EUROPEAN CENTRAL BANK

EUROSYSTEM

Economic Bulletin

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Contents

Update on economic, financial and monetary developments

Summary

Russia's aggression in Ukraine is causing enormous suffering. It is also affecting the economy, in Europe and beyond. The conflict and the associated uncertainty are weighing heavily on the confidence of businesses and consumers. Trade disruptions are leading to new shortages of materials and inputs. Surging energy and commodity prices are reducing demand and holding back production. How the economy develops will crucially depend on how the conflict evolves, on the impact of current sanctions and on possible further measures. At the same time, economic activity is still being supported by the reopening of the economy after the crisis phase of the pandemic. Inflation has increased significantly and will remain high over the coming months, mainly because of the sharp rise in energy costs. Inflation pressures have intensified across many sectors.

At its meeting on 14 April 2022, the Governing Council judged that the incoming data since the meeting in March had reinforced its expectation that net asset purchases under the asset purchase programme (APP) should be concluded in the third quarter. Looking ahead, the ECB's monetary policy will depend on the incoming data and the evolving assessment of the outlook. In the current conditions of high uncertainty, the Governing Council will maintain optionality, gradualism and flexibility in the conduct of monetary policy. It will take whatever action is needed to fulfil the ECB's mandate to pursue price stability and to contribute to safeguarding financial stability.

Economic activity

Global economic activity remained resilient at the start of 2022, with survey data indicating that the Omicron variant of the coronavirus (COVID-19) may only have a short-lived impact on advanced economies. However, the Russia-Ukraine war and new pandemic-related measures in Asia are expected to weigh on the global economy and are leading to fresh shortages of materials and inputs. The geopolitical situation and the pandemic are also acting as a drag on trade. At the same time, the delayed easing of supply chain disruptions and the economic impact of the war are likely to intensify global inflationary pressures. The impact on inflation is expected to be more significant in emerging market economies (EMEs) than in advanced economies, given the higher weight of commodities in the consumption baskets of EMEs.

The euro area economy grew by 0.3% in the final quarter of 2021. It is estimated that growth remained weak during the first quarter of 2022, largely owing to pandemic-related restrictions.

Several factors point to slow growth also in the period ahead. The war is already weighing on the confidence of businesses and consumers, including through the uncertainty it brings. With energy and commodity prices rising sharply, households are facing a higher cost of living and firms are confronted with higher production costs. The war has created new bottlenecks, while a new set of pandemic measures in Asia is contributing to supply chain difficulties. Some sectors face growing difficulties in sourcing their inputs, which is disrupting production. However, there are also offsetting factors underpinning the ongoing recovery, such as compensatory fiscal measures and the possibility for households to draw on savings they accumulated during the pandemic. Moreover, the reopening of those sectors most affected by the pandemic and a strong labour market with more people in jobs will continue to support incomes and spending.

Fiscal and monetary policy support remains critical, especially in this difficult geopolitical situation. In addition, the successful implementation of the investment and reform plans under the Next Generation EU programme will accelerate the energy and green transitions. This should help enhance long-term growth and resilience in the euro area.

Inflation

Inflation increased to 7.5% in March, from 5.9% in February. Energy prices were driven higher after the outbreak of the war and now stand 45% above their level one year ago. They continue to be the main reason for the high rate of inflation. Market-based indicators suggest that energy prices will stay high in the near term but will then moderate to some extent. Food prices have also increased sharply. This is due to elevated transportation and production costs, notably the higher price of fertilisers, which are in part related to the war in Ukraine.

Price rises have become more widespread. Energy costs are pushing up prices across many sectors. Supply bottlenecks and the normalisation of demand as the economy reopens also continue to put upward pressure on prices. Measures of underlying inflation have risen to levels above 2% in recent months. It is uncertain how persistent the rise in these indicators will be, given the role of temporary pandemic-related factors and the indirect effects of higher energy prices.

The labour market continues to improve, with unemployment having fallen to a historical low of 6.8% in February. Job postings across many sectors still signal robust demand for labour, yet wage growth remains muted overall. Over time the return of the economy to full capacity should support faster growth in wages. While various measures of longer-term inflation expectations derived from financial markets and from expert surveys largely stand at around 2%, initial signs of above-target revisions in those measures warrant close monitoring.

Risk assessment

The downside risks to the growth outlook have increased substantially as a result of the war in Ukraine. While risks relating to the pandemic have declined, the war may have an even stronger effect on economic sentiment and could further worsen supply-side constraints. Persistently high energy costs, together with a loss of confidence, could drag down demand and restrain consumption and investment more than expected.

The upside risks surrounding the inflation outlook have also intensified, especially in the near term. The risks to the medium-term inflation outlook include above-target moves in inflation expectations, higher than anticipated wage rises and a durable worsening of supply-side conditions. However, if demand were to weaken over the medium term, it would lower pressure on prices.

Financial and monetary conditions

Financial markets have been highly volatile since the war began and financial sanctions were imposed. Market interest rates have increased in response to the changing outlook for monetary policy, the macroeconomic environment and inflation dynamics. Bank funding costs have continued to increase. At the same time, so far there have been no severe strains in money markets, nor liquidity shortages in the euro area banking system.

Although remaining at low levels, bank lending rates for firms and households have started to reflect the increase in market interest rates. Lending to households is holding up, especially for house purchases. Lending flows to firms have stabilised.

The most recent euro area bank lending survey reports that credit standards for loans to firms and for housing loans tightened overall in the first quarter of the year, as lenders are becoming more concerned about the risks facing their customers in an uncertain environment. Credit standards are expected to tighten further in the coming months, as banks factor in the adverse economic impact of Russia's aggression towards Ukraine and higher energy prices.

Conclusion

Summing up, the war in Ukraine is severely affecting the euro area economy and has significantly increased uncertainty. The impact of the war on the economy will depend on how the conflict evolves, on the effect of current sanctions and on possible further measures. Inflation has increased significantly and will remain high over the coming months, mainly because of the sharp rise in energy costs. The Governing Council is very attentive to the current uncertainties and is closely monitoring the incoming data in relation to their implications for the medium-term inflation outlook. The calibration of the ECB's policies will remain data-dependent and reflect the Governing Council's evolving assessment of the outlook. The

Governing Council stands ready to adjust all of its instruments within its mandate, incorporating flexibility if warranted, to ensure that inflation stabilises at the 2% target over the medium term.

Monetary policy decisions

At the monetary policy meeting on 14 April 2022, the Governing Council confirmed that monthly net purchases under the APP would amount to €40 billion in April, €30 billion in May and €20 billion in June. The Governing Council judged that the incoming data since its last meeting reinforced its expectation that net asset purchases under the APP should be concluded in the third quarter. The calibration of net purchases for the third quarter will be data-dependent and reflect the Governing Council's evolving assessment of the outlook.

The Governing Council also intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates and, in any case, for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

The interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility remain unchanged at 0.00%, 0.25% and -0.50% respectively.

Any adjustments to the key ECB interest rates will take place some time after the end of the Governing Council's net purchases under the APP and will be gradual. The path for the key ECB interest rates will continue to be determined by the Governing Council's forward guidance and by its strategic commitment to stabilise inflation at 2% over the medium term. Accordingly, the Governing Council expects the key ECB interest rates to remain at their present levels until it sees inflation reaching 2% well ahead of the end of its projection horizon and durably for the rest of the projection horizon, and it judges that realised progress in underlying inflation is sufficiently advanced to be consistent with inflation stabilising at 2% over the medium term.

The Governing Council intends to reinvest the principal payments from maturing securities purchased under the pandemic emergency purchase programme (PEPP) 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.

In the event of renewed market fragmentation related to the pandemic, PEPP reinvestments can be adjusted flexibly across time, asset classes and jurisdictions at any time. This could include purchasing bonds issued by the Hellenic Republic over and above rollovers of redemptions in order to avoid an interruption of purchases in that jurisdiction, which could impair the transmission of monetary policy to the Greek economy while it is still recovering from the fallout from the pandemic. Net purchases under the PEPP could also be resumed, if necessary, to counter negative shocks related to the pandemic.

The Governing Council will continue to monitor bank funding conditions and ensure that the maturing of operations under the third series of targeted longer-term refinancing operations (TLTRO III) does not hamper the smooth transmission of its monetary policy. The Governing Council will also regularly assess how targeted lending operations are contributing to its monetary policy stance. As announced, it expects the special conditions applicable under TLTRO III to end in June this year. The Governing Council will also assess the appropriate calibration of its two-tier system for reserve remuneration so that the negative interest rate policy does not limit banks' intermediation capacity in an environment of ample excess liquidity.

The Governing Council stands ready to adjust all of its instruments within its mandate, incorporating flexibility if warranted, to ensure that inflation stabilises at its 2% target over the medium term. The pandemic has shown that, under stressed conditions, flexibility in the design and conduct of asset purchases has helped to counter the impaired transmission of monetary policy and made the Governing Council's efforts to achieve its goal more effective. Within the Governing Council's mandate, under stressed conditions, flexibility will remain an element of monetary policy whenever threats to monetary policy transmission jeopardise the attainment of price stability.

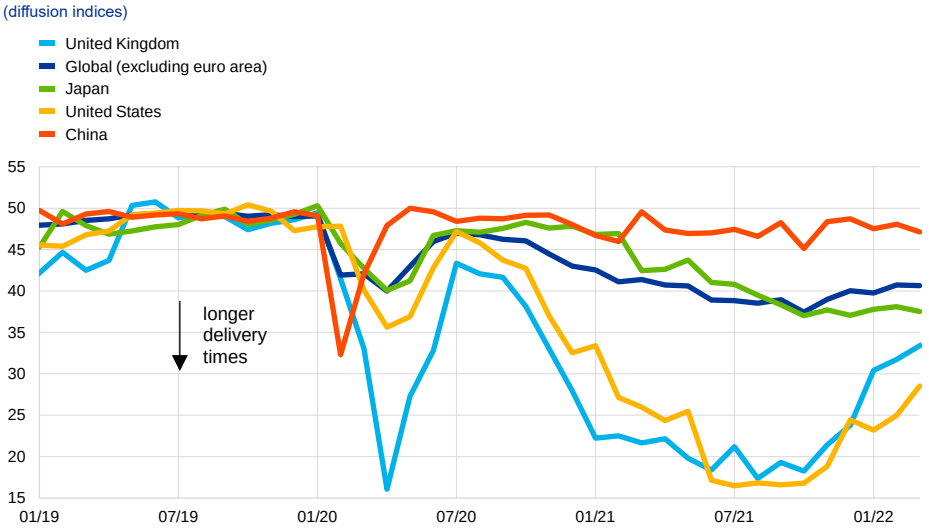
1 External environment

Global economic activity remained resilient at the start of 2022, with survey data indicating that the Omicron variant of the coronavirus (COVID-19) may only have a short-lived impact on advanced economies. However, the Russia-Ukraine war and new pandemic-related measures in Asia are expected to weigh on the global economy and are leading to fresh shortages of materials and inputs. The geopolitical situation and the pandemic are also acting as a drag on trade. At the same time, the delayed easing of supply chain disruptions and the economic impact of the war are likely to intensify global inflationary pressures. The impact on inflation is expected to be more significant in emerging market economies (EMEs) than in advanced economies, given the higher weight of commodities in the consumption baskets of EMEs.

The Russia-Ukraine war and new pandemic-related measures in Asia are expected to weigh on activity in the short term. Prior to Russia's invasion of Ukraine, survey indicators were pointing to moderate growth at the start of 2022. The global composite output Purchasing Managers' Index (PMI) rebounded in February following a sharp drop in January, suggesting that the impact of the Omicron wave in advanced economies would be short-lived. However, the composite PMI declined in March, although remaining expansionary, driven by a marked fall in Russia and, to a lesser extent, in China. The ongoing war in Ukraine and the associated sanctions imposed on Russia are expected to weigh on the global economy in the form of higher commodity prices and falling confidence, as evidenced by the deteriorating consumer confidence indices for key economies. In turn, this is likely to curtail consumption and investment, particularly in the second quarter. Notwithstanding these headwinds and the elevated uncertainty surrounding the global outlook, activity is expected to remain on an expansionary, albeit more moderate, path in 2022.

Recent global developments are causing new shortages of materials and inputs. The recent easing of supply chain bottlenecks has continued, with PMI suppliers' delivery times for March surprising on the upside in the United Kingdom and the United States (Chart 1). This might reflect a continuation of the rebound following the Omicron-driven slowdown at the turn of the year. However, other higher-frequency data, including vessel movements and shipping prices, suggest that the recent easing of supply chain disruptions is being hindered due to the adverse impact on production and transport of the Russia-Ukraine war and the resurgence of COVID-19 cases and the renewed pandemic-related measures in Asia.

Chart 1
PMI suppliers' delivery times



Sources: Markit and ECB staff calculations.
Note: The latest observations are for March 2022.

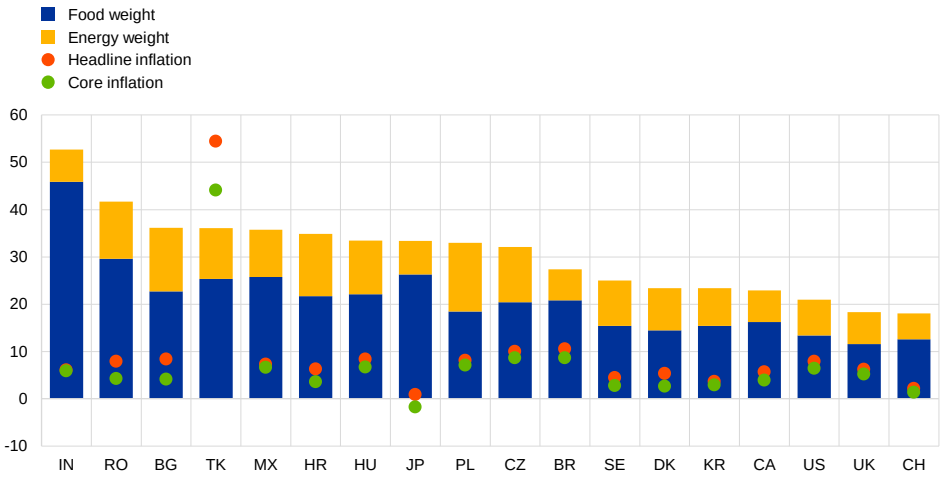
The geopolitical situation and pandemic are also acting as a drag on trade. High-frequency indicators point to a moderation in global trade in March. This includes significant declines in the number of commercial ships calling at Russian and Ukrainian ports relative to the 2021 average owing to the war and the associated sanctions imposed on Russia. Many private firms withdrew from or cut ties with Russia following the initial imposition of sanctions. It is likely that such boycotts are already weighing on trade. Meanwhile, the resurgence of COVID-19 in Asia, combined with the Lunar New Year holidays and recent lockdowns in China, have contributed to the subdued shipping volumes from that country. Vessel movements in February also declined in other regions, including North America. Looking ahead trade flows may weaken further in the second and third quarters of the year as the sanctions on Russia continue to dent commercial activity.

Renewed strains on supply chains and the economic impact of the war pose upside risks to global inflation. Annual consumer price index (CPI) inflation in the member countries of the Organisation for Economic Co-operation and Development (OECD) increased to 7.7% in February, while inflation excluding food and energy rose to 5.5%. The contribution of food and energy accounted for around one-third of the total increase, while the remaining two-thirds came from core inflation. Looking ahead OECD inflation could be pushed even higher given the rise in commodity prices since January. EMEs, such as India, Mexico and Turkey, may experience even more pronounced increases in headline figures, given the greater weight of commodities in these countries' consumption baskets (Chart 2). Advanced economies, such as Canada, the United Kingdom and the United States, appear less vulnerable.

Chart 2

Consumer price inflation and food and energy weights in the consumption basket

(annual percentage changes, February 2022; percentage weight in CPI/HICP indices)

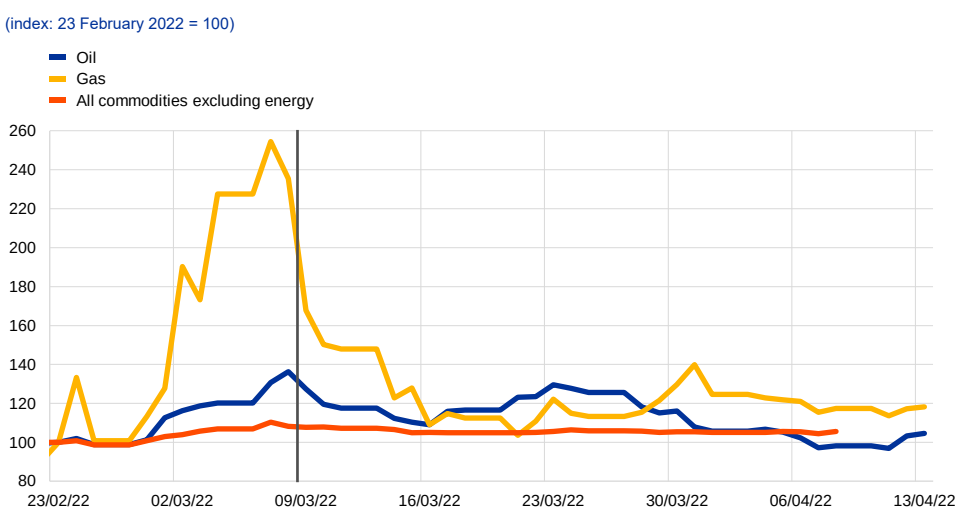


Sources: National statistical offices via Haver Analytics and ECB staff calculations.
Notes: The latest observations are for February 2022. HICP indices are reported for the EU countries.

Commodity prices have eased since the Governing Council's meeting in March, but remain sensitive to supply risks owing to the war in Ukraine. Amid high volatility, oil prices have fallen by 18% since the Governing Council's March meeting. This was driven partly by the United States' decision to release 1 million barrels of strategic oil reserves per day for the next six months, as well as by the release of an additional 330 thousand barrels per day by other members of the International Energy Agency and downside risks to demand stemming from the recent lockdowns in China. While the dispute between Russia and the G7 group and the European Union over the currency denomination of gas payments led to renewed concerns about gas imports from Russia, gas prices have fallen by 30%, as markets appear to be relieved that Russian gas exports to Europe did not decrease after the Russian invasion of Ukraine. Non-energy commodity prices have declined slightly (by 2%) since the Governing Council meeting in March. This is due to the easing of concerns about potential supply shortfalls owing to the war and because the lockdowns in China pose downside risks to demand for metals. However, commodity prices in general remain above the levels observed before Russia's invasion of Ukraine (Chart 3). The war is posing significant risks to supply, as Russia is a leading exporter of a broad range of commodities including oil, gas, aluminium, fertilisers and wheat.

Chart 3

Commodity price developments since Russia's invasion of Ukraine



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 March 2022. The latest observations are for 13 April 2022.

In the United States, economic activity is expected to moderate in the first quarter of 2022, while a rebound is forecast for the second quarter. Although the Omicron wave is fading, waning fiscal support coupled with high inflation has led to a fall in real disposable income since the last quarter of 2021. Consequently, consumer spending – particularly in low-income households – could be dampened at the start of this year, also as a result of the impact of the war on commodity prices. Nevertheless, household balance sheets are healthy overall. In addition, a robust labour market and strong nominal incomes are expected to support economic growth over the rest of the year. Meanwhile, the labour market remains tight amid labour supply shortages, which has translated into intensifying wage pressures. Annual headline CPI inflation rose to 8.5% in March, while core inflation increased to 6.5%. Energy prices remain a significant driver of inflation, along with supply bottlenecks, which are putting pressure on goods prices. Services prices also increased amid an ongoing rise in rents, while prices also rebounded in transportation services. In response to the tight labour market and high inflation, the Federal Reserve System increased its target rate and tightened its policy stance at its March meeting.

In China, the highest recorded incidence of COVID-19 cases since the start of the pandemic is likely to hold back growth in the short term. While activity appeared relatively strong in January and February, the sharp increase in COVID-19 case numbers in March led to widespread lockdowns, which are significantly dampening growth. Local lockdowns imposed by authorities could further disrupt important supply chains. The decrease in traffic congestion in key port and finance cities such as Shanghai and Shenzhen, which account for around one-sixth of China's exports, suggests that growth momentum was decelerating at the end of the first quarter. With cases still rising and major cities in lockdown, the economy is likely to continue to slow in the second quarter of 2022.

In Japan, the recovery in economic activity softened at the start of 2022 with the spread of the Omicron variant. High-frequency data suggest that the sharp increase in COVID-19 cases since the start of the year and the introduction of quasi-state of emergency measures in a number of prefectures contributed to a decline in consumer expenditure and confidence in January and February. With COVID-19 cases peaking in early February and the emergency measures being lifted in March, the negative impact of Omicron on economic activity is currently expected to be short-lived. Annual headline CPI inflation increased to 0.9% in February, driven by rising energy prices and, to a lesser extent, food prices, while core inflation rose slightly to -1.8%. Core inflation continues to be weighed down by the previous year's sharp declines in mobile phone charges, after the Government asked carriers to lower their fees. As this factor starts to fade from the year-on-year data, inflation rates are expected to rise towards the 2% target.

In the United Kingdom, the economy is rebounding quickly from the impact of the Omicron variant, but surging inflation has started to weigh on consumer confidence. Real GDP softened in February after surprising to the upside in January, increasing by 0.1% month on month. While economic activity was mainly supported by an increase in consumer services, activity in the manufacturing and construction sectors fell. Looking ahead a deterioration in consumer confidence signals a marked slowdown in growth momentum. As a result of the surge in inflation, rising interest rates and tighter fiscal policy, private households are increasingly concerned about their income prospects. Annual headline CPI inflation, driven mainly by the energy component, rose to 7.0% in March, with prices for furniture and household equipment and in the hospitality sector also contributing to this rise. Meanwhile, core inflation increased to 5.7%. The Bank of England increased its policy rate from 0.50% to 0.75% at its Monetary Policy Committee meeting in March, taking into consideration the tightness in the labour market and the continued signs of robust domestic cost and price pressures.

The recent surge in commodity prices is expected to weigh on the growth prospects of commodity-importing EMEs. The deterioration in the terms of trade in commodity-importing EMEs, especially in key Asian manufacturing countries, is generating a negative income effect that weighs on economic activity. Moreover, commodity importers with current account deficits, such as India and Turkey, could be hit harder if foreign investors are unwilling to finance the higher deficits necessary to fund these countries' commodity imports. By contrast, in key commodity-exporting EMEs, such as Iran, Nigeria and Saudi Arabia, the increases in commodity prices are expected to cushion the negative impact of falling foreign demand and the rising prices of other commodities. Monetary policy actions across EMEs have remained diverse in recent weeks, reflecting differences in inflation developments. While some countries, such as Brazil, Mexico and South Africa, have continued to increase policy rates, others, including India and Indonesia, have kept rates constant.

2 Economic activity

The euro area economy grew by 0.3% in the final quarter of 2021. It is estimated that growth remained weak during the first quarter of 2022, largely owing to pandemic-related restrictions.

Russia's aggression towards Ukraine is causing enormous suffering. It is also affecting the economy, in Europe and beyond. The war is already weighing on the confidence of businesses and consumers, including through the uncertainty it brings. With energy and commodity prices rising sharply, households are facing a higher cost of living and firms are being confronted with increased production costs. The war has created new bottlenecks, while a fresh set of pandemic-related measures in Asia is contributing to supply chain difficulties. Some sectors face growing difficulties in sourcing their inputs, which is disrupting production. However, there are also offsetting factors underpinning the ongoing recovery, such as compensatory fiscal measures and the possibility for households to draw on savings accumulated during the pandemic. Moreover, the reopening of those sectors that have been most affected by the pandemic and a strong labour market with more people in jobs will continue to support incomes and spending.

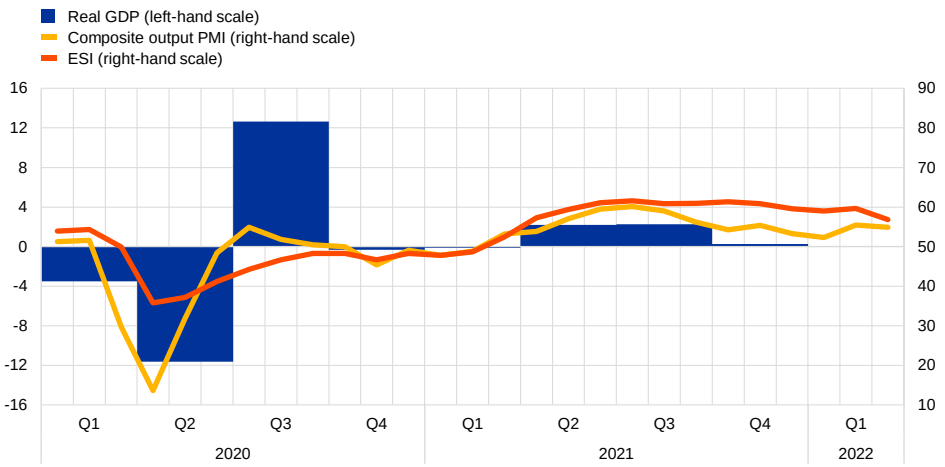
Fiscal and monetary policy support remains critical, especially in this difficult geopolitical situation. In addition, the successful implementation of investment and reform plans under the Next Generation EU programme will accelerate the energy and green transitions. This should help to enhance long-term growth and resilience in the euro area.

Euro area real GDP growth slowed in the final quarter of 2021, following the greater dynamism observed in the two previous quarters. Output growth moderated to stand at 0.3% quarter on quarter in the fourth quarter of last year, following stronger readings in the second and third quarters (Chart 4). This outcome was in line with the flash estimate. GDP is now 0.2% above the pre-pandemic peak observed in the final quarter of 2019, and the carry-over effect on annual growth this year is estimated at 1.9%. Domestic demand and changes to inventories made a positive contribution to growth in the fourth quarter, whereas net trade had a negative impact. The rise in output in the fourth quarter was broad-based across countries, notwithstanding the decline in Germany. The latest estimate for 2021 puts GDP growth at 5.3%, the biggest annual rise since the early 1970s. On the production side, total value added edged upwards, rising by 0.1% quarter on quarter in the fourth quarter. Value added in industry excluding construction was unchanged, with the same being observed in the service sector, while value added in the construction sector rose by 1.1%.

Chart 4

Euro area real GDP, the composite output PMI and the ESI

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



Sources: Eurostat, European Commission, IHS Markit 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 so that it has the same mean and standard deviation as the Purchasing Managers' Index (PMI). The latest observations are for the fourth quarter of 2021 for real GDP and March 2022 for the PMI and the ESI.

Growth is expected to have remained weak in the first quarter of 2022 amid the Omicron wave, the further rise in energy costs and Russia's invasion of Ukraine. The deceleration in activity in the fourth quarter of last year and the expectations of further muted growth in the first quarter of this year are in line with the new restrictions aimed at tackling the fast-spreading Omicron variant of the coronavirus. While that relates mainly to services, Russia's invasion of Ukraine will also have negative consequences for overall activity – particularly in the industrial sector – in the short run. Furthermore, while the supply chain disruptions caused by the pandemic had shown some signs of easing before the outbreak of war, there have been indications that bottlenecks are increasing again (e.g. as a result of a new set of pandemic-related measures in Asia). In addition, high energy costs are having an adverse effect on households' purchasing power and creating additional headwinds for private consumption and economic activity. Information from companies operating in the non-financial sector broadly confirms this overall narrative regarding the short-term outlook (Box 2).

Incoming data support the view that growth was muted at the beginning of this year. The level of industrial production in January 2022 was unchanged relative to December 2021, standing 1.6% above the average level for the fourth quarter. However, the impact of current developments in Ukraine is visible in more timely survey data. For instance, the composite output PMI fell to 54.9 in March, down from 55.5 in February, entirely on the back of a softening manufacturing sector. At the same time, the PMI indicator for suppliers' delivery times, which captures supply chain disruption in the manufacturing sector, deteriorated again, returning to the level seen at end-2021. Furthermore, the composite indicator of business expectations 12 months ahead fell sharply in March, the second largest drop since its inception in 2012. The ESI also declined sharply in March on the back of the invasion of Ukraine. Its average for the first quarter was below the equivalent figure for the fourth quarter

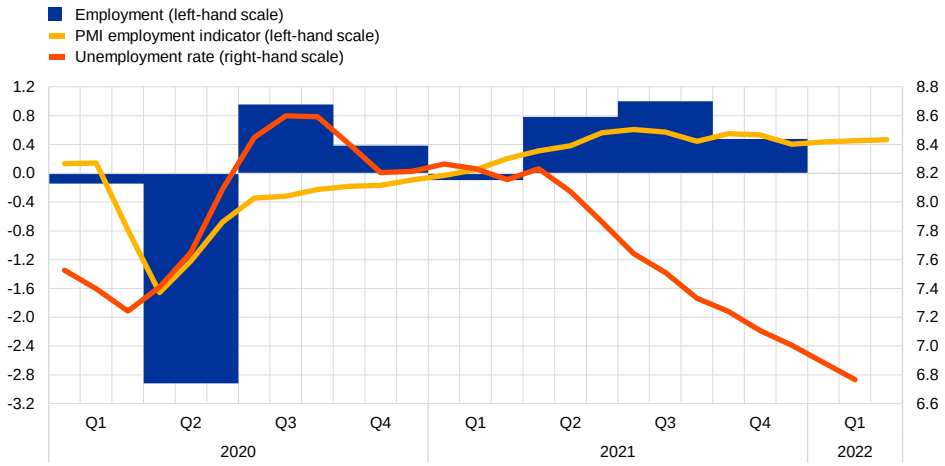
of 2021, but still higher than both the long-term average and the pre-pandemic level. Sentiment weakened in almost all euro area countries in March. The ECB's latest Survey of Professional Forecasters (which was conducted in early April) put quarterly euro area growth at 0.2% in the first quarter, representing a clear downward revision relative to the previous survey round (which had been conducted in early January).

The unemployment rate in the euro area is continuing to decline, although total hours worked remain below pre-pandemic levels. The unemployment rate stood at 6.8% in February 2022, 0.1 percentage points lower than in January and around 0.6 percentage points lower than the pre-pandemic level observed in February 2020 (Chart 5). As a result of the relaxation of pandemic-related containment measures, workers covered by job retention schemes accounted for 1.3% of the labour force in February 2022, down from around 1.6% in December 2021. The latest national accounts data indicate that total hours worked remained below pre-pandemic levels in the fourth quarter of 2021, especially in industrial and market services sectors, reflecting those ongoing job retention schemes.

Chart 5

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

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



Sources: Eurostat, IHS Markit and ECB calculations.
Notes: The two lines indicate monthly developments; the bars show quarterly data. The PMI is expressed as a deviation from 50 divided by 10. The latest observations are for the fourth quarter of 2021 for employment, March 2022 for the PMI and February 2022 for the unemployment rate.

Short-term labour market indicators continued to improve in the first quarter, amid some initial signs of future weakening. The monthly composite PMI employment indicator reached 54.7 in March, 0.2 points higher than in February, thus remaining above the threshold level of 50 that indicates an expansion in employment. The PMI employment indicator has recovered strongly following its all-time low in April 2020 and has now been in expansionary territory for 14 consecutive months. Looking at developments in different sectors, the PMI employment indicator for the manufacturing sector pointed to a weakening in March, whereas the indicator for the service sector continued to point to robust employment growth. Meanwhile, the latest European Commission survey data on the employment expectations of firms and the unemployment expectations of workers show that

Russia's invasion of Ukraine could already be weighing on labour market dynamics in the second quarter of 2022.

After contracting at the end of 2021, private consumption is expected to have remained weak at the beginning of this year amid sharp increases in energy prices and high levels of uncertainty. While the lifting of pandemic-related restrictions has supported activity, particularly in the service sector, the soaring energy prices that have followed Russia's invasion of Ukraine are denting households' real disposable income and eroding consumer sentiment. Against that background, consumer confidence fell in March to the lowest level since the beginning of the pandemic. At the same time, the European Commission's latest Consumer Survey indicates that households' expectations regarding their economic and financial situation over the next 12 months have deteriorated sharply as inflation has ramped up and uncertainty regarding the war in Ukraine has surged. Although heightened uncertainty could lead households to increase precautionary savings, the very sharp rise in energy prices could be partly cushioned, at an aggregate level, by some decumulation of excess savings. This is supported by recent evidence in March pointing to a drop in households' intentions to save over the next 12 months (as indicated by the European Commission's Consumer Survey), along with the saving rate falling to 13.3% in the fourth quarter of 2021 (down from 15% in the third quarter). Nevertheless, persistently high energy costs, combined with a loss of confidence, are likely to constrain consumption in the short term (see Article 1 for more detailed information on the way in which energy prices affect private consumption) and make the recovery more fragile and uneven. Low-income households are likely to bear the brunt, as they tend to spend a larger share of their income on energy and have accumulated smaller stocks of savings during the pandemic (Box 3). Over the medium term, private consumption is expected to remain the primary driver of economic growth, benefiting from solid underlying conditions as economies reopen and the labour market continues to improve.

Business investment is expected to have grown further in the first quarter of 2022, but the outlook has become more uncertain. Non-construction investment increased by 6.3% quarter on quarter in the fourth quarter of 2021 owing to intangible assets – mostly, but not only, in Ireland – as well as transport and other machinery and equipment. As regards the first quarter of 2022, capital goods production in January was 1.7% above the average level for the fourth quarter of 2021. That increase, combined with strong survey data on orders and production expectations for most of the first quarter, as well as positive – albeit weakening – loan demand, points to a rise in investment in the first quarter of the year. Looking ahead, uncertainty has increased, and Russia's invasion of Ukraine is likely to constrain investment as a result of higher energy costs, the intensification of supply chain bottlenecks and heightened uncertainty. Meanwhile, growth in business investment will be supported by high levels of capacity utilisation, as well as funding under the Next Generation EU initiative aimed at supporting digitalisation, R&D, infrastructure and the transition to a green economy.

Housing investment continued to be supported by strong demand in the first quarter, while supply-related constraints are set to increase owing to the war.

Following a rebound in euro area housing investment in the fourth quarter of 2021, several short-term indicators point to a continuation of that momentum in the first quarter of 2022. For example, building construction output in January was 3.0% above the average for the fourth quarter. Meanwhile, the PMI for residential construction output advanced further into expansionary territory on average in the first quarter, and the European Commission's indicator of recent trends in construction activity increased significantly. According to survey data on limits to production, the recovery in the construction sector has been driven by a decline in demand-related constraints, while supply-related constraints have increased owing to shortages of labour and materials. At the same time, however, the invasion of Ukraine has led to a high degree of uncertainty regarding the outlook for housing investment in the second quarter. On the one hand, the continuation of the war is likely to exacerbate shortages of materials and increases in input costs, thus hampering construction output, as reflected in the fact that the PMI for the business expectations of construction firms fell into contractionary territory in March. On the other hand, however, the large stocks of liquidity held by households and the current dynamism of house prices could further support demand.

Euro area trade continued to recover in January, but the near-term outlook has deteriorated significantly. In January, nominal extra-euro area goods exports rebounded following a decline in December, while extra-euro area imports continued to increase. The goods trade balance remained in deficit owing to the higher cost of energy imports. While trade data for January pointed to an easing of supply chain bottlenecks, supporting export growth, March saw an increase in the numbers of goods blocked in global ports and a rise in shipping costs as a result of pandemic-related lockdowns in China and the invasion of Ukraine, suggesting that this improvement may have come to an end. Forward-looking indicators of manufacturing exports fell into contractionary territory in March owing to the drop in demand that has resulted from the invasion of Ukraine and the sanctions imposed on Russia. Similarly, the PMI for export orders in the service sector has moved into contractionary territory despite the relaxation of pandemic-related restrictions. However, indicators of travel bookings point to a continuing recovery ahead of the summer season, especially with regard to intra-euro area travel.

Although several factors point to slow growth in the period ahead, there are also offsetting factors underpinning the ongoing recovery. The results of the latest Survey of Professional Forecasters show that GDP growth forecasts have been revised downwards for both 2022 and 2023 since the previous survey round. While the war is a major factor weighing on the outlook for the euro area economy, there are other factors which should support the ongoing recovery (such as compensatory fiscal measures and the possibility for households to draw on savings accumulated during the pandemic). Moreover, the reopening of those sectors that have been most affected by the pandemic and a strong labour market with more people in jobs will continue to support incomes and spending. Fiscal and monetary policy support remains critical, especially in this difficult geopolitical situation. In addition, the successful implementation of investment and reform plans under the Next Generation EU programme will accelerate the energy and green transitions. This should help to enhance long-term growth and resilience in the euro area.

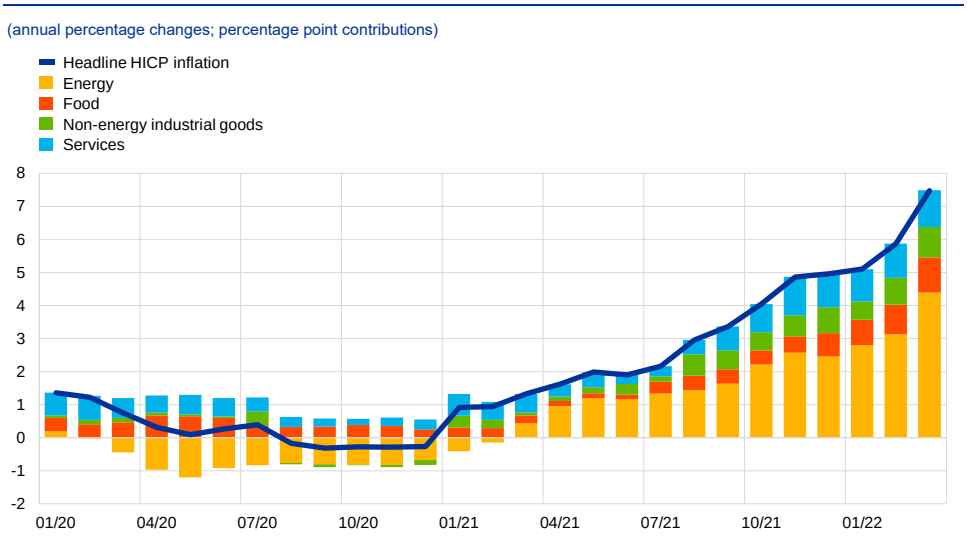
3 Prices and costs

Inflation increased to 7.5% in March according to Eurostat's flash estimate, up from 5.9% in February. Energy prices were driven higher after the outbreak of the war and in March stood 45% above their level a year ago. Energy prices continued to be the main reason for the high rate of headline inflation. Market-based indicators suggest that energy prices will stay high in the near term but will then moderate to some extent. Food prices have also increased sharply, reflecting elevated transport and production costs, notably the higher price of fertilisers, in part related to the war in Ukraine. Price rises have become more widespread. Energy costs are pushing up prices across many sectors. Supply bottlenecks and the normalisation of demand as the economy reopens are also continuing to put upward pressure on prices. Measures of underlying inflation have risen to levels above 2% in recent months. It is uncertain how persistent the rise in these indicators will be, given the role of temporary pandemic-related factors and the indirect effects of higher energy prices.

According to Eurostat's flash estimate, HICP inflation saw a further sharp increase to 7.5% in March 2022 (Chart 6). This strong rise of 1.6 percentage points since February partially reflected the impact of the war in Ukraine. In this respect, the increase in headline inflation was predominantly driven by elevated energy prices, although food inflation and HICP inflation excluding energy and food (HICPX) also rose. HICPX growth was 3.0% in March, reflecting the dynamics of both service prices and non-energy industrial goods prices.

Chart 6

Headline inflation and its main components



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

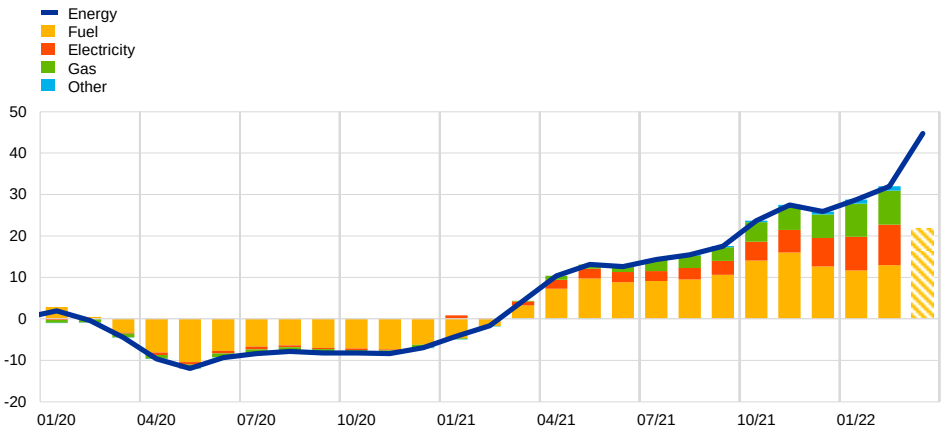
Energy inflation reached a new record high of 44.7% in March, up from 32.0% in the previous month (Chart 7). The year-on-year rates of change in energy prices since September 2021 have all been the highest observed since the creation of Monetary Union. Data up to February suggest that gas and electricity tariffs were the main drivers of higher energy price inflation in the early months of 2022, with

electricity prices partly reflecting price increases in other energy commodities. It is also likely that personal transport fuel costs, as well as elevated refining and distribution margins, made a larger contribution in March. The factors behind the latest increases in energy prices are related to the Russian invasion of Ukraine and associated concerns regarding possible energy supply disruptions. The surge in energy costs in recent months has probably also contributed to increases in other components of the HICP, including food inflation and non-energy industrial goods inflation (which stood at 5.0% and 3.4% respectively in March), given that energy is an input for both production and distribution. The war in Ukraine is also putting upward pressure on food prices, because both Russia and Ukraine are important exporters of grains, as well as of minerals used in the production of fertilisers. Mounting pressures on consumer energy prices have been partly mitigated by tax measures introduced by euro area governments.

Chart 7

HICP energy and its components

(annual percentage changes; percentage point contributions)



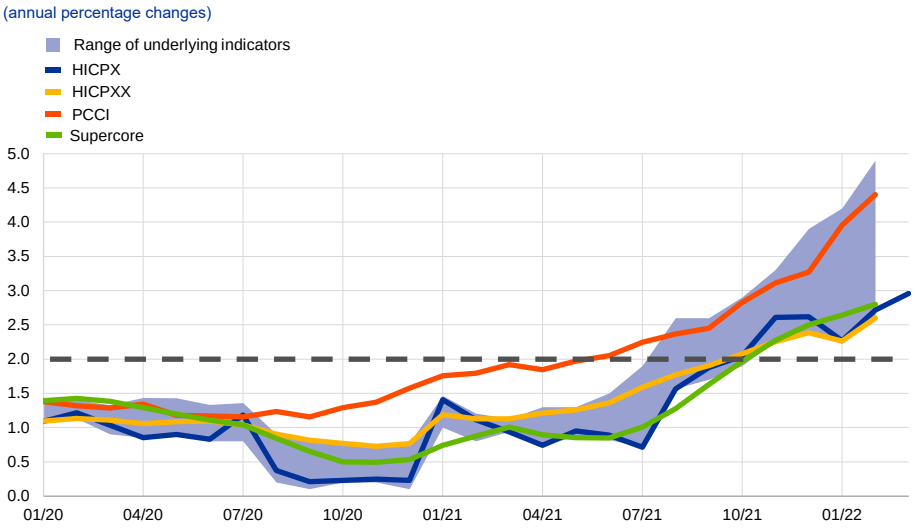
Sources: Eurostat and ECB calculations.
Notes: The latest observations for HICP energy are for March 2022. The percentage point contribution of fuels for March 2022 is an ECB staff estimate based on data from the European Commission's Weekly Oil Bulletin published on 4 April. The latest observations for the rest of the series are for February 2022.

Measures of underlying inflation have risen to levels above 2% in recent months, but it is uncertain how persistent the rise in these indicators will be given the role of temporary pandemic-related factors and the indirect effects of energy prices. Measures of inflation that seek to remove the impact of volatile components and temporary factors have increased further in recent months (Chart 8). HICPX inflation rose to 3.0% in March, up from 2.7% in February. Data on other measures of underlying inflation are only available up to February. In that month, HICPXX inflation (which excludes travel-related items, clothing and footwear, as well as energy and food) increased to 2.6%, up from 2.3% in January, when it temporarily moderated. Meanwhile, the model-based Persistent and Common Component of Inflation (PCCI) rose to 4.4%, up from 4.0% in January (while the PCCI excluding energy increased to 2.7%, up from 2.4% in January). The Supercore indicator, which comprises cyclically sensitive HICP items, also edged upwards to stand at 2.8%, from 2.6% in January. It is uncertain how persistent the rise in these indicators will be given the role of temporary pandemic-related factors and the indirect effects of

higher energy prices. Looking ahead developments in wages will be a key factor for the future dynamics of underlying inflation. The latest available data (for the fourth quarter of 2021) continued to point to relatively moderate annual growth in both negotiated wages (1.6%) and actual wages, where growth in compensation per hour and growth in compensation per employee stood at 1.1% and 3.5% respectively, although the latter was considerably distorted upwards owing to the impact of job retention schemes.

