q2	12.0	0.0	-3.0	-21.3	-1.5	3.2	-	-	29.6	22.2
Q3 <sup>(p)</sup>	-7.5	-0.1	-4.7	-19.0	-2.1	4.5	-	-	3.4	4.2
2022 Apr.	7.4	-0.1	-3.3	-13.3	-1.5	3.1	-	-	35.9	36.7
May	4.5	0.0	-3.1	-20.8	-1.8	3.5	-	-	34.5	36.4
June	12.0	0.0	-3.0	-21.3	-1.5	3.2	-	-	29.6	22.2
July	7.6	-0.1	-3.4	-21.0	-2.2	3.8	-	-	27.9	24.8
Aug.	-8.2	-0.1	-4.2	-18.4	-1.7	3.8	-	-	24.1	18.6
Sep. <sup>(p)</sup>	-7.5	-0.1	-4.7	-19.0	-2.1	4.5	-	-	3.4	4.2

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	
	MFIs													
	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	Issuance	Redemption			
											Maturities of up to 1 year		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	12.2	10.8	3.6	1.4	0.4	7.5	2.2	1.3	-0.1	2.5	2.1	0.3	1.1
2020	14.9	13.5	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	12.9	4.2	1.3	0.3	7.9	1.6	1.1	-0.4	1.9	1.9	-0.1	0.5
2021 Q2	14.4	13.1	4.8	1.3	0.3	7.9	1.6	0.7	-0.3	2.0	2.1	-0.1	0.5
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	12.9	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
2022 Apr.	14.3	13.0	4.5	1.3	0.3	8.0	1.5	1.1	-0.3	1.9	1.7	-0.1	0.5
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.	14.6	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.	14.0	12.8	4.0	1.3	0.3	8.1	1.6	1.1	0.0	1.9	1.7	0.5	0.4

Source: ECB.

1) At face value and not consolidated within the general government sector.

2) Excludes future payments on debt securities not yet outstanding and early redemptions.

3) Residual maturity at the end of the period.

4) Outstanding amounts at the end of the period; transactions as 12-month average.

## 6 Fiscal developments

### 6.6 Fiscal developments in euro area countries

(as a percentage of GDP; flows during one-year period and outstanding amounts at end of period)

	Belgium	Germany	Estonia	Ireland	Greece	Spain	France	Italy	Cyprus	
	1	2	3	4	5	6	7	8	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	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	10	11	12	13	14	15	16	17	18	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.

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