Chart 8

Indicators of underlying inflation



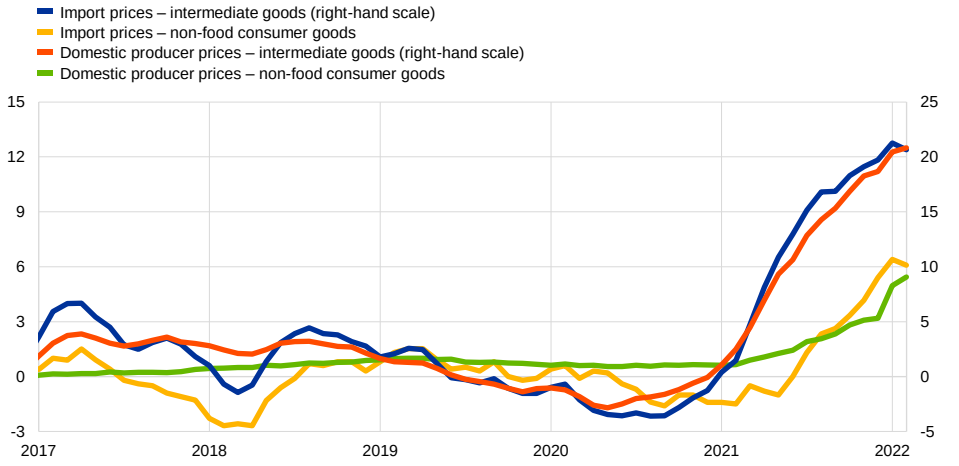
Sources: Eurostat and ECB calculations.
Notes: The range of indicators of underlying inflation includes HICP excluding energy, HICP excluding energy and unprocessed food, HICPX (HICP excluding energy and food), HICPXX (HICP excluding energy, food, travel-related items, clothing and footwear), the 10% and 30% trimmed means, and the weighted median. The latest observations are for February 2022, with the sole exception of HICPX (which was obtained from the March 2022 flash estimate).

Pipeline pressures on consumer prices for non-energy industrial goods have continued to build up, with indicators reaching record highs, although they still only partially reflect the impact of the war in Ukraine (Chart 9). Cost pressures have continued rising in February relative to a year ago, driven by increases in global commodity prices and, in particular, energy prices. Supply chain disruptions and the global recovery in demand have also contributed to input cost pressures. Looking at the early stages of the pricing chain, the annual growth rate of producer prices for domestic sales of intermediate goods reached 20.8% in February, up from 20.5% in the previous month. At the same time, the annual growth rate of import prices for intermediate goods edged down from a record high of 21.2% in January to 20.7% in February. Pressures also feature more prominently at later stages of the pricing chain, with producer price inflation for domestic sales of non-food consumer goods reaching a new historical high of 5.4% in February, up from 5.0% a month earlier. Import price inflation for non-food consumer goods moderated to 6.1% in February, after standing at 6.4% in January. These import and producer price developments for non-food consumer goods imply that pressure on non-energy industrial goods inflation in the HICP is unlikely to ease in the near future.

Chart 9

Indicators of pipeline pressures

(annual percentage changes)



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

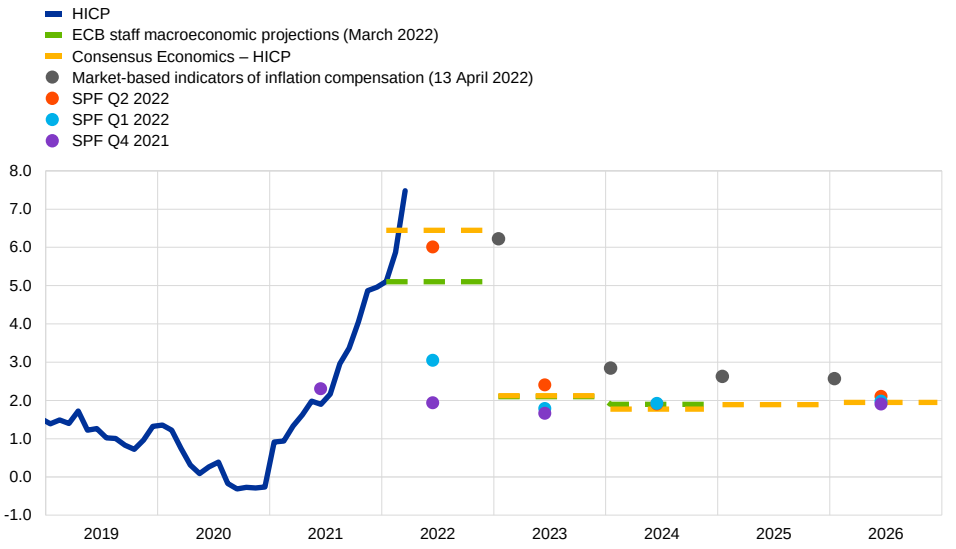
While various measures of longer-term inflation expectations derived from financial markets and from expert surveys largely stand at around 2%, initial signs of above-target revisions in those measures warrant close monitoring.

Market-based measures of inflation compensation – which estimate future year-on-year inflation rates for HICP excluding tobacco – now suggest that euro area inflation will peak at around 8% during the third quarter of 2022. It is expected to fall to slightly below 7% by the end of 2022, more than one percentage point higher than at the time of the March Governing Council meeting, before settling slightly above 2.5% in 2025. Moreover, longer-term measures of inflation compensation have further exceeded the ECB's target, with the five-year forward inflation-linked swap rate five years ahead increasing by 23 basis points in the review period and reaching levels above 2.3% for the first time since mid-2013. Overall, markets are pricing in a more persistent increase in euro area inflation. However, market-based measures of inflation compensation are not a direct measure of market participants' actual inflation expectations, since they contain inflation risk premia compensating for inflation uncertainty. Currently, these premia are assessed to be positive, implying that actual inflation expectations are estimated to be lower and closer to 2% than the plain readings of market-based longer-term measures of inflation compensation. According to the ECB's Survey of Professional Forecasters (SPF) for the second quarter of 2022, conducted between 1 and 4 April, average longer-term inflation expectations (for 2026) rose further to 2.1%, from 2.0% in the January survey round.

Chart 10

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 13 April 2022. The Survey of Professional Forecasters for the second quarter of 2022 was conducted between 1 and 4 April 2022. In the Consensus Economics forecasts, the cut-off date for 2024, 2025 and 2026 was 10 January 2022, and the cut-off date for 2022 and 2023 was 14 March 2022. The cut-off date for data included in the ECB staff macroeconomic projections was 2 March 2022.

4 Financial market developments

Over the review period (10 March to 13 April 2022), global financial markets continued to rebound from the sharp falls recorded after Russia's invasion of Ukraine. Overall, risk sentiment improved to some extent. The euro short-term rate (€STR) forward curve steepened further, bringing the market-implied date for a first 25 basis point increase in the key ECB interest rates forward to September 2022. This followed the Governing Council's announcement in March that it had revised the schedule for net purchases under the asset purchase programme (APP) in the coming months and that net purchases under the APP would be concluded in the third quarter of the year if the incoming data supported the expectation that the medium-term inflation outlook would not weaken even after the end of its net asset purchases. After the same meeting the Governing Council also announced that any adjustments to the key ECB interest rates would take place some time after the end of its net purchases under the APP and would be gradual. Long-term sovereign bond yields rose substantially throughout the review period on both sides of the Atlantic, while changes in sovereign bond spreads remained very contained. Euro area risk asset markets largely recouped the losses that had accrued since the start of the war, with corporate bond spreads declining substantially and equity prices increasing notably over the review period. The euro continued to depreciate in trade-weighted terms.

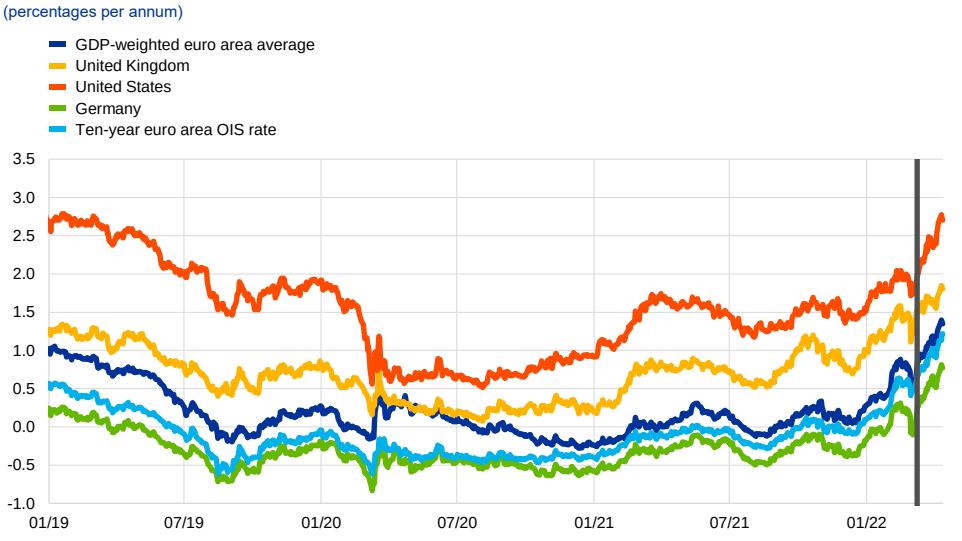
The short to medium-term maturity segments of the €STR forward curve shifted markedly higher after the March Governing Council meeting, suggesting that market participants had significantly revised their expectations for a first increase in the key ECB interest rates. The overnight index swap (OIS) forward curve based on the benchmark short-term rate €STR steepened noticeably following the March Governing Council meeting, reversing the substantial flattening observed shortly after Russia's invasion of Ukraine. The steepening suggests that market participants had revised their monetary policy expectations against the backdrop of growing inflationary pressures and the Governing Council's announcement that it had revised the schedule for APP net purchases and that, if the incoming data supported the expectation that the medium-term inflation outlook would not weaken even after the end of its net asset purchases, the Governing Council would conclude net purchases under the APP in the third quarter. The date implied by the market for a first 25 basis point policy rate increase was brought forward to September 2022, almost two months earlier than the date priced in at the time of the March Governing Council meeting. The €STR averaged -58 basis points over the review period, while excess liquidity increased by approximately €68 billion to €4,545 billion.

Long-term euro area bond yields have increased substantially since the March Governing Council meeting, in tandem with developments in short-term rates (Chart 11). During the period under review, the average GDP-weighted euro area and German ten-year sovereign bond yields increased by 60 basis points and 58 basis points respectively, to stand at 1.35% and 0.77%, levels last seen at the end of 2018. Investors' reassessment of global risk – which they considered to have decreased from the extraordinary levels reached immediately after Russia's invasion

of Ukraine just prior to the March Governing Council meeting – and concerns about inflationary pressures are likely to have contributed to the increase in long-term bond yields in the euro area and globally. Ten-year US government bond yields increased broadly in line with euro area rates over the review period, by 55 basis points to 2.55%, while ten-year UK government bond yields rose by 13 basis points to 1.65%. As sovereign bond yields in the euro area broadly mirrored risk-free rates, spreads over the OIS rate remained relatively stable. The aggregate GDP-weighted euro area ten-year sovereign bond spread declined by 3 basis points to 0.13%, partially driven by a 23 basis point decrease in Greek ten-year sovereign yield spreads, as Greece benefited from a credit rating increase and the country repaid a loan from the International Monetary Fund two years ahead of schedule.

Chart 11

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



Sources: Refinitiv and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 10 March 2022. The latest observations are for 13 April 2022.

The improvement in risk sentiment relative to the first few days of the Russian invasion contributed to a decline in corporate bond spreads, which returned to levels seen before the war. Spreads on investment-grade non-financial corporate bonds declined by 16 basis points to 53 basis points, while spreads on financial corporate bonds fell even further. Although close to their pre-pandemic averages, spreads remain slightly above the levels seen during 2021, possibly pointing to a gradual slowdown of the economic recovery from the pandemic. Overall, corporate bond spreads appear resilient in the face of the expected normalisation of monetary policy.

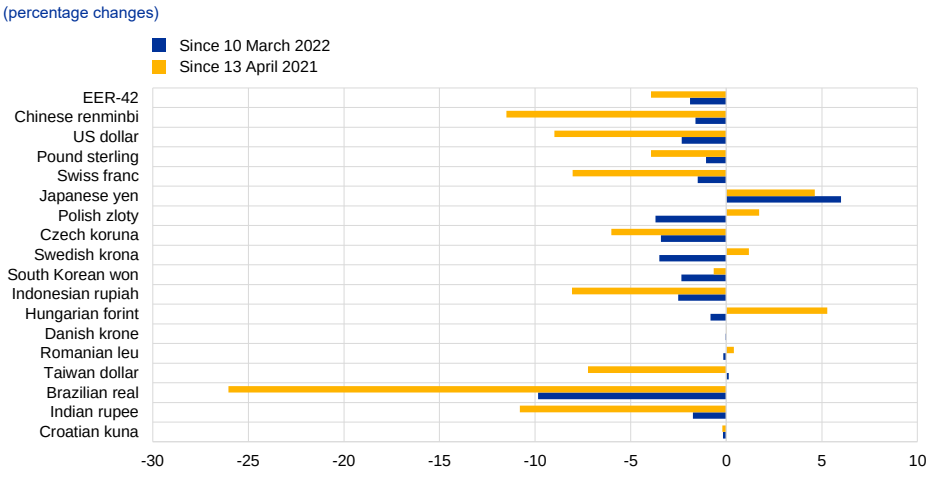
Euro area equity markets largely recouped the losses they recorded at the beginning of the war in Ukraine, despite higher discount rates and lower earnings growth expectations, as risk sentiment improved. Given some deterioration in confidence indicators relating to the economic outlook, the improvement in risk sentiment possibly reflects a reassessment during the review period of the risk of the war in Ukraine escalating further. Equity prices of euro area banks and non-financial corporations increased by 4.4% and 5.2% respectively,

despite significantly higher risk-free rates on the back of the expected monetary policy normalisation. Analysts' expectations for the long-term earnings growth of listed firms decreased to some extent but remained at elevated levels. In the United States, non-financial corporation equity prices increased by more than their euro area counterparts, advancing by 4.8%. However, share prices for US banks, which rebounded from the lows recorded at the start of the war, reversed again towards the end of March, closing the review period down 4.7%.

In foreign exchange markets, the euro continued to depreciate in trade-weighted terms, reflecting a weakening against most major currencies (Chart 12). Over the review period the nominal effective exchange rate of the euro, as measured against the currencies of 42 of the euro area's most important trading partners, weakened by 1.9%. This reflected a depreciation of the euro against the US dollar (by 2.3%) – amid rising expectations of a faster pace of monetary tightening and following the first increase in the Federal Reserve System's target range for the federal funds rate in more than three years – as well as against the currencies of other major economies, including the pound sterling (by 1.1%) and the Swiss franc (by 1.5%). The euro also weakened against the currencies of most emerging market economies, including the Chinese renminbi (by 1.6%), but appreciated strongly vis-à-vis the Japanese yen (by 6.0%) amid growing expectations that the Bank of Japan would tighten monetary policy at a significantly slower pace than other major central banks.

Chart 12

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



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 13 April 2022.

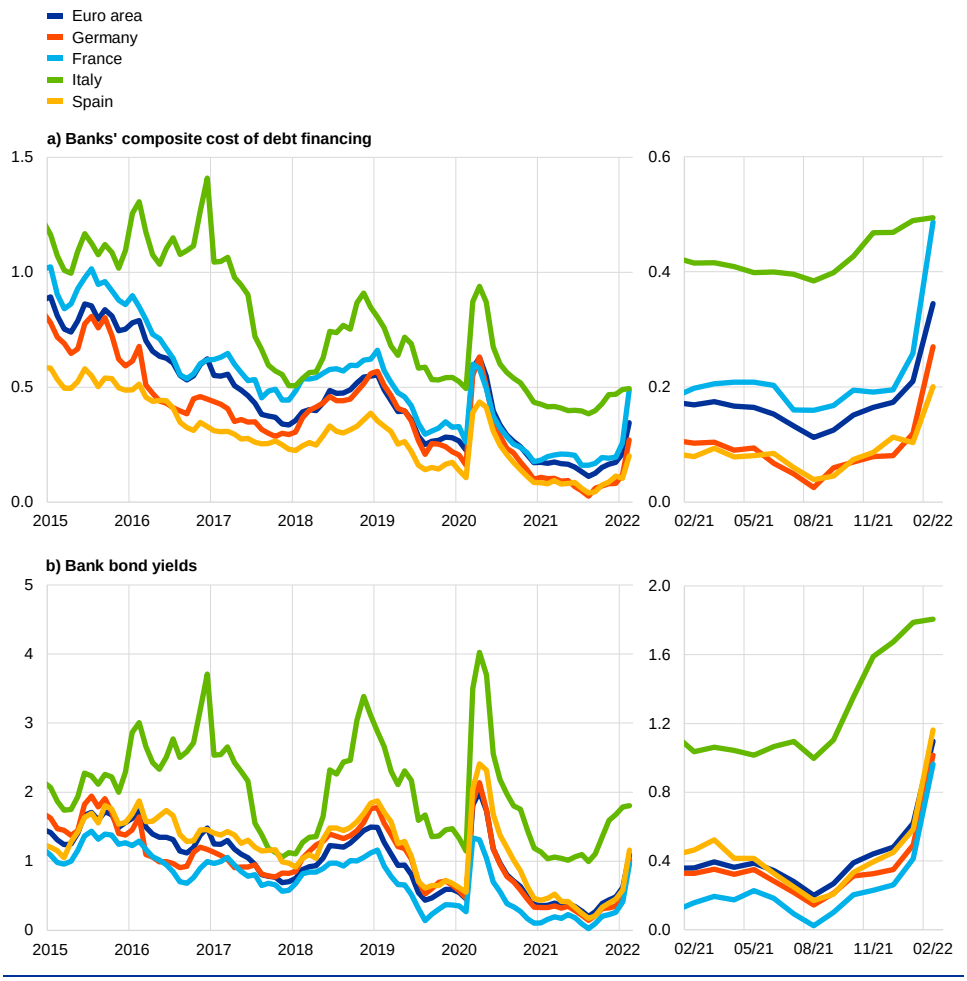
5 Financing conditions and credit developments

Bank funding and lending conditions have tightened amid increased uncertainty regarding the economic outlook and expectations of a further normalisation of monetary policy. While they remain at low levels, lending rates for firms and households have started to reflect the increases seen in market interest rates. The latest data (as at mid-April) show that the cost of market-based debt financing for firms has increased further, albeit at a slower pace than in the previous two months. Lending to households is holding up (especially for house purchases), while lending flows to firms have stabilised. The most recent bank lending survey indicates that credit standards on loans to firms and loans to households for house purchase tightened overall in the first quarter of the year, with lenders becoming more concerned about the risks facing their customers in an uncertain environment. Credit standards are expected to tighten further in the coming months as banks factor in the adverse economic impact of the war in Ukraine and higher energy prices. While money creation has returned to a level close to its longer-term average, deposit accumulation by firms and households continues to be stronger than it was before the pandemic.

The funding costs of euro area banks have risen in recent months amid expectations of further policy normalisation. February saw a sharp increase in the composite cost of euro area banks' debt financing (Chart 13, panel a). This was driven mainly by rising yields on bank bonds (Chart 13, panel b), and these, in turn, reflected a strong increase in risk-free rates. At the same time, rates on deposits, which account for a large share of euro area banks' funding, have remained stable close to their historical lows, as targeted longer-term refinancing operations (TLTROs) have also provided banks with liquidity at favourable conditions. Thus far, significant use by banks of these alternative funding sources has limited upward pressure on their overall funding costs. However, the recent rise in market rates at all maturities suggests that banks' funding costs will be subject to more upward pressure in the coming months.

Chart 13

Composite bank funding rates in selected euro area countries



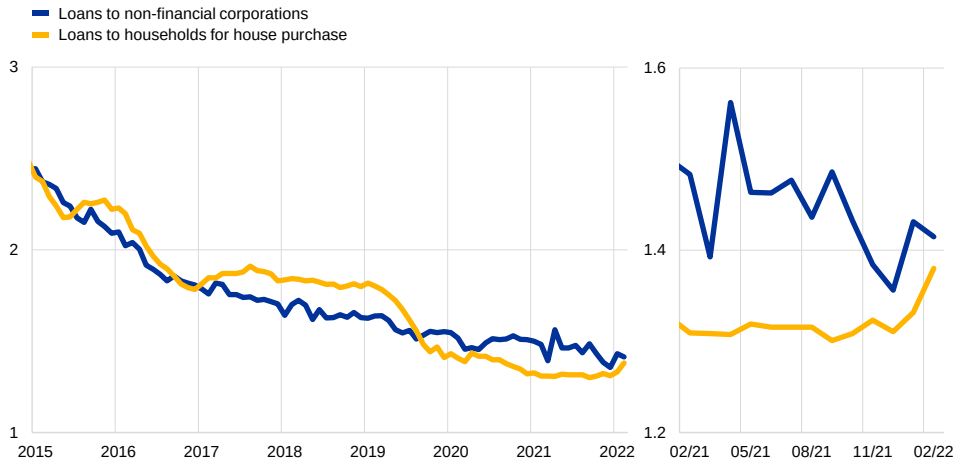
Sources: ECB, IHS Markit iBoxx indices and ECB calculations.
Notes: Composite bank funding rates are a weighted average of the cost of deposits and unsecured market-based debt financing. The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their respective outstanding amounts. Bank bond yields are monthly averages for senior-tranche bonds. The latest observations are for February 2022.

Bank lending rates for firms and households have started to reflect the increases seen in market rates, but they remain at low levels (Chart 14). The recent sharp increase in euro area yields has put upward pressure on domestic lending rates, but the pass-through has been very limited thus far, with financing conditions for firms and households remaining favourable. In February, the composite bank lending rate for loans to households for house purchase increased moderately to stand at 1.38%, while the equivalent rate for loans to non-financial corporations (NFCs) remained broadly unchanged at 1.41%. The increase in mortgage rates was broadly based across euro area countries. The spread between bank lending rates on very small loans and large loans was broadly unchanged amid cross-country heterogeneity and remained below pre-pandemic levels. Thus far, the ECB's policy measures have prevented any broad-based tightening of financing conditions, which would have amplified the adverse economic impact of the pandemic and Russia's invasion of Ukraine. Looking ahead, however, increases in

banks' funding costs may translate into more significant increases in lending rates for firms and households.

Chart 14

Composite bank lending rates for NFCs and households



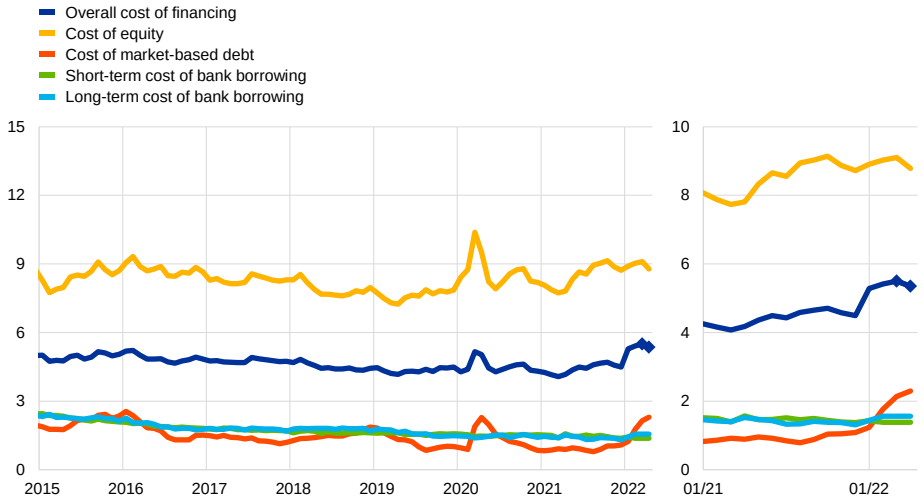
Source: ECB.
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The latest observations are for February 2022.

Since the Governing Council met in mid-March, the cost of market-based debt for NFCs has increased marginally, while the cost of equity has dropped significantly. If the cost of bank borrowing is assumed to have remained unchanged at its February level, the cost of external financing is estimated to have declined, standing at 5.4% on 13 April 2022, down from 5.5% in mid-March (Chart 15). This represents a decline relative to some of the levels seen earlier this year, but it is still well above most of the rates recorded in 2020 and 2021 and close to the cyclical peak observed in March 2020. If, however, upward pressure on lending rates has resulted in an increase in the cost of bank borrowing, the overall cost of external financing will be higher than the estimated figure cited above. The slight increase in the cost of market-based debt is accounted for by a significant rise in the risk-free rate, which has more than offset the compression of non-financial corporate bond spreads. An improvement in risk sentiment, amid growing confidence that the fighting in Ukraine will not escalate further, has also been reflected in the equity market in the form of a sharp reduction in the equity risk premium. This, in turn, has led to a significant decline in the cost of equity, notwithstanding the increase in the discount rate.

Chart 15

Nominal cost of external financing for euro area NFCs by component

(annual percentages)



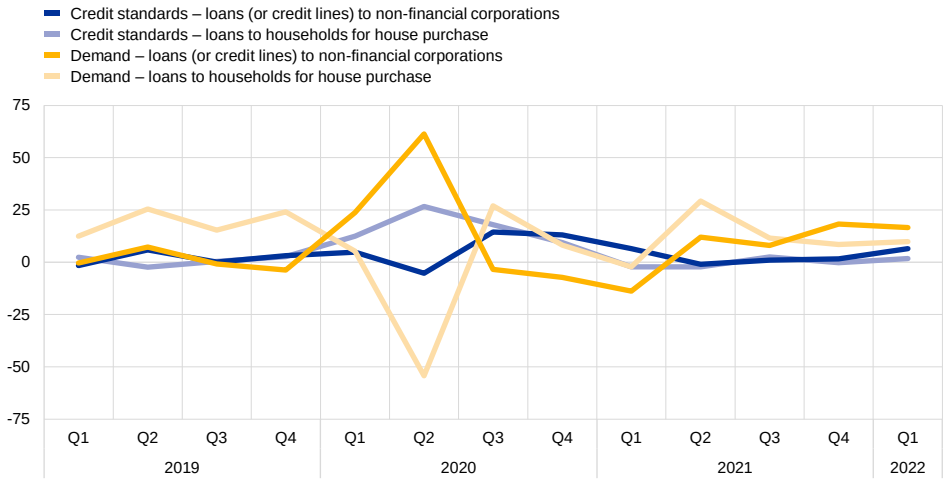
Sources: ECB and ECB estimates, Eurostat, Dealogic, Merrill Lynch, Bloomberg and Thomson Reuters.
Notes: The overall cost of financing for NFCs is calculated as a weighted average of the cost of borrowing from banks, market-based debt and equity, based on their respective outstanding amounts. The dark blue diamonds indicate nowcasts for the overall cost of financing in March and April 2022 (including data up to 13 April 2022), assuming that the cost of borrowing from banks remains unchanged at its February 2022 level. The latest observations are for 13 April 2022 for the cost of market-based debt (monthly average of daily data), 8 April 2022 for the cost of equity (weekly data) and February 2022 for the cost of borrowing from banks (monthly data).

According to the April 2022 euro area bank lending survey**, credit standards on loans to firms tightened in the first quarter of 2022.** Against the background of considerable uncertainty regarding the economic outlook, supply chain disruptions and high energy and input prices, banks also reported a slight tightening of credit standards on loans to households for house purchase in the first quarter of the year (Chart 16). The main factors underlying that tightening of credit standards were perceptions of increased risk and reduced risk tolerance. For the second quarter of 2022, banks expect to see considerably stronger tightening of credit standards on loans to firms, probably reflecting uncertainty regarding the economic impact of the war in Ukraine and the anticipation of less accommodative monetary policy. In addition, banks expect a moderate tightening of credit standards on loans to households for house purchase.

Chart 16

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 latest observations are for the first quarter of 2022.

The results of that survey point to an increase in demand for loans on the part of firms and households in the first quarter of 2022. In the case of firms, the need for working capital made a strongly positive contribution to loan demand, reflecting supply chain bottlenecks and rising input costs, as well as demand for precautionary inventories and liquid holdings against the background of the heightened uncertainty. Fixed investment made a moderately positive contribution to firms' loan demand, albeit that contribution was smaller than in the previous quarter. Demand for housing loans was supported mainly by the low general level of interest rates, while consumption of durable goods contributed to an increase in demand for consumer credit. For the second quarter of 2022, banks expect a further rise in firms' demand for loans, driven by short-term loans, and a reduction in households' demand for loans for house purchase.

The ECB's policy measures continue to be regarded as having supported bank lending conditions, but banks expect this support to decline over the next six months. Banks indicate that the Eurosystem's asset purchases, the TLTROs and the negative rate on the deposit facility have all had a positive impact on the volume of lending to firms and households over the last six months. The granting of loans to the non-financial private sector remains the most common use of funds obtained in the third series of targeted longer-term refinancing operations (TLTRO III), while the profitability motive remains the most important reason for banks to participate in those operations. In addition, banks continue to report that the Eurosystem's asset purchases and the negative deposit facility rate are having a negative impact on their profitability, while TLTRO III and the ECB's two-tier system for remunerating excess liquidity holdings have mitigated that negative impact. Banks also report that the

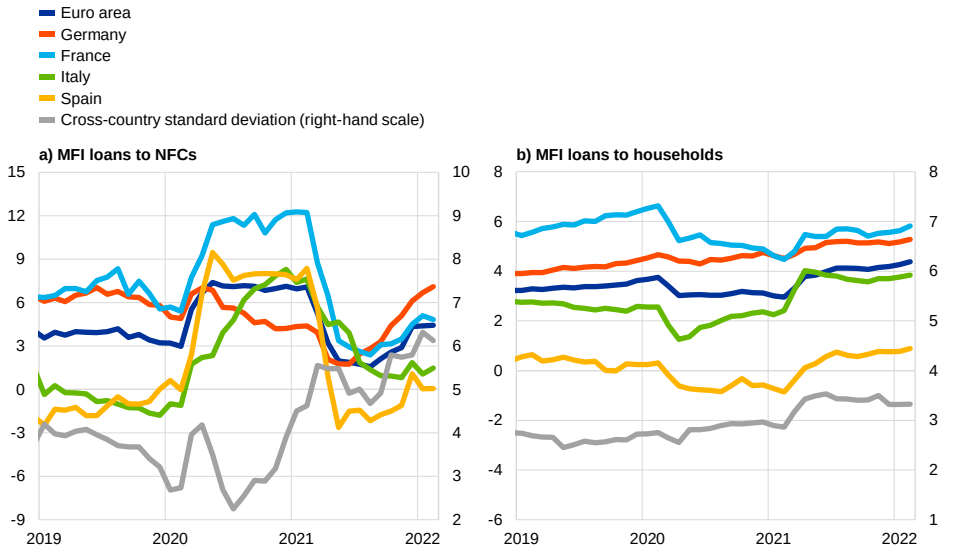
Eurosystem's asset purchases and TLTRO III have continued to have a positive impact on their liquidity positions and market financing conditions. However, banks expect this positive impact to decline over the next six months, turning negative in the case of asset purchases in the context of the envisaged normalisation of the monetary policy stance.

Annual growth in loans to non-financial corporations remained unchanged in February 2022, while growth in loans to households strengthened marginally. That slight increase in the annual growth rate of loans to households, which rose to 4.4% in February, up from 4.3% in January (Chart 17, panel b), reflected a pick-up in consumer credit growth and solid mortgage lending. The annual growth rate of loans to non-financial corporations remained unchanged at 4.4% (Chart 17, panel a), supported by monthly inflows for both short and longer-term loans. The increase in short-term loans was explained by the persistence of supply chain bottlenecks and rising energy costs, both of which contributed to increases in working capital needs. Although it was weaker than in the first half of 2021, growth in long-term lending continued to be supported by firms' need to finance fixed investment. At the same time, aggregate developments at euro area level mask differences across individual countries, reflecting, among other things, the uneven impact of the pandemic and the fact that countries have made differing amounts of progress in terms of their economic recoveries.[1]

Chart 17

MFI loans in selected euro area countries

(annual percentage changes; standard deviation)



Source: ECB.
Notes: Loans are adjusted for loan sales and securitisation; in the case of non-financial corporations, loans are also adjusted for notional cash pooling. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for February 2022.

Deposit accumulation by firms and households is still stronger than it was before the pandemic (Chart 18). Sizeable inflows have been observed for

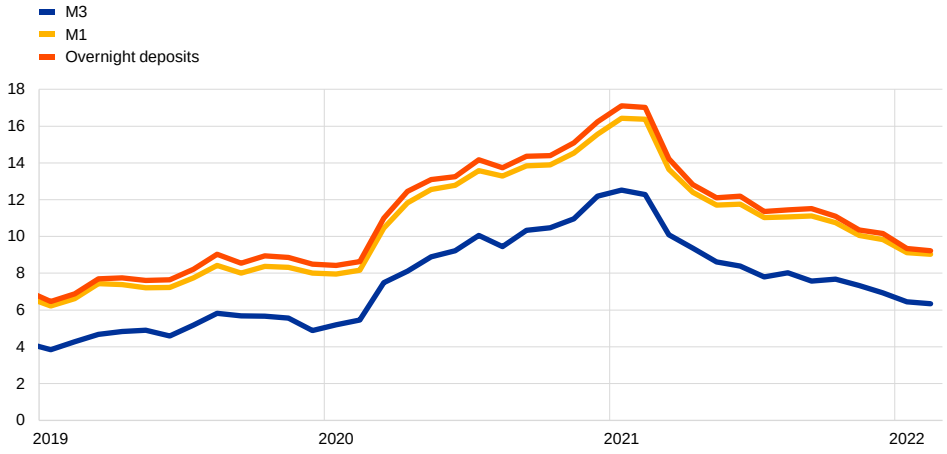
[1] See the box entitled "The heterogeneous economic impact of the pandemic across euro area countries", *Economic Bulletin*, Issue 5, ECB, 2021.

overnight deposits since the start of the pandemic, reflecting the increase in economic uncertainty.[2] With coronavirus-related containment measures being relaxed, that growth in overnight deposits has moderated following the high growth rates that were observed in 2020 in the early stages of the pandemic. In February, however, the annual growth rate of overnight deposits fell only slightly, standing at 9.2%, down from 9.3% in January, coinciding with the materialisation of geopolitical risks and associated uncertainty. Growth in the deposit holdings of firms and households continues to vary across countries, reflecting differences in liquidity needs and national fiscal support measures.

Chart 18

M3, M1 and overnight deposits

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



Source: ECB.
Note: The latest observations are for February 2022.

Money creation continues to be driven by Eurosystem asset purchases. In February, the annual growth rate of M3 declined slightly to stand at 6.3%, down from 6.4% in January, thus continuing to move back towards its longer-term average (Chart 18). On the components side, the main driver of M3 growth is still the narrow aggregate M1, which is being driven by continued strong growth in overnight deposits. On the counterparts side, money creation continues to be driven by Eurosystem asset purchases. In February, the Eurosystem's net purchases of government securities under the asset purchase programme and the pandemic emergency purchase programme made the largest contribution to annual M3 growth, but this contribution was somewhat smaller than in previous months, as purchases under these programmes are gradually being phased out. In addition, credit to the private sector continued to make a solid contribution to annual M3 growth. At the same time, money creation was somewhat dampened by net monetary outflows to the rest of the world, which probably reflected increased uncertainty regarding the impact that the war in Ukraine would have on the euro area economy.

2 See the box entitled "COVID-19 and the increase in household savings: an update", *Economic Bulletin*, Issue 5, ECB, 2021.

Boxes

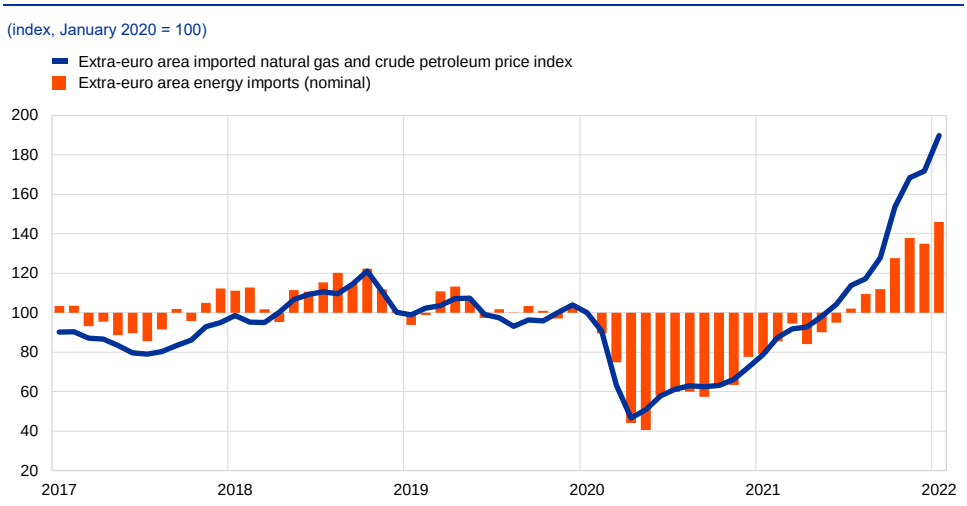
1 Implications of the terms-of-trade deterioration for real income and the current account

Prepared by Vanessa Gunnella and Tobias Schuler

The recent sharp increase in natural gas and crude oil prices has led to a strong increase in euro area nominal energy imports. By the middle of 2021, these imports, along with import prices for gas and oil, had recovered from the economic shock induced by the coronavirus pandemic (Chart A). As of the second half of 2021, supply disruptions in combination with depleted gas inventories in importing countries led to a steep increase in energy prices, particularly for oil and gas. As economic activity and hence energy demand also recovered robustly, this resulted in euro area nominal energy imports reaching a level more than 40% higher than that seen before the outbreak of the coronavirus pandemic. In the following, we highlight the effects of the deterioration in the euro area terms of trade, the resulting negative income effect and its implications for the euro area current account.

Chart A

Euro area energy imports and prices



Sources: Eurostat and ECB staff calculations.
Note: The latest observation is for January 2022.

The euro area terms of trade deteriorated substantially from the second half of 2021 onwards, reflecting the surge in energy prices (Chart B). Owing to the considerable share of energy in euro area imports, and in combination with the euro depreciation against the US dollar since mid-2021, the abrupt rise in energy prices has led to a worsening of the euro area terms of trade. [1],[2] The terms of trade have

[1] The share of energy imports in total euro area imports of goods and services was 10.1% in the fourth quarter of 2021.

[2] In 2020, 80% of euro area imports of crude oil was invoiced in US dollars.

oscillated frequently and have historically exhibited a strong negative correlation with energy import prices, the latter being their single most important driver. However, the movements at the current juncture appear steeper than in previous episodes, given the sharp increase in energy prices.

Chart B

Euro area terms of trade and energy import prices

Source: Eurostat.
Notes: The terms of trade are expressed as a ratio between export and import deflators. The observation for the first quarter of 2022 refers only to data for January 2022. The latest observations are for the fourth quarter of 2021 for the terms of trade and January 2022 for energy import prices.

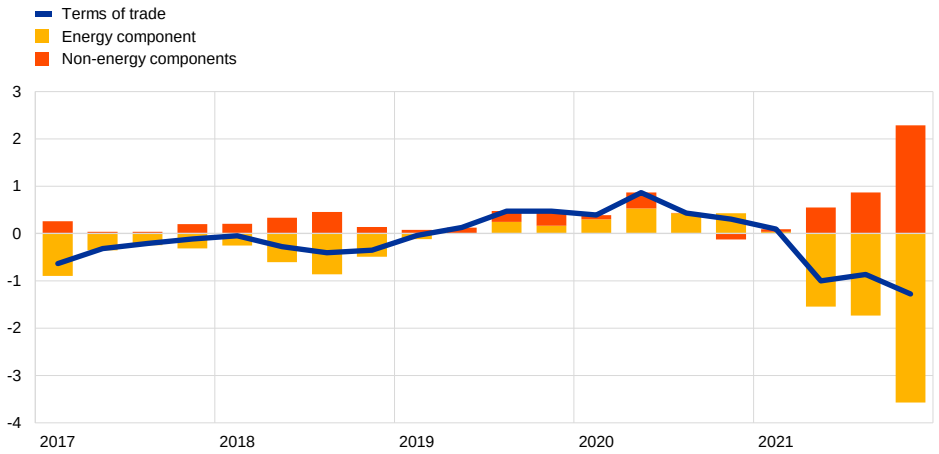
The deterioration in the terms of trade generates a negative income effect for the euro area. Given the rigidity of imported energy demand in the short term, maintaining import volumes at higher prices results in a transfer of purchasing power from the euro area to the rest of the world. The negative income effect due to the transfer of purchasing power is estimated at around 1.3 percentage points of GDP in the fourth quarter of 2021, based on a comparison with the same quarter the year before. The deterioration in the terms of trade has been largely driven by its energy component, as the contribution of energy to the impact of the terms of trade was 3.5 percentage points of GDP in the fourth quarter of 2021 (Chart C, panel a). The income loss due to imported energy was partly compensated for by euro area companies charging their global customers higher export prices. Nonetheless, the negative income effect seems significantly larger in the euro area than in the United States and the United Kingdom, as these economies are less dependent on (net) energy imports (Chart C, panel b).

Chart C

Income effects of the terms of trade

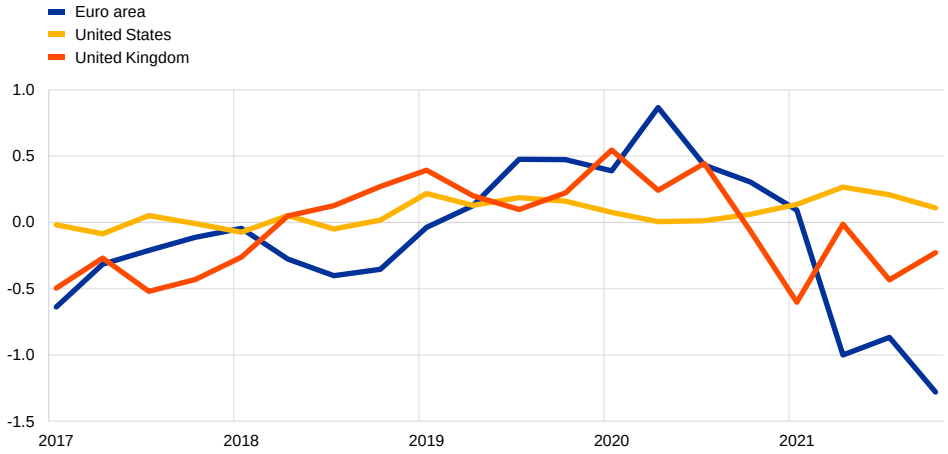
a) Contribution by component for the euro area

(quarterly percentage point impact on annual growth)



b) The euro area versus the United Kingdom and the United States

(quarterly percentage point impact on annual growth)



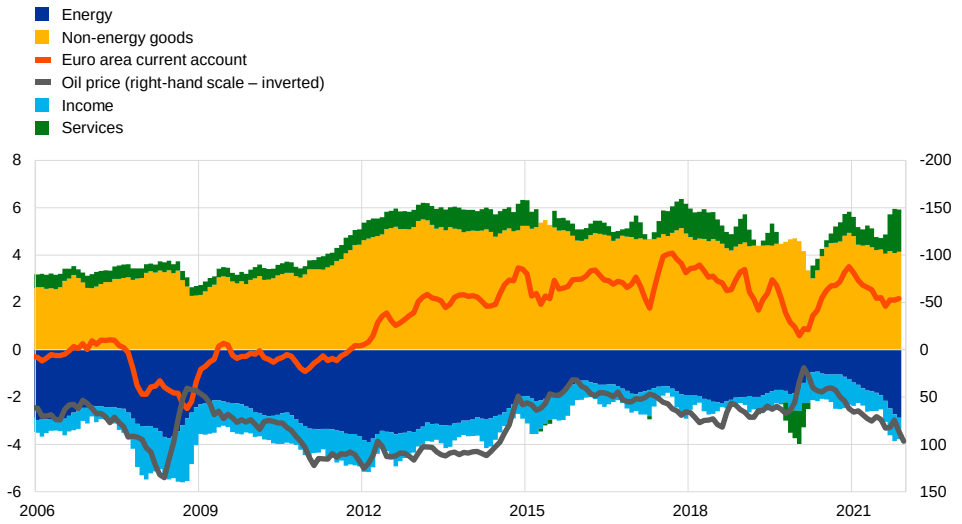
Sources: Eurostat and ECB staff calculations.
Notes: The income effect of the terms of trade is calculated by weighing export and import price changes by their respective values and they are considered as a percentage share of GDP. The latest observations are for December 2021.

The higher energy bill has reduced the current account surplus of the euro area (Chart D). The deterioration in the euro area current account since early 2021 has largely been driven by the widening deficit in the energy balance. While the energy trade deficit widened, net exports of services partly offset the deterioration in the goods trade balance. From a long-term perspective, at an aggregate level the euro area has reached an almost balanced net external asset position, after accumulating persistent current account surpluses over the past decade.

Chart D

Current account balance

(left-hand scale: percentage of GDP, three-month moving sum; right-hand scale: US dollars per barrel, monthly average)



Sources: ECB, Eurostat, Energy Information Administration, Haver Analytics and ECB staff calculations. The latest observation is for February 2022 for oil prices, but for January 2022 for all other series.

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

Prepared by Gwenaël Le Breton, Richard Morris and Lina Segers

This box summarises the results of contacts between ECB staff and representatives of 67 leading non-financial companies operating in the euro area. The exchanges mainly took place between 20 and 30 March 2022.[1]

Contacts generally reported a good start to the year in terms of activity growth. The manufacturing and construction sectors continued to benefit from strong or growing demand, as reflected in healthy order books, while production levels were still largely supply-driven. In this respect, some constraints (notably the shortage of semiconductors for the automotive industry) were gradually easing, although many contacts said that disruption in terms of lacking materials and components due to factors like shipping delays had not dissipated in recent months. The loss of working hours due to the coronavirus (COVID-19) pandemic had also been substantial, but the effect of this on production had been masked by broader supply problems. Contacts in the services sector also reported broad-based growth momentum across a range of activities in the first quarter of the year. The spread of the Omicron variant of the coronavirus (COVID-19) around the turn of the year had led to a pause in the recovery of hospitality, tourism and recreation services. All the same, restrictions were now being lifted again and consumers seemed to be increasingly putting the pandemic behind them, prompting renewed recovery in these sectors.

The Russian invasion of Ukraine has clouded the outlook and created substantial downside risks. Many contacts described an abrupt change in business conditions after the conflict flared up in late-February, albeit largely in terms of prices and costs rather than activity. The direct financial impact was small, while the immediate impact on production (and intermediate demand) was largely limited to specific industries dependent on materials or components from Russia or Ukraine, or for which rising energy costs made some production unviable. This created a new source of (potential) supply disruption, along with the spread of the Omicron variant through China and public health measures taken in response. A few contacts pointed to broader changes in behaviour, such as households shifting their consumption to less expensive items, reduced vehicle use or businesses postponing advertising orders, as early evidence of more widespread demand effects. Most contacts expected rising inflation to dampen consumer spending and both uncertainty and rising costs to have an impact on business investment in the coming quarters. This was, however, tempered by a view that, in an environment still characterised by supply constraints, the effect of reduced demand on production would be gradual. Furthermore, receding concern surrounding the pandemic would continue to support growth in the services sector. Overall, therefore, contacts tended to anticipate a

[1] For further information on the nature and purpose of these contacts, see the article entitled "The ECB's dialogue with non-financial companies", *Economic Bulletin*, Issue 1, ECB, 2021.

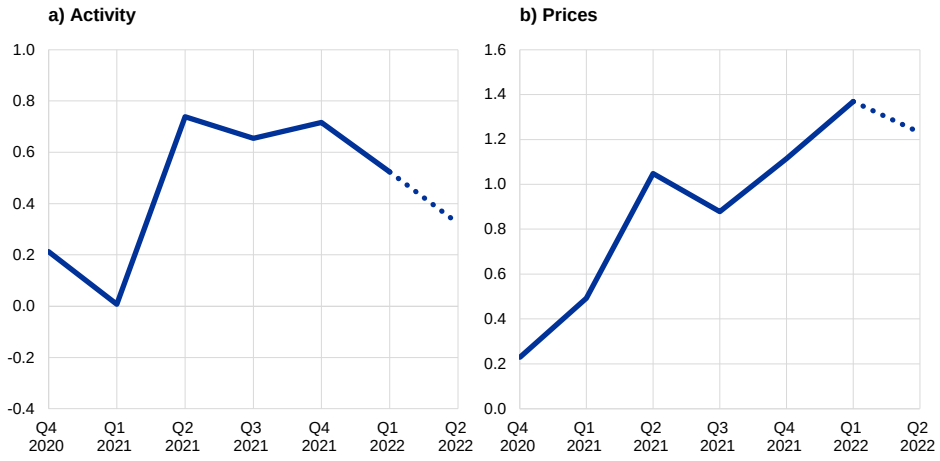
slowdown rather than a sudden contraction in activity, while at the same time stressing huge uncertainty and substantial downside risks if the conflict were to escalate.

Contacts reported a largely unchanged employment outlook and labour market conditions. Many said that it was still difficult to recruit and retain staff. This was especially true for certain high-level skills and for jobs with working conditions which were in some way viewed as being undesirable (e.g. shift work or work away from home). In the short term, the conflict in Ukraine was likely to have a limited effect on labour supply and demand. Firms that had to cut production in response to input shortages or surging energy costs furloughed workers or reduced their use of temporary labour. However, the difficulty of re-recruiting was likely to make businesses reluctant to lay off permanent staff.

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: Scores reflect the average ECB staff assessment from each call of what contacts said about developments in activity (sales, production and orders) and prices in their sector during the preceding quarter. Scores can range from -2 (significant decrease) to +2 (significant increase). A score of 0 would represent no change while a score of 1 would be typical in the event of normal growth. The dotted line refers to expectations for the next quarter.

Price and cost pressures remained strong and received further impetus from the conflict in Ukraine. Most contacts described a very dynamic pricing environment in the first months of the year. Cost pressures related to the surge in the prices of many raw materials and logistics in 2021 were still feeding through the value chain. At the same time, the conflict in Ukraine has now given rise to further cost pressures and to extreme volatility in the prices not only of gas and electricity but also many commodities (especially metals, wood, oil derivatives and food). The environment for passing rising costs through to prices remained very favourable in most sectors, as business customers in particular became more accustomed to price increases, while there was more resistance to price increases from – or near to – the final consumer. Many contacts said that prices were being adjusted more frequently than in the past and/or that companies were adapting to the environment by, for example, writing new indexation clauses into contracts.

Contacts continued to anticipate a pick-up in wage growth. Most wage agreements in 2020 and 2021 had been very modest and still influenced wage growth this year, but more recent agreements and expectations in relation to ongoing and upcoming negotiations were on average somewhat higher. Thus, most contacts saw wage pressures gradually building, with the currently high level of inflation and improving labour market being the main drivers. Given uncertainty surrounding the outlook for both output and inflation, some contacts expected upcoming agreements to cover a shorter horizon than usual.

3 The recent drivers of household savings across the wealth distribution

Prepared by Niccolò Battistini, Alina Bobasu and Johannes Gareis

This box reviews the dynamics of household savings as derived from deposit flows across the wealth distribution from the onset of the coronavirus (COVID-19) pandemic in March 2020 to the surge in inflation that started mid-2021. Deposit flows are used as a proxy for household savings since they are a primary means of savings for households.[1] Deposit flows account for around half of the changes in households' liquid assets and, in particular, help poorer households to smooth consumption in the face of economic shocks.[2] Mandatory and voluntary restrictions on mobility together with policy support measures produced a unique combination of declines in contact-intensive consumption on the one side and income resilience on the other. This led in turn to a large increase in deposit flows in the early phases of the COVID-19 pandemic. There has since been a slowdown in the accumulation of deposits owing to the recent surge in inflation, a recovery in demand and considerable supply bottlenecks.[3] These developments in deposit dynamics were unevenly distributed across household groups.[4] This box explores the drivers of euro area household deposit flows across the wealth distribution, where the distributional dimension has greater relevance given the potential macroeconomic implications of economic inequality.[5] The analysis focuses on the period from the onset of the COVID-19 pandemic in the first quarter of 2020 to the surge in inflation starting in the second quarter of 2021. The data used for this purpose are from the novel Distributional Wealth Accounts (DWA) for the euro area between the first quarter of 2009 and the third quarter of 2021.[6]

Inequality in household deposits has risen since the global financial crisis, although there have been signs of stabilisation in recent years. The upward trend in deposit inequality – as measured by the Gini coefficient and the top 10% share of the wealth distribution – steepened between 2011 and 2015, broadly in line with total wealth inequality. Over this period, households in the top decile of the

1 Total household savings go beyond changes in deposit holdings. This is because households typically save in a variety of ways, depositing money into a bank account or buying financial assets (i.e. stocks, mutual fund shares and bonds), real estate or other assets, such as non-financial business assets if households are active as sole proprietors.

2 In this context, liquid assets refer to the sum of deposits, bonds and listed equities. Across the wealth distribution, deposit flows represent about 80% of total flows in liquid assets for the bottom 50% of the distribution, while they represent about 70% for the next 40% and only 36% for the top 10%.

3 For an overview of the developments of total household savings and the drivers during the pandemic, see the box entitled "COVID-19 and the increase in household savings: precautionary or forced?", *Economic Bulletin*, ECB, Issue 6, 2020, and the box entitled "COVID-19 and the increase in household savings: an update", *Economic Bulletin*, ECB, Issue 5, 2021.

4 See, for instance, the article entitled "Energy prices and private consumption: what are the channels?" in this issue of the Economic Bulletin.

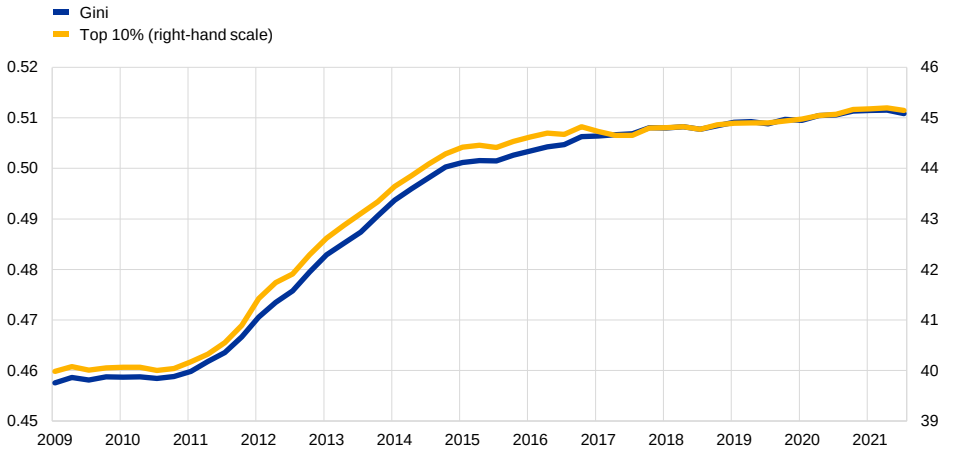
5 See, for instance, the article entitled "Economic inequality and citizens' trust in the European Central Bank" in this issue of the Economic Bulletin.

6 The DWA are an experimental dataset that uses historical relationships between macroeconomic quarterly sectoral accounts aggregates and survey distributions to extrapolate from the net wealth distribution measured in the various waves of the Household Finance and Consumer Survey (HFCS). The DWA are under development and the first results used in this box are therefore provisional.

wealth distribution increased their deposits by around €600 billion, while deposits by households in the bottom half decreased by approximately €50 billion. Inequality nevertheless moderated in the course of the subsequent economic recovery (Chart A). After the onset of the pandemic the different inequality measures picked up slightly, while they declined somewhat in the second and third quarters of 2021.[7] However, substantial disparities persist. In the third quarter of 2021 the top 10% of the wealth distribution held around 45% of total deposits, while the bottom 50% held only 17% of total deposits.

Chart A

Inequality in household deposits in the euro area



Sources: Experimental DWA and ECB calculations.
Note: "Top 10%" refers to the share of deposits held by households in the top 10% of the net wealth distribution.

The recent increase in deposit flows has been historically large for all households, in particular during the early phases of the COVID-19 pandemic.

The mandatory and voluntary restrictions introduced in response to the pandemic caused an abrupt decline in contact-intensive consumption. This, in combination with the income resilience thanks to support from policy relief measures, led to a significant rise in deposit flows (as a share of income) that was almost double the size observed in the period prior to COVID-19 (Chart B). However, the increase in deposit flows was unevenly distributed across the wealth distribution, as households in the top 10% of the distribution accounted for around half of the total increase, accumulating a stock of deposits almost four times larger than that accumulated by households in the bottom half.[8] This is likely due to the fact that wealthier households suffered lower income losses than poorer households. In addition, the uneven distribution of changes in deposit dynamics could also be attributable to the

7 These developments are also related to the way in which the experimental DWA data are constructed, as the last survey that takes into account shifts in the wealth distribution dates back to 2017. Therefore, the data for the latest quarters after the last available HFCS wave need to be interpreted with caution, since they are extrapolated under the assumption of a stable distribution at the level of each instrument, while allowing for changes to the wealth distribution owing to different developments across instruments. Results on the distributional changes during the COVID-19 pandemic will become available with the next HFCS in 2023.

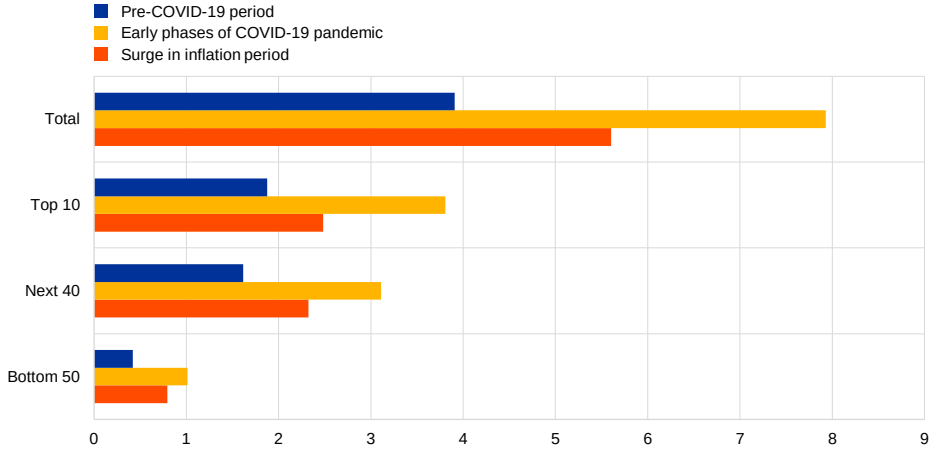
8 This is confirmed by Bounie et al. (2020) using data on bank deposits for France, "Consumption Dynamics in the COVID Crisis: Real Time Insights from French Transaction & Bank Data", *CEPR Discussion paper series*, No DP15474, November 2020.

distinctive feature of the COVID-19 pandemic, as wealthier households tend to spend a higher share of their consumption basket on services that were massively curtailed during the pandemic.[9] In the second and third quarters of 2021, amid a rebound in contact-intensive consumption and building inflationary pressures, the accumulation of deposits moderated, albeit continuing at a higher pace compared with the pre-pandemic period.

Chart B

Deposit flows across the wealth distribution

(changes, as percentages of total disposable income)



Sources: Experimental DWA, Eurostat and ECB calculations.
Notes: "Pre-COVID-19 period" denotes the period between the fourth quarter of 2014 and the fourth quarter of 2019. "Early phases of COVID-19 pandemic" denotes the period between the first quarter of 2020 and the first quarter of 2021. "Surge in inflation period" denotes the period between the second quarter and the third quarter of 2021. Changes in deposits are normalised by total disposable income in the corresponding period. All data are seasonally adjusted.

An empirical model disentangles the underlying drivers of household deposit flows across the wealth distribution.[10] Structural drivers of macroeconomic fluctuations may have different effects on household deposit flows. In the context of strengthening economic activity with higher levels of "demand-pull" inflation, both real consumption and income should rise. By contrast, in the presence of weakening economic activity with higher levels of "cost-push" inflation, declines in real consumption and income should occur at the same time. To assess the impact of the underlying drivers of deposit flows, an empirical model is estimated using quarter-on-quarter growth in real private consumption, the private consumption deflator and deposit flows across the wealth distribution. The model identifies demand-pull and cost-push shocks by assuming that real private consumption rises in response to the former and falls in response to the latter, while both shocks raise the private consumption deflator. Moreover, changes in the Google mobility index capture the impact of the pandemic restrictions on contact-intensive consumption.[11] As the goal

9 See the box entitled "COVID-19 and income inequality", *Economic Bulletin*, ECB, Issue 2, 2021.

10 The analysis is based on a zero and sign-restricted structural vector autoregression (SVAR) model, which is estimated with Bayesian techniques over the sample between the first quarter of 2009 and the third quarter of 2021. For a similar model framework, see the article entitled "Energy prices and private consumption: what are the channels?"

11 The Google mobility index for the euro area enters the model as an exogenous variable and is calculated as a composite indicator constructed as the average of the euro area indices for recreation, workplaces and transit stations, computed as population-weighted of the country-specific indices.

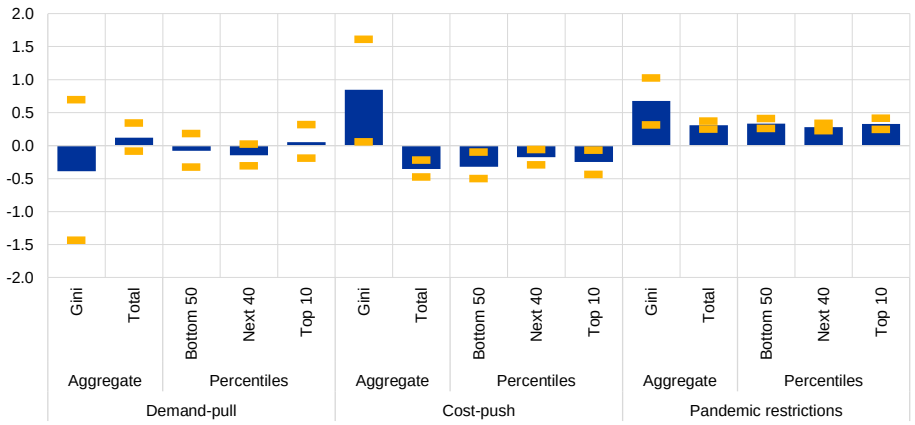
is to assess the impact of these structural factors on deposit flows, the response of this variable to all shocks is left unrestricted.[12]

Restrictions on contact-intensive consumption have a positive impact on deposit flows, while the impact of rising inflation depends on the underlying drivers. The results suggest asymmetrical effects among different drivers of inflation. Inflationary cost-push shocks weigh on deposit flows and exacerbate savings inequality by reducing real wages, thereby affecting poorer households to a relatively larger extent (Chart C). Moreover, these shocks have statistically significant effects. By contrast, inflationary demand-pull shocks tend to have opposite and statistically insignificant effects. As for the impact of the pandemic restrictions, the effects of a change in mobility on consumption, prices and inequality mimic those of an inflationary cost-push shock. However, deposit flows increase in response to the pandemic shock owing to the negative impact of mandatory and voluntary restrictions on contact-intensive consumption.

Chart C

Response of deposit flows across the wealth distribution

(quarter-on-quarter growth rates, percentage points)



Sources: Experimental DWA, Eurostat and ECB calculations.
Notes: A structural vector autoregression (SVAR) model is used to assess the structural drivers of household deposit flows across the wealth distribution. The model is identified by means of zero and sign restrictions, whereby a positive demand-pull shock leads to an increase in both real private consumption and the private consumption deflator, while a positive cost-push shock leads to an increase in the private consumption deflator and a decline in real private consumption. The responses of deposit flows (total and different measures across the net wealth distribution) and the Gini coefficient are left unrestricted. Real private consumption and the private consumption deflator are assumed not to respond on impact to other unidentified shocks by imposing zero restrictions. The model is estimated based on quarterly data expressed in quarter-on-quarter percentage changes from the first quarter of 2009 to the third quarter of 2021. All data (except the Gini coefficient) are seasonally adjusted. The yellow lines refer to the 68% credibility band.

Inflationary cost-push shocks weighed on deposit flows and increased savings inequality in the second and third quarters of 2021, partly offset by looser pandemic restrictions. The increase in deposit flows between the first quarter of 2020 and the first quarter of 2021 was due to restrictions on contact-intensive consumption and, to a lower extent, disinflationary cost-push shocks (Chart D). However, this picture reversed in the second and third quarters of 2021, with looser pandemic restrictions and cost-push inflation weighing on deposit dynamics.

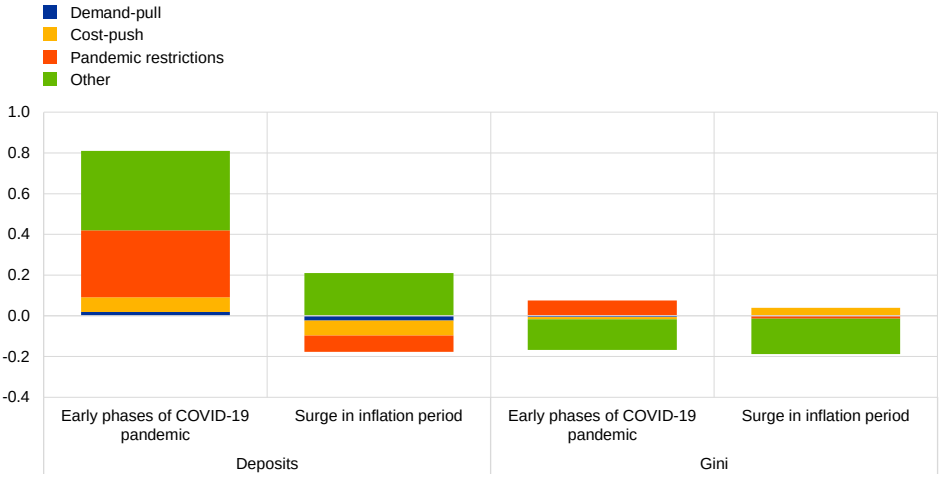
12 Moreover, real private consumption and the private consumption deflator are assumed not to respond on impact to other unidentified shocks by imposing zero restrictions. For further details on the methodology, see the article entitled "Energy prices and private consumption: what are the channels?" in this issue of the Economic Bulletin.

Over the same period, the former led to a decline in savings inequality, stimulating contact-intensive consumption, especially for wealthier households, while the latter had the opposite effect, weighing relatively more on the real labour income of poorer households. This suggests that households, especially at the lower end of the wealth distribution, might have adjusted deposit flows to cushion the impact of inflationary cost-push shocks on consumption spending.[13]

Chart D

Drivers of total deposit flows and the Gini coefficient

(contributions to deviations from quarter-on-quarter trend growth rates in the fourth quarter of 2019, percentage points)



Sources: Experimental DWA, Eurostat and ECB calculations.
Notes: A structural vector autoregression (SVAR) model is used to assess the structural drivers of household deposit flows across the wealth distribution. The model is identified by means of zero and sign restrictions, whereby a positive demand-pull shock leads to an increase in both real private consumption and the private consumption deflator, while a positive cost-push shock leads to an increase in the private consumption deflator and a decline in real private consumption. The responses of deposit flows (total and different measures across the net wealth distribution) and the Gini coefficient are left unrestricted. Real private consumption and the private consumption deflator are assumed not to respond on impact to other unidentified shocks by imposing zero restrictions. The model is estimated based on quarterly data (expressed in quarter-on-quarter percentage changes) from the first quarter of 2009 to the third quarter of 2021. All data (except the Gini coefficient) are seasonally adjusted. "Early phases of COVID-19 pandemic" denotes the period between the first quarter of 2020 and the first quarter of 2021. "Surge in inflation period" denotes the period between the second quarter and the third quarter of 2021.

It is likely that recent developments in household deposit flows and savings inequality have been shaped by pandemic restrictions and cost-push inflation, as well as uncertainty caused by the war in Ukraine. In the fourth quarter of 2021 and the first quarter of 2022, tighter restrictions on contact-intensive consumption and inflationary cost-push shocks should have had opposite effects on deposit dynamics, and they should have both exacerbated savings inequality. Uncertainty caused by the war in Ukraine may have increased precautionary savings by households, but may also have induced portfolio rebalancing effects, ultimately having unclear effects on deposit flows and their distribution.

13 This is in line with the fact that poorer households spend a relatively large share of their income on energy. For more information, see the article entitled "Energy prices and private consumption: what are the channels?" in this issue of the Economic Bulletin.

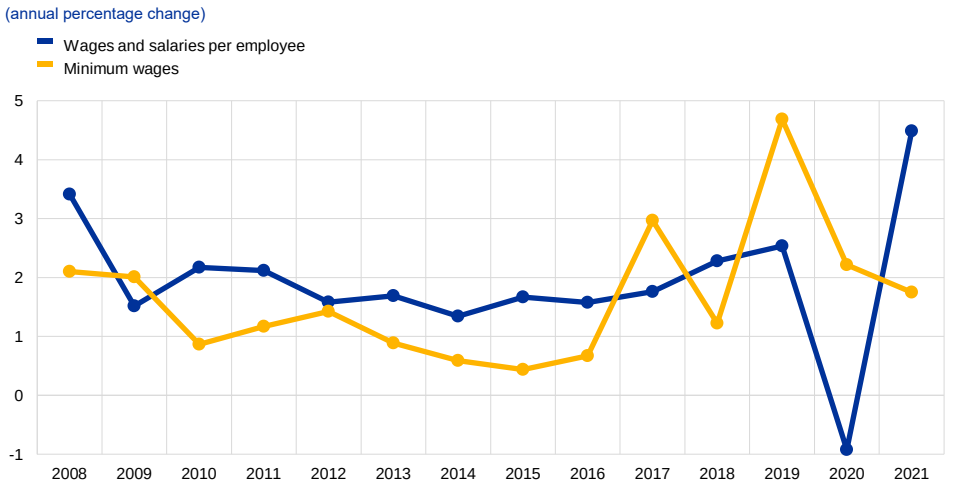
4 Minimum wages and their role for euro area wage growth

Prepared by Gerrit Koester and David Wittekopf

Minimum wages are prevalent in many euro area countries, and changes in minimum wages can have important effects on aggregate wage growth. Minimum wages exist in 15 of the 19 euro area countries.[1] Minimum wage levels are set using different methods – including predetermined formulas, expert committee recommendations and consultation with social partners – and are often also subject to government discretion. The frequency of change differs from one country to another, but most countries revise their minimum wages every one or two years. Changes in minimum wages can have a direct mechanical effect on aggregate wage growth in an accounting sense. An increase in minimum wages pushes up the wage level of those who previously received a wage below the new minimum wage. The increase of the minimum wage can – especially in the case of large increases – also push up the share of minimum wage recipients in the economy. Minimum wage changes can also have an indirect impact through knock-on effects on above-minimum wages in order to keep a certain distance from minimum wages or through the use of minimum wage increases as a benchmark for wage negotiations.

Chart A

Growth in minimum wages and wages and salaries over time



Sources: EU-SILC and ECB staff calculations.
Note: Minimum wage growth by country is weighted by the estimated share of wages and salaries paid to minimum wage recipients per country based on EU-SILC data, keeping the 2018 weights for 2018-21 constant for the respective year. For Germany (where the minimum wage was only introduced in 2015) increases of 0% are included for 2008-15.

While minimum wages in the euro area have on average tended to grow at a similar pace as wages and salaries, minimum wage growth has also strongly deviated from growth in wages and salaries in some years. At an average of 1.5% in the years 2009 to 2019 (roughly from the outbreak of the global financial crisis to before the pandemic), minimum wage growth has been slightly lower than growth in wages and salaries per employee, which increased by 1.8% in the euro

[1] The four euro area countries with no statutory minimum wages are Italy, Cyprus, Austria and Finland.

area[2] (Chart A). The largest deviation of growth in wages and salaries per employee from that in minimum wages was observed in 2019 when, at 4.7%, minimum wages grew at a far stronger pace than wages and salaries per employee at 2.5%. During the pandemic in 2020 and 2021, when many wage agreements provided for only low or even no pay increases while developments in wages and salaries per employee were strongly affected by job retention schemes,[3] minimum wages grew by on average 2.2% in 2020 and 1.7% in 2021.

Growth in the level of minimum wages is often broad-based across countries, but, in quantitative terms, changes in large countries dominate average euro area developments. For the first time since 2008, all countries with minimum wages increased the statutory national minimum wage level in 2019 (Chart B, panel a), contributing to the relatively high growth in minimum wages in that year. The key driver of the strong increase in the euro area aggregate was a minimum wage increase of around 22% in Spain (Chart B, panel b).

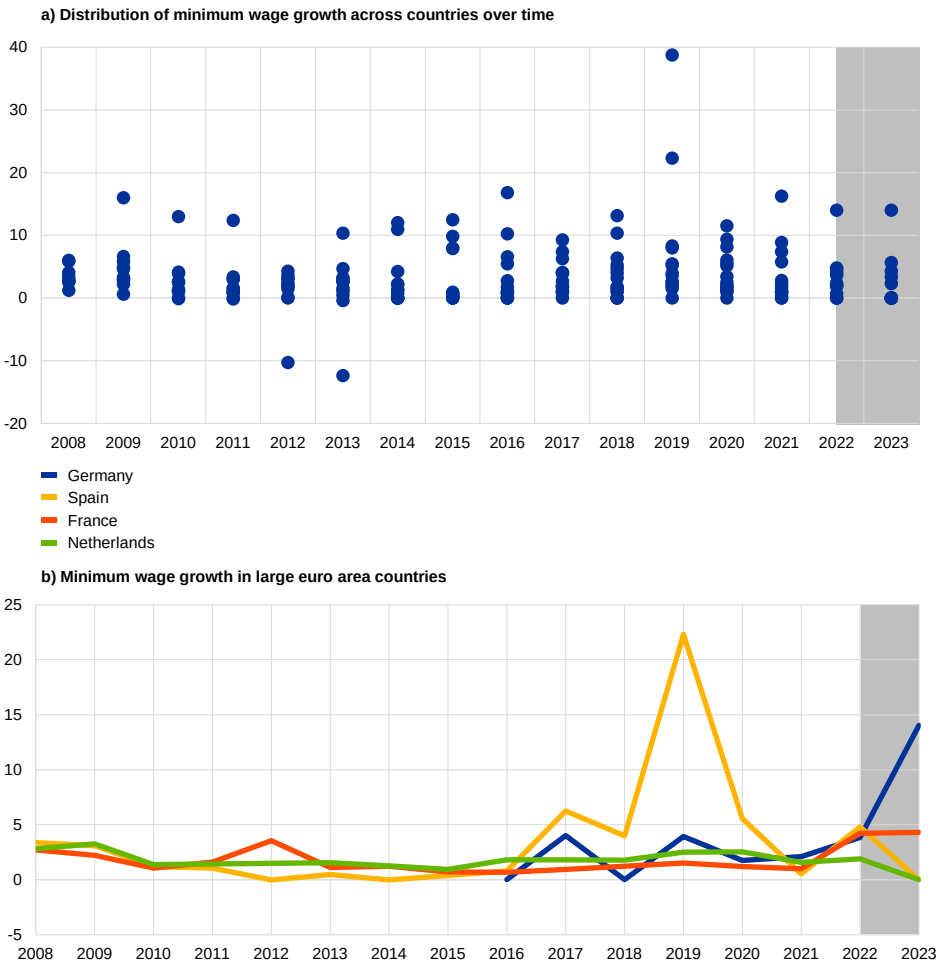
2 Growth in compensation per hour increased over 2009-19 by on average 2%.

3 For more details see the boxes entitled "Short-time work schemes and their effects on wages and disposable income", *Economic Bulletin*, Issue 4, ECB, 2020 and "Developments in compensation per hour and per employee since the start of the COVID-19 pandemic", *Economic Bulletin,* Issue 8, ECB, 2020.

Chart B

Minimum wage growth across euro area countries

(annual percentage change)



Sources: Eurostat, national statistics institutes and ECB staff calculations.
Notes: Chart a) is based on the euro area in changing composition. Minimum wages for 2008-21 are based on data provided by Eurostat for January and July of each year. For 2022 and 2023 minimum wage increases reflect increases already implemented or increases resulting from indexation of minimum wages to inflation (applying the latest ECB staff forecast) – taking into account the month in which an increase comes into effect. The grey shaded area marks the forward-looking part (2022 and 2023).

Minimum wages are expected to grow substantially in many euro area countries in 2022 and 2023. Based on current information, minimum wages are expected to increase in 12 of 19 euro area countries in 2022 (Chart B, panel a). The most pronounced increase is in Germany, where the minimum wage is set to rise to €12 per hour in October 2022, reflecting a 25% increase compared with the December 2021 level (€9.60). As it only occurs in the fourth quarter, this increase will be reflected in minimum wage growth in year-on-year terms in 2022 and 2023 (see also Chart B, panel b). Minimum wage-setters have motivated these strong increases by the need to catch up after minimum wages grew less strongly than average wages and salaries as well as by the currently high inflation rates hitting especially lower-income households, for whom items with very high inflation rates

like energy and food reflect a comparatively large part of the consumption basket.[4] Given the high uncertainty about the outlook, additional changes in minimum wages over 2022 and 2023 − beyond those already decided and those implied by inflation indexation clauses for minimum wages − seem likely.

Calculating the direct mechanical effect of minimum wages on overall wage growth requires information on the number of recipients. To derive a proxy for the share of wages and salaries paid to minimum wage recipients in overall wages and salaries, this box uses data from the EU Statistics on Income and Living Conditions (EU-SILC), which, however, are currently only available until 2018. The direct mechanical effect on overall wage growth is then calculated by multiplying the growth rate of the minimum wage by the share of minimum wages in overall wages and salaries.[5] Assessing the effects of changes in minimum wages on overall growth in wages and salaries after 2018 (the latest year for which data are available) requires further assumptions on how the share of employees receiving minimum wages has developed since 2018. In this box we consider two options: under the first option we hold the number of recipients constant at the 2018 level. Under the second option, we adjust the number of recipients on the basis of the share of employees, which in 2018 would have fallen below the new level of the minimum wage to be implemented in the following years. While the first option is likely to underestimate the share of recipients and thereby the direct mechanical impact on wage growth, especially in the case of large increases in the minimum wage, the second option is likely to generate estimates that are on the high side as the overall wage scale tends to move up every year. These two options provide a range that reflects the uncertainty on the size of the direct mechanical effects of minimum wage changes.

Changes in minimum wages can be expected to contribute more strongly than usual to euro area wage growth in 2022 and 2023. Since 2008, the direct mechanical contribution of minimum wage changes to growth in wages and salaries in the euro area has tended to be below 0.1 percentage point per year based on the shares of minimum wage recipients that can be calculated on the basis of EU-SILC data up to 2018. In 2019, the effects are estimated to be substantially higher if the potential effects of the exceptionally large increase in the minimum wage in Spain by 22% (see Chart B, panel b) on the share of minimum wage earners is taken into account. In this case the contribution of minimum wage changes to overall wage

4 For the effects of inflation on minimum wages (for example via indexation and the role of minimum wages for industry-level bargaining) see for example Gautier, E., Fougère, D. and Roux, S., "The Impact of the National Minimum Wage on Industry-Level Wage Bargaining in France", *Working Paper Series*, No 587, Banque de France, April 2016. On the exposure of households to energy price shocks by income see for example Chart 6 in "Energy prices and private consumption: what are the channels?" *Economic Bulletin*, Issue 3, ECB, 2022.

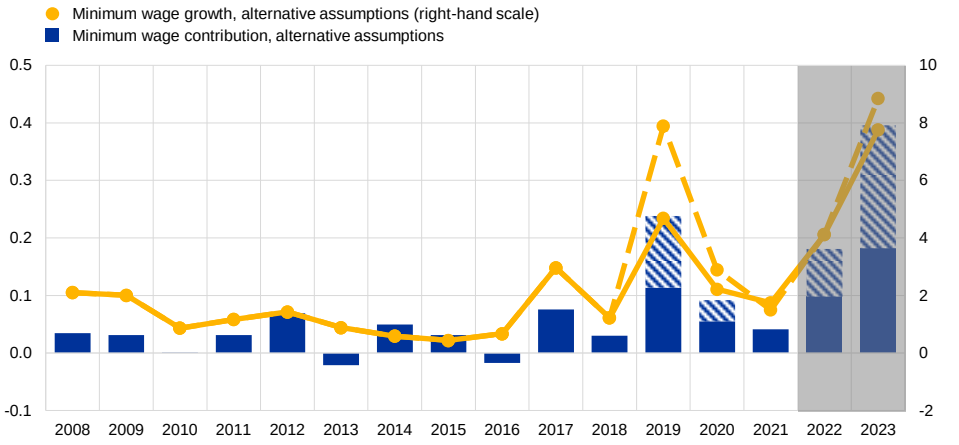
5 First, the share of minimum wage recipients is calculated on the basis of the EU-SILC data. For this we calculate the share of employees with an income within a band of 90% to 110% of the minimum wage. Second, this share is then applied to the total number of employees in the economy to derive the number of recipients of minimum wages in an economy. Multiplying this number by the respective level of the minimum wage in each country gives the amount of wages and salaries that can be assigned to minimum wage recipients and allows for the calculation of the share of this group in overall wages and salaries in each country and – by aggregating country results – the euro area. Controlling for differences in hours worked by minimum wage recipients and overall employment does not substantially affect the results. The percentages of employees have been estimated using EU-SILC microdata for every year up until the last observation of 2018. For the rest of the sample the percentages are kept constant, except where country-level administrative data are available to complement the analysis. For more details see the box entitled "Recent developments in social security contributions and minimum wages in the euro area", *Economic Bulletin, Issue* 8, ECB, 2019.

growth in the euro area is pushed up from around 0.1 percentage points (assuming an unchanged share of minimum wage recipients in Spain in 2019 when compared to 2018) to 0.2 percentage points (assuming an increase of the share of minimum wage recipients in Spain, including all employees who in 2018 earned less than the minimum wage of €900 per month introduced in Spain in 2019). Contributions of minimum wage increases to overall wage growth are anticipated to be much higher than usual in 2022 and 2023. Based on the assumption that the number of minimum wage recipients is kept unchanged at the 2018 levels, minimum wage growth in the euro area can be expected to increase by more than 4% in 2022, and even close to 8% in 2023, and contribute around 0.1 percentage point to euro area wage growth in 2022 and 0.2 percentage points in 2023 (Chart C). The strong increase in minimum wage growth in the euro area is significantly driven by the increase of the minimum wage to €12 per hour in Germany in October 2022. If the share of minimum wage recipients is adjusted for the case of large increases in minimum wages – i.e. to include in Germany all employees who earned €12 per hour or less in 2018 and in Spain all employees who earned a wage of less than €900 per month in 2018 – minimum wage growth in the euro area can be expected to increase by more than 4% in 2022 and even around 9% in 2023 – implying a direct mechanical contribution of minimum wages to growth in wages and salaries of around 0.2 percentage point in 2022 and around 0.4 percentage point in 2023.[6]

Chart C

Direct (mechanical) contribution of changes in minimum wages to growth in wages and salaries

(left-hand scale: percentage points, right-hand scale: annual percentage growth)



Sources: EU-SILC and ECB staff calculations.
Notes: The estimated expected effects for 2022 and 2023 (shown in the shaded area) are based on current plans and wage indexation clauses. The number of minimum wage recipients after 2018 (latest vintage of EU-SILC data available) is unchanged in the baseline assumptions (solid lines/columns), while alternative assumptions (dashed lines/columns) include higher weights. Under the alternative assumptions the share of minimum wage recipients in 2022 and 2023 in Germany is equal to the share who earned an hourly wage of €12 or below in 2018. For Spain, the alternative assumption is that the share of minimum wage recipients includes all employees who earned a monthly wage of less than €900 (2019 level of minimum wage – based on 14 monthly payments per year) in 2018.

6 For a calculation of the effects of the planned minimum wage increase on wage growth in Germany see also "The macroeconomic impact of the planned increase in the general statutory minimum wage to €12 per hour", *Monthly Report*, Vol. 74, No 2, Deutsche Bundesbank, February 2022.

5 What explains recent errors in the inflation projections of Eurosystem and ECB staff?

Prepared by Mohammed Chahad, Anna-Camilla Hofmann-Drahonsky, Baptiste Meunier, Adrian Page and Marcel Tirpák

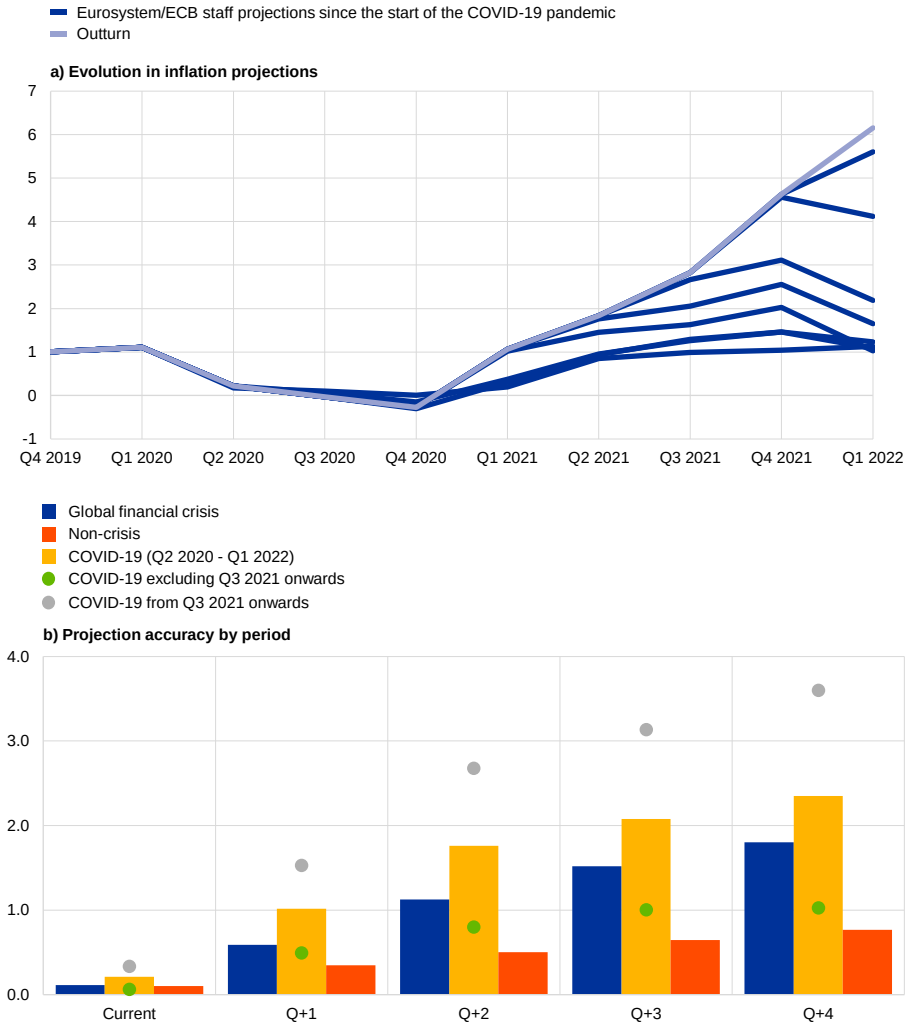
Recent projections by Eurosystem and ECB staff have substantially underestimated the surge in inflation, largely due to exceptional developments such as unprecedented energy price dynamics and supply bottlenecks.

Although headline HICP inflation projections for 2020 were fairly accurate despite the emergence of the coronavirus (COVID-19) pandemic, some underestimation began to occur in the first quarter of 2021, and this has become more pronounced since the third quarter of 2021. The underestimate for the first quarter of 2022 marked the largest one-quarter-ahead error for inflation since the first staff projections in 1998 – a 2.0 percentage point difference between the outturn and the December 2021 projection (Chart A, panel a). The accuracy of HICP projections, measured by the root mean squared forecast error, has declined significantly during the COVID-19 crisis (Chart A, panel b), although up to the second quarter of 2021 (green dots) the projections were still, on average, more accurate than those made during the global financial crisis, despite that period seeing smaller fluctuations in activity than during the COVID-19 period. The deterioration of projection accuracy has mainly occurred since the third quarter of 2021, when unexpected developments in energy prices, coupled with both the effects of reopening following the removal of coronavirus-related restrictions and the effects of global supply bottlenecks, led to unprecedented increases in HICP inflation (grey dots).

Chart A

Evolution and accuracy of recent HICP inflation projections

(panel a): annual percentage change; panel b): root mean squared forecast error in percentage points)



Sources: Eurostat, and Eurosystem/ECB staff macroeconomic projections for the euro area.
Notes: In panel a) the dark blue lines refer to the projections successively published between June 2020 and March 2022. In panel b) the x-axis refers to projection horizons; "Non-crisis" covers the period from the fourth quarter of 1999 to the first quarter of 2008 and the period from the first quarter of 2014 to the first quarter of 2020, "Global financial crisis" covers the period from the second quarter of 2008 to the fourth quarter of 2009, and "COVID-19" covers the period from the second quarter of 2020 to the first quarter of 2022; periods are identified based on the work of the Euro Area Business Cycle Network.

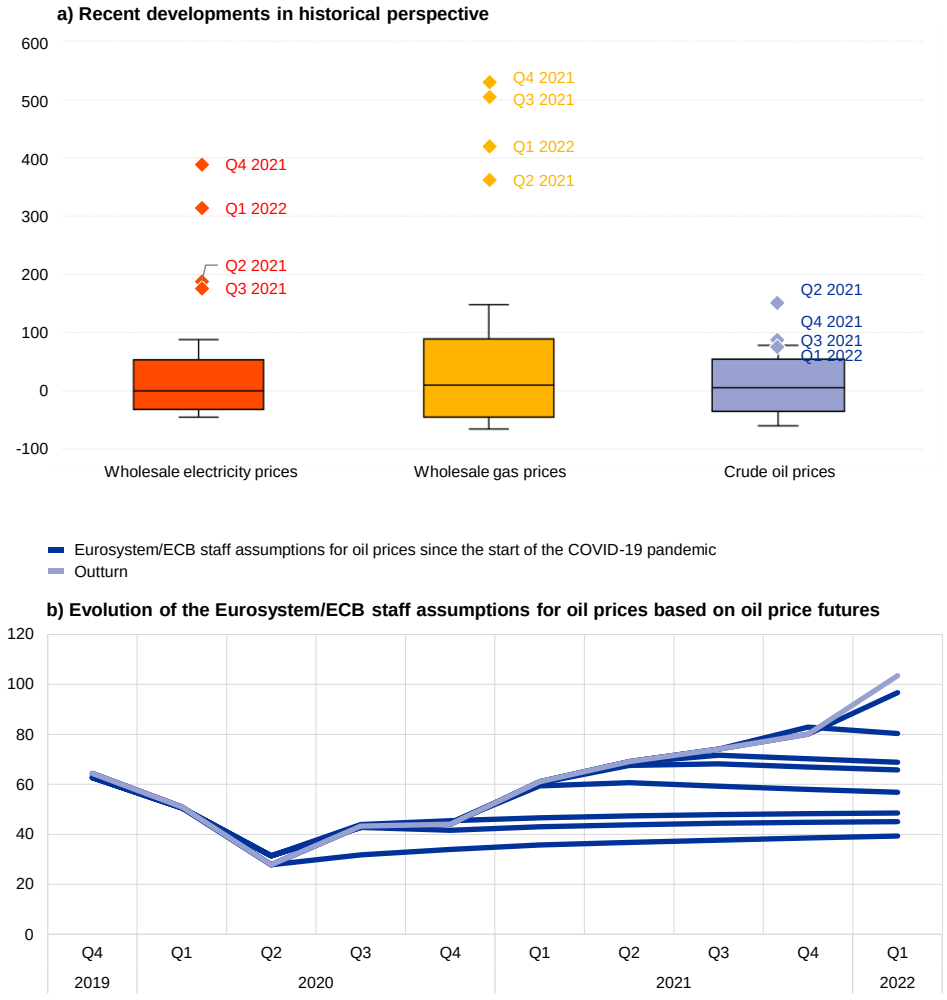
Inflation projections throughout 2021 and the first quarter of 2022 were conducted in the midst of skyrocketing energy prices. Wholesale prices for gas and electricity and crude oil prices all reached exceptionally high annual growth rates over recent quarters (Chart B, panel a). For wholesale gas and electricity prices in particular, annual growth rates in the fourth quarter of 2021 (540% and 390% respectively) were around four times their previous maximum during the period from 2005 to 2020, and all observations since the second quarter of 2021 were well above all previous historical values. Russia's invasion of Ukraine caused energy commodity prices to increase even further in the first quarter of 2022. In Eurosystem and ECB staff projections, assumptions for energy commodity prices are set according to market-based futures, which is common practice across central banks and

international institutions.[1] The exceptional increase in energy prices was largely unanticipated by market participants (Chart B, panel b).

Chart B

Developments in energy commodity prices

(panel a): annual percentage changes; panel b): USD per barrel)



Sources: Eurostat, Bloomberg, Refinitiv, and Fraunhofer ISE.
Notes: In panel a) box plots refer to distributions between the second quarter of 2005 and the first quarter of 2021, boxes span from the first to the third quartile and horizontal dashes represent minimum and maximum values; wholesale electricity prices are a weighted average (using electricity generation as weights) of prices in the "big five" euro area markets. In panel b) the dark blue lines refer to the assumptions used in the projections successively published between June 2020 and March 2022. Oil prices refer to the price of Brent crude. Data are shown at quarterly frequency.

International institutions and private forecasters have recently made similarly large errors in their projections for euro area inflation. On average over the

[1] Energy commodity price assumptions are set according to oil price futures in the projections by the IMF, European Commission and many central banks, including the Federal Reserve System and the Bank of Japan. An alternative approach (used by the OECD and the Reserve Bank of Australia) is to assume constant oil prices, while the Bank of England uses futures prices for the first six months followed by a constant oil price thereafter. Over the recent period, as oil price futures have suggested somewhat declining prices, a constant oil price assumption would have reduced the underestimations of inflation. Nevertheless, the size of the observed increase in oil prices implies that this reduction would have been minimal in relation to the size of the errors. To tackle the uncertainty surrounding the oil price assumptions, the Eurosystem and ECB staff projections are regularly complemented by sensitivity analyses showing the impact of alternative paths based on the risk-neutral option-implied densities for oil price futures, among other factors.

COVID-19 period, the accuracy of inflation forecasts has been comparable across forecasters (Chart C, panel a). With respect to 2021 and the first quarter of 2022, all forecasters significantly underestimated inflation. This illustrates the significant challenges in forecasting inflation in a period characterised by extreme volatility in economic developments, and in energy commodity prices in particular. Eurosystem and ECB staff underperformed some other forecasters in projecting HICP inflation for the first quarter of 2021, but the relative performance of the Eurosystem and ECB staff projections increased for the remaining quarters of 2021 and the first quarter of 2022.

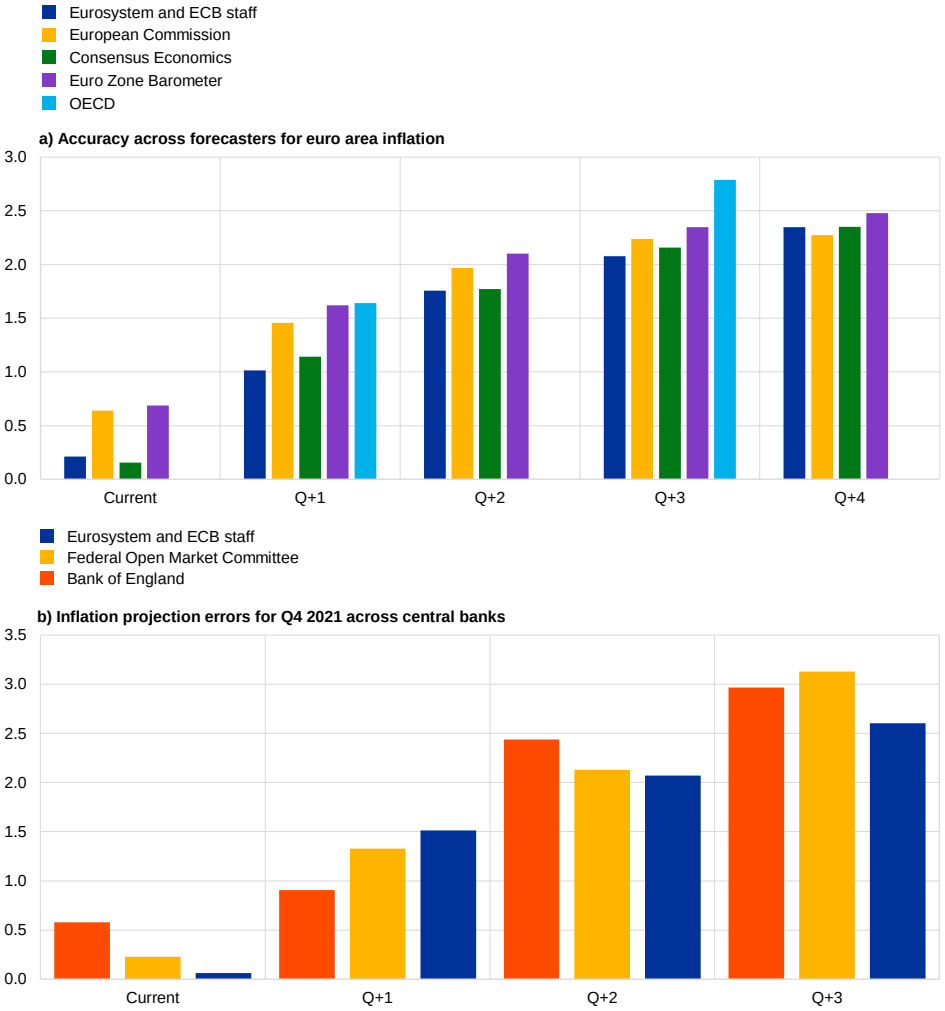
The accuracy of Eurosystem and ECB staff projections for headline inflation is similar to that of the projections published by the Federal Open Market Committee and the Bank of England for their own economies. Chart C, panel b compares four projection vintages published in 2021 and reports errors for inflation in the fourth quarter of 2021 – a period when inflation surprises were significant. Eurosystem and ECB staff projections and the Federal Open Market Committee projections have a small information advantage over the Bank of England projections, as their later cut-off dates generally allow them to have one more monthly observation of inflation available. The surge in headline inflation across economies in 2021 was not foreseen by any of the central banks, and the large errors made for the fourth quarter were broadly comparable.[2]

[2] Owing to a lack of available data, we have omitted inflation projections by the Bank of Japan's Policy Board members from this comparison, as these are published as annual averages and for fiscal years only. However, when considering inflation outturns published to date, the Bank of Japan's projections seem to have overestimated inflation in the fiscal year 2021, which ended in March 2022. Consumer price inflation remained subdued in the fiscal year 2021 also due to sizeable cuts in mobile phone charges, which according to Bank of Japan estimates subtracted around 1.1 percentage points from inflation measured by the consumer price index excluding fresh food (see Bank of Japan, "Outlook for Economic Activity and Prices", January 2022).

Chart C

Comparative accuracy of Eurosystem and ECB staff projections for inflation since the start of the COVID-19 period

(panel a): root mean squared forecast error in percentage points; panel b): percentage points)



Sources: Both panels – ECB and Eurosystem staff macroeconomic projections for the euro area and ECB staff calculations. Panel a) – Consensus Economics, European Commission, Euro Zone Barometer, OECD and Eurostat. Panel b) – ECB, Federal Open Market Committee and Bank of England.
Notes: The COVID-19 period relates to projections for the second quarter of 2020 to the first quarter of 2022. Panel a) – for the monthly Euro Zone Barometer, the survey closest to the Eurosystem/ECB staff cut-off date is used for each quarter. For the OECD, projections at current quarter, Q+2, and Q+4 are not included due to comparability issues. Panel b) – a projection error is defined as the outturn minus the projection. The median inflation projections are reported for the FOMC.

Errors in the conditioning assumptions, particularly for energy prices, explain about three-quarters of the recent Eurosystem and ECB staff projection errors for inflation, on average (Chart D). As mentioned above, these projections are, by design, conditional on a set of assumptions for commodity prices as well as on exchange rates and interest rates that, in most cases, originate from financial market data. Oil price assumption errors have been the most regular and prominent contributor to inflation errors (yellow bars), in particular for longer horizons. At the same time, the underestimation of gas and electricity price rises – in the context of a historically unprecedented decoupling of oil and gas prices – explains most of the

errors for short horizons from the third quarter of 2021 onwards (green bars).[3] These errors might also relate to the swifter than expected pass-through from wholesale to consumer energy prices, as is suggested by the recent surge in the correlation between contemporaneous gas prices for the wholesale and consumer markets.[4] For electricity, wholesale prices were passed on to consumers almost immediately in some countries, despite this pass-through historically having taken three to twelve months.[5] In addition to their direct impact on consumer prices for energy, these assumption errors have also had indirect effects on the projections for non-energy inflation (shaded blue bars). Aside from energy, the fact that both inflation and the recovery in economic activity in the euro area's main trading partners were stronger than expected also contributed to the errors, notably for the four-quarter-ahead horizon (red bars). Overall, technical assumptions and the related energy inflation errors played an important role in recent inflation underestimations. This is particularly true for the one-quarter-ahead horizon where, in absolute terms, these errors contributed 1.6 percentage points to the overall error in the first quarter of 2022 – a historic high. In comparison, their impact was usually more subdued in the pre-COVID-19 period (0.2 percentage points in absolute terms).

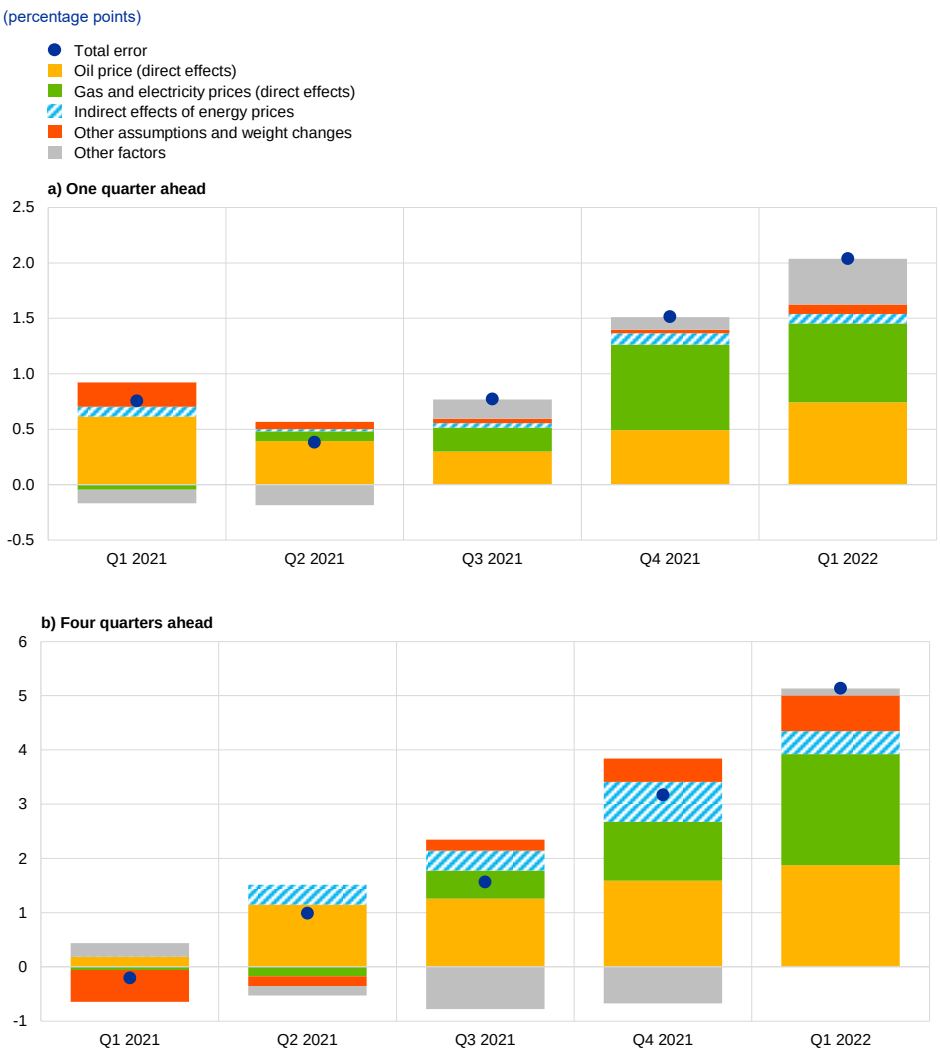
3 The complex setting of electricity prices across euro area countries also contributed to difficulties in forecasting consumer electricity prices. See Box 3 of "Eurosystem staff macroeconomic projections for the euro area, December 2021", published on the ECB's website on 16 December 2021.

4 The 24-month rolling correlation between the contemporaneous movements in the two series increased from 0.36, on average, between 2005 and 2021, to 0.92 in the second half of 2021.

5 See Task Force of the Monetary Policy Committee of the European System of Central Banks, "Energy markets and the euro area macroeconomy", *Occasional Paper Series*, No 113, ECB, June 2010.

Chart D

Decomposition of HICP projection errors at different horizons



Source: ECB calculations based on elasticities derived from the macroeconomic models used to produce the Eurosystem staff macroeconomic projections for the euro area.
Notes: "Total error" is the outturn minus the projection. "One quarter ahead" and "Four quarters ahead" refer to the projection horizon, e.g. the one quarter ahead projection error for Q1 2021 represents the error made in the December 2020 Eurosystem staff projections in projecting inflation for the first quarter of 2021. "Other assumptions and weight changes" represents the assumptions for short and long-term interest rates, stock market prices, foreign demand, competitors' export prices, food prices and the exchange rate, as well as the effect of changes in HICP weights. "Gas and electricity prices (direct effects)" is the error in estimating energy inflation that is not explained by the impact of oil and exchange rate errors. "Indirect effects of energy prices" is the sum of the indirect effects of oil, gas and electricity prices (for oil, these are based on the elasticities derived from the Eurosystem staff macroeconomic models, and for gas and electricity these are computed assuming an elasticity proportional to the oil price shock).

Other factors that are likely to have contributed to the inflation projection errors include unanticipated effects from protracted supply bottlenecks and the reopening of the economy, lower than expected slack in the labour market, and the rise in energy prices possibly being transmitted more strongly than usual. These exceptional developments have been challenging to forecast. In particular, supply bottlenecks, which reflect both the rapid recovery in global demand for goods and supply chain disruptions, proved to be much tighter than anticipated,

especially in the second half of 2021.[6] For non-energy industrial goods inflation, ECB staff simulations suggest that supply bottlenecks were a major contribution to its dynamics (about 0.5 percentage points in the second half of 2021).[7] Errors in services inflation were mainly driven by stronger than expected price increases in contact-intensive sectors following the reopening of the economy. However, the rise in services prices was broad-based, with upward pressures also emerging in some less-contact-intensive sectors (e.g. maintenance and repair of the dwelling, and communication). A further factor likely also relates to lower than expected slack in the labour market, as the projections for unemployment were successively revised downward over this period. This partly reflects the successive upward revisions to real GDP projections between late 2020 and late 2021. The underpredictions of GDP growth are, however, estimated to have contributed only marginally to errors in forecasting HICP inflation excluding energy and food. Finally, the stronger than usual transmission of energy commodity prices to non-energy inflation might have induced higher indirect effects than the rather muted model-based estimates shown in the shaded blue bars in Chart D.[8] The uncertainty surrounding the elasticities used to assess the model-based impact should be generally acknowledged, but in the case of the indirect effect of energy commodity prices underestimation could possibly stem from strong non-linearities in the context of record price hikes and limited scope for companies to absorb these increases given compressed margins.

Eurosystem and ECB staff regularly review the performance of their projections and adapt their set of assumptions and overall modelling processes to account for the most recent developments.[9] Errors are inherent to the nature of Eurosystem and ECB staff projections, which are conditioned on a set of assumptions, mainly stemming from market-based information including on energy prices. However, recent experience provides some guidance for further improvements to make the projections more robust. The set of technical assumptions used to condition the projections are regularly reviewed and are being modified. In particular, recent developments imply the need for a more detailed assessment of the energy market. This is taken into account by the recent inclusion of assumptions for wholesale gas and electricity prices, as well as for the EU Emissions Trading System.[10] Moreover, the staff models used for the projections are

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6 See, for instance: Lane, P.R., "Bottlenecks and monetary policy", *The ECB Blog*, ECB, 10 February 2022; Panetta, F., "Patient monetary policy amid a rocky recovery", speech at Sciences Po, Paris, 24 November 2021; and the boxes entitled "The semiconductor shortage and its implication for euro area trade, production and prices", *Economic Bulletin*, Issue 4, ECB, 2021, and "The impact of supply bottlenecks on trade", *Economic Bulletin*, Issue 6, ECB, 2021.

7 Non-energy industrial goods inflation averaged 2.1% during the same period. Estimations follow the approach in the box entitled "Supply chain disruptions and the effects on the global economy", *Economic Bulletin, Issue* 8, ECB, 2021, using VAR models with non-energy industrial goods inflation, producer prices, industrial production, export and import volumes, and a PMI-based bottleneck proxy (estimated PMI supply shock and PMI supply delivery times indicator) that does not control for the effect of energy prices. However, the derived bottleneck effects could also be affected by oil price developments. Preliminary estimates suggest that the effect of bottlenecks is marginally lower when including (and conditioning on) oil prices.

8 The estimates of the impact of different assumptions on the projection errors for inflation are based on the models used to construct the Eurosystem staff projections. See the notes to Chart D for further details.

9 See, for instance, the article entitled "The performance of the Eurosystem/ECB staff macroeconomic projections since the financial crisis", *Economic Bulletin*, Issue 8, ECB, 2019.

10 Until recently the close co-movement of oil and gas prices meant that a single assumption for oil was considered sufficient and the price of emissions permits implied little impact on overall inflation.

state of the art and continuously being refined. As has been the case with the COVID-19 period, the workhorse projection models are being complemented with special purpose satellite models to take into account specific shocks.[11] Nevertheless, the current context of volatile price movements in energy commodities, compounded by the uncertainty caused by the war in Ukraine and reopening effects following the removal of pandemic-related restrictions, means that inflation developments are likely to remain very challenging to forecast in the near term. In this context, complementing the Eurosystem and ECB staff baseline projections with scenario and sensitivity analyses can help provide a richer representation of the inflation outlook.[12]

11 See, for instance, Work stream on Eurosystem modelling, "Review of macroeconomic modelling in the Eurosystem: current practices and scope for improvement", *Occasional Paper Series*, No 267, ECB, September 2021. Further, in its climate change action plan, the ECB committed to accelerating the development of new models – as well as conducting theoretical and empirical analyses – aimed at monitoring the implications of climate change and related policies (see, for instance, "EU emissions allowance prices in the context of the ECB's climate change action plan", *Economic Bulletin*, Issue 6, ECB, 2021). In addition, satellite models have also been developed to address the impact of supply bottlenecks on the economy (see, for instance, the boxes entitled "What is driving the recent surge in shipping costs?", *Economic Bulletin*, Issue 3, ECB, 2021, "Sources of supply chain disruptions and their impact on euro area manufacturing", *Economic Bulletin*, Issue 8, ECB, 2021, and "Supply chain bottlenecks in the euro area and the United States: where do we stand?", *Economic Bulletin*, Issue 2, ECB, 2022).

12 For a longer-term perspective, statistical tests covering all observations between 1999 and 2022 suggest that Eurosystem and ECB projections for both HICP headline inflation and HICP inflation excluding food and energy are unbiased, efficient and directionally accurate, and that these properties are not significantly affected by the large recent errors. Tests have been conducted following the methodology outlined in Kontogeorgos, G. and Lambrias, K., "An analysis of the Eurosystem/ECB projections", *Working Paper Series*, No 2291, ECB, June 2019. Over such a long period, the results of these tests also relate, to some extent, to a past period of successive overpredictions of inflation, mostly between 2013 and 2016 (see "The performance of the Eurosystem/ECB staff macroeconomic projections since the financial crisis", *Economic Bulletin*, Issue 8, ECB, 2019).

6 The role of speculation during the recent increase in EU emissions allowance prices

Prepared by Miguel Ampudia, Giovanna Bua, Daniel Kapp and Dilyara Salakhova

The price of emissions allowances (EUA) traded on the EU's Emissions Trading System (ETS) has increased from below €10 per metric tonne of carbon to above €90 since the beginning of 2018 (Chart A). In general, as discussed below, EUA prices are mainly driven by demand-side factors (such as economic activity and fuel switching) and public policies. Market commentary suggests that major factors behind the increase since early 2018 are likely to have been the introduction of increasingly stringent climate change policies in the EU and globally, alongside various changes in ETS market design. In April 2018 the introduction of the revised EU ETS Directive[1] – which sets the framework for the fourth trading period, from 2021 to 2030 – appears to have enhanced the credibility of the scheme.[2] The announcement by the European Commission of the European Green Deal in late 2019 is also reported to have supported EUA prices, alongside the endorsement by the European Council of a new EU-wide emission reduction target in late 2020.

The largest share of the EUA price increase has occurred since early 2021 and likely reflects a multitude of factors. Research by the European Commission and commentaries by participants in the EUA market suggest that several factors have led to the acceleration of the price increase since early 2021. First, particularly cold weather in Europe at the beginning of 2021 caused energy demand to rise. In the short term, given production rigidities, higher demand for energy translates directly into an increase in demand for EUA certificates and therefore into higher EUA prices. Second, the announcement of the European Commission's "Fit for 55" package of legislative proposals reinforced the role of the EU ETS as the EU's major decarbonisation tool. Third, phase 4 of the ETS, which started in 2021, also entails a shrinking supply of EUAs over time and updated parameters for the Market Stability Reserve, which will further limit the amount of EUAs available in the market.[3] Fourth, the main factor behind the most recent price increases is higher gas prices, which encourage electricity producers to switch from gas to more CO2-intensive coal-fired power generation, thereby increasing the demand for carbon permits.

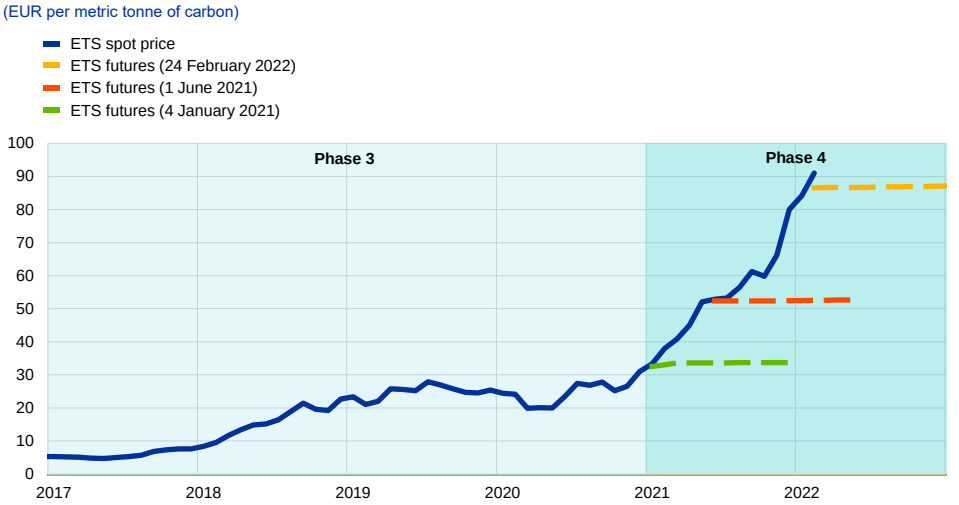
1 Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 (OJ L 76, 19.3.2018, p. 3).

2 The Directive amended the Market Stability Reserve and increased the rate of reduction of the annual emissions cap from 1.74% to 2.2% for phase 4 of the ETS.

3 See the box entitled "EU emissions allowance prices in the context of the ECB's climate change action plan", *Economic Bulletin*, Issue 6, 2021 for more information on the characteristics of the EU ETS.

Chart A

ETS spot and futures prices



Sources: Refinitiv, Bloomberg and ECB calculations.
Notes: The EU ETS has undergone numerous changes over the years. Introduced in 2005, the system was designed in trading periods and is now in its fourth trading phase. The latest observation is for February 2022 (ETS spot prices, monthly data).

In light of the particularly strong increase in EUA prices over the last two years, the potential role played by speculation has also come into focus. Even if EUA prices are expected to increase to meet increasingly stringent decarbonisation goals, sharp price increases over a short period could imply that firms are faced with quickly rising costs without having sufficient time to adjust production capabilities. In this respect, European Commission research suggests that the price rally may have been supported by increased interest from non-compliance entities, such as investment funds, in the ETS.[4] Market intelligence also suggests that exchange-traded funds and other investment funds may be playing an increasingly important role in the ETS market.

However, the bulk of empirical studies of the drivers of carbon prices have so far focused mainly on structural determinants of price fluctuations and given limited attention to changes in speculation. The "switching" effect, which arises from the substitution between different sources of fuel with different carbon emission levels, has been identified as one of the most important drivers of carbon prices in theory. However, while the substitution in Europe takes place mainly between gas and coal, there is only mixed empirical evidence as regards the effect of fuel switching on carbon prices following changes in coal prices.[5] The literature finds

4 Compliance entities are companies and aircraft operators obliged to participate in the EU ETS. Non-compliance entities, such as credit institutions, investment firms, funds and commodity trading firms (which have no compliance requirements), can also participate.

5 See e.g. Alberola, E., Chevallier, J. and Chèze, B., "Price drivers and structural breaks in European carbon prices 2005-2007", *Energy Policy*, Vol. 36, No 2, February 2008, and Hintermann, B., "Allowance price drivers in the first phase of the EU ETS", *Journal of Environmental Economics and Management*, Vol. 59, No 1, 2010, pp. 43-56, for an upward effect of fuel switching on carbon prices. By contrast, other studies, such as Rickels, W., Görlich, D. and Oberst, G., "Explaining European emission allowance price dynamics: Evidence from Phase II", *Kiel Working Papers*, No 1650, Kiel Institute for the World Economy (IfW Kiel), 2014, find little support for an effect from fuel switching following changes in the price of coal.

fluctuations in economic activity,[6] alongside changes in end-product prices, mainly in the form of the price of electricity,[7] to be other important price determinants. Finally, weather conditions play a large role since these can influence the demand for emission certificates both through their impact on energy consumption and through their effect on renewable energy production, with the former effect appearing more important.[8] Some studies have also investigated the impact of announcements concerning changes in market design (i.e. the EUA supply schedule), coming to the conclusion that these have indeed had important effects on EUA prices.[9] Finally, only a few studies look at the evolution of the type of trading activity in carbon markets, finding a limited impact of speculation.[10]

At present, tangible evidence of a strong increase in speculative activity related to potential changes in market structure appears scarce. The European Securities and Markets Authority (ESMA), in its preliminary report on the structure of the carbon market, documented that while the number of counterparties holding EUA futures positions has tended to increase since 2018, this increase has been relatively homogeneous across types of counterparty. [11] In general, market participants can trade both spot EUA and derivatives contracts. Unlike in other derivatives markets, carbon derivatives are almost entirely traded on regulated markets and cleared in central counterparties. Futures are the most common EUA derivatives in the secondary market, with the December future being by far the most liquid. [12] Data collected under the European Market Infrastructure Regulation (EMIR) in a regulatory trade repository, where the exchange of financial derivative contracts such

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6 Most studies use stock market indices as a proxy for economic activity (see e.g. Rickels, W. et al., op. cit., and Koch, N., Fuss, S., Grosjean, G. and Edenhofer, O., "Causes of the EU ETS price drop: Recession, CDM, renewable policies or a bit of everything? – New evidence", *Energy Policy*, Vol. 73, October 2014, pp. 676-685).

7 See e.g. Alberola, E. et al., op. cit., and Aatola, P. Ollikainen, M. and Toppinen, A., "Price determination in the EU ETS market: Theory and econometric analysis with market fundamentals", *Energy Economics*, Vol. 36, March, 2013, pp. 380-395. Some studies argue that the electricity price should not be included owing to its potential two-way relationship with EUA price (see e.g. Fell, H.,"EU-ETS and Nordic Electricity: A CVAR Analysis", *The Energy Journal*, Vol. 31, No 2, 2010, pp. 1-26, and Lovcha, Y., Perez-Laborda, A. and Sikora, I., "The determinants of CO2 prices in the EU emission trading system", *Applied Energy*, Vol. 305, Issue C, No S0306261921012162, 2022).

8 Studies that have focused on energy use agree on the role of additional heating and cooling in the two first phases of the ETS (e.g. Bredin, D. and Muckley, C., "An emerging equilibrium in the EU emissions trading scheme", *Energy Economics*, Vol. 33, No 2, 2011, pp. 353-362, and Lutz, B., Pigorsch, U. and Rotfuβ, W., "Nonlinearity in cap-and-trade systems: The EUA price and its fundamentals", *Energy Economics*, Vol. 40, Issue C, 2013, pp. 222-232). On the other hand, the role of weather variations in the provision of renewable energies is less clear. Overall, results suggest a marginal effect on EUA prices, also depending on the renewable power and countries considered (e.g. Koch, N. et al., op. cit.).

9 See Conrad, C., Rittler, D. and Rotfuβ, W., "Modeling and explaining the dynamics of European Union Allowance prices at high-frequency", *Energy Economics*, Vol. 34, No 1, 2012, pp. 316-326; Koch, N. et al., op. cit.; and Koch, N., Grosjean, G., Fuss, S. and Edenhofer, O., "Politics matters: Regulatory events as catalysts for price formation under cap-and-trade", *Journal of Environmental Economics and Management*, Vol. 78, Issue C, 2016, pp. 121-139.

10 Lucia, J.J., Mansanet-Bataller and Pardo, A., "Speculative and hedging activities in the European carbon market", *Energy Policy*, Vol. 82, Issue C, 2015, pp. 342-351 explores the dynamics of speculative and hedging activities across the first three phases of the ETS and finds that speculation is likely to have played a role to some extent during phase 2, with the highest degree of speculative activity taking place at the time a new contract is listed. Moreover, speculative activity rises during the first quarter of each year. Overall, however, the role of speculation in the price formation process is not found to be very large. Lovcha, Y. et al., op. cit., adds to this by documenting that up to 90% of the fluctuations in the carbon price have historically been explained by variations in fundamental variables.

11 "Preliminary report – Emission Allowances and derivatives thereof", European Securities and Markets Authority, 15 November 2021.

12 See e.g. Lucia, J.J. et al., op. cit., and Quemin, S. and Pahle, M., "Financials Threaten to Undermine the Functioning of Emissions Markets", available at SSRN, revised 24 March 2022.

as futures is registered, confirm that there has been little change in the market structure over the past five years (Chart B, panel a). This is despite the fact that the market has more than doubled in the last two years, with the notional value of open positions in EUA derivatives reaching €415 billion in early December 2021.[13] If speculative activity had increased materially, one would expect to see an increase in the share of outstanding open positions between financial institutions (blue bars), which is not the case.[14] This contrasts with information from market intelligence that suggests a recent increase in activity by investment funds in the ETS market, which may indicate a rise in speculation. However, investment funds overall continue to represent a very minor share of outstanding open positions, and this has only increased marginally – from 0.6% in 2020 to 0.7% in late 2021 (Chart B, right panel). These findings are in line with the latest ESMA report on the EU carbon market.[15]

13 The sample of EMIR data used here includes transactions with at least one counterparty located in the euro area or the underlying securities issued by a euro area entity. The data (reported by both trade counterparties) are paired and de-duplicated, then outliers are removed. The final data can still be subject to data quality limitations (e.g. missing values, some transactions remain unpaired, possible under-reporting). The notional amount reported is as of 7 December 2021 to avoid end-of-year effects.

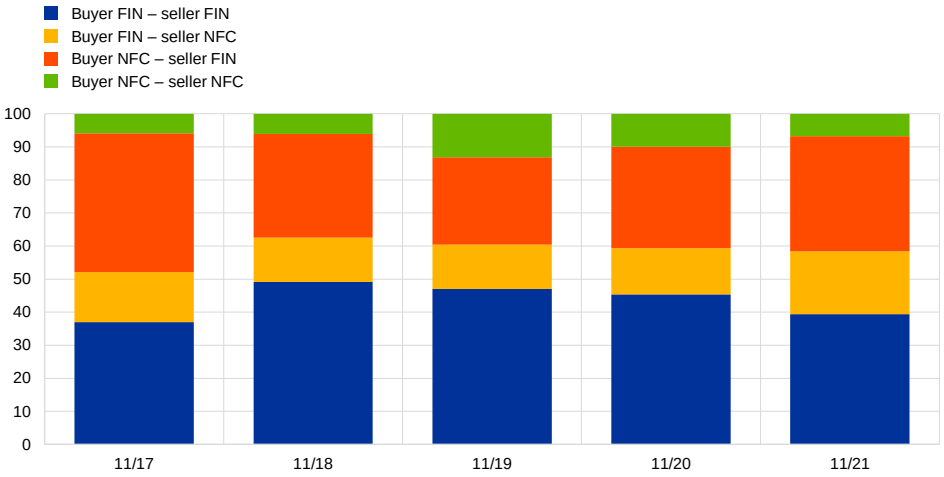
14 Such an increase sometimes contrasts with an increase in open positions between financial and non-financial institutions, where non-financial entities buy EUA futures to hedge their carbon price exposure, with financial counterparties acting as intermediaries that facilitate trading and provide liquidity to the market. See "Preliminary report – Emission Allowances and derivatives thereof", European Securities and Markets Authority, 15 November 2021.

15 "Final Report – Emission allowances and associated derivatives", European Securities and Markets Authority, 28 March 2022.

Chart B
EU ETS market structure

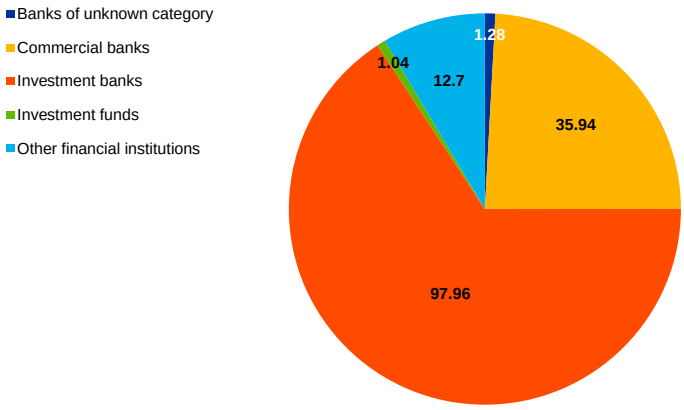
a) Development of open positions by entity

(percentages)



b) Shares of open positions by financial subsector

(percentages)



Sources: EMIR data available to the ECB and ECB calculations.
Notes: Panel a): the chart shows the outstanding shares in open positions in forward and futures contracts on carbon emissions by type of entity as buyer and seller. FIN refers to financial corporations and NFC to non-financial corporations. Panel b): the chart shows the shares of financial entity subsectors in open positions. The financial subsectors are classified following Lenoci F.D. and Letizia E., "Classifying Counterparty Sector in EMIR Data", in Consoli, S., Reforgiato Recupero, D. and Saisana, M. (eds.), *Data Science for Economics and Finance*, Springer, Cham, 9 January 2021.

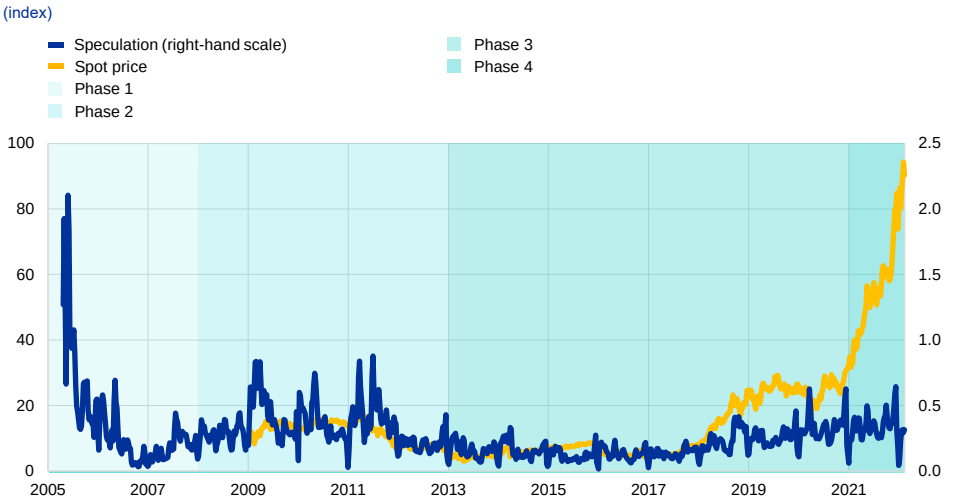
A speculation index confirms that, while speculation appears to have increased slightly since early 2019, it seems to remain limited and well below the levels seen during earlier phases of the ETS. A proxy for the level of speculation in the ETS market can be constructed by comparing the overall volume traded with the volume of open positions for all entities.[16] The intuition behind such a proxy is that speculative behaviour leads to an increase in the volume traded but, since speculative positions tend to be closed quickly, not to an equivalent increase in

16 Note that the section above considered an increase in the proportion of open positions between financial institutions as a potential sign of speculative behaviour. However, the speculation index considered in this section assumes that the open positions of any market participant are non-speculative. While neither of these two assumptions are always fulfilled, they should largely hold. The two measures should therefore be seen as complementary.

the volume of open positions. A speculation index, calculated as weekly trading volume over the open interest at the end of any given week, currently suggests that speculation may have gradually been increasing over the last two years. [17] However, it remains largely below the levels seen at the creation of the ETS market and during phase 2 (Chart C).[18]

Chart C

Speculation in the EU ETS futures market



Sources: Refinitiv and ECB calculations.
Notes: The chart shows a two-week moving average of a speculation measure, defined as the ratio between the volume and open interest of futures contracts expiring in December. Volume and open interest are measured at the weekly level: for each week the cumulative volume from Monday to Friday is considered, whereas the weekly open interest is the open interest registered on a Friday. The latest observation is for 11 February 2022 (weekly data).

17 The index follows Lucia, J.J., op. cit. This type of index was first proposed by Garcia, P., Leuthold, R.M. and Zapata, H., "Lead-lag relationships between trading volume and price variability: New evidence", *Journal of Futures Markets*, Vol. 6, No 1, 1986, pp. 1-10.

18 The remarkably high speculative activity in early phase 1 (relative to phases 2 and 3) is probably explained by the novelty of the carbon market, which was launched in early 2005, and thus linked to an initial learning process (see Lucia, J.J. et al., op. cit.). Also, the lower level of hedging in phase 2 than in phase 3 is in line with the fact that during phase 3 allowances were distributed mainly through auctions. This implies that most installations that did not have sufficient allowances to cover their emissions during phase 3 needed to hedge their future positions.

7 Gradual phasing-out of pandemic collateral easing measures

Prepared by Charlotte Bakker, Luca Bortolussi, Mark Büssing-Lörcks, Adina-Elena Fudulache, Diana Gomes, Iskra Pavlova and Stephan Sauer[1]

Collateral easing measures have played a key role in the ECB's monetary policy response to the coronavirus (COVID-19) pandemic, facilitating access to Eurosystem credit operations. The temporary collateral measures (summarised in Figure A) were introduced in April 2020 to ensure that the banking sector could expand its access to central bank liquidity on favourable terms via the Eurosystem's liquidity-providing credit operations (mainly targeted longer-term refinancing operations or TLTRO III), allowing it to continue to cover the funding needs of the euro area economy.[2] More specifically, these measures were introduced to serve the following three interconnected primary objectives.

- **Pre-empting shortages of eligible collateral:** all measures were introduced pre-emptively to avoid shortages of eligible collateral in case of increased demand for liquidity. This facilitated banks' access to ample central bank liquidity on favourable terms, contributing to the large take-up of TLTRO III, thereby transmitting the stimulus smoothly to the broader economy.
- **Adding flexibility to the collateral framework:** some of the measures provided national central banks (NCBs) with additional flexibility to address the collateral needs of domestic banks, e.g. by allowing loans with government/public-sector guarantees under COVID-19 schemes that were not fully compliant with the requirements for the general collateral framework to be mobilised under national additional credit claims (ACC) frameworks.
- **Countering adverse procyclical feedback effects:** falling asset prices and potential rating downgrades could have increased pressure on collateral availability, potentially creating uncertainty about individual banks' access to central bank liquidity. To prevent procyclical feedback loops and ultimately safeguard and restore favourable lending conditions for the real economy, a number of measures were thus introduced. These included maintaining the eligibility of certain marketable assets which met the minimum credit quality requirements on 7 April 2020 but whose credit ratings subsequently

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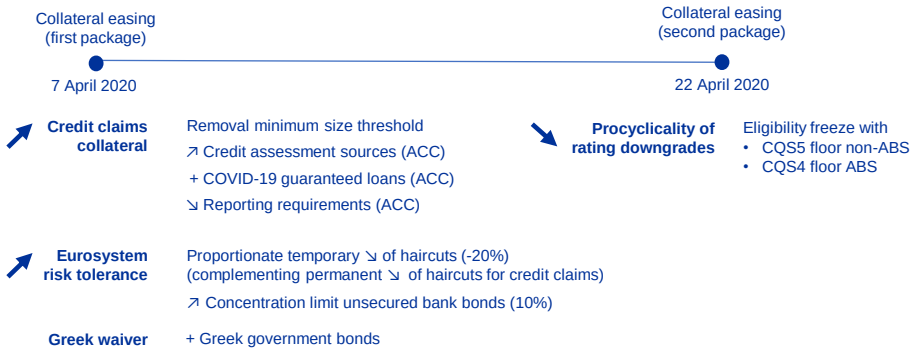
1 This box is based on extensive work related to the review of pandemic collateral easing measures. In addition to the authors mentioned above and staff of national central banks (NCBs), the following colleagues also commented and contributed: M.-A. Anghel, L. Bara de La Fuente, N. Bihrer, M. Blau, G. Camba-Méndez, S. Ciummo, T. Dzaja, B. Hartung, N. Luo, M. Micuch and P. Kusmierczyk.

2 See the press releases of 7 April 2020 and 22 April 2020 for the initial adoption of the package and the press release of 10 December 2020 for the extension of collateral easing measures until June 2022. The measures were described in the ECB blog post by Luis de Guindos and Isabel Schnabel, "Improving funding conditions for the real economy during the COVID-19 crisis: the ECB's collateral easing measures". Their relevance to supporting TLTRO III operations was highlighted in Box 1 entitled "TLTRO III and collateral easing measures" of the article entitled "TLTRO III and bank lending conditions", *Economic Bulletin*, Issue 6, ECB, September 2021.

deteriorated below the minimum rating threshold (the “eligibility freeze”) and temporarily reducing valuation haircuts.

Figure A

Collateral easing measures in response to the COVID-19 pandemic



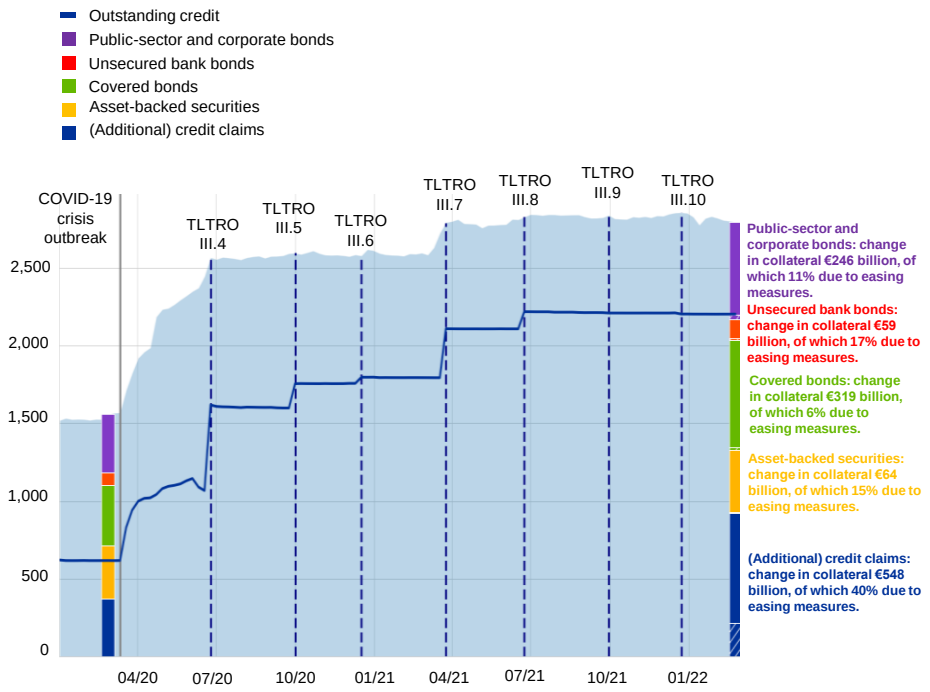
Source: Box 1entitled “TLTRO III and collateral easing measures” of the article entitled “TLTRO III and bank lending conditions”, *Economic Bulletin*, Issue 6, ECB, September 2021.
Notes: “ACC” refers to additional credit claims, “ABS” refers to asset-backed securities and “CQS” refers to credit quality step, as defined in the Eurosystem credit assessment framework. In addition to the measures outlined in Figure A, it should be noted that some NCBs created new ACC frameworks or expanded their existing ACC frameworks with features already acceptable before the pandemic.

The ECB’s collateral easing measures made a significant contribution to increasing the volume of eligible collateral. Overall, ECB staff estimates indicate that total collateral value attributable to the easing measures stood at around €285 billion (roughly 10%) of the total €2,794 billion of collateral mobilised at the end of February 2022. This means they contributed around 23% of the €1,236 billion total increase in collateral positions (Chart A). The contribution from collateral easing measures was predominantly driven by the temporary haircut reduction and the extensions to the ACC frameworks of NCBs, which jointly accounted for more than 90% of the total effect.

Chart A

Mobilisation of collateral and recourse to Eurosystem credit operations

(EUR billions)



Sources: ECB and ECB calculations.
Notes: The bar chart shows the mobilisation of Eurosystem-eligible collateral by asset category and the values are after valuation and haircuts. The first observation shows the composition of collateral before the outbreak of the pandemic, on 27 February 2020. The cross-shaded areas in the bars on the right-hand side show the total collateral value due to collateral easing measures for the respective asset category on 24 February 2022.

Phasing-out in three steps

On 24 March 2022, the Governing Council announced its decision to gradually phase out the pandemic collateral easing measures.[3] The decision reflected the expected decline over time of banks' demand for liquidity, as TLTRO III operations will gradually mature. The ECB also assessed the efficiency of the different measures from a financial risk perspective, expressed in terms of temporary collateral expansion relative to changes in the Eurosystem's risk protection. In particular, the temporary haircut reduction shows a higher ratio of financial risk per unit of exposure than the other collateral easing measures. The assessment further considered the extent to which the specific initial policy motivation was still relevant, e.g. allowing banks to mobilise collateral more quickly thanks to reduced reporting requirements.

The gradual phasing-out is scheduled to take place in three steps and gives banks time to adapt to the adjustments to the collateral framework.

[3] See the press release of 24 March 2022.

In the first step, starting on 8 July 2022, the ECB will halve the temporary reduction in collateral valuation haircuts across all assets from the current 20% adjustment to 10%. This allows a gradual restoration of pre-pandemic risk tolerance levels and reduces the Eurosystem's financial risks associated with the haircut reduction. The haircut reduction accounts for approximately 40% of the total collateral value generated by the collateral easing measures. The partial reversal provides an appropriate lead time for banks to adjust their collateral mobilisation. The ECB will also phase out a set of measures with more limited impact and scope: i) the ECB will no longer maintain the eligibility freeze for downgraded marketable assets; ii) the ECB will restore the limit on unsecured debt instruments issued by any single other banking group in a credit institution's collateral pool from 10% to 2.5%; iii) the ECB will phase out the temporary easing of several technical requirements for the eligibility of ACCs, mainly relating to fully restoring the frequency of ACC loan-level reporting requirements for pools, as well as the acceptance requirements for banks' own credit assessments by internal rating-based systems.

In the second step, in June 2023, the ECB expects to implement a new valuation haircut schedule based on its pre-pandemic risk tolerance level for credit operations, phasing out the temporary reduction in collateral valuation haircuts completely. Details of the new haircut schedule will be announced in due course and be based on the results of the forthcoming regular review of the ECB's risk control framework.[4]

In the third step, in March 2024, the ECB will, in principle, phase out the remaining pandemic collateral easing measures. The Governing Council will take the final decision following a comprehensive review of the ACC frameworks, taking into account banks' collateral needs for continuing to participate in Eurosystem credit operations, including TLTRO III transactions running until December 2024. The measures in place until March 2024 include acceptance of various ACCs introduced during the pandemic, in particular loans guaranteed by the government and certain public-sector entities. These have significantly contributed to collateral availability since the start of the pandemic. Specifically, guaranteed loans mobilised account for around 40% of total collateral value generated by the collateral easing measures. NCBs may nevertheless decide to terminate some or all of their ACC frameworks earlier than this, for example if limited use is being made of them.

Minimum credit quality waiver for Greek government bonds to be continued

The Governing Council has decided to continue to allow NCBs to accept Greek government bonds (GGBs) that do not satisfy the Eurosystem's minimum credit quality requirements but fulfil all other applicable collateral eligibility criteria. This applies for at least as long as reinvestments in GGBs under the pandemic emergency purchase programme (PEPP) continue. The Governing

[4] The risk control framework and the methodology for determining the valuation haircuts is described in the paper entitled "The financial risk management of the Eurosystem's monetary policy operations", ECB, July 2015.

Council introduced this waiver for using GGBs as collateral on 7 April 2020, on a temporary basis and subject to a specific haircut schedule, following the inclusion of GGBs in the PEPP, which was agreed on 18 March 2020. The extension of the measure is based on multiple additional considerations, including the need to continue to prevent fragmentation in access to Eurosystem monetary policy operations, which would impair the proper functioning of the transmission of policy to the Greek economy while it is still recovering from the pandemic. Other considerations include the fact that Greece remains subject to regular post-programme reviews of its economic and financial situation and benefits from disbursements under the Recovery and Resilience Facility, subject to the successful implementation of its reform agenda.

The Eurosystem's monetary policy framework grants the Governing Council discretion to deviate from the assessments of credit rating agencies (CRAs) if warranted, avoiding mechanistic reliance on their ratings. The discretion to avoid mechanistic use of CRA ratings is stated under Article 159 of the ECB's General Documentation for monetary policy implementation.[5] It is in line with Principle III.1 of the Financial Stability Board's principles for reducing reliance on CRA ratings.[6] Previous examples of the application of this discretion include waivers of minimum credit quality requirements for several countries during the euro area sovereign debt crisis. Another example of this is the eligibility freeze adopted on 22 April 2020 and phased out from 8 July 2022, as described above.

5 See Guideline (EU) 2015/510 of the European Central Bank on the implementation of the Eurosystem monetary policy framework (General Documentation Guideline) (ECB/2014/60) (recast) (OJ L 091 2.4.2015, p. 3).

6 See Financial Stability Board, "Principles for Reducing Reliance on CRA Ratings", October 2010.

Articles

1 Energy prices and private consumption: what are the channels?

Prepared by Niccolò Battistini, Virginia Di Nino, Maarten Dossche and Aleksandra Kolndrekaj

1 Introduction

The recent increase in energy prices raises the question of the extent to which households will reduce their consumption in response. With the global economy in the process of recovering from the coronavirus (COVID-19) pandemic, the prices of many commodities – including oil and gas – have soared over the last year or so. Since demand for energy is inelastic in the short run, those large price increases imply significant declines in households' purchasing power, which will need to be absorbed through (i) reduced consumption of non-energy goods and services, (ii) a reduction in savings or (iii) an increase in income. This article assesses the extent to which those three margins are playing a role in the transmission of higher energy prices to aggregate consumption. In addition, it analyses the distributional impact of higher energy prices, as the effect on individual households tends to vary considerably. Since the distributional impact of such price rises has the potential to be very significant, that may warrant a separate policy response independently of the macroeconomic implications of those developments.

The rise in energy prices should be seen in the context of an exceptional economic recovery, but other factors are also playing a role. While the impact that energy prices have on consumption has been studied before, the recovery following the COVID-19 crisis is atypical from a historical perspective. Thus far, it has been characterised by a surge in global demand for durable and non-durable consumer goods, leading to unprecedented bottlenecks in production and trade, with households having accumulated record levels of savings in the course of the pandemic.[1] Moreover, the supply of energy has been hampered by a lag in the production of oil, as well as geopolitical tensions – especially Russia's recent invasion of Ukraine – and technical disruptions affecting the provision of natural gas to European countries.[2] It is important to account for these confounding factors in order to understand the aggregate impact that higher energy prices will have on private consumption and formulate an appropriate policy response.

1 See the box entitled "Sources of supply chain disruptions and their impact on euro area manufacturing", Economic Bulletin, Issue 8, ECB, 2021, and the box entitled "COVID-19 and the increase in household savings: an update", *Economic Bulletin*, Issue 5, ECB, 2021.

2 See the box entitled "Natural gas dependence and risks to euro area activity", *Economic Bulletin*, Issue 1, ECB, 2022.

This article presents new evidence for the euro area and is structured as follows. Section 2 outlines relevant existing literature. Section 3 presents new empirical evidence from both an aggregate and a disaggregated perspective. The aggregate perspective focuses on identifying the source of energy price fluctuation, while the disaggregated perspective focuses on distributional implications beyond the aggregate impact. Importantly, in order to provide a timely assessment of the macroeconomic and distributional implications of large changes in energy prices, the aggregate and disaggregated analyses are both based on survey data. Section 4 concludes and identifies a number of policy implications.

2 Existing literature

When countries are net importers of energy, higher energy prices generally entail a worsening of their terms of trade. Backus and Crucini showed, using a set of industrialised countries, that a large percentage of the variability of terms of trade is associated with extreme movements in oil prices.[3] They studied the terms of trade and their correlation with other variables in a setting in which events affecting the production of oil interacted with the production and sale of other goods. De Michelis et al. found that oil price increases generally drive a wedge between consumption developments in oil-importing and oil-exporting countries.[4] Higher oil prices transfer wealth from oil importers to oil exporters, and that wealth effect, in turn, has a negative impact on consumption in oil-importing countries through multiplier effects. It is worth noting that this impact may be larger in sectors which produce goods that are complementary to the consumption of oil, such as the automobile sector.

Higher energy prices do not always lead to a contraction in consumption; indeed, they can also be a consequence of increased consumption. Kilian, for example, showed that changes in the price of oil can reflect both oil supply shocks and shocks to global demand.[5] The economic impact of an oil price change which is caused by an unanticipated aggregate global demand shock will be very different from that of an oil price rise which is caused by an unanticipated shortfall in the production of oil. Hence, it is important to understand the extent to which increases in the price of oil are driven by different kinds of shock before formulating policy responses. Bodenstein et al. argued that the source of an oil shock matters greatly for the optimal monetary policy response to fluctuations in energy prices.[6] They looked at a wide range of monetary policy rules and identified an easily implementable welfare-maximising rule whereby the central bank puts zero weight on the price of oil, but responds to wage inflation. In the wake of fluctuations in oil prices, stabilising wage inflation fosters the stabilisation of core inflation, in line with

3 Backus, D. and Crucini, M., "Oil prices and the terms of trade", *Journal of International Economics*, Vol. 50, No 1, 2000, pp. 185-213.

4 De Michelis, A., Ferreira, T. and Iacoviello, M., "Oil prices and consumption across countries and US states", *International Journal of Central Banking*, Vol. 16, No 2, 2020, p. 3.

5 Kilian, L., "Not All Oil Price Shocks Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market", *American Economic Review*, Vol. 99, No 3, 2009, pp. 1053-1069.

6 Bodenstein, M., Guerrieri, L. and Kilian, L., "Monetary policy responses to oil price fluctuations", *IMF Economic Review*, Vol. 60, No 4, 2012, pp. 470-504.

earlier findings by Aoki.[7] When oil prices rise as a result of an increase in aggregate demand, wages also rise, and monetary policy will need to become tighter. Conversely, if oil prices increase as a result of disruptions in oil supply, and there are no second-round effects on wages, monetary policy does not need to tighten in order to stabilise core inflation.

Large increases in energy prices can affect individual households in very different ways. For example, Michael and Hagemann showed that exposure to higher energy inflation differs widely across individual households in the United States.[8] Because they spend a relatively large percentage of their income on energy, poor households are particularly hard hit in terms of inflation when energy prices surge. Hobijn and Lagakos confirmed those earlier findings, but also found that households which face higher than average inflation in one year (owing to higher energy prices) are not very likely to be confronted with the same inflation disparity the following year.[9] This implies that poorer households do not, over time, systematically face higher inflation as a result of their higher relative expenditure on energy. At the same time, it suggests that, in the case of a large energy price shock, the adverse impact on some households may be so large that it easily outweighs any positive impact seen through macroeconomic channels (e.g. employment).

3 Empirical evidence from the euro area

Aggregate perspective

Energy prices affect private consumption through both direct and indirect channels. An increase in energy prices directly affects households' purchasing power through higher prices for energy products (electricity, gas, petrol, heating oil, etc.). In the euro area, about 30% of all energy use takes the form of final consumption – i.e. the use of such products by consumers (Chart 1). The remainder involves energy being used in the production of non-energy goods and services (i.e. intermediate consumption). A rise in energy prices entails an increase in the production costs of non-energy sectors and – to the extent that producers of non-energy goods and services adjust their final prices – a further direct reduction in households' purchasing power. If those costs cannot be passed on to the final prices of the relevant goods, there will be an indirect impact on households' purchasing power, since producers in the relevant sectors will either cut wages or have lower profits to distribute. Moreover, in advanced economies that are large producers of energy (e.g. Canada, Norway, the United Kingdom and the United States), indirect effects through the wages and profits of energy producers are also important.

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7 Aoki, K., "Optimal monetary policy responses to relative-price changes", *Journal of Monetary Economics*, Vol. 48, No 1, 2001, pp. 55-80.

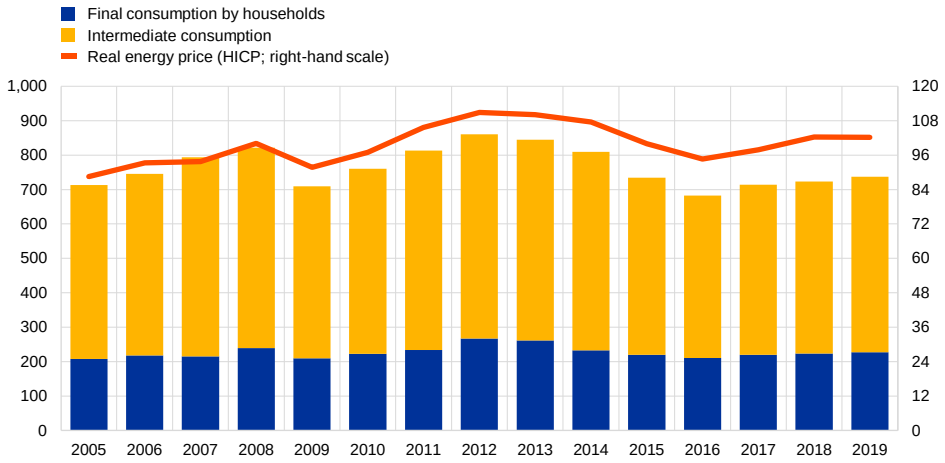
8 Michael, R., "Variation across households in the rate of inflation", *Journal of Money, Credit and Banking*, Vol. 11, No 1, 1979, pp. 32-46; Hagemann, R., "The variability of inflation rates across household types", *Journal of Money, Credit and Banking*, Vol. 14, No 4, Part 1, 1982, pp. 494-510.

9 Hobijn, B. and Lagakos, D., "Inflation inequality in the United States", *The Review of Income and Wealth*, Vol. 51, No 4, 2005, pp. 581-606.

Chart 1

Energy use and prices in the euro area

(left-hand scale: EUR billions; right-hand scale: index, 2015=100)



Sources: Eurostat and ECB calculations.
Notes: "Energy" refers to the sum of coke, refined petroleum products, electricity, gas, steam and air conditioning. Data are based on basic prices. The "real energy price" indicates the ratio of the energy component of the HICP to the overall index.

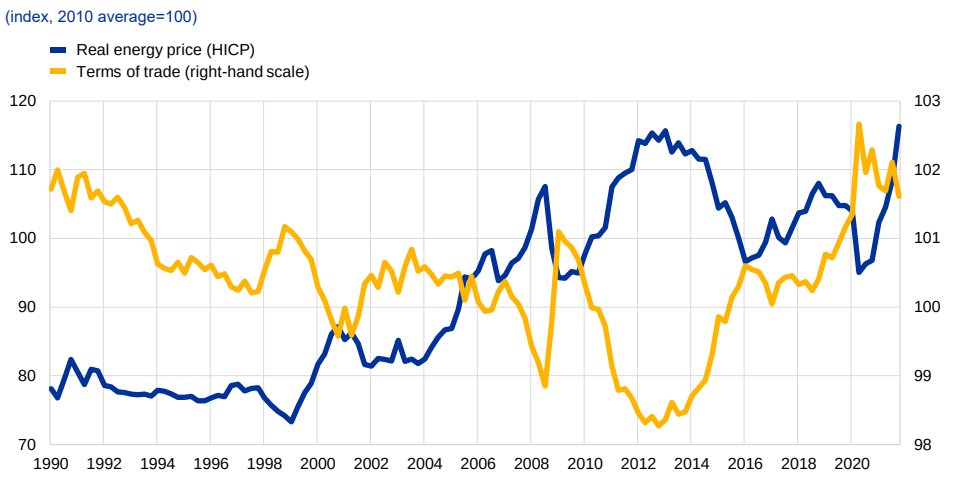
The impact of energy price changes on real disposable income can be proxied by the ratio of the GDP deflator to the private consumption deflator. For net importers of energy (such as the euro area), energy prices exhibit a stable negative correlation with the terms of trade, interpreted as the amount of imported goods that an economy can purchase per unit of exported goods. When assessing the impact that energy price changes have on consumption, a key proxy is the ratio of the GDP deflator to the private consumption deflator (or that of the income deflator to the spending deflator).[10] In the euro area, (real) energy prices are negatively correlated with that ratio (Chart 2). That measure is well-founded from a theoretical perspective and captures both direct and indirect channels through which energy prices affect households' real disposable income.[11] Even if the channels through which energy prices affect the economy change, this approach still shows stability in the relationship between energy-induced changes in purchasing power and private consumption. This is relevant in the face of changes to the energy intensity of consumption and innovations in the production of energy and non-energy goods.

10 See the box entitled "Oil prices, the terms of trade and private consumption", *Economic Bulletin*, Issue 6, ECB, 2018.

11 See Blanchard, O. and Galí, J., "The Macroeconomic Effects of Oil Price Shocks: Why Are the 2000s so Different from the 1970s?", in Galí, J. and Gertler, M. (eds.), *International Dimensions of Monetary Policy*, University of Chicago Press, 2010, pp. 373-421.

Chart 2

Energy prices and the terms of trade



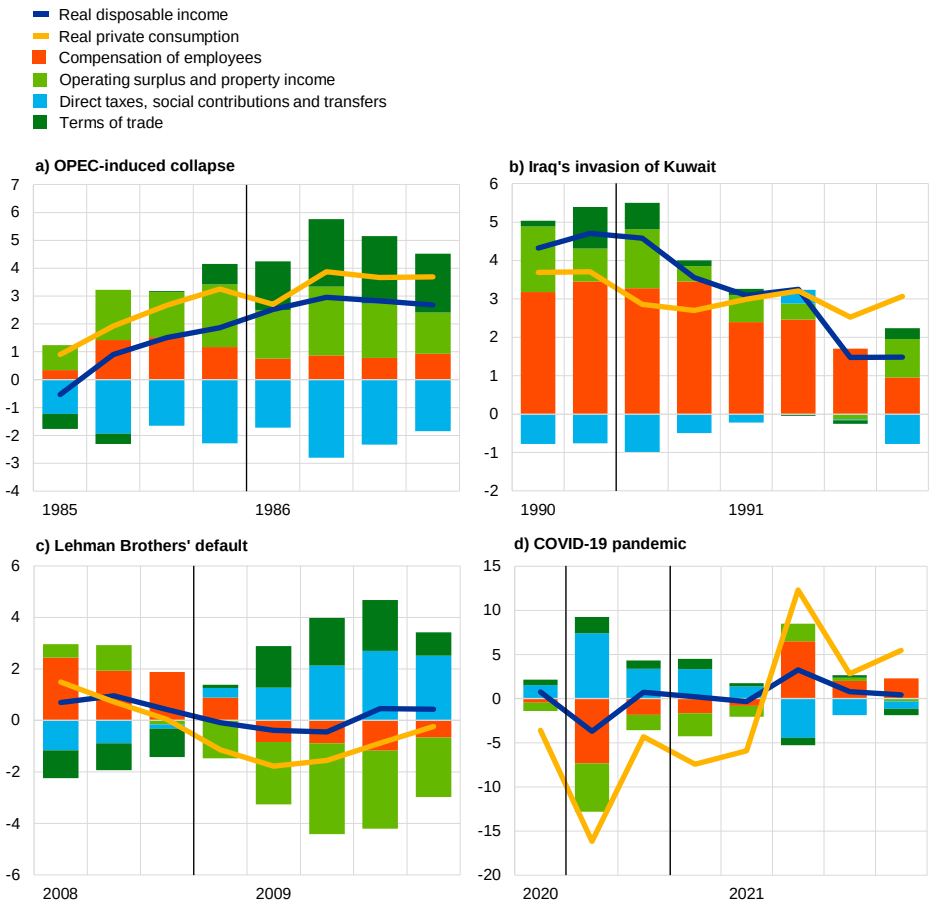
Sources: Eurostat, European Commission and ECB calculations.
Notes: The "real energy price" indicates the ratio of the energy component of the HICP to the overall index. "Terms of trade" are computed as the GDP deflator divided by the private consumption deflator. Owing to limited availability, data before 1995 are drawn from the Eurosystem macroeconomic projections database.

Well-known episodes involving large swings in energy prices highlight the role of different transmission channels. Chart 3 breaks the dynamics of households' real disposable income down into various sources of income derived from economic activity (wages, profits and other property income), net transfers from the government, and the terms of trade (proxied by the ratio of the GDP deflator to the private consumption deflator). Fluctuations in the terms of trade stemming from large changes in the supply of energy appear to have been an important driver of household income after (i) OPEC increased oil production, leading to a collapse in energy prices in the first quarter of 1986, and (ii) Iraq invaded Kuwait, leading to soaring energy prices in the third quarter of 1990. In contrast, developments in aggregate economic activity appear to have been the main channel for the drop in household income in the fourth quarter of 2008 following Lehman Brothers' default, amid falling energy prices and ensuing gains in the terms of trade. In the early stages of the COVID-19 pandemic, the abrupt fluctuations in economic activity were the main transmission mechanism, whereas the terms of trade weighed on household income at the end of 2021. However, in order to identify the underlying drivers, we need to use indicators with greater timeliness and frequency, such as survey data.

Chart 3

Households' real disposable income and consumption

(annual percentage changes and percentage point contributions)



Sources: Eurostat, Eurosystem, European Commission and ECB calculations.
Notes: In the first three panels, the vertical line indicates the start of the episode in question. In panel d, the first vertical line denotes the beginning of the pandemic and the second line indicates the start of the rise in energy prices. Owing to limited availability, data for episodes before 1995 and for the fourth quarter of 2021 are drawn from the Eurosystem macroeconomic projections database.

Household surveys provide timely and frequent information on inflation and private consumption, as well as their underlying drivers. Historically, the index indicating households' plans to make major purchases in the next 12 months that is derived from the European Commission's consumer survey has tracked year-on-year growth in real private consumption of durable goods reasonably well, although the correlation between the two declined substantially during the first wave of the pandemic (Chart 4). Moreover, that survey-based indicator of households' consumption expectations exhibits good leading properties with regard to actual future consumption.[12] Indeed, surveys contain information that may help with the timely identification of underlying drivers of households' consumption decisions (Box 1). Increases in expected inflation can be driven by various factors, and some

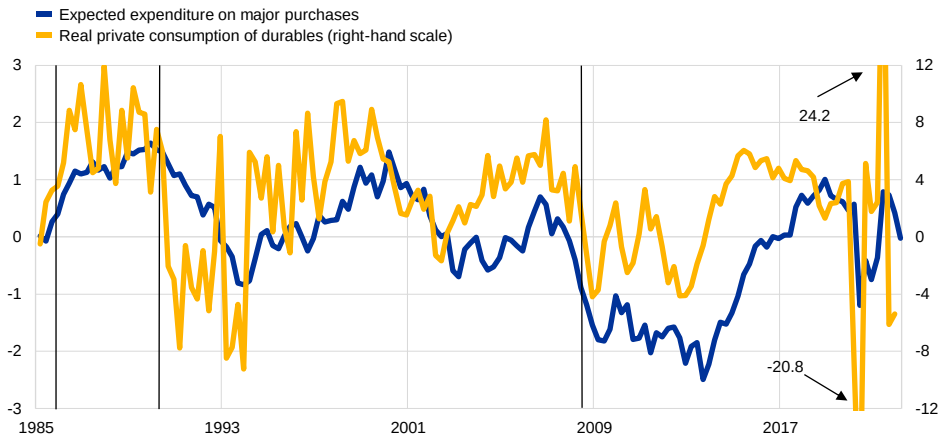
[12] Leading properties are assessed as being present if the contemporaneous correlation (i.e. the correlation between the average survey index for a specific quarter and the quarter-on-quarter growth rate for actual consumption in the same quarter) is smaller than the future correlation (i.e. the correlation between the survey index for a specific quarter and the cumulative growth rate for actual data up to a certain future quarter) at various different horizons. The leading properties of the survey index with regard to actual data peak at three quarters ahead, but they can be observed up to eight quarters ahead.

factors can potentially have opposite effects to others in terms of households' spending plans. In the context of strengthening economic activity with higher levels of "demand-pull" inflation, consumption may rise as real income increases. However, in the presence of weakening economic activity with higher levels of "cost-push" inflation, consumption may fall instead as real income declines.

Chart 4

Fluctuations in consumption over time

(left-hand scale: standardised index, long-run average=0; right-hand scale: annual percentage changes)



Sources: Eurostat, European Commission and ECB calculations.
Notes: "Expected expenditure on major purchases" represents quarterly averages for a standardised index based on consumers' net responses to questions about plans to make major purchases in the next 12 months. For the period up to (and including) 1989, data on "real private consumption of durables" relate only to France, with Finland being added to the series in 1990 and Germany being added in 1991; as of 1995, the data represent euro area aggregates. The vertical lines denote the first quarter of 1986 (OPEC-induced collapse), the third quarter of 1990 (Iraq's invasion of Kuwait) and the fourth quarter of 2008 (aftermath of Lehman Brothers' default).

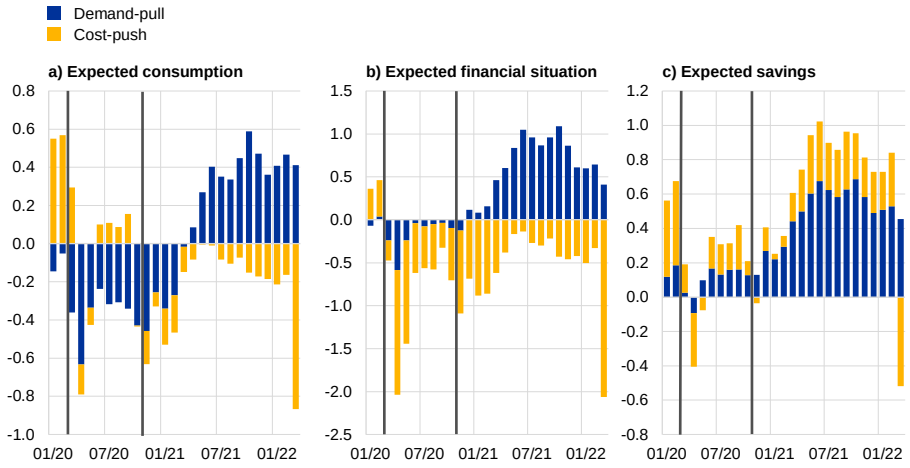
Thus far, the recovery in consumption has been driven primarily by demand tailwinds, but cost-push headwinds are increasingly clouding the near-term outlook. In the early stages of the pandemic, as their financial prospects deteriorated, households scaled back their consumption and saving plans, mainly in response to contractionary cost-push shocks and, soon afterwards, demand-pull shocks (Chart 5).[13] Since early 2021, strong demand-pull shocks have contributed to recoveries in households' expected financial conditions, consumption and savings. However, the rise in commodity prices that has been observed since the summer of 2021 has increasingly been regarded as stifling households' expected financial situation, thus weighing on their spending plans. In March 2022, supply-side contractionary forces – exacerbated by the ongoing geopolitical tensions – more than offset demand-side expansionary factors driving consumption plans.

[13] The indicator of households' expected savings experienced a short-lived decline in March and April 2020, before recovering strongly as of May 2020, well before the indicators measuring expected consumption and the expected financial situation, suggesting that it took a little while for households to consider that their balance sheet position had improved on account of the large stock of accumulated savings. This interpretation is supported by the similar dynamics that were observed for the indicator of households' current savings (a close proxy for households' current balance sheet positions), which also took a small hit in the early stages of the pandemic before recovering strongly thereafter.

Chart 5

Demand-pull and cost-push drivers of the expected consumption, financial situation and savings of households

(contributions to standard deviations from long-term averages)



Sources: European Commission and ECB calculations.
Notes: For details of the estimation process, see Box 1. In each panel, the first vertical line indicates the beginning of the COVID-19 pandemic and the second denotes the start of the rise in energy prices.

Box 1

Disentangling demand-pull and cost-push forces: does it matter for consumption?

Prepared by Niccolò Battistini and Maarten Dossche

This box uses an empirical time series model to assess the role that households' perceptions of the economy play in determining their plans to make major purchases. The European Commission's consumer survey measures households' expectations about economic activity and inflation, as well as their own spending plans, financial situation and savings. A structural multivariate (vector autoregression) model has been estimated using survey data for the period from January 1985 to February 2022. In order to disentangle the various structural drivers, the model assumes that expected economic activity improves after a perceived demand-pull shock and declines after a cost-push shock, while both shocks lead to higher inflation expectations. The goal of this box is to look at the ways in which households' expected consumption, financial situation and savings react to such shocks. Consequently, the responses of those three variables are left unrestricted.[14]

The responses to demand-pull and cost-push shocks suggest that the sources of such shocks matter for households' expected consumption, financial situation and savings (Chart A). In order to compare the magnitude of the responses to the various shocks, each shock is standardised so as to entail the same impact (i.e. 1 standard deviation) on expected inflation. Hence, the standardised demand-pull and cost-push shocks induce observationally equivalent inflation pressures, but their economic impact is strongly asymmetrical. In line with theoretical predictions, households' expected consumption, financial situation and savings improve significantly after a perceived demand-pull shock and deteriorate after a perceived cost-push shock. Moreover, confirming typical identifying assumptions in empirical literature, the results show that cost-push shocks have a more persistent

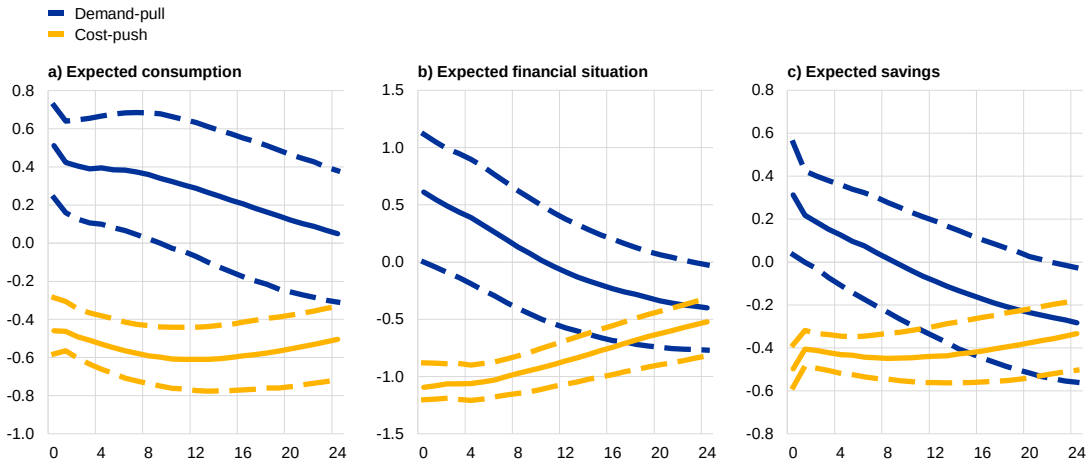
[14] Moreover, we assume that expected economic activity and inflation do not respond on impact to other unidentified shocks by imposing zero restrictions. Thus, such unidentified shocks can only affect household-specific expectations regarding their financial situation and consumption.

impact on households' expected consumption, financial situation and savings over the following two years relative to demand-pull shocks. Finally, looking at the horizon as a whole, households' expectations appear to react more strongly to cost-push shocks than demand-pull shocks.[15]

Chart A

Responses to demand-pull and cost-push shocks

(x-axis: months; y-axis: standard deviations)



Sources: European Commission and ECB calculations.
Notes: This chart reports responses to standardised demand-pull and cost-push shocks entailing a 1 standard deviation impact on expected inflation. The solid lines indicate the median response, while the dotted lines indicate the upper and lower bounds of 68% credibility bands.

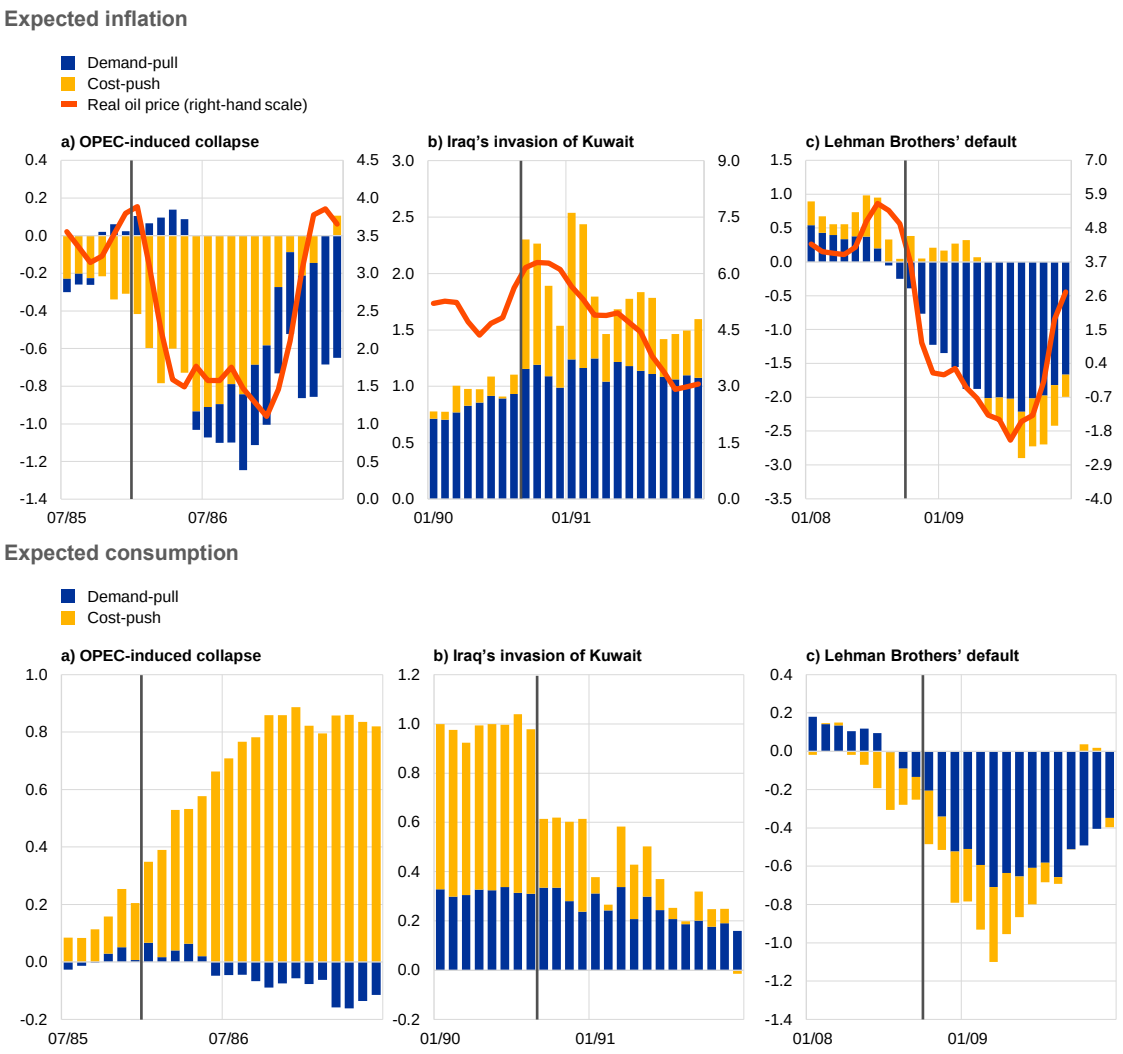
Analysis of the drivers of household inflation expectations around the time of well-known historical episodes validates the choice of identifying assumptions (Chart B). For instance, the model is good at capturing the cost-push nature of the decline in expected inflation that resulted from the increase in OPEC oil production and the ensuing collapse in oil prices in the first few months of 1986. Cost-push forces also explain most of the surge in consumer price expectations that was triggered by the bout of oil price inflation which followed Iraq's invasion of Kuwait in the summer of 1990. Moreover, the model correctly depicts the demand-driven drop in expected inflation following Lehman Brothers' default in the second half of 2008 at the start of the global financial crisis. Overall, the model appears to accurately depict changes in consumer price expectations in response to both demand-pull and cost-push forces.

[15] See, for instance, Blanchard, O. and Quah, D., "The Dynamic Effects of Aggregate Demand and Supply Disturbances", *American Economic Review*, Vol. 79, No 4, 1989, pp. 655-673. The magnitude and persistence of the responses may vary over time owing to structural changes and differing policy reactions (e.g. after the introduction of the euro). Restricting the sample to observations after January 1999 does not significantly alter the conclusions reported here.

Chart B

Contributions of demand-pull and cost-push forces during key episodes

(left-hand scale: contributions to standard deviations from long-term averages; right-hand scale: annual percentage changes)



Sources: European Commission, US Energy Information Administration, US Bureau of Labor Statistics and ECB calculations.
Note: The "real oil price" is calculated as refiners' acquisition costs for (imported) crude oil divided by the consumer price index.

Looking at expected consumption during those same episodes, cost-push forces led households to step up their consumption plans during the OPEC-induced collapse in the first few months of 1986 and abruptly downsize them in the wake of Iraq's invasion of Kuwait in the summer of 1990. In contrast, following Lehman Brothers' default in the second half of 2008, the persistent downward pressure that was exerted on expected consumption stemmed mainly from demand-pull forces. Overall, cost-push forces appear to be the main drivers in episodes originating from the energy sector (especially the oil market).

Disaggregated perspective

While a change in energy prices can have several origins, an individual household will tend to perceive it as an exogenous shock to its real disposable income. When making decisions on consumption and savings, households take energy prices as a given, not considering the implications that their decisions have for energy prices. When energy prices rise, it leads to a reduction in households' real disposable income, even if that price rise is caused by increased demand for energy. Depending on the aggregate economic conditions, a rise in energy prices will either exacerbate any decline in disposable income or partly offset any increase (e.g. in the context of an economic upturn). For those reasons, this section focuses on the direct distributional effects of changes in energy prices, while controlling for the underlying macroeconomic drivers of energy shocks, which were explored above in the section on the aggregate perspective.

Energy is a necessary consumer good, so household exposure to fluctuating energy prices declines as income rises. Since energy consumption responds to basic needs, which households cannot give up entirely, demand for energy tends to be price inelastic in the short run. Households typically accommodate any rise in energy prices by revising their saving plans and reallocating spending. However, the extent to which households need to resort to either of those strategies depends on their exposure to energy repricing. The share of households' monthly income that goes on utilities and transport services (i.e. energy-intensive consumption) is an approximate indicator of their exposure to an energy price change. That exposure differs widely across income groups, standing at almost 35% for the lowest quintile of the income distribution but less than 10% for the top quintile.[16] Thus, the distributional effects of a rise in energy prices are sizeable, with low-income households facing almost four times the impact that is experienced by households in the top quintile of the income distribution (Chart 6).[17]

When spending on energy rises, households reduce their purchases of essential goods and services to a small extent. The average elasticity of substitution between spending on energy and other essentials (e.g. groceries, housing and health services) is fairly low, albeit the response varies across income quintiles (Chart 7; see Box 2 for details of the estimation methodology). Where basic needs are met primarily through low-cost items (which is the case for the households with the lowest incomes), there is very limited scope to compress spending on other essentials in response to rising energy prices (with that scope estimated at 0.2 percentage points of total spending for each percentage point rise in energy spending).[18]

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16 For a comparison of the ECB's Consumer Expectations Survey (CES) and the Household Budget Survey (HBS) in this regard, see Bankowska, K. et al., "ECB Consumer Expectations Survey: an overview and first evaluation", *Occasional Paper Series*, No 287, ECB, 2021.

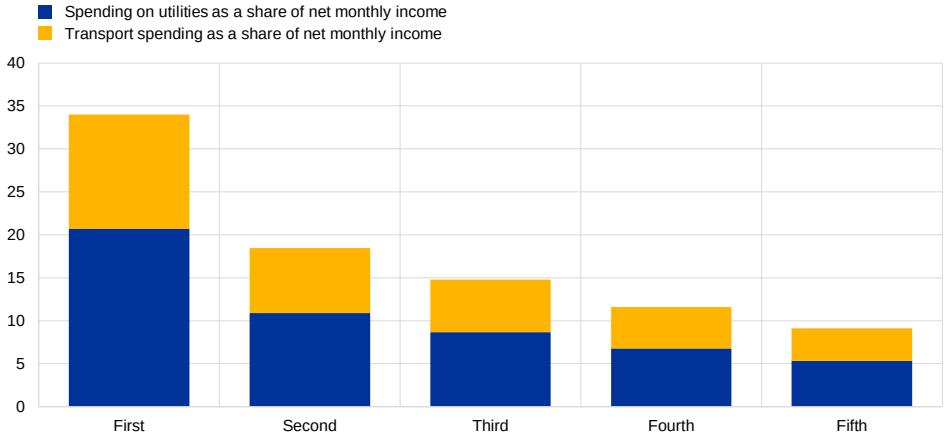
17 For details of the regressive impact of carbon taxes, see Wang, Q., Hubacek, K., Feng, K., Wei, Y.-M. and Liang, Q.-M., "Distributional effects of carbon taxation", *Applied Energy*, Vol. 184, 2016, pp. 1123-1131.

18 For similar results using a different methodology, see Edelstein, P. and Kilian, L., "How sensitive are consumer expenditures to retail energy prices?", *Journal of Monetary Economics*, Vol. 56, No 6, 2009, pp. 766-779.

Chart 6

The exposure of households to energy price shocks

(x-axis: income quintiles; y-axis: percentages)



Sources: Consumer Expectations Survey and ECB calculations.
Note: Figures are based on CES results for January 2022 and represent weighted averages of data for Germany, France, Italy, Spain, the Netherlands and Belgium.

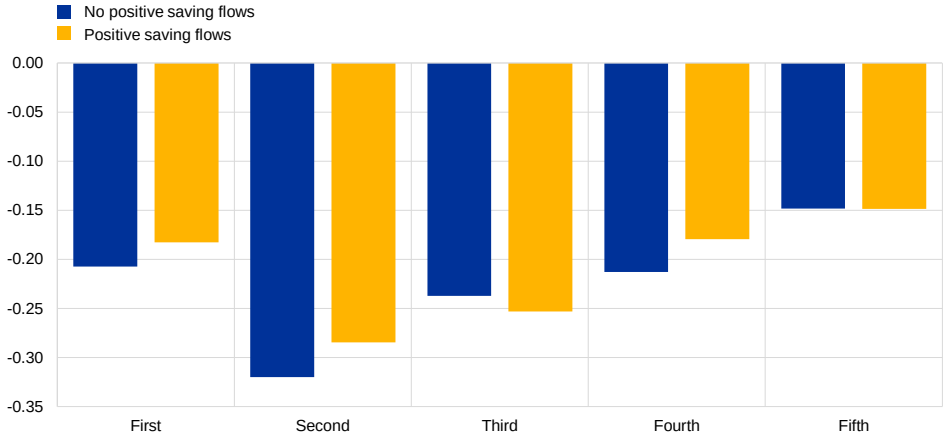
Higher-income households make fewer adjustments to their spending on essentials, as energy-sensitive spending accounts for a smaller percentage of their income. For the same absolute increase in energy spending, households in the top quintile of the income distribution reduce their spending on essentials by just 0.15 percentage points. Middle-income households tend to react more, being more likely to replace branded products with lower-cost alternatives.[19] Within income quintiles, liquidity-constrained households (i.e. those whose net income is insufficient to cover total spending and debt repayments) tend to cut their consumption of essentials somewhat more than those that have a liquidity buffer for unexpected expenses.

[19] See Gicheva, D., Hastings, J. and Villas-Boas, S., "Investigating Income Effects in Scanner Data: Do Gasoline Prices Affect Grocery Purchases?", *American Economic Review – Papers and Proceedings*, Vol. 100, No 2, 2010, pp. 480-484.

Chart 7

Changes in spending on essentials when energy spending rises

(x-axis: income quintiles; y-axis: percentage points of total monthly spending)

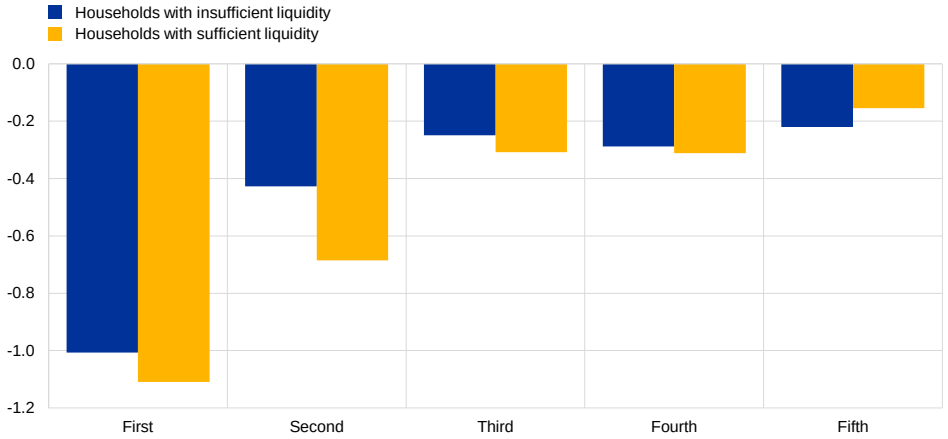


Sources: Consumer Expectations Survey and ECB calculations.
Notes: The vertical axis shows the average reduction in spending on essentials in response to a rise in energy spending. For each income quintile, energy spending rises by an amount equivalent to a 1 percentage point increase in energy's share of the average income of the first quintile of the distribution. The equation in Box 2 estimates the percentage point change in the share of total spending on essentials that results from a 1 percentage point increase in utilities' share of income. To obtain the average response to the same absolute change in spending on utilities, the beta coefficients are adjusted using the ratio of the average income of each quintile to the average income of the first quintile. The blue bars show the average responses of households without positive saving flows; the yellow bars show the average responses of households with positive saving flows. Estimates have been computed using a sample spanning the period from April 2020 to January 2022.

Chart 8

Changes in savings in response to a rise in energy spending

(x-axis: income quintiles; y-axis: percentage points of income)



Sources: Consumer Expectations Survey and ECB calculations.
Notes: The vertical axis indicates changes in households' saving ratios in response to a rise in spending on utilities. For each income quintile, spending on utilities rises by an amount equivalent to a 1 percentage point increase in utilities' share of the average income of the first quintile. The chart distinguishes between the responses of households with a liquidity buffer (yellow bars) and those without (blue bars). Estimates have been computed using a sample spanning the period from April 2020 to January 2022.

Households draw on their savings to cushion the impact that higher energy prices have on consumption. Empirical evidence confirms that – in the short run, at least – households substantially reduce their saving ratios in order to accommodate increased spending on energy (albeit to a lesser extent if liquidity

buffers for unexpected expenditure are limited).[20] Identifying the responses of savings across different income quintiles reveals that, for the same absolute increase in energy spending, the reduction in savings is inversely correlated with the family's income and about five or six times greater for households in the lowest quintile of the income distribution relative to those in the top quintile (Chart 8).

Box 2
Estimating household responses to changes in energy spending

Prepared by Virginia Di Nino and Aleksandra Kolndrekaj

This box presents details of the econometric methodology which has been used to study the effect that changes in monthly energy spending have on households' saving ratios and spending on essentials. That analysis, which uses microdata from the ECB's Consumer Expectations Survey, covers the six largest economies in the euro area, with more than 75,000 observations over the period since April 2020. Each quarter, the CES collects information about households' monthly spending in 12 major areas (including utilities, transport services, food, health and housing services). Saving flows are derived by subtracting total monthly spending from monthly net income. "Essential" spending refers to food, beverages and tobacco, health and housing services.

Two linear panel models looking at quarterly changes in the monthly saving ratio and spending on essentials as a share of total spending $(y_{j,c,t} - y_{j,c,t-3})$ are specified as a function of the quarterly change in the percentage of income that is spent on utilities $(x_{j,c,t} - x_{j,c,t-3})$:

$$y_{j,c,t} - y_{j,c,t-3} = \alpha_{c,t} + \alpha_j + \alpha_{i,t} + \rho s_{j,c,t-3} + (\beta + \delta_{liq=0})(x_{j,c,t} - x_{j,c,t-3}) + \varepsilon$$

That equation includes the monthly saving ratio of three months earlier $(s_{j,c,t-3})$, which captures the impact of major one-off purchases in the previous period that have repercussions for the saving ratio.

This analysis faces a number of challenges. Households may find it difficult to accurately recall all of their spending, broken down by category, so they may potentially misreport their total spending. The use of first differences in the specification partly controls for these issues, eliminating any household-specific constant biases in the data. The specification also includes several fixed effects with the aim of identifying the key parameter β, which measures the reaction to a change in spending on utilities, controlling for several confounding effects. Those fixed effects relate to (i) households' heterogeneous characteristics (α_j), such as the size and location of inhabited dwellings, and the composition of families, (ii) country-specific but time-varying factors $(\alpha_{c,t})$, such as the differing economic conditions that characterise individual countries (GDP growth, inflation rates, etc.), and (iii) factors that vary across income groups and over time $(\alpha_{i,t})$, which can influence decisions on savings and spending, such as government measures mitigating the pandemic's impact on households.

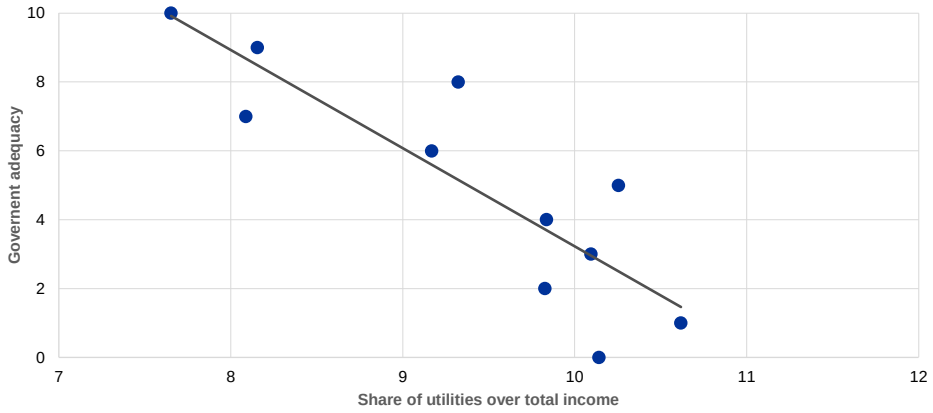
[20] Income levels do not seem to have much effect on the way that household consumption reacts to anticipated and unanticipated changes in energy prices. Irrespective of anticipation effects, this evidence is consistent with the hypothesis that savings are always the main buffer that is used to smooth out small shocks to real disposable income (with the exception of unanticipated shocks to households with liquidity constraints, whose consumption does change to accommodate those shocks). See Cullen, J.B., Friedberg, L. and Wolfram, C., "Do Households Smooth Small Consumption Shocks? Evidence from Anticipated and Unanticipated Variation in Home Energy Costs", mimeo, 2005.

Households with greater exposure to energy prices view measures aimed at easing the burden of rising energy prices as less adequate. Government intervention is primarily aimed at mitigating the unequal impact that rising energy prices have across households, supporting poorer households (who tend to spend more on energy as a share of their income). Despite benefiting most from them, households with very high exposure to energy prices tend to take the view that those policies are not sufficient to compensate for the negative impact of energy price spikes (Chart 9).

Chart 9

Perceived adequacy of government interventions and energy exposure

(x-axis: spending on utilities as a percentage of total income; y-axis: perceived adequacy of intervention on a scale of 0 to 10)



Sources: Consumer Expectations Survey and ECB calculations.
Notes: The vertical axis indicates the average score given by households to government measures aimed at curbing the impact that rising energy prices have on disposable income. Households in Germany, France, Italy, Spain, the Netherlands and Belgium are grouped together in 11 equally sized bins on the basis of their spending on utilities as a percentage of total income. For each bin, average spending on utilities as a percentage of total income is plotted against the corresponding average for the perceived adequacy of government measures. These data were collected in October 2021.

4 Conclusions

The recent rise in energy prices is a clear headwind for the recovery in consumption. In the early stages of the pandemic, as their financial prospects deteriorated, households scaled back their consumption plans, mainly in response to contractionary cost-push shocks and, soon afterwards, a series of negative demand-pull shocks. Since early 2021, positive demand shocks have led to a recovery in households' expected financial conditions, consumption and savings. However, the rise in commodity prices that has been observed since the summer of 2021 has increasingly been regarded as stifling households' expected financial situation, thus weighing on their spending plans.

Increases in energy prices have significant distributional implications, which call for targeted fiscal policy measures. The impact that energy prices have on household income and spending depends primarily on the household's level of exposure. Low-income households with high levels of exposure tend to experience considerable financial distress when energy spending rises unexpectedly, and they respond to such shocks by reducing savings or delaying payments. As a result,

those households are more likely to feel that there is a need for governments to mitigate the adverse impact of higher energy prices.

2 Economic inequality and public trust in the European Central Bank

Prepared by Stephanie Bergbauer, Alessandro Giovannini and Nils Hernborg

1 Introduction

In most advanced economies, income and wealth inequality have increased since the early 1980s, although the available data point to diverse national trajectories. Wealth concentration and income inequality have been shown to be rising in continental Europe, but substantially less so than, for example, in the United States and the United Kingdom.[1] The coronavirus (COVID-19) pandemic is likely to further amplify economic inequalities. Income inequality could increase as a result of higher unemployment and loss of income among younger workers, women, those in lower income and lower education groups and temporary workers.[2] Moreover, rising asset prices, such as those of stocks and real estate, together with changes in consumption and savings behaviour across different parts of the wealth distribution during the pandemic, may contribute to greater wealth inequality.[3]

Citizens have expressed concerns about economic inequalities in the context of the ECB's Strategy Review.[4] Empirically, studies have shown that monetary policy may only have a limited impact on economic inequalities and that, overall, the easing of monetary policy appears to have somewhat dampened economic inequality in the euro area in recent years.[5] At the same time, it has been shown that inequality could play a role in the transmission of monetary policy, highlighting the need to improve understanding of the ways in which inequality can have an impact on the fulfilment of the ECB's mandate.

One aspect that has received less attention is how a perceived increase in inequality could affect public trust in central banks, and how this could affect

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1 See, for example, Alvaredo, F., Chancel, L., Piketty, T., Saez, E. and Zucman, G., "Global Inequality Dynamics: New Findings from WID.world", *American Economic Review*, Vol. 107, No 5, 2017, pp. 404-409; Blanchet, T., Chancel, L. and Gethin, A., "Why is Europe more equal than the United States?", *World Inequality Lab Working Papers*, No 2020/19, 2020; Piketty, T. and Saez, E., "Inequality in the long run", *Science*, Vol. 344, No 6186, 2014, pp. 838-843; Nolan, B. and Valenzuela, L., "Inequality and its discontents", *Oxford Review of Economic Policy*, Vol. 35, No 3, 2019, pp. 396-430; and Zucman, G., "Global Wealth Inequality", *Annual Review of Economics*, Vol. 11, No 1, 2019, pp. 109-138.

2 See, for example, the box entitled "COVID-19 and income inequality in the euro area", *Economic Bulletin*, Issue 2, ECB, 2021; and the article entitled "The impact of the COVID-19 pandemic on the euro area labour market", *Economic Bulletin*, Issue 8, ECB, 2020.

3 For more information, see also Schnabel, I., "Monetary policy and inequality", speech at a virtual conference on "Diversity and Inclusion in Economics, Finance, and Central Banking", 9 November 2021.

4 See ECB Listens – Midterm review summary report, ECB, 2021; and ECB Listens – Summary report of the ECB Listens Portal responses, ECB, 2022.

5 See the article entitled "Monetary policy and inequality", *Economic Bulletin*, Issue 2, ECB, 2021. While the evidence on the effects on income inequality is more conclusive, the evidence on wealth distribution is less so. See Schnabel, I., op. cit.

the fulfilment of central banks' mandates. In the European context, rising economic inequalities have been found to depress public trust in the EU and its institutions, both directly and indirectly through the negative impact of inequality on trust in national institutions.[6] This may have an impact on the ECB, as public trust is of relevance both for the anchoring of inflation expectations, which increases the effectiveness of monetary policy,[7] and to shield it from political pressures that could undermine its independence.

This article explores the relationship between economic inequalities and public trust in the ECB and other European institutions. Drawing on data from the ECB's new Consumer Expectations Survey and the Standard Eurobarometer, it analyses the relationship between different forms of economic inequality, perceptions of inequality and public trust in the ECB and other EU institutions in the euro area over the period 1999-2020 and in the context of the COVID-19 crisis. Section 2 discusses the relevance of economic inequality for institutional trust in general and for trust in the ECB in particular. Section 3 examines different dimensions and measurements of economic inequality and their evolution in the euro area. Section 4 then analyses the relationship between different measures of economic inequality and public trust in the ECB and other EU institutions, such as the European Commission and the European Parliament. Section 5 concludes.

2 The relevance of economic inequality for institutional trust

Greater economic inequality tends to reduce trust in public institutions. Economic inequality can be understood as a normative standard and a substantive policy outcome by which citizens evaluate government performance. When institutions fail to provide sufficient resources for all citizens or fail to ensure a relatively even distribution of resources, leading to economic inequality, poverty and economic exclusion, the expectations of some citizens are not met, depressing trust in institutions. Empirically, higher levels of income and wealth inequality have been

6 See, for example, Kuhn, T., van Elsas, E., Hakhverdian, A. and van der Brug, W., "An ever wider gap in an ever closer union: Rising inequalities and euroscepticism in 12 West European democracies, 1975-2009", *Socio-Economic Review*, Vol. 14, No 1, 2016, pp. 27-45; and Lipps, J. and Schraff, D., "Regional inequality and institutional trust in Europe", *European Journal of Political Research*, Vol. 60, No 4, 2021, pp. 892-913. Moreover, several studies have shown that rising economic inequality tends to increase political support for populist parties, thereby having an impact on EU policymaking. See, for example, Guriev, S., "Economic Drivers of Populism", *AEA Papers and Proceedings*, Vol. 108, 2018, pp. 200-203.

7 Higher levels of public trust can help to anchor inflation expectations of economic actors around the inflation target, thereby ensuring that temporary deviations of realised inflation from the target do not influence wage demands and price-setting decisions of households and firms. See, for example, Christelis, D., Georgarakos, D., Jappelli, T. and van Rooij, M., "Trust in the Central Bank and Inflation Expectations", *International Journal of Central Banking*, Vol. 16, No 6, 2021, pp. 1-37; Rumler, F. and Valderrama, M.T., "Inflation literacy and inflation expectations: Evidence from Austrian household survey data", *Economic Modelling*, Vol. 87, 2020, pp. 8-23; and van der Cruijsen, C. and Samarina, A. "Trust in the ECB in turbulent times", *DNB Working Paper*, No 722, De Nederlandsche Bank, 2021.

found to correlate with lower levels of trust in political institutions and weakened support for democracy in general.[8]

Contextual factors can moderate the relationship between economic inequality and institutional trust. Country-specific norms, past performance of one's own country and the example of other countries all provide benchmarks for citizens to evaluate levels of inequality in their own society.[9] Concerns about inequality also seem to have a stronger effect on trust in times of crisis, when issues of economic exclusion and decline are more salient.[10] However, the effect of inequality on trust appears to be weaker in the presence of strong welfare policies and strong redistributive policies, highlighting the role of public policy in mitigating the political consequences of inequality.[11]

The impact of economic inequality on institutional trust is also mediated by individual perceptions, beliefs and experiences. Research shows that perceptions of inequality do not always coincide with statistically measured levels of wealth and income disparity.[12] Moreover, citizens hold different normative beliefs about the desirable distribution of wealth and income in society, and this may influence institutional trust.[13,14] Finally, the relationship between macro-level inequality and individuals' trust in public institutions also depends on the socioeconomic background of people and their position in the income and wealth distribution.[15]

Perceptions of the performance of political institutions in addressing inequality also seem to be relevant for central banks. Recent evidence suggests that concerns of citizens about inequality are directed not only at governments – the

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8 See, for example, Andersen, R., "Support for democracy in cross-national perspective: The detrimental effect of economic inequality", *Research in Social Stratification and Mobility*, Vol. 30, No 4, 2012, pp. 389-402; Gould, E. and Hijzen, A., "Growing Apart, Losing Trust? The Impact of Inequality on Social Capital", *IMF Working Papers*, No 16/176, International Monetary Fund, 2016; and Krieckhaus, J., Son, B., Bellinger, N. and Wells, J., "Economic Inequality and Democratic Support", *The Journal of Politics*, Vol. 76, No 1, 2014, pp.139-151.

9 For example, societies with higher levels of inequality also tend to be more accepting of more unequal income distributions. On the other hand, a rise in inequality may have a greater impact on trust in institutions in countries with low initial levels of inequality than in countries with high initial levels of inequality. See Sachweh, P. and Olafsdottir, S., "The Welfare State and Equality? Stratification Realities and Aspirations in Three Welfare Regimes", *European Sociological Review*, Vol. 28, No 2, 2012, pp. 149-168.

10 See Ervasti, H., Kouvo, A. and Venetoklis, T., "Social and Institutional Trust in Times of Crisis: Greece, 2002-2011", *Social Indicators Research*, Vol. 141, 2019, pp. 1207-1231.

11 See Kumlin, S. and Haugsgjerd, A., "The welfare state and political trust: bringing performance back in", in Zmerli, S. and van der Meer, T.W.G. (eds.), *Handbook on Political Trust*, Edward Elgar Publishing, Cheltenham, 2017, pp. 285-301.

12 See, for example, Knell, M. and Stix, H., "Perceptions of inequality", *European Journal of Political Economy*, Vol. 65, 2020.

13 See descriptive results in, for example, Dion, M.L. and Birchfield, V., "Economic Development, Income Inequality, and Preferences for Redistribution", *International Studies Quarterly*, Vol. 54, No 2, 2010, pp. 315-334; and Olivera, J., "Preferences for redistribution in Europe", *IZA Journal of European Labor Studies*, Vol. 4, No 14, 2015.

14 There is evidence that inequality has stronger negative effects on institutional trust among citizens with more egalitarian values. See Anderson, C.J. and Singer, M.M., "The Sensitive Left and the Impervious Right: Multilevel Models and the Politics of Inequality, Ideology, and Legitimacy in Europe", *Comparative Political Studies*, Vol. 41, No 4/5, 2008, pp. 564-599.

15 See, for example, Goubin, S. and Hooghe, M., "The Effect of Inequality on the Relation Between Socioeconomic Stratification and Political Trust in Europe", *Social Justice Research*, Vol. 33, 2020, pp. 219-247.

actor with the primary responsibility for the issue and the capacity to address it – but also at central banks. During the ECB's listening events in the context of the monetary policy strategy review, citizens argued that the ECB should assume a more prominent role in addressing societal issues, like inequality and poverty.[16] This suggests that citizens expect their central banks to take action. When these expectations are not met, public trust in the central bank may be negatively affected through the mechanisms described in the paragraphs above.

The literature on the impact of economic inequality on public trust in central banks is limited. Few empirical analyses have explored links between perceptions of economic inequality and trust in central banks such as the ECB. It has been observed that trust in the ECB is related to views on the effects of monetary policy measures on inequality.[17] Moreover, levels of income inequality seem to be associated with public trust in the ECB, especially in times of crisis.[18] Finally, it may not only be statistically measured levels of inequality that matter, but also subjectively perceived levels. A study focusing on the Bank of England found that people who are happy with the current income distribution are more likely to trust the central bank.[19]

3 Dimensions and perceptions of economic inequality

Different measures of economic inequality cover different aspects of inequality and draw on different methods for determining economic well-being and its distribution in society. It is important to understand these methodological differences, as these may affect findings concerning the empirical relationship between trust and inequality. In particular, it is important to differentiate between objectively measured levels of inequality and subjective perceptions of inequality.

Among the dimensions of inequality, the most common distinction is between income and wealth. While both income and wealth inequality have risen in most advanced economies since the early 1980s, the concentration of wealth tends to be greater than the concentration of income.[20] Income inequality can be measured on the basis of either pre-tax or post-tax (i.e. disposable) income.[21] The ability of governments to affect income concentration through taxation and transfers may

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16 See ECB Listens – Midterm review summary report, ECB, 2021.

17 Looking at representative survey data collected in Germany in 2018, it was observed that respondents who trust the ECB were more likely to believe that its asset purchase programme had no effect or a reducing effect on inequality in Germany and that it improved their personal economic situation. See Hayo, B., "Does Quantitative Easing Affect People's Personal Financial Situation and Economic Inequality? The View of the German Population", SSRN, 2020.

18 See Bonasia, M., Canale, R.R., Liotti, G. and Spagnolo, N., "Trust in Institutions and Income Inequality in the Eurozone: The Role of the Crisis", *Engineering Economics*, Vol. 27, No 1, 2016, pp. 4-12.

19 See Farrell, L., Fry, J.M. and Fry, T.R.L., "Who trusts the bank of England and high street banks in Britain?", *Applied Economics*, Vol. 53, No 16, 2021, pp. 1886-1898.

20 See, for example, Piketty, T. and Saez, E., op. cit. For an account of how the trends of income and wealth inequality differ in the United States, see Kuhn, M., Schularick, M. and Steins, U.I., "Income and Wealth Inequality in America, 1949-2016", *Journal of Political Economy*, Vol. 128, No 9, 2020, pp. 3469-3519.

21 For both income and wealth inequality, the Gini coefficient is a standard – but not the sole – indicator of how much the distribution of income or wealth deviates from perfect equality.

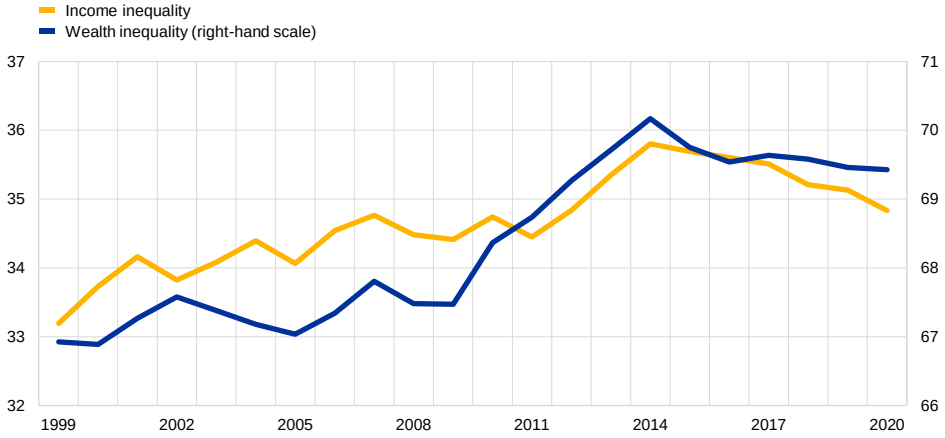
influence public opinion, particularly in European countries with traditionally stronger welfare systems and redistributive policies.[22]

Income and wealth inequality in euro area countries have both increased since 1999, albeit marginally (Chart 1). This trend strengthened in the aftermath of the global financial crisis of 2008, with wealth inequality growing more rapidly than income inequality. Both measures peaked in 2014 and have since stabilised.[23]

Chart 1

Income and wealth inequality in euro area countries, 1999-2020

(left-hand scale: post-tax income Gini coefficient; right-hand scale: wealth Gini coefficient)



Source: World Inequality Database.
Note: Average Gini of euro area countries weighted by population size and adjusted for euro area accession.

Individuals are more likely to base their decisions and policy preferences on subjective perceptions of income inequality than on statistical measures. While most people know approximately what their own income is, they generally do not know the entire income distribution or where exactly their income level fits into that distribution.[24] As a heuristic, people tend to relate their own position in the income distribution to a reference group with which they are familiar, often a peer group with a similar socio-economic background, but often perceive themselves as closer to the centre of the distribution than is actually the case. People in the upper part of the distribution tend to believe they are ranked lower, while people in the lower part of the distribution tend to believe they are ranked higher than they actually are.[25]

22 For a review of the measurement of inequality, see McGregor, T., Smith, B. and Wills, S., "Measuring inequality", *Oxford Review of Economic Policy*, Vol. 35, No 3, 2019, pp. 368-395.

23 For more details on these trends, see Blanchet, T., Chancel, L. and Ghetin, A., "How Unequal is Europe? Evidence from Distributional National Accounts, 1980-2017", *WID.world Working Paper*, No 2019/06, 2019.

24 See Gimpelson, V. and Treisman, D., "Misperceiving inequality", *Economics & Politics*, Vol. 30, No 1, 2018, pp. 27-54.

25 This tendency is called centre bias and represents a recurring misconception of subjective interpretations of income inequality. See Hvidberg, K.B., Kreiner, C. and Stantcheva, S., "",Social Positions and Fairness Views on Inequality", *NBER Working Paper,* No 28099, November 2021; and Cruces, G., Perez-Truglia, R. and Tetaz, M., "Biased perceptions of income distribution and preferences for redistribution: Evidence from a survey experiment", *Journal of Public Economics*, Vol. 98, 2013, pp. 100-112.

Individual perceptions of inequality are formed at least partially in line with economic fundamentals. Cross-country research shows a misalignment between subjective impressions and economic inequality captured by statistical indicators.[26] At the same time, recent evidence for OECD countries suggests that, while information on the income distribution is incomplete, perceptions of income disparities seem to reflect real-life evidence of economic inequality.[27] People identify income inequality where statistical estimates also point in this direction.

In the six countries surveyed in the ECB's new Consumer Expectations Survey, a large majority of citizens perceive income inequality as "too large" and their view correlates with their income status. It is important to note that the question in the survey is primarily normative, as it asks respondents to benchmark the current degree of inequality against an ideal one. Consequently, this measure does not necessarily capture the respondent's perception of the degree of inequality in society. As shown in Chart 2, the share of respondents who perceive inequality as "too large" are in a clear majority in all income quintiles. Looking at individual countries, in Belgium, Spain and Italy more than 75% of the respondents perceive income inequality to be "too large" (not shown). This sentiment is also shared by a majority of respondents across the income distribution in all countries. At the same time, those at the lower end of the income distribution are more likely (by around 15 percentage points) to agree that income inequality is "too large" than those at the upper end. The differences vary across countries, with respondents in Spain and Italy displaying fairly similar views across the income distribution, while there are differences between low and high-income respondents in Belgium, Germany, France and the Netherlands (not shown).

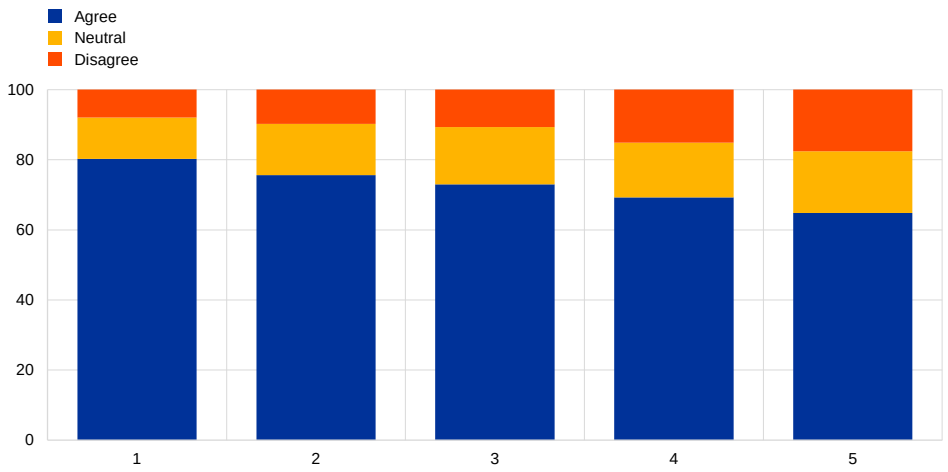
[26] See Cruces, G. et al., op. cit.; and Kuhn, A., "The Individual Perception of Wage Inequality: A Measurement Framework and Some Empirical Evidence", *IZA Discussion Paper Series*, No 9579, IZA Institute of Labor Economics, Bonn, 2015.

[27] *Does Inequality Matter? How People Perceive Economic Disparities and Social Mobility*, OECD Publishing, Paris, 2021.

Chart 2

Perception of inequality as "too large", by income quintile

(percentage share)



Source: ECB Consumer Expectations Survey.
Notes: Pooled and weighted data across waves from April 2020 to December 2021 for the six countries included in the survey (Belgium, Germany, Spain, France, Italy and the Netherlands). The perception of income inequality as "too large" is measured on a scale from 1 to 7, where 1 is "strongly disagree" and 7 is "strongly agree" with the following statement: "Differences in income in the country you currently live in are too large". Answers 1-3 are included in "Disagree", 4 in "Neutral" and 5-7 in "Agree".

4 Public trust in EU institutions and economic inequalities

Establishing a causal relationship between inequality and public trust in the ECB and other EU institutions is challenging. On one hand, a number of confounding variables may affect economic inequality and public trust in institutions simultaneously. For example, differences in education level may lead to higher income inequality. These differences would also be reflected in levels of public trust, since lower levels of education are associated with lower public trust in institutions.[28] Similarly, higher levels of unemployment tend to be associated with both higher income inequality and lower levels of public trust.[29] On the other hand, economic inequality may be endogenous to levels of public trust, as interpersonal trust affects preferences for more or less redistributive policies. For example, the lower levels of income inequality and more generous welfare systems in Scandinavian countries have been traced to higher levels of interpersonal trust,[30] which correlates with institutional trust.[31] This may give rise to a reverse causality problem, making it

28 See, for example, Ehrmann, M., Soudan, M. and Stracca, L., "Explaining European Union Citizens' Trust in the European Central Bank in Normal and Crisis Times", *The Scandinavian Journal of Economics*, Vol. 115, No 3, 2013, pp. 781-807; and Bergbauer, S., Hernborg, N., Jamet, J.-F. and Persson, E., "The reputation of the euro and the European Central Bank: interlinked or disconnected?", *Journal of European Public Policy*, Vol. 27, No 8, 2020.

29 See, for example, Roth, F. and Jonung, L., "Public Support for the Euro and Trust in the ECB: The first two decades of the common currency", *Hamburg Discussion Papers in International Economics*, No 2, 2019.

30 See, for example, Algan, Y., Cahuc, P. and Sangnier, M., "Efficient and Inefficient Welfare States", *IZA Discussion Paper Series*, No 5445, IZA Institute of Labor Economics, Bonn, 2011.

31 See Angino, S., Ferrara, F. and Secola, S., "The cultural origins of institutional trust: The case of the European Central Bank", *European Union Politics*, 2021.

difficult to disentangle the effects of inequality on trust from the effects of trust on inequality.

This section explores the associations between economic inequalities and public trust at the bivariate level without trying to establish causality. Box 1 examines empirically the association between perceived income inequality and public trust in EU institutions, adding additional control variables to account for possible confounding factors that may affect the relationship between economic inequalities and institutional trust.

The analysis draws on survey data from the ECB's Consumer Expectations Survey and the Standard Eurobarometer. The ECB's Consumer Expectations Survey traces public trust in institutions through a monthly panel survey which started in April 2020.[32] This is combined with analysis of data from the Standard Eurobarometer covering 43 waves of the biannual survey.[33] These opinion surveys are the best available sources for measuring public trust in EU institutions and allow quantitative analyses of trends over time and across countries.

Trust in the ECB is explored alongside trust in the European Commission and trust in the European Parliament. Citizens may not differentiate adequately between different EU institutions when expressing their level of trust, and some citizens may therefore evaluate the ECB as part of the overall EU framework.[34] Any relationship between economic inequalities and public trust in the ECB may therefore be due to factors that do not relate solely to the ECB, but are rather part of an overall regime evaluation of the EU. Moreover, we can compare patterns of trust in the ECB with patterns of trust in other EU institutions to identify whether any link between inequality and trust is specific to the ECB.

Box 1

The relationship between perceived income inequality and public trust in EU institutions in the ECB's Consumer Expectations Survey

Prepared by Navid Armeli, Alessandro Giovannini and Nils Hernborg

This box examines the association between normative perceptions of income inequality and public trust in EU institutions, controlling for a range of possible confounding variables that may affect this relationship. In doing so, it extends recent analyses of trust in the ECB in the context of the COVID-

[32] While being limited in time and geographic scope (covering only Belgium, Germany, Spain, France, Italy and the Netherlands) this survey reports public trust on a 0-10 scale, allowing for a more precise analysis of this variable than binary indicators. In addition, the survey includes a range of information on the respondents' socio-demographic characteristics and economic expectations, including levels of total household income and perceptions of inequality. For more information on the survey, see Bańkowska, K. et al., "ECB Consumer Expectations Survey: an overview and first evaluation", *Occasional Paper Series*, No 287, ECB, December 2021.

[33] The Eurobarometer asks the following question: "Please tell me if you tend to trust or tend not to trust these European institutions: [NAME OF INSTITUTION]". The data are aggregated at the country level and the regional level for euro area countries by year, combining the regular spring and autumn waves. The data for 2020 only include one wave as the regular pattern of two surveys per year was disrupted by the pandemic.

[34] In the aftermath of the global financial crisis, both national and European institutions experienced a decline in public trust as part of a broader trend in which citizens became increasingly sceptical of policymakers. See the box entitled "Developments in trust in public institutions since the global financial crisis", *Economic Bulletin*, Issue 4, ECB, 2020.

19 pandemic by including perceptions of income inequality among the explanatory variables. On the basis of a recent study by van der Cruijsen and Samarina[35], we apply a similar random-effects panel regression technique using monthly panel data from the ECB's Consumer Expectations Survey for six euro area countries between April 2020 and October 2021. To analyse whether any relationship is specific to the ECB, we estimate the model for trust in the European Commission and national central banks (NCBs) as well as for trust in the ECB.

Perceptions of income inequality being "too large" are negatively associated with public trust in the ECB when controlling for a range of possible confounding factors. The results shown in Chart A suggest that moving one step on a seven point scale of agreement with the statement that income inequality is "too large" (1 = strongly disagree, 7 = strongly agree) reduces the level of trust in the ECB by 0.2 points (on a 0-10 scale). While small in magnitude, the negative relationship is statistically significant. Such a negative relationship also applies to public trust in the European Commission and in NCBs, with a similar order of magnitude. This seems to indicate that the negative association is not unique to the ECB and that citizens have similar attitudes towards all institutions. Moreover, the results also show that income levels are positively associated with public trust in the ECB when controlling for other factors, and the same relationship applies to other institutions. Similarly, levels of wealth, as proxied by those who reside in an owner-occupied property without a mortgage, are positively associated with public trust in the ECB and public trust in the European Commission and NCBs (Chart A). The similar results across institutions may also be influenced by the fact that respondents do not differentiate between institutions when answering questions about their levels of trust.

Chart A

Association between trust in EU institutions and perceived inequality

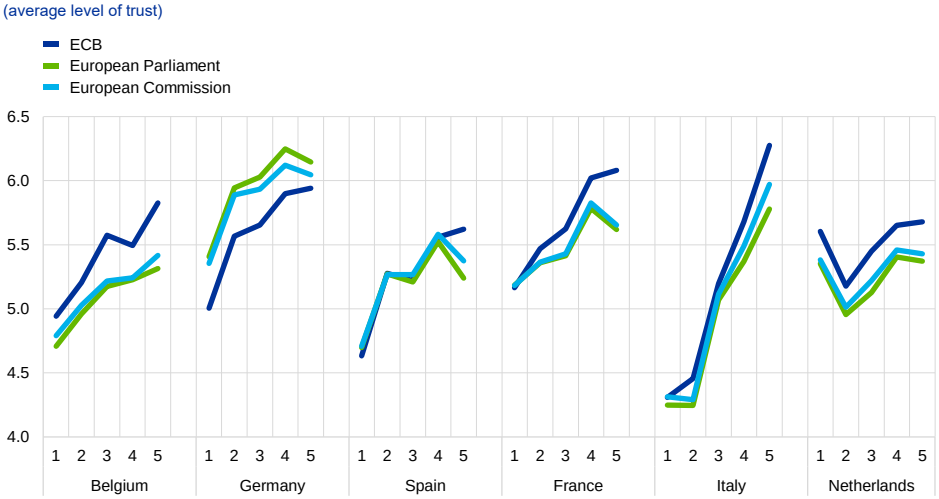
Source: ECB Consumer Expectations Survey.
Notes: The table shows the results of random effects panel regressions, with standard errors clustered at the individual level. Constant wave and country dummies are included (not shown). The regression also controls for gender, age and education (not shown). Trust in the institutions is measured on scale from 0 to 10, where 0 is no trust at all in the institution and 10 is complete trust. The perception of income inequality as "too large" is measured on a scale from 1 to 7, where 1 is "strongly disagree" and 7 is "strongly agree" with the following statement: "Differences in income in the country you currently live in are too large". Financial situation of household is measured by the question "How concerned are you about the impact of the coronavirus (COVID-19) on each of the following: The financial situation of your household", where 0 is not concerned at all and 10 is extremely concerned. Self-assessed financial knowledge is measured by the question "How knowledgeable do you consider yourself on financial matters?", where 1 is not knowledgeable and 4 is very knowledgeable. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

[35] See van der Cruijsen, C. and Samarina, A., op. cit.

5 Public trust in EU institutions and inequality

Trust in EU institutions increases with income. Chart 3 breaks down public trust by total household income across the population and shows that in all six countries surveyed average levels of trust in the ECB gradually rise as income increases. This relationship is robust to differences in age, gender, education level and employment status (not shown). Moreover, the same pattern is found for average levels of trust in the European Parliament and the European Commission.[36]

Chart 3
Trust in EU institutions, by household income quintile



Source: ECB Consumer Expectations Survey.
Notes: The data include monthly waves from April 2020 to December 2021. The weighted average level of trust in the respective institution is measured on a scale from 0 to 10, where 0 is no trust at all in the institution and 10 is complete trust.

While the differences in levels of trust across the income distribution apply to all six countries and for all three institutions, the strength of the relationship is heterogeneous. The change in the average levels of trust in the ECB along the income distribution is smallest in the Netherlands and largest in Italy. Looking at differences between the ECB and the other EU institutions, it is notable that in France and Italy the average levels of trust in the ECB are more similar to the average levels of trust in the European Parliament and the Commission at the lower end of the income distribution, but slightly higher at the upper end. In Belgium and the Netherlands, trust in the ECB is higher than trust in the other institutions across all income groups, while in Germany it is lower across the distribution.

This positive relationship suggests that income levels may matter for public trust in EU institutions, but it does not say much about the relationship between income inequality and public trust. Panel a of Chart 4 indicates that public trust in the ECB tends to be higher in countries with lower income inequality and vice versa. Moreover, the bivariate relationship between the post-tax Gini

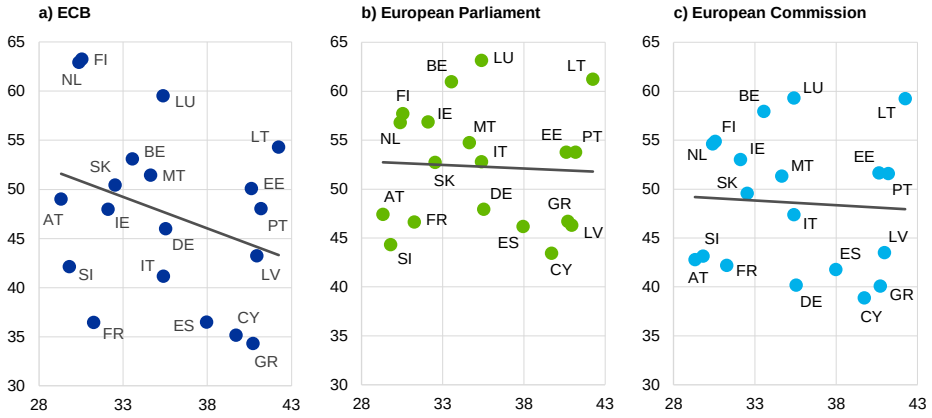
[36] A comparison with data from the European Social Values Survey, which measures only trust in the European Parliament, confirms that the average level of trust in the European Parliament increases across the income distribution. This pattern also applies to levels of trust more broadly, including trust in NCBs and generalised levels of trust in other people (interpersonal trust).

coefficient and trust is stronger for the ECB than for the European Parliament or the European Commission (panels b and c).

Chart 4

Gini coefficients of post-tax income inequality and trust in EU institutions for euro area countries (1999-2020)

(x-axis: average Gini coefficient of post-tax income inequality; y-axis: average tendency to trust the institution)



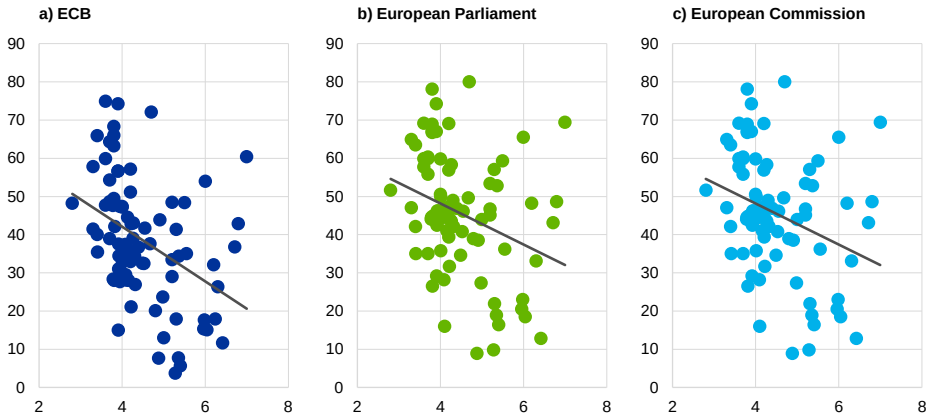
Sources: Standard Eurobarometer and World Income Inequality Database.
Notes: Average values between 1999 and 2020 adjusted for euro area accession. Trust in the institution is measured as the share of respondents giving the answer "Tend to trust" to the question "Please tell me if you tend to trust or tend not to trust these European institutions: [NAME OF INSTITUTION]". The relationship between the average tendency to trust and the average Gini coefficient of post-tax income inequality is statistically significant at the 10% level for the ECB, but insignificant for the European Parliament and the European Commission.

Regional data confirm the negative association between income inequality and public trust in the ECB, thereby supporting the argument that the level of income inequality is a relevant factor. Public trust in the ECB is lower in regions with large differences between the highest and lowest earners than in regions where the differences are smaller (Chart 5, panel a). This relationship also applies to levels of public trust in the European Parliament and the European Commission (panels b and c). Compared to measures of income inequality at the country level, regional measures of income inequality may be closer to the level of inequality that citizens perceive to be relevant for them and therefore have more influence on their general attitudes.

Chart 5

Income quintile share ratio (S80/S20) and trust in EU institutions in regions within the euro area (NUTS1/2)

(x-axis: income quintile share ratio within regions; y-axis: tendency to trust)



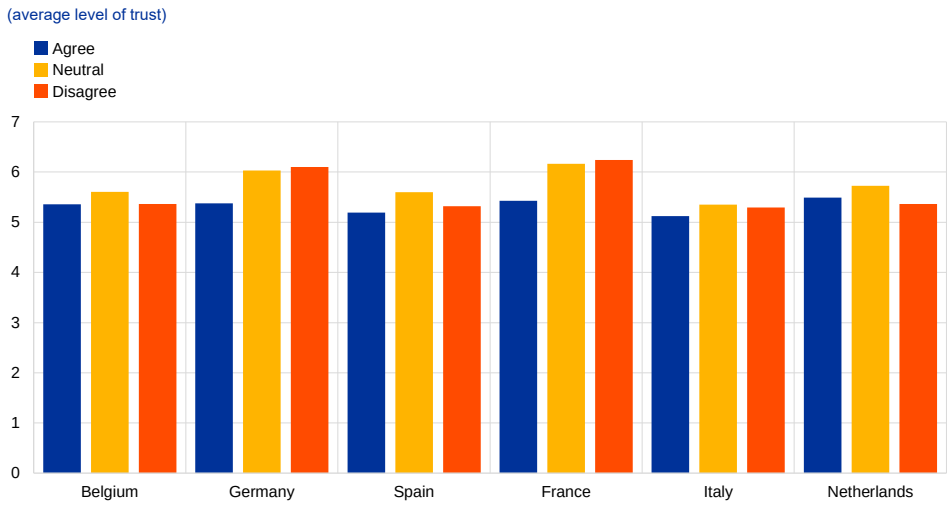
Sources: Standard Eurobarometer, Eurostat and OECD.
Notes: The income quintile share ratio measures the ratio of the total income received by the 20% of the population with the highest income (top quintile) to the income received by the 20% of the population with the lowest income (bottom quintile) within the region. The chart shows income quintile share ratios within regions at NUTS1 level for Belgium, Germany, Greece, Italy and the Netherlands and at NUTS2 level for Ireland, Spain, France, Lithuania, Austria, Slovenia, Slovakia and Finland. The observations are the latest available for each country (2019 for Belgium, Ireland, Greece, Italy, Latvia, the Netherlands, Slovenia and Slovakia; 2018 for Austria; 2013 for Germany and Spain; 2010 for France). The income quintile share ratios have been winsorised at the 1st and 99th percentiles to account for outliers. The tendency to trust each institution has been aggregated at the corresponding NUTS level and year (combining the autumn and spring survey waves of the Standard Eurobarometer), and regions with less than 45 observations have been excluded. Observations are missing for Estonia, Cyprus, Latvia, Luxembourg, Malta and Portugal. The relationship between public trust and the income quintile share ratio is statistically significant at the 1% level for all institutions.

Measures of wealth inequality show a less pronounced relationship with trust in EU institutions. Compared to measures of the distribution of income, measures of levels of household wealth and its distribution are both less available and not as accurate, owing to the challenges in collecting such information through surveys and administrative data. When plotting wealth inequality (as measured by the Gini coefficient for net personal wealth) against public trust in the ECB in euro area countries between 1999 and 2020, no clear relationship emerges.

Finally, citizens who perceive income inequality as "too large" tend to show slightly lower levels of trust in the ECB and other EU institutions. As discussed in Section 3, statistical measures of income inequality may not be known to all citizens, who may instead base their policy preferences and attitudes on their subjective and varying perceptions of income inequality. Chart 6 shows that, on average, German and French citizens who perceive inequality as "too large" display lower levels of trust in the ECB than those who are neutral or disagree with the statement. This relationship remains the same when accounting for differences in age, gender, education level and employment status (not shown). However, in Belgium, Spain, Italy and the Netherlands, the differences in average levels of trust in the ECB across the different views are fairly small. A similar pattern is also found for trust in the European Commission and the European Parliament (not shown).

Chart 6

Public trust in the ECB, by perception of inequality as "too large"



Source: ECB Consumer Expectations Survey.
Notes: The data include monthly waves from April 2020 to December 2021. The perception of income inequality as "too large" is measured on a scale from 1 to 7, where 1 is "strongly disagree" and 7 is "strongly agree" with the following statement: "Differences in income in the country you currently live in are too large". Answers 1-3 are included in "Disagree", 4 in "Neutral" and 5-7 in "Agree".

6 Conclusion

Income and wealth inequality have risen in many advanced economies over recent decades and the pandemic may further increase existing economic inequalities. The impact of the COVID-19 pandemic risks amplifying existing economic inequalities, as some segments of the population are more exposed to unemployment and loss of income, while rising asset prices could exacerbate wealth inequality.

While economic inequality has attracted increased attention in academic research and policy discussions recently, less attention has been paid so far to its relationship with public trust in central banks. Responsibility for addressing social inequalities rests primarily with governments, but citizens may also expect central banks to take action, and their attitudes towards the central bank may therefore be influenced by objective and subjective measures and perceptions of economic inequality.

Tentative evidence suggests that higher income inequality, as well as associated perceptions, may matter for public trust in the ECB. Trust in the ECB tends to be lower in countries with higher income inequality and vice versa. Similarly, at the regional level, public trust in the ECB tends to be lower in regions with larger differences between the highest and lowest earners. Finally, at the individual level, citizens who perceive income inequality as being "too large" tend to show slightly lower levels of trust in the ECB. While small in magnitude, the negative relationship is statistically significant and holds when controlling for possible confounding factors.

However, inequality appears to play a role not only in citizens' evaluations of the ECB but also in their evaluations of EU institutions more broadly. As shown in this article, the relationship between public trust in the ECB and income inequality also applies to other EU institutions, such as the European Parliament and the Commission. This is in line with studies showing that attitudes towards different EU institutions tend to be highly correlated, suggesting that citizens may be evaluating the overall EU framework when asked about specific institutions.[37]

Efforts to improve public understanding of the ECB's mandate and tasks may help foster trust in the institution. Making communication more accessible and addressing the concrete concerns of citizens in different parts of the euro area – such as the ECB's role in economic outcomes – can enhance trust in the ECB, thereby strengthening the effectiveness of its monetary policy tools and helping to safeguard its independence. This effort includes explaining how the ECB's policies, by delivering on its primary objective of price stability as laid down in the Treaty, contribute to macroeconomic stabilisation and can affect economic inequality. Indeed, inflation is often considered one of the most regressive "taxes", and by maintaining price stability the ECB protects the purchasing power of households with lower incomes who are the most sensitive to fluctuations in the level of prices. In parallel, like many central banks, the ECB is also continuing to deepen its analysis of how its policies affect inequality and the manner in which household heterogeneity shapes the transmission of its policies.[38]

[37] See Ehrmann, M., Soudan, M. and Stracca, L., op. cit.

[38] See the article entitled "Monetary policy and inequality", *Economic Bulletin*, Issue 2, ECB, 2021.

Statistics

Contents

Further information

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

Conventions used in the tables

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

1 External environment

1.1 Main trading partners, GDP and CPI

	GDP [1] (period-on-period percentage changes)						CPI (annual percentage changes)						
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	OECD countries		United States	United Kingdom (HICP)	Japan	China	Memo item: euro area [2] (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	2.9	2.3	1.7	-0.2	6.0	1.6	2.1	2.2	1.8	1.8	0.5	2.9	1.2
2020	-3.2	-3.4	-9.3	-4.5	2.3	-6.4	1.4	1.8	1.2	0.9	0.0	2.5	0.3
2021	6.1	5.6	7.4	1.6	8.1	5.3	4.0	2.9	4.7	2.6	-0.3	0.9	2.6
2021 Q1	0.7	1.5	-1.2	-0.5	0.3	-0.1	1.9	1.8	1.9	0.6	-0.5	0.0	1.1
Q2	0.5	1.6	5.6	0.6	1.3	2.2	3.7	2.8	4.8	2.0	-0.8	1.1	1.8
Q3	1.9	0.6	0.9	-0.7	0.7	2.3	4.4	3.2	5.3	2.8	-0.2	0.8	2.8
Q4	1.4	1.7	1.3	1.1	1.6	0.3	5.9	4.0	6.7	4.9	0.5	1.8	4.6
2021 Oct.	-	-	-	-	-	-	5.2	3.6	6.2	4.2	0.1	1.5	4.1
Nov.	-	-	-	-	-	-	5.9	3.9	6.8	5.1	0.6	2.3	4.9
Dec.	-	-	-	-	-	-	6.6	4.6	7.0	5.4	0.8	1.5	5.0
2022 Jan.	-	-	-	-	-	-	7.2	5.1	7.5	5.5	0.5	0.9	5.1
Feb.	-	-	-	-	-	-	7.7	5.5	7.9	6.2	0.9	.	5.9
Mar. [3]	-	-	-	-	-	-	.	.	8.5	7.0	.	.	7.5

Sources: Eurostat (col. 6, 13); BIS (col. 9, 10, 11, 12); OECD (col. 1, 2, 3, 4, 5, 7, 8).
1) Quarterly data seasonally adjusted; annual data unadjusted.
2) Data refer to the changing composition of the euro area.
3) The figure for the euro area is an estimate based on provisional national data, as well as on early information on energy prices.

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports [1]		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index [2]					
	Global [2]	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders	Global	Advanced economies	Emerging market economies
	1	2	3	4	5	6	7	8	9	10	11	12
2019	51.7	52.5	50.2	50.5	51.8	51.3	50.3	52.2	48.8	-0.4	-0.4	-0.5
2020	47.5	48.8	46.5	42.4	51.4	44.0	48.5	46.3	45.3	-4.2	-4.4	-3.9
2021	54.9	59.6	55.9	49.4	52.0	54.9	53.7	55.2	52.1	11.1	9.5	12.8
2021 Q2	57.5	65.3	61.9	49.6	53.0	56.8	53.9	58.8	52.9	1.7	1.6	1.9
Q3	53.0	56.8	56.3	47.4	50.6	58.4	51.7	53.4	50.3	-1.2	-0.3	-2.1
Q4	54.6	57.3	56.3	52.1	51.9	54.3	52.2	55.5	50.4	2.0	2.1	1.8
2022 Q1	52.2	54.9	58.3	48.7	48.0	54.2	51.0	52.6	49.1	.	.	.
2021 Oct.	54.7	57.6	57.8	50.7	51.5	54.2	51.2	55.9	49.7	-0.4	-0.4	-0.4
Nov.	54.7	57.2	57.6	53.3	51.2	55.4	52.3	55.6	50.7	0.0	0.2	-0.3
Dec.	54.6	57.0	53.6	52.5	53.0	53.3	53.3	55.0	50.7	2.0	2.1	1.8
2022 Jan.	50.9	51.1	54.2	49.9	50.1	52.3	50.7	51.0	49.0	3.5	5.5	1.4
Feb.	53.2	55.9	59.9	45.8	50.1	55.5	51.6	53.7	50.3	.	.	.
Mar.	52.4	57.7	60.9	50.3	43.9	54.9	50.7	53.0	48.0	.	.	.

Sources: Markit (col. 1-9); CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations (col. 10-12).
1) Global and advanced economies exclude the euro area. Annual and quarterly data are period-on-period percentages; monthly data are 3-month-on-3-month percentages. All data are seasonally adjusted.
2) Excluding the euro area.

2 Financial developments

2.1 Money market interest rates

(percentages per annum; period averages)

	Euro area [1]						United States	Japan
	Euro short-term rate (€STR) [2]	Overnight deposits (EONIA) [3]	1-month deposits (EURIBOR)	3-month deposits (EURIBOR)	6-month deposits (EURIBOR)	12-month deposits (EURIBOR)	3-month deposits (LIBOR)	3-month deposits (LIBOR)
	1	2	3	4	5	6	7	8
2019	-0.48	-0.39	-0.40	-0.36	-0.30	-0.22	2.33	-0.08
2020	-0.55	-0.46	-0.50	-0.43	-0.37	-0.31	0.64	-0.07
2021	-0.57	-0.48	-0.56	-0.55	-0.52	-0.49	0.16	-0.08
2021 Sep.	-0.57	-0.49	-0.56	-0.55	-0.52	-0.49	0.12	-0.08
Oct.	-0.57	-0.49	-0.56	-0.55	-0.53	-0.48	0.13	-0.08
Nov.	-0.57	-0.49	-0.57	-0.57	-0.53	-0.49	0.16	-0.09
Dec.	-0.58	-0.49	-0.60	-0.58	-0.54	-0.50	0.21	-0.08
2022 Jan.	-0.58	-	-0.56	-0.56	-0.53	-0.48	0.25	-0.03
Feb.	-0.58	-	-0.55	-0.53	-0.48	-0.34	0.43	-0.02
Mar.	-0.58	-	-0.54	-0.50	-0.42	-0.24	0.84	-0.01

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.

2.2 Yield curves

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1], [2]					Euro area [1], [2]	United States	United Kingdom	Euro area [1], [2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2019	-0.68	-0.66	-0.62	-0.45	-0.14	0.52	0.34	0.24	-0.62	-0.52	-0.13	0.41
2020	-0.75	-0.76	-0.77	-0.72	-0.57	0.19	0.80	0.32	-0.77	-0.77	-0.60	-0.24
2021	-0.73	-0.72	-0.68	-0.48	-0.19	0.53	1.12	0.45	-0.69	-0.58	-0.12	0.24
2021 Sep.	-0.71	-0.73	-0.72	-0.54	-0.17	0.56	1.41	0.78	-0.74	-0.66	-0.16	0.46
Oct.	-0.74	-0.69	-0.62	-0.37	-0.07	0.62	1.43	0.45	-0.63	-0.46	0.03	0.34
Nov.	-0.90	-0.85	-0.82	-0.64	-0.35	0.50	1.23	0.49	-0.81	-0.73	-0.30	0.07
Dec.	-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 Jan.	-0.70	-0.66	-0.57	-0.27	0.03	0.69	1.00	0.37	-0.59	-0.36	0.17	0.40
Feb.	-0.73	-0.68	-0.54	-0.11	0.22	0.90	0.81	0.44	-0.56	-0.21	0.42	0.59
Mar.	-0.70	-0.49	-0.09	0.42	0.62	1.11	0.73	0.35	-0.05	0.58	0.81	0.81

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.

2.3 Stock market indices

(index levels in points; period averages)

	Dow Jones EURO STOXX indices												United States	Japan
	Benchmark		Main industry indices											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
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
2021 Sep.	465.5	4,158.3	993.9	295.0	188.1	93.9	169.0	863.3	969.5	371.3	294.8	917.5	4,449.6	29,893.6
Oct.	461.4	4,132.2	976.8	294.4	185.0	101.7	175.8	836.1	925.6	367.5	285.7	897.1	4,460.7	28,586.2
Nov.	478.7	4,306.4	1,020.6	311.7	191.9	100.4	176.9	859.8	1,002.3	380.2	286.3	933.0	4,668.9	29,370.6
Dec.	469.1	4,207.9	1,020.3	303.9	189.5	99.9	172.3	846.9	961.1	383.4	283.8	909.0	4,677.0	28,514.2
2022 Jan.	471.0	4,252.3	1,031.4	300.2	190.1	107.0	185.0	846.7	910.8	385.5	281.3	887.8	4,573.8	27,904.0
Feb.	452.7	4,084.1	978.2	285.0	180.8	107.8	185.6	805.7	823.6	374.5	286.1	863.7	4,436.0	27,066.5
Mar.	422.1	3,796.6	942.7	253.7	172.5	103.1	160.8	762.7	791.8	351.9	279.7	858.7	4,391.3	26,584.1

Source: Refinitiv.

2 Financial developments

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

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

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase					
	Overnight	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation		APRC [3)]		By initial period of rate fixation				APRC [3)]	Composite cost-of-borrowing indicator
			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 Mar.	0.01	0.35	0.20	0.61	4.98	16.07	4.93	5.13	5.73	1.94	1.32	1.43	1.24	1.32	1.58	1.31
Apr.	0.01	0.35	0.21	0.62	4.89	16.06	5.20	5.18	5.80	1.98	1.32	1.49	1.27	1.31	1.60	1.31
May	0.01	0.34	0.18	0.57	4.88	16.07	5.21	5.32	5.95	2.04	1.31	1.43	1.26	1.31	1.61	1.32
June	0.01	0.34	0.16	0.59	4.88	16.01	5.21	5.16	5.78	1.94	1.31	1.43	1.26	1.30	1.60	1.32
July	0.01	0.34	0.19	0.58	4.78	15.98	5.37	5.25	5.86	1.97	1.34	1.45	1.27	1.30	1.61	1.32
Aug.	0.01	0.34	0.17	0.59	4.83	16.01	5.75	5.31	5.92	2.04	1.34	1.47	1.24	1.28	1.60	1.32
Sep.	0.01	0.34	0.18	0.57	4.89	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	4.81	15.91	5.62	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	4.81	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	5.10	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	4.79	15.82	5.58	5.28	5.86	1.95	1.35	1.46	1.31	1.32	1.61	1.33
Feb. [p]	0.01	0.46	0.19	0.56	4.83	15.78	5.37	5.29	5.88	2.09	1.36	1.49	1.39	1.37	1.66	1.38

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).

2.5 MFI interest rates on loans to and deposits from non-financial corporations (new business) [1), 2)]

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

	Deposits			Revolving loans and overdrafts	Other loans by size and initial period of rate fixation									Composite cost-of-borrowing indicator
	Overnight	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 Mar.	-0.01	-0.11	0.22	1.81	1.90	1.96	2.01	1.56	1.45	1.40	1.09	0.71	1.23	1.39
Apr.	-0.01	-0.18	0.25	1.79	2.03	1.96	1.98	1.56	1.44	1.40	1.31	1.33	1.38	1.56
May	-0.01	-0.23	0.19	1.78	1.85	1.95	2.04	1.57	1.45	1.42	1.16	1.17	1.27	1.46
June	-0.02	-0.31	0.27	1.83	1.88	1.97	2.02	1.55	1.43	1.54	1.20	1.13	1.24	1.46
July	-0.02	-0.31	0.13	1.71	1.81	2.14	1.99	1.58	1.43	1.37	1.27	1.32	1.16	1.48
Aug.	-0.03	-0.35	0.17	1.75	1.78	1.93	2.02	1.55	1.45	1.36	1.23	1.12	1.14	1.44
Sep.	-0.03	-0.35	0.15	1.77	1.79	1.99	1.99	1.51	1.43	1.34	1.27	1.25	1.28	1.49
Oct.	-0.03	-0.36	0.17	1.71	1.79	2.09	1.99	1.54	1.42	1.32	1.15	1.19	1.24	1.43
Nov.	-0.03	-0.35	0.16	1.68	1.78	2.01	2.03	1.49	1.43	1.36	1.07	1.11	1.23	1.38
Dec.	-0.03	-0.33	0.17	1.67	1.84	1.96	1.95	1.51	1.43	1.32	1.14	0.97	1.19	1.36
2022 Jan.	-0.04	-0.32	0.20	1.68	1.91	1.94	2.00	1.52	1.41	1.37	1.13	1.24	1.29	1.43
Feb. [p]	-0.04	-0.31	0.35	1.68	1.77	1.93	2.08	1.50	1.43	1.41	1.07	1.07	1.46	1.41

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.

2 Financial developments

2.6 Debt securities issued by euro area residents, by sector of the issuer and initial maturity

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

	Outstanding amounts							Gross issues [1]						
	Total	MFIs (including Euro-system)	Non-MFI corporations			General government		Total	MFIs (including Euro-system)	Non-MFI corporations			General government	
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Short-term														
2019	1,283	550	181	.	85	406	61	415	177	80	.	47	73	38
2020	1,530	455	145	.	98	714	118	455	177	70	.	45	114	49
2021	1,464	460	145	.	94	669	95	428	204	46	.	35	107	36
2021 Sep.	1,576	507	145	.	100	697	127	475	221	46	.	39	124	46
Oct.	1,534	486	141	.	104	686	117	421	203	41	.	41	105	32
Nov.	1,533	499	143	.	98	680	113	428	223	45	.	31	102	27
Dec.	1,464	460	145	.	94	669	95	312	138	46	.	38	76	15
2022 Jan.	1,490	481	152	.	101	650	106	448	199	56	.	42	106	44
Feb.	1,461	464	150	.	102	642	103	407	191	47	.	33	98	39
Long-term														
2019	16,315	3,817	3,402	.	1,319	7,152	626	247	69	74	.	20	78	7
2020	17,289	3,891	3,208	.	1,459	8,006	725	296	68	71	.	27	114	16
2021	18,502	4,053	3,517	.	1,547	8,590	795	283	63	77	.	20	111	13
2021 Sep.	18,285	4,020	3,396	.	1,522	8,559	788	305	72	81	.	23	114	15
Oct.	18,372	4,038	3,467	.	1,527	8,553	787	293	64	102	.	22	92	13
Nov.	18,528	4,062	3,521	.	1,556	8,598	792	268	50	82	.	36	90	9
Dec.	18,502	4,053	3,517	.	1,547	8,590	795	180	45	79	.	7	42	6
2022 Jan.	18,623	4,083	3,527	.	1,550	8,659	805	350	111	75	.	14	135	15
Feb.	18,745	4,107	3,542	.	1,540	8,748	808	281	77	69	.	7	118	10

Source: ECB.

1) For the purpose of comparison, annual data refer to the average monthly figure over the year.

2.7 Growth rates and outstanding amounts of debt securities and listed shares

(EUR billions; percentage changes)

	Debt securities							Listed shares			
	Total	MFIs (including Eurosystem)	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central government	Other general government				
	1	2	3	4	5	6	7	8	9	10	11
Oustanding amount											
2019	17,598.1	4,367.1	3,582.4	.	1,403.9	7,558.3	686.5	8,560.4	537.8	1,410.5	6,612.1
2020	18,818.7	4,345.9	3,352.7	.	1,556.4	8,720.5	843.2	8,442.0	468.4	1,312.0	6,661.5
2021	19,966.2	4,513.6	3,661.8	.	1,641.2	9,259.3	890.3	10,325.5	597.3	1,544.0	8,184.2
2021 Sep.	19,860.9	4,527.2	3,541.2	.	1,621.8	9,255.8	914.9	9,909.7	597.2	1,617.7	7,694.8
Oct.	19,906.4	4,524.0	3,607.7	.	1,631.2	9,239.4	904.0	10,305.7	613.8	1,701.5	7,990.3
Nov.	20,061.7	4,560.7	3,663.6	.	1,653.8	9,277.7	905.7	10,021.7	566.5	1,619.1	7,836.0
Dec.	19,966.2	4,513.6	3,661.8	.	1,641.2	9,259.3	890.3	10,325.5	597.3	1,544.0	8,184.2
2022 Jan.	20,112.8	4,564.0	3,678.5	.	1,650.3	9,309.4	910.7	9,876.0	606.9	1,537.7	7,731.4
Feb.	20,206.0	4,571.1	3,692.6	.	1,642.4	9,389.4	910.6	9,320.1	552.5	1,416.3	7,351.3
Growth rate											
2019	3.1	3.8	4.9	.	5.6	1.5	1.8	0.0	0.5	0.0	0.0
2020	7.5	1.2	2.7	.	12.3	10.9	24.3	1.0	0.6	2.3	0.8
2021	5.1	2.2	6.9	.	5.1	5.9	4.5	1.9	1.7	5.9	1.1
2021 Sep.	4.1	1.0	4.6	.	3.8	5.0	8.6	2.2	2.0	6.7	1.4
Oct.	4.4	1.4	5.7	.	4.1	5.3	5.6	2.0	1.9	5.1	1.3
Nov.	5.1	2.2	7.2	.	4.9	5.7	5.3	1.9	2.0	5.6	1.1
Dec.	5.1	2.2	6.9	.	5.1	5.9	4.5	1.9	1.7	5.9	1.1
2022 Jan.	4.9	2.2	7.6	.	5.0	5.4	3.7	1.7	1.6	4.5	1.2
Feb.	4.7	2.6	7.0	.	4.1	5.1	3.2	1.4	1.5	4.3	0.9

Source: ECB.

2 Financial developments

2.8 Effective exchange rates [1)]

(period averages; index: 1999 Q1=100)

	EER-19						EER-42	
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM	Real ULCT	Nominal	Real CPI
	1	2	3	4	5	6	7	8
2019	98.1	93.1	92.9	88.7	77.4	87.0	115.4	92.4
2020	99.6	93.5	94.1	89.3	76.8	87.6	119.4	93.9
2021	99.6	93.4	94.5	88.6	72.4	85.4	120.8	94.2
2021 Q2	100.5	94.1	94.9	89.3	72.3	85.6	121.9	94.9
Q3	99.5	93.4	94.4	88.5	72.3	84.9	120.5	94.0
Q4	97.7	91.8	93.3	86.5	71.1	83.6	119.1	92.7
2022 Q1	96.4	91.2	94.5	.	.	.	118.7	92.2
2021 Oct.	98.4	92.4	93.6	-	-	-	119.5	93.1
Nov.	97.6	91.7	93.2	-	-	-	118.8	92.6
Dec.	97.1	91.2	93.2	-	-	-	119.0	92.4
2022 Jan.	96.6	91.2	94.1	-	-	-	118.6	92.3
Feb.	96.9	91.6	94.9	-	-	-	118.9	92.7
Mar.	95.9	90.8	94.6	-	-	-	118.5	91.7
Percentage change versus previous month								
2022 Mar.	-1.0	-0.9	-0.3	-	-	-	-0.3	-1.0
Percentage change versus previous year								
2022 Mar.	-4.4	-3.4	-0.1	-	-	-	-2.3	-3.2

Source: ECB.

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

2.9 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 Q2	7.784	7.528	25.638	7.436	354.553	131.930	4.529	0.862	4.9240	10.141	1.098	1.206
Q3	7.626	7.497	25.500	7.437	353.871	129.763	4.566	0.855	4.9319	10.195	1.083	1.179
Q4	7.310	7.518	25.374	7.438	364.376	130.007	4.617	0.848	4.9489	10.128	1.054	1.144
2022 Q1	7.121	7.544	24.653	7.441	364.600	130.464	4.623	0.836	4.9465	10.481	1.036	1.122
2021 Oct.	7.450	7.513	25.496	7.440	360.822	131.212	4.591	0.847	4.9480	10.056	1.071	1.160
Nov.	7.293	7.520	25.391	7.437	364.504	130.118	4.646	0.848	4.9494	10.046	1.052	1.141
Dec.	7.199	7.520	25.246	7.436	367.499	128.800	4.614	0.849	4.9492	10.273	1.041	1.130
2022 Jan.	7.192	7.525	24.470	7.441	358.680	130.009	4.552	0.835	4.9454	10.358	1.040	1.131
Feb.	7.196	7.534	24.437	7.441	356.970	130.657	4.549	0.838	4.9458	10.534	1.046	1.134
Mar.	6.992	7.571	25.007	7.440	376.640	130.711	4.752	0.836	4.9482	10.546	1.025	1.102
Percentage change versus previous month												
2022 Mar.	-2.8	0.5	2.3	0.0	5.5	0.0	4.5	-0.2	0.0	0.1	-2.1	-2.8
Percentage change versus previous year												
2022 Mar.	-9.7	-0.1	-4.5	0.1	3.0	1.0	3.3	-2.6	1.2	3.7	-7.4	-7.4

Source: ECB.

2 Financial developments

2.10 Euro area balance of payments, financial account

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

	Total [1]			Direct investment		Portfolio investment		Net financial derivatives	Other investment		Reserve assets	Memo: Gross external debt
	Assets	Liabilities	Net	Assets	Liabilities	Assets	Liabilities		Assets	Liabilities		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts (international investment position)												
2021 Q1	29,821.1	30,376.6	-555.5	11,449.4	9,502.1	11,520.0	13,674.5	-128.2	6,130.5	7,200.0	849.4	15,505.2
Q2	30,326.6	30,718.8	-392.2	11,492.5	9,503.9	12,026.4	14,021.1	-134.1	6,072.8	7,193.8	869.0	15,393.1
Q3	31,085.0	31,357.5	-272.5	11,728.7	9,470.0	12,229.3	14,334.7	-102.8	6,227.5	7,552.8	1,002.4	15,787.6
Q4	32,029.1	32,209.3	-180.2	11,881.1	9,729.9	12,851.5	14,659.5	-96.9	6,336.4	7,820.0	1,057.0	16,025.3
Outstanding amounts as a percentage of GDP												
2021 Q4	261.3	262.8	-1.5	96.9	79.4	104.9	119.6	-0.8	51.7	63.8	8.6	130.8
Transactions												
2021 Q1	550.5	443.7	106.8	127.5	-3.6	269.8	182.3	3.2	153.0	265.0	-3.0	-
Q2	207.4	104.4	103.0	-0.5	-5.7	230.4	70.3	-2.5	-27.1	39.8	7.1	-
Q3	387.3	302.5	84.8	45.8	-61.2	121.3	67.2	24.2	72.9	296.6	123.2	-
Q4	163.7	141.5	22.2	-24.1	-71.4	143.9	24.1	44.5	-3.5	188.8	2.9	-
2021 Aug.	160.1	125.8	34.3	-11.6	-54.3	36.2	1.5	1.7	11.7	178.5	122.1	-
Sep.	42.5	38.4	4.1	24.6	3.3	50.3	33.5	4.2	-37.9	1.6	1.5	-
Oct.	297.6	274.3	23.3	16.3	0.8	50.7	17.4	13.9	213.5	256.1	3.2	-
Nov.	143.6	146.1	-2.5	52.1	52.8	60.1	-4.7	26.3	4.6	98.0	0.6	-
Dec.	-277.4	-278.9	1.4	-92.4	-125.1	33.1	11.5	4.3	-221.5	-165.3	-0.8	-
2022 Jan.	221.2	203.7	17.6	44.9	40.9	16.9	-11.7	3.3	158.3	174.4	-2.2	-
12-month cumulated transactions												
2022 Jan.	1,211.3	907.9	303.3	135.4	-115.0	679.2	252.1	61.8	206.0	770.9	129.0	-
12-month cumulated transactions as a percentage of GDP												
2022 Jan.	9.9	7.4	2.5	1.1	-0.9	5.5	2.1	0.5	1.7	6.3	1.1	-

Source: ECB.

1) Net financial derivatives are included in total assets.

3 Economic activity

3.1 GDP and expenditure components

(quarterly data seasonally adjusted; annual data unadjusted)

	GDP											
	Total	Domestic demand								External balance [1]		
		Total	Private consumption	Government consumption	Gross fixed capital formation				Changes in inventories [2]	Total	Exports [1]	Imports [1]
						Total construction	Total machinery	Intellectual property products				
	1	2	3	4	5	6	7	8	9	10	11	12
	Current prices (EUR billions)											
2019	11,984.2	11,578.1	6,378.5	2,456.5	2,654.2	1,253.6	770.6	623.0	89.0	406.0	5,766.1	5,360.1
2020	11,405.6	10,982.1	5,905.3	2,572.4	2,497.0	1,216.4	682.6	591.1	7.3	423.5	5,177.3	4,753.8
2021	12,255.5	11,756.0	6,248.8	2,709.6	2,694.1	1,362.9	759.2	564.5	103.5	499.5	6,063.9	5,564.3
2021 Q1	2,945.9	2,808.9	1,471.5	661.7	648.2	325.2	186.6	134.6	27.6	137.0	1,407.0	1,269.9
Q2	3,018.4	2,888.8	1,533.6	675.0	664.4	337.8	189.3	135.5	15.8	129.7	1,476.6	1,347.0
Q3	3,122.9	2,990.2	1,614.4	682.8	671.4	344.5	187.7	137.2	21.7	132.6	1,542.4	1,409.7
Q4	3,157.9	3,058.8	1,626.7	690.6	703.8	351.8	193.4	156.7	37.7	99.1	1,632.1	1,533.0
	as a percentage of GDP											
2021	100.0	95.9	51.0	22.1	22.0	11.1	6.2	4.6	0.8	4.1	-	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2021 Q1	-0.1	-0.2	-2.3	-0.5	0.1	0.6	2.3	-3.7	-	-	1.3	1.2
Q2	2.2	2.3	3.9	2.3	1.3	1.8	0.5	1.0	-	-	2.8	3.1
Q3	2.3	2.1	4.5	0.3	-0.9	-0.9	-1.8	0.1	-	-	1.7	1.4
Q4	0.3	0.9	-0.6	0.5	3.5	0.6	2.1	12.5	-	-	2.9	4.6
	annual percentage changes											
2019	1.6	2.5	1.3	1.8	6.8	3.3	1.8	22.3	-	-	2.7	4.7
2020	-6.4	-6.2	-7.9	1.1	-7.0	-4.6	-11.9	-5.8	-	-	-9.1	-9.0
2021	5.3	4.2	3.5	3.8	4.3	6.4	9.8	-6.5	-	-	10.9	8.7
2021 Q1	-0.9	-3.6	-5.6	2.6	-5.9	2.7	7.3	-31.4	-	-	0.1	-5.6
Q2	14.6	12.2	12.3	7.9	18.6	19.5	30.5	3.6	-	-	26.7	21.8
Q3	4.0	3.7	2.9	2.6	3.0	3.0	2.4	3.7	-	-	10.6	10.6
Q4	4.6	5.2	5.4	2.5	4.0	2.1	3.0	9.6	-	-	9.0	10.7
	contributions to quarter-on-quarter percentage changes in GDP; percentage points											
2021 Q1	-0.1	-0.2	-1.2	-0.1	0.0	0.1	0.1	-0.2	1.0	0.1	-	-
Q2	2.2	2.2	1.9	0.5	0.3	0.2	0.0	0.0	-0.5	0.0	-	-
Q3	2.3	2.0	2.3	0.1	-0.2	-0.1	-0.1	0.0	-0.1	0.2	-	-
Q4	0.3	0.8	-0.3	0.1	0.7	0.1	0.1	0.6	0.3	-0.6	-	-
	contributions to annual percentage changes in GDP; percentage points											
2019	1.6	2.4	0.7	0.4	1.4	0.3	0.1	1.0	-0.1	-0.8	-	-
2020	-6.4	-6.0	-4.2	0.2	-1.5	-0.5	-0.8	-0.3	-0.5	-0.4	-	-
2021	5.3	4.2	1.9	0.9	1.0	0.7	0.6	-0.3	0.4	1.4	-	-
2021 Q1	-0.9	-3.5	-2.9	0.6	-1.4	0.3	0.4	-2.1	0.2	2.6	-	-
Q2	14.6	11.9	6.4	1.9	3.9	2.0	1.7	0.2	-0.3	2.7	-	-
Q3	4.0	3.5	1.5	0.6	0.6	0.3	0.1	0.2	0.8	0.5	-	-
Q4	4.6	4.9	2.8	0.6	0.9	0.2	0.2	0.5	0.7	-0.3	-	-

Sources: Eurostat and ECB calculations.

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

2) Including acquisitions less disposals of valuables.

3 Economic activity

3.2 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	Const-ruction	Trade, transport, accom-modation and food services	Infor-mation and com-munica-tion	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
	Current prices (EUR billions)											
2019	10,742.5	178.3	2,101.5	560.9	2,041.4	531.7	478.8	1,205.1	1,249.8	2,025.5	369.4	1,241.7
2020	10,275.9	177.1	1,971.7	552.6	1,801.0	545.3	471.1	1,211.7	1,168.1	2,054.6	322.8	1,129.7
2021	10,991.5	186.1	2,168.5	603.3	1,994.8	584.8	476.2	1,246.6	1,257.8	2,142.3	331.1	1,264.0
2021 Q1	2,652.3	44.6	531.6	146.2	456.7	141.4	119.3	307.5	303.7	523.9	77.5	293.6
Q2	2,705.9	45.8	535.3	150.3	480.8	144.7	118.9	309.5	308.9	530.8	80.8	312.5
Q3	2,794.1	47.1	545.7	150.3	521.9	146.5	119.0	312.3	320.2	543.0	88.0	328.8
Q4	2,825.6	48.7	557.9	154.8	533.4	151.0	118.6	313.2	325.4	539.2	83.2	332.3
	as a percentage of value added											
2021	100.0	1.7	19.7	5.5	18.1	5.3	4.3	11.3	11.4	19.5	3.0	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2021 Q1	0.1	-3.6	1.0	-1.2	-0.9	2.1	1.0	0.0	0.6	0.1	-0.5	-2.3
Q2	1.9	0.8	0.5	1.8	4.4	1.7	0.5	0.8	1.8	1.8	5.7	5.0
Q3	2.5	-0.7	0.4	-0.8	7.3	1.5	-0.4	0.7	3.1	1.6	11.1	0.4
Q4	0.1	1.4	0.0	1.1	0.2	2.8	0.2	0.1	1.1	-1.1	-3.3	1.6
	annual percentage changes											
2019	1.6	1.6	0.2	2.0	2.5	5.7	0.3	1.5	1.8	1.1	1.7	1.6
2020	-6.4	-0.1	-6.8	-5.3	-13.7	1.2	-0.8	-0.8	-7.9	-3.0	-17.1	-6.4
2021	5.3	-1.7	7.8	5.0	7.5	6.6	2.0	1.7	6.7	3.6	2.6	6.1
2021 Q1	-1.2	-1.3	3.6	0.6	-7.9	3.5	1.5	0.3	-2.3	0.7	-16.4	1.2
Q2	14.4	-0.7	22.0	18.5	23.1	10.9	4.7	3.7	16.4	9.8	15.1	16.1
Q3	4.1	-2.6	5.7	1.7	7.1	4.1	0.8	1.2	7.2	1.9	3.2	3.3
Q4	4.6	-2.2	1.9	0.9	11.3	8.3	1.2	1.6	6.8	2.4	12.9	4.7
	contributions to quarter-on-quarter percentage changes in value added; percentage points											
2021 Q1	0.1	-0.1	0.2	-0.1	-0.2	0.1	0.0	0.0	0.1	0.0	0.0	-
Q2	1.9	0.0	0.1	0.1	0.8	0.1	0.0	0.1	0.2	0.4	0.2	-
Q3	2.5	0.0	0.1	0.0	1.3	0.1	0.0	0.1	0.4	0.3	0.3	-
Q4	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	-0.2	-0.1	-
	contributions to annual percentage changes in value added; percentage points											
2019	1.6	0.0	0.0	0.1	0.5	0.3	0.0	0.2	0.2	0.2	0.1	-
2020	-6.4	0.0	-1.3	-0.3	-2.6	0.1	0.0	-0.1	-0.9	-0.6	-0.6	-
2021	5.3	0.0	1.6	0.3	1.4	0.4	0.1	0.2	0.8	0.8	0.1	-
2021 Q1	-1.2	0.0	0.7	0.0	-1.5	0.2	0.1	0.0	-0.3	0.1	-0.6	-
Q2	14.4	0.0	4.1	1.0	3.8	0.6	0.2	0.5	1.8	2.0	0.4	-
Q3	4.1	0.0	1.1	0.1	1.3	0.2	0.0	0.1	0.8	0.4	0.1	-
Q4	4.6	0.0	0.4	0.0	2.0	0.4	0.1	0.2	0.8	0.5	0.4	-

Sources: Eurostat and ECB calculations.

3 Economic activity

3.3 Employment [1)]

(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity										
		Employees	Self-employed	Agriculture, forestry and fishing	Manufacturing, energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
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	86.0	14.0	3.0	14.5	6.2	24.5	3.0	2.4	1.0	13.9	24.9	6.6
2021	100.0	86.2	13.8	3.0	14.3	6.3	24.2	3.1	2.4	1.0	14.1	25.1	6.5
annual percentage changes													
2019	1.3	1.5	0.2	-2.4	1.1	2.5	1.5	3.3	0.0	1.7	1.4	1.4	0.4
2020	-1.5	-1.5	-1.7	-2.3	-1.9	0.8	-3.7	1.5	-0.6	-0.3	-2.4	0.9	-3.0
2021	1.1	1.4	-0.3	0.3	-0.4	3.0	0.0	4.5	0.2	0.6	2.5	2.1	-0.2
2021 Q1	-1.7	-1.7	-1.5	-0.5	-2.3	1.5	-5.4	2.2	-0.7	0.9	-1.7	1.4	-4.0
Q2	2.0	2.4	-0.2	2.5	-0.5	4.8	0.8	4.3	0.4	1.5	4.3	2.7	2.0
Q3	2.1	2.3	0.5	0.1	0.4	2.8	1.9	5.4	0.7	0.2	4.3	2.2	1.0
Q4	2.2	2.5	-0.1	-0.8	0.9	2.9	2.8	6.2	0.3	-0.1	3.4	2.0	0.6
Hours worked													
as a percentage of total hours worked													
2019	100.0	81.3	18.7	4.1	14.9	6.8	25.9	3.1	2.4	1.0	13.9	21.7	6.1
2020	100.0	82.0	18.0	4.3	14.9	6.9	24.2	3.3	2.6	1.1	13.8	23.1	5.7
2021	100.0	81.8	18.2	4.2	14.8	7.2	24.4	3.4	2.5	1.1	14.0	22.8	5.7
annual percentage changes													
2019	1.0	1.3	-0.2	-3.4	0.5	2.3	1.1	3.4	0.3	2.0	1.3	1.3	0.2
2020	-7.8	-7.0	-11.2	-2.5	-7.6	-6.3	-13.8	-1.8	-2.7	-6.8	-8.2	-2.0	-13.1
2021	5.3	5.0	6.5	1.7	4.5	8.8	6.1	6.7	2.2	6.3	6.8	3.8	5.1
2021 Q1	-2.6	-2.8	-1.3	1.6	-1.3	5.3	-10.7	2.2	0.8	2.7	-1.9	2.4	-7.8
Q2	16.7	15.2	23.9	7.0	15.1	25.7	24.6	11.1	5.7	19.0	18.6	8.8	25.2
Q3	3.2	3.5	1.8	-0.8	2.5	2.6	4.4	7.1	1.3	3.4	6.5	1.8	0.7
Q4	4.9	4.9	4.5	-0.7	2.5	4.0	10.2	6.2	0.8	1.6	5.3	1.9	6.7
Hours worked per person employed													
annual percentage changes													
2019	-0.3	-0.2	-0.4	-1.0	-0.6	-0.2	-0.4	0.0	0.2	0.3	-0.1	-0.1	-0.2
2020	-6.4	-5.6	-9.7	-0.2	-5.8	-7.0	-10.5	-3.2	-2.2	-6.5	-5.9	-2.8	-10.4
2021	4.1	3.6	6.9	1.4	4.9	5.6	6.1	2.1	2.0	5.6	4.2	1.7	5.3
2021 Q1	-0.9	-1.1	0.2	2.1	1.1	3.8	-5.6	-0.1	1.5	1.8	-0.2	1.0	-3.9
Q2	14.4	12.5	24.2	4.4	15.6	19.9	23.6	6.5	5.3	17.3	13.7	5.9	22.8
Q3	1.1	1.2	1.4	-0.9	2.1	-0.2	2.4	1.6	0.6	3.2	2.1	-0.4	-0.3
Q4	2.6	2.3	4.6	0.1	1.6	1.1	7.2	0.0	0.4	1.7	1.9	-0.1	6.0

Sources: Eurostat and ECB calculations.

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

3 Economic activity

3.4 Labour force, unemployment and job vacancies

(seasonally adjusted, unless otherwise indicated)

	Labour force, millions	Under-employ-ment, % of labour force	Unemployment [1]											Job vacancy rate [3]
			Total		Long-term unemploy-ment, % of labour force [2]	By age				By gender				
						Adult		Youth		Male		Female		
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	% 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	163.508	3.5	12.430	7.6	3.3	10.062	6.8	2.368	16.3	6.349	7.3	6.081	8.0	2.2
2020	160.946	3.5	12.826	8.0	3.0	10.275	7.0	2.551	18.1	6.576	7.7	6.250	8.3	1.8
2021	.	.	12.616	7.7	.	10.164	6.8	2.452	16.8	6.414	7.4	6.201	8.1	2.4
2021 Q1	161.684	3.7	13.409	8.3	3.2	10.816	7.3	2.593	18.4	6.811	7.9	6.598	8.8	2.1
Q2	163.059	3.5	12.968	8.0	3.3	10.382	7.0	2.586	17.8	6.573	7.6	6.395	8.4	2.3
Q3	164.027	3.3	12.386	7.6	3.1	9.960	6.7	2.426	16.3	6.292	7.2	6.095	8.0	2.6
Q4	.	.	11.700	7.1	3.0	9.497	6.3	2.203	14.9	5.982	6.8	5.718	7.4	2.8
2021 Sep.	-	-	12.034	7.3	-	9.736	6.5	2.297	15.5	6.142	7.0	5.892	7.7	-
Oct.	-	-	11.886	7.2	-	9.648	6.5	2.238	15.1	6.064	6.9	5.822	7.6	-
Nov.	-	-	11.685	7.1	-	9.475	6.3	2.211	14.9	5.970	6.8	5.715	7.4	-
Dec.	-	-	11.530	7.0	-	9.368	6.3	2.162	14.5	5.912	6.7	5.618	7.3	-
2022 Jan.	-	-	11.336	6.9	-	9.209	6.2	2.127	14.3	5.783	6.6	5.552	7.2	-
Feb.	-	-	11.155	6.8	-	9.053	6.0	2.101	14.0	5.620	6.4	5.535	7.2	-

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).

3.5 Short-term business statistics

	Industrial production						Con-struction produc-tion	Retail sales				Services turnover [1]	New passenger car regis-trations
	Total (excluding construction)		Main Industrial Groupings					Total	Food, beverages, tobacco	Non-food	Fuel		
		Manu-facturing	Inter-mediate goods	Capital goods	Consumer goods	Energy							
	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	-1.1	-1.0	-2.5	-1.1	1.4	-1.8	2.2	2.4	1.0	3.7	0.8	2.9	1.8
2020	-7.9	-8.5	-7.2	-11.9	-4.3	-4.4	-5.8	-0.8	3.7	-2.3	-14.4	-8.8	-25.1
2021	7.9	8.6	9.5	8.8	7.8	1.6	5.9	5.0	0.9	7.8	9.4	13.3	-3.1
2021 Q1	4.7	5.2	4.8	8.7	1.3	-0.1	3.2	2.4	2.5	3.2	-5.2	-0.4	3.7
Q2	23.2	25.3	25.7	31.6	18.5	5.6	18.6	11.8	1.9	18.7	29.8	26.1	53.4
Q3	6.0	6.8	7.7	5.2	8.8	-0.9	1.6	2.4	0.0	4.1	3.5	12.8	-23.6
Q4	0.2	0.1	2.1	-4.0	3.9	2.2	1.6	4.0	-0.6	6.2	14.0	16.9	-25.0
2021 Sep.	4.1	4.5	5.0	3.1	6.8	-0.1	3.1	2.7	0.6	4.0	5.0	-	-24.0
Oct.	0.2	0.4	2.3	-2.1	1.4	-0.8	3.3	1.6	-1.3	3.0	9.1	-	-28.4
Nov.	-1.3	-1.9	2.0	-9.3	5.6	4.6	1.3	8.4	0.8	12.7	19.8	-	-21.6
Dec.	2.0	2.0	1.9	0.4	4.9	2.6	0.2	2.3	-1.1	3.7	13.9	-	-24.9
2022 Jan.	-1.3	-1.7	0.6	-8.4	6.3	1.4	4.1	8.4	-1.7	16.1	13.1	-	-10.0
Feb.	.	.	.	.	.	.	.	5.0	-2.0	9.3	12.0	-	-7.1
month-on-month percentage changes (s.a.)													
2021 Sep.	-0.7	-0.9	-0.1	-1.4	-0.1	1.4	1.4	0.0	0.8	-1.4	1.1	-	1.7
Oct.	-1.3	-1.2	-0.2	0.8	-4.2	0.5	0.4	0.2	0.0	0.2	0.5	-	-1.9
Nov.	2.5	2.6	1.0	2.2	2.4	1.7	0.1	1.2	0.2	2.1	-1.6	-	0.5
Dec.	1.3	1.4	0.8	5.3	-1.0	-0.1	-1.5	-2.1	0.7	-4.4	0.3	-	2.4
2022 Jan.	0.0	-0.2	-0.3	-2.4	2.4	-0.3	3.9	0.2	-0.2	1.1	-1.8	-	-5.4
Feb.	.	.	.	.	.	.	.	0.3	-0.5	0.8	3.2	-	5.2

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

1) Including wholesale trade.

3 Economic activity

3.6 Opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances, unless otherwise indicated)								Purchasing Managers' Surveys (diffusion indices)			
	Economic sentiment indicator (long-term average = 100)	Manufacturing industry		Consumer confidence indicator	Construction confidence indicator	Retail trade confidence indicator	Service industries		Purchasing Managers' Index (PMI) for manufacturing	Manufacturing output	Business activity for services	Composite output
		Industrial confidence indicator	Capacity utilisation (%)				Services confidence indicator	Capacity utilisation (%)				
	1	2	3	4	5	6	7	8	9	10	11	12
1999-15	98.8	-5.2	80.6	-11.6	-15.4	-8.6	7.3	-	51.2	52.5	53.0	52.8
2019	103.3	-5.1	81.9	-6.9	6.7	-0.5	10.8	90.5	47.4	47.8	52.7	51.3
2020	88.0	-14.3	73.9	-14.3	-7.4	-12.9	-16.5	86.3	48.6	48.0	42.5	44.0
2021	110.1	9.5	81.7	-7.6	3.4	-2.5	7.1	87.6	60.2	58.3	53.6	54.9
2021 Q2	113.2	11.8	82.6	-5.5	4.4	0.7	10.5	87.3	63.1	62.7	54.7	56.8
Q3	116.8	14.2	82.4	-4.6	5.7	3.5	16.9	88.5	60.9	58.6	58.4	58.4
Q4	115.7	14.4	82.0	-6.7	9.2	2.2	15.7	88.6	58.2	53.6	54.5	54.3
2022 Q1	111.7	12.8	.	-12.0	9.3	3.1	12.2	.	57.8	54.7	54.1	54.2
2021 Oct.	117.2	14.4	82.0	-4.9	8.7	1.9	18.0	89.0	58.3	53.3	54.6	54.2
Nov.	116.2	14.3	-	-6.8	9.0	3.7	18.2	-	58.4	53.8	55.9	55.4
Dec.	113.8	14.6	-	-8.4	10.1	1.1	10.9	-	58.0	53.8	53.1	53.3
2022 Jan.	112.7	13.9	81.9	-8.5	8.1	3.7	9.1	88.1	58.7	55.4	51.1	52.3
Feb.	113.9	14.1	-	-8.8	9.9	5.5	12.9	-	58.2	55.5	55.5	55.5
Mar.	108.5	10.4	-	-18.7	9.8	0.2	14.4	-	56.5	53.1	55.6	54.9

Sources: European Commission (Directorate-General for Economic and Financial Affairs) (col. 1-8) and Markit (col. 9-12).

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

	Households							Non-financial corporations					
	Saving ratio (gross)	Debt ratio	Real gross disposable income	Financial investment	Non-financial investment (gross)	Net worth [2]	Housing wealth	Profit share [3]	Saving ratio (net)	Debt ratio [4]	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted) [1]		Annual percentage changes					Percentage of net value added		Percentage of GDP	Annual percentage changes		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2018	12.5	93.0	1.9	1.9	6.2	2.5	4.6	35.4	5.6	75.0	2.0	7.7	1.6
2019	13.1	93.3	1.9	2.7	3.8	6.1	4.0	35.1	6.2	74.8	2.0	8.0	1.9
2020	19.4	96.3	-0.5	4.1	-3.5	4.3	3.6	31.2	4.5	81.8	3.0	-14.4	1.9
2021 Q1	20.6	96.6	0.1	4.5	11.0	6.8	3.9	32.2	5.6	83.1	3.9	-10.2	2.1
Q2	19.1	96.7	3.7	4.0	31.6	6.4	5.0	34.4	7.6	80.6	4.7	19.7	2.5
Q3	18.6	96.8	0.9	3.9	17.9	7.3	6.7	34.6	8.1	79.8	5.0	14.4	2.7
Q4	17.3	96.8	-0.4	3.3	19.1	7.0	7.0	35.0	8.2	79.6	5.7	16.5	3.4

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 share uses net entrepreneurial income, which is broadly equivalent to current profits in business accounting.
4) Defined as consolidated loans and debt securities liabilities.

3 Economic activity

3.8 Euro area balance of payments, current and capital accounts

(EUR billions; seasonally adjusted unless otherwise indicated; transactions)

	Current account											Capital account [1]	
	Total			Goods		Services		Primary income		Secondary income			
	Credit	Debit	Balance	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021 Q1	1,058.3	956.7	101.6	600.1	498.7	230.3	206.2	191.3	175.4	36.6	76.4	16.3	13.4
Q2	1,092.0	1,004.0	87.9	617.6	533.4	237.4	210.8	204.6	185.1	32.3	74.7	18.7	12.2
Q3	1,115.9	1,042.8	73.2	626.1	553.6	252.9	238.6	193.9	173.4	43.0	77.2	32.2	13.5
Q4	1,174.0	1,151.7	22.3	649.9	621.0	278.9	248.4	205.9	200.6	39.4	81.7	59.6	46.8
2021 Aug.	370.1	353.1	16.9	208.0	185.4	83.9	84.3	64.5	57.7	13.6	25.7	8.3	3.4
Sep.	372.6	349.4	23.3	208.3	187.2	86.9	78.3	64.6	57.4	12.8	26.5	11.0	4.7
Oct.	380.5	375.4	5.1	208.8	197.5	90.4	83.8	67.6	66.8	13.7	27.2	9.0	4.9
Nov.	402.8	395.7	7.2	221.4	208.6	98.7	84.5	70.4	74.9	12.3	27.7	6.1	4.3
Dec.	390.7	380.6	10.0	219.7	214.8	89.8	80.1	67.8	58.9	13.3	26.8	44.5	37.6
2022 Jan.	393.4	370.9	22.6	227.4	213.6	94.9	78.9	59.8	54.1	11.3	24.2	7.7	5.5
12-month cumulated transactions													
2022 Jan.	4,481.5	4,214.1	267.4	2,522.8	2,262.1	1,017.7	915.8	790.4	728.7	150.6	307.5	130.2	87.4
12-month cumulated transactions as a percentage of GDP													
2022 Jan.	36.6	34.4	2.2	20.6	18.5	8.3	7.5	6.5	6.0	1.2	2.5	1.1	0.7

1) The capital account is not seasonally adjusted.

3.9 Euro area external trade in goods [1] , values and volumes by product group [2]

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
			Total				Memo item:	Total				Memo items:	
	Exports	Imports		Intermediate goods	Capital goods	Consumption goods	Manufacturing		Intermediate goods	Capital goods	Consumption goods	Manufacturing	Oil
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2021 Q1	0.7	0.4	580.6	281.1	114.7	173.7	486.3	511.2	283.5	91.3	129.5	382.8	47.0
Q2	34.4	34.0	596.2	291.7	117.0	177.4	493.4	558.6	324.1	92.6	136.1	405.2	53.5
Q3	13.6	22.7	608.0	305.3	118.7	171.8	501.8	581.0	345.4	94.0	135.5	415.6	58.8
Q4	12.0	31.1	634.7	321.2	114.9	185.6	523.5	645.3	391.9	96.4	148.0	449.4	71.1
2021 Aug.	19.5	29.1	203.2	103.3	39.3	56.7	167.1	194.6	115.6	31.8	45.3	140.5	19.6
Sep.	10.2	21.7	202.7	102.6	38.6	57.3	167.4	197.2	117.1	31.5	46.3	140.2	19.5
Oct.	7.4	24.6	207.5	104.4	37.7	60.8	171.0	206.7	125.1	30.8	47.6	143.5	22.9
Nov.	14.6	32.1	214.1	107.6	38.7	62.9	175.8	215.9	131.6	31.6	50.0	150.4	25.1
Dec.	14.1	36.9	213.1	109.3	38.5	62.0	176.6	222.8	135.3	34.0	50.5	155.6	23.1
2022 Jan.	18.9	44.3	220.3	.	.	.	182.0	228.0	.	.	.	156.5	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2021 Q1	0.8	0.3	104.0	108.7	100.2	101.2	103.6	104.5	103.0	112.0	105.4	107.9	86.8
Q2	29.1	20.5	104.5	109.5	101.1	101.5	103.3	109.6	110.8	113.9	108.4	111.8	86.1
Q3	4.4	5.5	103.6	110.2	100.7	96.7	102.1	108.2	109.6	112.4	105.4	110.7	85.6
Q4	0.8	8.8	105.1	112.2	95.5	101.6	104.0	114.4	118.2	108.6	110.6	114.8	93.8
2021 July	4.9	3.2	104.2	109.4	104.4	97.7	103.1	107.0	108.8	110.0	104.2	108.8	86.1
Aug.	9.0	11.0	103.4	111.3	99.9	95.4	101.6	108.9	110.2	115.2	105.7	112.4	86.6
Sep.	0.2	3.0	103.1	109.8	97.7	96.9	101.6	108.7	109.8	112.1	106.3	110.9	84.1
Oct.	-3.0	2.6	104.3	110.3	94.8	101.6	103.1	110.7	113.3	105.9	108.0	111.5	91.1
Nov.	3.0	9.2	106.7	113.2	97.7	102.8	105.2	114.7	119.1	107.3	111.4	115.0	96.8
Dec.	2.6	14.9	104.4	113.1	94.1	100.5	103.8	117.9	122.3	112.7	112.3	118.0	93.6

Sources: ECB and Eurostat.

1) Differences between ECB's b.o.p. goods (Table 3.8) and Eurostat's trade in goods (Table 3.9) are mainly due to different definitions.

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

4 Prices and costs

4.1 Harmonised Index of Consumer Prices [1)]

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) [2)]						Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unprocessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Administered prices
			Total excluding food and energy										
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	100.0	68.7	58.2	41.8	100.0	16.7	5.1	26.9	9.5	41.8	86.7	13.3
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 Q2	107.4	1.8	0.9	2.5	0.9	0.6	0.3	1.4	-0.1	3.7	0.3	1.8	2.4
Q3	108.0	2.8	1.4	4.1	1.2	1.2	0.7	0.8	1.4	4.3	0.6	2.7	3.5
Q4	109.9	4.6	2.4	6.2	2.4	1.6	0.9	1.1	0.0	9.1	1.0	4.6	5.1
2022 Q1	112.3	6.2	2.7	.	2.5	2.7	1.6	2.9	1.5	14.6	0.7	.	.
2021 Oct.	109.4	4.1	2.0	5.5	2.1	0.7	0.3	-0.2	0.0	5.6	0.3	4.0	4.6
Nov.	109.9	4.9	2.6	6.3	2.7	0.7	0.3	0.8	0.3	2.9	0.5	4.8	5.2
Dec.	110.4	5.0	2.6	6.8	2.4	0.3	0.5	0.9	0.4	0.4	0.1	4.9	5.6
2022 Jan.	110.7	5.1	2.3	7.1	2.3	1.1	0.5	0.9	0.7	6.2	0.2	4.9	6.3
Feb.	111.7	5.9	2.7	8.3	2.5	0.8	0.6	0.9	0.6	3.4	0.2	5.8	6.3
Mar. [3)]	114.5	7.5	3.0	.	2.7	1.8	0.5	1.5	0.1	12.5	0.2	.	.

	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 Q2	0.6	0.8	-0.2	3.6	0.8	12.0	1.4	1.3	0.8	-0.1	0.5	1.6
Q3	1.9	1.7	2.5	5.4	1.8	15.8	1.4	1.1	2.4	0.7	1.1	1.6
Q4	2.5	2.4	2.7	8.4	2.4	25.7	1.6	1.1	4.0	1.2	3.1	1.7
2022 Q1	4.2	3.6	6.4	.	2.9	35.3	.	.	.	.	.	.
2021 Oct.	1.9	2.1	1.4	7.6	2.0	23.7	1.6	1.2	3.6	1.5	2.3	1.7
Nov.	2.2	2.3	1.9	8.8	2.4	27.5	1.6	1.1	4.4	1.0	3.8	1.7
Dec.	3.2	2.8	4.7	8.9	2.9	25.9	1.6	1.1	4.0	1.0	3.3	1.8
2022 Jan.	3.5	3.0	5.2	9.3	2.1	28.8	1.7	1.2	3.1	0.0	3.8	1.6
Feb.	4.2	3.5	6.2	10.9	3.1	32.0	1.8	1.2	3.3	-0.1	4.1	1.6
Mar. [3)]	5.0	4.1	7.8	.	3.4	44.7	.	.	.	.	.	.

Sources: Eurostat and ECB calculations.

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

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

3) Flash estimate.

4 Prices and costs

4.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction [1]										Con-struction [2]	Residential property prices [3]	Experimental indicator of commercial property prices [3]
	Total (index: 2015 = 100)	Total		Industry excluding construction and energy						Energy			
			Manu-facturing	Total	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	0.7	0.1	1.5	1.0	1.1	0.9	-0.1	1.9	4.2	4.5
2020	102.0	-2.6	-1.6	-0.1	-1.6	0.9	1.0	1.1	0.6	-9.7	1.2	5.3	1.7
2021	114.5	12.3	7.4	5.8	10.9	2.5	2.1	2.0	1.8	32.3	.	8.0	.
2021 Q1	105.9	2.1	1.3	1.4	2.7	1.0	0.0	-0.7	0.7	3.9	2.7	6.2	-1.6
Q2	109.4	9.2	6.8	4.7	9.0	1.7	1.8	1.8	1.3	23.8	4.7	7.3	-3.1
Q3	115.6	14.0	9.3	7.5	14.2	3.0	2.8	2.9	2.1	34.4	7.7	9.1	-0.5
Q4	127.3	24.0	12.3	9.6	17.9	4.4	4.0	3.9	3.0	67.5	.	9.5	.
2021 Sep.	118.1	16.2	10.3	8.1	15.3	3.6	3.0	3.1	2.3	40.8	-	-	-
Oct.	124.5	22.0	11.8	8.9	16.9	4.0	3.4	3.2	2.8	62.3	-	-	-
Nov.	126.7	23.7	12.7	9.8	18.3	4.5	3.9	3.9	3.1	66.1	-	-	-
Dec.	130.6	26.4	12.3	10.2	18.7	4.6	4.6	4.7	3.2	73.9	-	-	-
2022 Jan.	137.3	30.7	13.9	11.8	20.5	5.7	6.3	6.3	5.0	85.4	-	-	-
Feb.	138.8	31.4	14.4	12.2	20.8	5.9	6.8	.	5.4	87.2	-	-	-

Sources: Eurostat, ECB calculations, and ECB calculations based on MSCI data and national sources (col. 13).
1) Domestic sales only.
2) Input prices for residential buildings.
3) Experimental data based on non-harmonised sources (see https://www.ecb.europa.eu/stats/ecb_statistics/governance_and_quality_framework/html/experimental-data.en.html for further details).

4.3 Commodity prices and GDP deflators

(annual percentage changes, unless otherwise indicated)

	GDP deflators								Oil prices (EUR per barrel)	Non-energy commodity prices (EUR)					
	Total (s.a.; index: 2015 = 100)	Total	Domestic demand				Exports [1]	Imports [1]		Import-weighted [2]			Use-weighted [2]		
			Total	Private consump-tion	Govern-ment consump-tion	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
% of total										100.0	45.4	54.6	100.0	50.4	49.6
2019	105.3	1.7	1.5	1.1	1.8	2.3	0.8	0.3	57.2	2.0	4.4	-0.1	3.0	8.2	-2.3
2020	107.1	1.7	1.2	0.5	3.6	1.2	-1.3	-2.6	37.0	1.4	3.3	-0.3	-1.0	-0.3	-1.8
2021	109.2	2.0	2.7	2.2	1.4	3.4	5.5	7.6	59.8	29.5	21.3	37.2	28.8	21.7	37.1
2021 Q2	108.4	0.6	1.5	1.5	-1.3	2.7	4.5	7.1	57.0	38.3	20.2	56.4	35.7	20.5	54.4
Q3	109.7	2.8	3.6	2.6	2.7	4.7	7.1	9.7	61.9	31.0	26.1	35.4	32.3	28.2	36.7
Q4	110.6	3.0	4.2	3.7	2.0	5.3	9.8	13.0	69.4	30.7	30.0	31.3	33.7	33.4	34.0
2022 Q1	.	.	.	.	.	.	.	.	88.7	32.2	35.0	29.7	35.6	38.7	32.5
2021 Oct.	-	-	-	-	-	-	-	-	72.1	33.3	26.6	39.7	34.0	26.3	42.7
Nov.	-	-	-	-	-	-	-	-	70.8	29.8	31.0	28.7	33.4	35.7	30.8
Dec.	-	-	-	-	-	-	-	-	65.7	29.1	32.3	26.4	33.7	38.0	29.4
2022 Jan.	-	-	-	-	-	-	-	-	75.5	29.1	29.5	28.7	33.3	34.7	31.7
Feb.	-	-	-	-	-	-	-	-	84.4	29.5	31.7	27.7	32.4	34.3	30.4
Mar.	-	-	-	-	-	-	-	-	104.6	37.6	43.5	32.6	40.9	46.7	35.0

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

4 Prices and costs

4.4 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	5.6	-	-4.5	32.3	56.7	56.3	-	49.7
2019	4.3	7.3	9.1	7.5	18.2	48.8	57.1	50.4	52.4
2020	-1.1	1.6	-0.8	-5.7	10.9	49.0	52.1	48.7	47.2
2021	31.1	22.8	9.4	18.6	28.7	84.0	61.9	66.8	53.4
2021 Q2	30.2	18.1	8.5	16.2	20.4	85.9	60.1	68.2	53.1
Q3	37.0	27.8	12.3	26.3	35.0	87.7	63.8	70.3	55.1
Q4	46.5	40.6	18.5	35.5	51.3	88.4	69.5	72.1	56.9
2022 Q1	51.8	48.8	23.3	40.2	61.6	84.2	74.2	72.9	59.8
2021 Oct.	42.3	36.7	16.5	32.9	46.3	89.5	67.5	72.6	55.8
Nov.	49.3	44.1	19.7	37.8	52.5	88.9	71.4	73.7	57.8
Dec.	48.0	40.9	19.3	35.7	55.2	86.7	69.6	70.2	57.2
2022 Jan.	47.4	42.6	21.0	37.1	57.9	83.5	70.9	72.7	57.9
Feb.	49.8	47.9	22.4	38.0	62.7	82.0	72.2	71.7	58.8
Mar.	58.1	56.0	26.5	45.5	64.3	87.0	79.6	74.2	62.6

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

4.5 Labour cost indices
(annual percentage changes, unless otherwise indicated)

	Total (index: 2016 = 100)	Total	By component		For selected economic activities		Memo item: Indicator of negotiated wages [1]
			Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	
	1	2	3	4	5	6	7
% of total in 2018	100.0	100.0	75.3	24.7	69.0	31.0	
2019	106.9	2.4	2.5	2.0	2.4	2.4	2.2
2020	110.2	3.1	3.8	1.0	2.8	3.8	1.8
2021	111.7	1.3	1.3	1.4	1.2	1.6	1.5
2021 Q1	104.6	1.3	2.1	-1.3	1.1	1.6	1.4
Q2	115.8	-0.2	-0.6	1.0	-0.9	1.4	1.8
Q3	107.5	2.4	2.3	2.6	2.4	2.2	1.4
Q4	118.7	1.9	1.4	3.3	2.1	1.3	1.6

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

4 Prices and costs

4.6 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	105.3	1.8	-0.9	2.3	1.8	0.7	0.9	1.8	2.5	2.4	2.6	2.0
2020	110.1	4.5	-1.6	3.0	4.5	6.4	0.8	0.2	1.6	5.5	6.5	13.5
2021	109.9	-0.1	5.0	-3.5	2.8	-1.3	2.2	0.9	4.3	0.3	0.3	1.6
2021 Q1	110.1	1.3	3.1	-3.9	5.6	2.3	0.9	1.1	3.7	2.9	2.8	14.6
Q2	109.0	-4.4	6.5	-11.0	-1.8	-7.0	1.2	-2.3	8.2	-2.7	-4.5	-2.4
Q3	109.9	1.4	6.0	-1.3	2.9	-0.2	4.8	2.9	3.0	0.5	2.4	0.4
Q4	110.8	1.0	4.6	2.1	4.4	-0.8	1.5	1.9	2.8	0.4	0.7	-5.9
Compensation per employee												
2019	107.4	2.1	3.2	1.4	1.4	1.6	3.2	2.2	2.4	2.8	2.3	3.3
2020	106.7	-0.7	0.5	-2.2	-1.8	-4.7	0.5	0.0	1.0	-0.4	2.4	-3.0
2021	111.0	4.0	3.0	4.4	4.8	6.2	4.2	2.8	5.5	4.4	1.8	4.4
2021 Q1	109.4	2.1	2.3	2.0	4.7	-0.5	2.2	3.4	3.1	2.4	2.0	-0.2
Q2	109.7	7.4	3.1	9.1	11.1	13.6	7.7	1.9	10.6	8.6	2.1	10.2
Q3	112.1	3.3	3.2	3.9	1.8	4.9	3.6	3.0	4.1	3.4	2.1	2.6
Q4	112.8	3.5	3.1	3.1	2.4	7.4	3.5	2.9	4.5	3.6	1.1	5.5
Labour productivity per person employed												
2019	102.0	0.3	4.1	-0.8	-0.5	0.9	2.4	0.3	-0.1	0.3	-0.3	1.3
2020	97.0	-4.9	2.2	-5.0	-6.0	-10.4	-0.3	-0.2	-0.5	-5.6	-3.8	-14.5
2021	101.0	4.2	-2.0	8.2	2.0	7.5	2.0	1.9	1.1	4.1	1.5	2.7
2021 Q1	99.3	0.8	-0.8	6.1	-0.9	-2.7	1.3	2.2	-0.6	-0.5	-0.8	-12.9
Q2	100.7	12.3	-3.1	22.6	13.1	22.1	6.4	4.3	2.2	11.6	6.9	12.9
Q3	102.0	1.9	-2.7	5.3	-1.1	5.1	-1.2	0.1	1.1	2.9	-0.3	2.2
Q4	101.8	2.4	-1.4	1.0	-1.9	8.3	2.0	0.9	1.7	3.3	0.4	12.2
Compensation per hour worked												
2019	107.4	2.3	3.7	1.9	1.7	2.0	3.1	1.8	2.1	2.8	2.4	3.7
2020	113.0	5.2	2.7	3.3	3.9	5.8	2.9	1.5	5.8	4.7	4.8	6.2
2021	113.4	0.4	0.7	-0.1	-0.2	0.6	2.3	1.0	1.3	0.8	0.5	0.2
2021 Q1	114.2	3.3	0.8	0.8	1.3	6.3	2.3	1.8	3.3	2.9	1.3	3.3
Q2	112.5	-4.5	-2.5	-4.5	-5.9	-6.2	1.8	-2.6	-0.3	-2.9	-2.8	-5.9
Q3	113.8	2.1	3.2	1.9	2.1	2.1	1.7	2.7	0.8	1.4	2.7	2.5
Q4	114.9	1.1	1.5	1.7	2.0	0.2	3.8	2.8	1.9	2.0	1.4	0.8
Hourly labour productivity												
2019	102.5	0.6	5.1	-0.3	-0.2	1.3	2.3	0.1	-0.4	0.4	-0.2	1.5
2020	104.1	1.5	2.4	0.8	1.1	0.1	3.0	2.0	6.4	0.3	-1.0	-4.6
2021	104.1	0.0	-3.4	3.1	-3.4	1.3	-0.1	-0.2	-4.3	-0.1	-0.2	-2.4
2021 Q1	104.7	1.7	-2.9	5.0	-4.5	3.1	1.4	0.7	-2.3	-0.4	-1.7	-9.3
Q2	104.2	-1.8	-7.2	6.0	-5.7	-1.2	-0.1	-0.9	-12.8	-1.9	0.9	-8.1
Q3	104.4	0.8	-1.7	3.1	-0.8	2.6	-2.8	-0.5	-2.1	0.7	0.1	2.5
Q4	104.6	-0.2	-1.5	-0.6	-3.0	1.0	2.0	0.5	0.0	1.4	0.5	5.8

Sources: Eurostat and ECB calculations.

5 Money and credit

5.1 Monetary aggregates [1)]

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

	M3											
	M2							M3-M2				
	M1			M2-M1								
	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	12
Outstanding amounts												
2019	1,222.4	7,721.9	8,944.3	1,069.7	2,364.2	3,433.9	12,378.2	79.3	528.8	-1.4	606.6	12,984.8
2020	1,360.8	8,886.2	10,247.0	1,034.9	2,450.1	3,485.0	13,731.9	101.5	636.5	-0.7	737.3	14,469.2
2021	1,464.7	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.5	12.1	788.2	15,484.7
2021 Q1	1,392.9	9,137.6	10,530.4	991.4	2,477.0	3,468.4	13,998.9	109.3	617.9	15.8	743.1	14,741.9
Q2	1,419.7	9,350.5	10,770.2	936.3	2,489.6	3,425.9	14,196.1	111.9	613.7	27.5	753.2	14,949.2
Q3	1,444.6	9,617.8	11,062.4	903.2	2,493.4	3,396.6	14,458.9	120.6	600.9	38.7	760.2	15,219.1
Q4	1,464.7	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.5	12.1	788.2	15,484.7
2021 Sep.	1,444.6	9,617.8	11,062.4	903.2	2,493.4	3,396.6	14,458.9	120.6	600.9	38.7	760.2	15,219.1
Oct.	1,451.8	9,664.4	11,116.2	927.0	2,495.7	3,422.7	14,539.0	133.7	618.9	32.5	785.1	15,324.0
Nov.	1,459.9	9,698.3	11,158.1	928.9	2,499.4	3,428.3	14,586.5	126.1	644.5	33.7	804.3	15,390.8
Dec.	1,464.7	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.5	12.1	788.2	15,484.7
2022 Jan.	1,481.9	9,823.0	11,304.9	947.2	2,512.8	3,460.0	14,764.9	129.8	614.2	27.7	771.7	15,536.6
Feb. [p]	1,493.8	9,903.2	11,397.0	934.8	2,519.3	3,454.1	14,851.1	131.6	587.3	34.7	753.6	15,604.7
Transactions												
2019	57.7	604.8	662.5	-61.6	62.4	0.8	663.3	4.2	-4.1	-58.5	-58.3	605.0
2020	138.4	1,250.1	1,388.5	-28.9	86.7	57.8	1,446.3	19.5	113.8	0.1	133.4	1,579.8
2021	105.2	903.2	1,008.5	-118.5	67.2	-51.3	957.1	12.0	22.7	10.0	44.7	1,001.8
2021 Q1	32.1	238.9	271.0	-47.1	28.5	-18.6	252.3	6.9	-18.6	18.1	6.4	258.7
Q2	26.9	217.3	244.2	-54.0	12.6	-41.4	202.8	2.9	-3.6	11.7	11.0	213.8
Q3	25.1	256.1	281.3	-34.4	11.7	-22.6	258.6	5.7	-12.9	10.0	2.8	261.4
Q4	21.1	190.9	212.0	16.9	14.4	31.3	243.4	-3.5	57.7	-29.7	24.4	267.8
2021 Sep.	8.6	95.8	104.4	-12.1	6.2	-5.9	98.5	4.9	-17.0	0.9	-11.2	87.3
Oct.	8.2	47.6	55.8	24.0	2.3	26.3	82.1	13.2	18.0	-5.7	25.4	107.6
Nov.	8.1	44.4	52.5	-5.0	3.6	-1.4	51.1	-8.1	25.6	-2.1	15.4	66.5
Dec.	4.8	98.9	103.7	-2.0	8.5	6.5	110.2	-8.6	14.0	-21.9	-16.5	93.7
2022 Jan.	17.2	22.2	39.4	20.2	5.0	25.2	64.6	11.8	-44.2	14.6	-17.8	46.8
Feb. [p]	12.0	77.2	89.2	-11.9	6.5	-5.4	83.8	2.0	-26.9	7.0	-17.8	65.9
Growth rates												
2019	5.0	8.5	8.0	-5.4	2.7	0.0	5.7	5.5	-0.8	-	-8.8	4.9
2020	11.3	16.2	15.6	-2.7	3.7	1.7	11.7	24.4	21.6	-	22.0	12.2
2021	7.7	10.2	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2021 Q1	10.1	14.2	13.7	-7.8	4.9	0.9	10.2	-3.6	16.5	-	7.7	10.1
Q2	9.0	12.2	11.8	-12.9	3.8	-1.4	8.3	13.5	8.5	-	10.6	8.4
Q3	8.5	11.5	11.1	-15.5	3.2	-2.5	7.6	12.7	1.0	-	7.5	7.6
Q4	7.7	10.2	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2021 Sep.	8.5	11.5	11.1	-15.5	3.2	-2.5	7.6	12.7	1.0	-	7.5	7.6
Oct.	8.5	11.1	10.7	-12.3	2.9	-1.7	7.5	28.9	3.9	145.3	10.2	7.7
Nov.	8.1	10.3	10.0	-11.0	2.6	-1.4	7.1	20.6	8.1	66.2	11.4	7.3
Dec.	7.7	10.2	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2022 Jan.	7.7	9.3	9.1	-7.1	2.5	-0.2	6.8	14.0	-3.2	60.4	0.5	6.4
Feb. [p]	7.8	9.2	9.0	-6.7	2.3	-0.3	6.7	17.5	-4.7	23.4	-0.5	6.3

Source: ECB.

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

5 Money and credit

5.2 Deposits in M3 [1]

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

	Non-financial corporations [2]					Households [3]					Financial corporations other than MFIs and ICPFs [2]	Insurance corporations and pension funds	Other general government [4]
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2019	2,483.9	2,070.3	256.7	150.5	6.4	7,044.4	4,399.1	492.0	2,152.4	1.0	1,026.5	215.7	464.7
2020	2,976.1	2,522.8	309.9	140.1	3.2	7,663.7	4,965.2	437.3	2,260.4	0.9	1,097.0	234.6	501.2
2021	3,244.5	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.8	228.4	551.6
2021 Q1	3,048.2	2,600.4	300.1	140.2	7.5	7,825.8	5,113.4	422.1	2,289.3	0.9	1,133.2	217.0	491.1
Q2	3,087.3	2,651.4	290.7	136.7	8.5	7,918.9	5,207.3	407.1	2,303.8	0.7	1,164.8	222.5	494.6
Q3	3,155.5	2,731.4	283.8	130.8	9.6	8,025.8	5,319.1	388.9	2,317.2	0.7	1,210.6	227.4	515.6
Q4	3,244.5	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.8	228.4	551.6
2021 Sep.	3,155.5	2,731.4	283.8	130.8	9.6	8,025.8	5,319.1	388.9	2,317.2	0.7	1,210.6	227.4	515.6
Oct.	3,183.2	2,753.4	292.7	128.9	8.2	8,045.2	5,337.4	383.5	2,323.3	1.0	1,244.7	239.2	508.5
Nov.	3,207.3	2,778.9	291.5	129.4	7.5	8,063.4	5,359.0	377.8	2,325.6	1.0	1,233.1	231.9	517.0
Dec.	3,244.5	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.8	228.4	551.6
2022 Jan.	3,237.8	2,806.1	294.3	127.1	10.3	8,133.4	5,424.6	364.8	2,343.3	0.8	1,265.7	238.7	537.2
Feb. (p)	3,256.7	2,834.1	284.4	126.6	11.6	8,170.2	5,457.4	362.1	2,349.7	1.0	1,280.8	235.0	546.1
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	254.5	279.6	-21.3	-6.9	3.0	423.5	411.3	-65.1	77.5	-0.2	145.9	-8.2	48.2
2021 Q1	67.1	72.8	-10.0	0.1	4.2	160.6	145.9	-15.7	30.4	0.0	27.6	-18.2	-10.0
Q2	41.4	53.0	-9.2	-3.5	1.1	93.9	94.4	-14.9	14.5	-0.1	34.3	5.6	3.6
Q3	60.8	69.0	-8.0	-1.2	0.9	108.6	111.6	-18.3	15.4	-0.1	46.0	1.9	21.9
Q4	85.1	84.8	5.7	-2.3	-3.1	60.4	59.3	-16.1	17.2	0.1	38.1	2.4	32.7
2021 Sep.	26.2	24.8	0.5	0.1	0.8	33.5	33.1	-5.9	6.4	-0.1	22.9	-2.6	14.7
Oct.	28.1	22.7	8.8	-2.0	-1.4	19.6	18.3	-5.3	6.2	0.4	34.6	11.9	-7.1
Nov.	20.0	23.2	-2.8	0.5	-0.8	17.1	20.8	-5.8	2.2	-0.1	-1.6	-5.9	5.2
Dec.	36.9	38.9	-0.3	-0.7	-1.0	23.7	20.2	-5.0	8.8	-0.2	5.1	-3.6	34.5
2022 Jan.	-5.9	-13.1	3.0	0.5	3.7	43.9	43.6	-6.4	6.8	0.0	26.8	8.8	-14.5
Feb. (p)	20.1	28.9	-9.6	-0.5	1.4	36.7	32.6	-2.6	6.5	0.2	11.7	-3.6	8.9
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	13.2	-3.5	9.6
2021 Q1	17.9	19.6	15.2	-2.7	9.2	9.1	12.6	-10.4	5.9	40.9	4.6	-5.7	4.1
Q2	8.4	11.4	-8.3	-5.7	47.4	7.6	11.0	-11.8	4.5	-20.2	15.9	-2.7	5.6
Q3	7.1	10.3	-12.1	-5.4	38.0	7.0	10.2	-13.1	4.0	-31.8	15.1	-6.8	9.1
Q4	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.2	-3.5	9.6
2021 Sep.	7.1	10.3	-12.1	-5.4	38.0	7.0	10.2	-13.1	4.0	-31.8	15.1	-6.8	9.1
Oct.	7.4	10.5	-10.1	-6.8	44.7	6.5	9.6	-13.7	3.9	6.7	18.3	-0.4	6.0
Nov.	7.9	10.6	-7.6	-6.1	35.6	6.0	9.0	-14.4	3.4	0.0	15.7	-3.9	6.9
Dec.	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.2	-3.5	9.6
2022 Jan.	7.7	9.5	-3.7	-4.1	55.9	5.3	8.0	-15.1	3.2	-13.8	14.9	2.6	6.9
Feb. (p)	7.7	9.6	-4.2	-4.9	96.1	5.1	7.7	-14.8	3.0	1.6	14.7	2.1	10.1

Source: ECB.

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

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

3) Including non-profit institutions serving households.

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

5 Money and credit

5.3 Credit to euro area residents [1)]

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

	Credit to general government			Credit to other euro area residents								
	Total	Loans	Debt securities	Total	Loans						Debt securities	Equity and non-money market fund investment fund shares
					Total		To non-financial corporations [3)]	To households [4)]	To financial corporations other than MFIs and ICPFs [3)]	To insurance corporations and pension funds		
						Adjusted loans [2)]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2019	4,654.6	989.2	3,653.6	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	14,815.1	12,341.7	12,726.6	4,866.8	6,369.7	944.1	161.2	1,584.3	889.0
2021 Q1	6,069.4	994.5	5,073.2	14,457.5	12,058.9	12,411.5	4,763.9	6,189.6	953.8	151.6	1,518.5	880.2
Q2	6,217.0	1,003.7	5,211.6	14,488.0	12,077.6	12,441.9	4,733.9	6,252.4	942.1	149.1	1,523.2	887.2
Q3	6,364.7	999.2	5,363.9	14,611.5	12,182.5	12,536.2	4,772.8	6,313.2	951.8	144.7	1,532.4	896.6
Q4	6,552.1	997.2	5,553.1	14,815.1	12,341.7	12,726.6	4,866.8	6,369.7	944.1	161.2	1,584.3	889.0
2021 Sep.	6,364.7	999.2	5,363.9	14,611.5	12,182.5	12,536.2	4,772.8	6,313.2	951.8	144.7	1,532.4	896.6
Oct.	6,391.9	987.4	5,402.9	14,682.9	12,231.6	12,592.5	4,793.1	6,336.7	947.2	154.6	1,555.8	895.5
Nov.	6,476.2	987.3	5,487.3	14,739.4	12,310.2	12,659.5	4,818.8	6,362.1	968.7	160.6	1,541.7	887.4
Dec.	6,552.1	997.2	5,553.1	14,815.1	12,341.7	12,726.6	4,866.8	6,369.7	944.1	161.2	1,584.3	889.0
2022 Jan.	6,545.6	992.5	5,551.4	14,900.5	12,446.5	12,602.6	4,870.8	6,415.1	987.9	172.7	1,568.3	885.7
Feb. [p)]	6,558.7	996.6	5,559.4	14,938.3	12,498.2	12,652.4	4,881.5	6,436.0	1,010.5	170.2	1,562.1	878.0
Transactions												
2019	-88.4	-23.2	-65.6	449.7	376.1	422.9	115.0	200.3	40.6	20.2	30.2	43.4
2020	1,041.9	13.5	1,028.3	737.1	538.1	559.0	288.1	209.1	23.9	16.9	170.8	28.2
2021	667.2	-0.5	677.3	570.4	480.6	513.8	176.4	262.0	51.9	-9.7	80.4	9.4
2021 Q1	150.1	-3.8	164.3	150.6	139.6	111.2	55.9	60.7	39.3	-16.4	2.7	8.3
Q2	163.8	9.1	154.1	53.3	43.5	51.7	-18.1	74.9	-10.9	-2.4	4.8	5.0
Q3	152.2	-4.7	156.9	136.9	122.5	125.4	40.1	65.9	23.5	-7.0	9.6	4.8
Q4	201.1	-1.1	202.0	229.6	175.1	225.5	98.4	60.5	0.0	16.1	63.2	-8.7
2021 Sep.	38.0	-4.8	42.9	54.8	44.2	49.0	15.2	20.7	12.2	-3.9	8.6	2.0
Oct.	31.9	-12.0	43.9	79.7	48.0	60.5	19.4	23.1	-4.4	9.9	35.2	-3.6
Nov.	65.0	1.0	64.0	52.3	72.9	65.7	25.6	23.2	18.6	5.6	-13.9	-6.7
Dec.	104.1	9.9	94.1	97.6	54.1	99.3	53.5	14.3	-14.2	0.6	41.9	1.6
2022 Jan.	11.0	-5.2	16.2	60.1	75.3	63.3	2.4	25.8	35.7	11.3	-13.9	-1.3
Feb. [p)]	50.8	4.2	46.6	50.9	55.0	60.7	11.7	22.1	23.6	-2.5	-0.5	-3.6
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	4.0	4.0	4.2	3.8	4.3	5.7	-4.7	5.3	1.1
2021 Q1	21.7	-0.8	28.0	4.6	3.6	3.5	4.6	3.8	-1.2	-3.5	10.1	8.3
Q2	13.1	0.5	16.2	3.6	3.1	3.0	1.4	4.5	3.4	-3.5	5.3	7.5
Q3	11.0	0.0	13.5	3.4	3.2	3.3	1.6	4.3	6.4	-10.1	3.0	7.3
Q4	11.3	0.0	13.8	4.0	4.0	4.2	3.8	4.3	5.7	-4.7	5.3	1.1
2021 Sep.	11.0	0.0	13.5	3.4	3.2	3.3	1.6	4.3	6.4	-10.1	3.0	7.3
Oct.	10.5	-1.2	13.2	3.7	3.4	3.5	1.9	4.3	6.3	-5.6	4.6	7.7
Nov.	10.8	-1.2	13.5	3.8	3.7	3.7	2.4	4.4	6.2	0.5	3.2	6.2
Dec.	11.3	0.0	13.8	4.0	4.0	4.2	3.8	4.3	5.7	-4.7	5.3	1.1
2022 Jan.	10.8	0.1	13.0	4.3	4.5	4.6	3.7	4.4	7.4	11.8	4.6	1.0
Feb. [p)]	10.7	0.0	12.8	4.3	4.6	4.8	3.8	4.4	9.3	11.4	4.4	-0.1

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 Money and credit

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

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

	Non-financial corporations [2)]					Households [3)]				
	Total		Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total		Loans for consumption	Loans for house purchase	Other loans
		Adjusted loans [4)]					Adjusted loans [4)]			
	1	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	4,866.8	4,997.7	889.0	1,007.1	2,970.6	6,369.7	6,632.9	698.2	4,970.9	700.6
2021 Q1	4,763.9	4,885.8	893.4	1,016.0	2,854.4	6,189.6	6,452.7	696.7	4,787.4	705.5
Q2	4,733.9	4,855.0	832.0	969.9	2,932.0	6,252.4	6,511.4	694.1	4,852.6	705.7
Q3	4,772.8	4,887.8	834.7	971.7	2,966.4	6,313.2	6,571.5	696.6	4,914.4	702.1
Q4	4,866.8	4,997.7	889.0	1,007.1	2,970.6	6,369.7	6,632.9	698.2	4,970.9	700.6
2021 Sep.	4,772.8	4,887.8	834.7	971.7	2,966.4	6,313.2	6,571.5	696.6	4,914.4	702.1
Oct.	4,793.1	4,911.1	858.8	971.2	2,963.1	6,336.7	6,592.5	699.0	4,935.1	702.6
Nov.	4,818.8	4,930.9	869.5	979.8	2,969.5	6,362.1	6,617.7	702.5	4,956.9	702.8
Dec.	4,866.8	4,997.7	889.0	1,007.1	2,970.6	6,369.7	6,632.9	698.2	4,970.9	700.6
2022 Jan.	4,870.8	4,848.9	888.5	1,000.9	2,981.4	6,415.1	6,616.3	697.4	5,011.2	706.5
Feb. [p)]	4,881.5	4,855.7	896.7	998.9	2,985.9	6,436.0	6,639.4	700.8	5,027.8	707.4
Transactions										
2019	115.0	142.5	-13.0	44.8	83.2	200.3	216.2	41.0	168.5	-9.2
2020	288.1	325.2	-54.1	138.7	203.6	209.1	193.0	-11.8	210.7	10.2
2021	176.4	208.3	-1.4	2.9	174.9	262.0	266.9	10.7	255.0	-3.7
2021 Q1	55.9	58.1	-3.8	6.6	53.1	60.7	58.0	-2.2	63.2	-0.4
Q2	-18.1	-21.8	-57.5	-42.8	82.3	74.9	70.3	2.3	72.1	0.5
Q3	40.1	44.5	4.1	1.9	34.1	65.9	67.5	4.1	64.0	-2.2
Q4	98.4	127.5	55.8	37.2	5.4	60.5	71.1	6.5	55.7	-1.6
2021 Sep.	15.2	19.8	7.0	2.4	5.8	20.7	21.3	2.1	19.7	-1.2
Oct.	19.4	26.0	23.8	-0.9	-3.6	23.1	22.9	2.8	20.3	0.0
Nov.	25.6	22.8	10.6	9.6	5.4	23.2	24.2	4.7	18.8	-0.3
Dec.	53.5	78.8	21.4	28.5	3.6	14.3	24.0	-1.0	16.6	-1.4
2022 Jan.	2.4	2.6	-2.5	-6.7	11.6	25.8	23.9	0.9	24.4	0.6
Feb. [p)]	11.7	11.5	8.8	-1.5	4.4	22.1	28.1	3.7	17.3	1.1
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	6.2	4.3	4.2	1.5	5.4	-0.5
2021 Q1	4.6	5.3	-9.2	11.1	7.5	3.8	3.3	-1.6	5.0	1.5
Q2	1.4	1.9	-11.8	-2.2	7.3	4.5	4.0	0.6	5.7	0.5
Q3	1.6	2.1	-8.6	-3.6	6.9	4.3	4.1	0.5	5.6	-0.1
Q4	3.8	4.3	-0.1	0.3	6.2	4.3	4.2	1.5	5.4	-0.5
2021 Sep.	1.6	2.1	-8.6	-3.6	6.9	4.3	4.1	0.5	5.6	-0.1
Oct.	1.9	2.6	-5.1	-3.5	6.1	4.3	4.1	0.6	5.5	-0.3
Nov.	2.4	2.9	-3.6	-2.2	6.0	4.4	4.1	1.6	5.5	-0.3
Dec.	3.8	4.3	-0.1	0.3	6.2	4.3	4.2	1.5	5.4	-0.5
2022 Jan.	3.7	4.4	0.3	0.1	6.1	4.4	4.3	1.9	5.5	-0.3
Feb. [p)]	3.8	4.4	1.2	0.1	5.9	4.4	4.4	2.3	5.4	-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 Money and credit

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

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

	MFI liabilities						MFI assets			
	Central government holdings [2)]	Longer-term financial liabilities vis-à-vis other euro area residents					Net external assets	Other		
		Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves		Total	Repos with central counter-parties [3)]	Reverse repos to central counter-parties [3)]
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2019	363.4	7,055.1	1,944.5	50.2	2,155.2	2,905.3	1,474.7	417.4	178.9	187.2
2020	744.6	6,961.4	1,914.8	42.1	1,991.8	3,012.7	1,437.6	489.8	130.1	139.2
2021	797.1	6,898.3	1,839.0	37.1	2,004.8	3,017.5	1,363.9	449.1	118.8	136.8
2021 Q1	704.0	6,891.3	1,897.4	41.2	1,985.5	2,967.2	1,409.5	400.9	127.2	130.2
Q2	680.1	6,847.3	1,868.8	40.2	1,956.0	2,982.3	1,411.7	359.9	123.7	134.5
Q3	690.9	6,856.6	1,850.7	38.6	1,975.9	2,991.4	1,375.2	415.2	139.0	146.0
Q4	797.1	6,898.3	1,839.0	37.1	2,004.8	3,017.5	1,363.9	449.1	118.8	136.8
2021 Sep.	690.9	6,856.6	1,850.7	38.6	1,975.9	2,991.4	1,375.2	415.2	139.0	146.0
Oct.	739.5	6,877.7	1,842.7	38.1	2,007.8	2,989.0	1,385.0	481.4	140.0	147.6
Nov.	706.9	6,911.5	1,830.9	37.7	2,017.9	3,025.1	1,387.9	405.7	144.5	149.9
Dec.	797.1	6,898.3	1,839.0	37.1	2,004.8	3,017.5	1,363.9	449.1	118.8	136.8
2022 Jan.	723.6	6,901.4	1,846.7	36.8	2,013.4	3,004.4	1,350.3	365.2	165.3	158.8
Feb. [(p)]	731.5	6,881.7	1,836.6	36.6	2,005.3	3,003.3	1,370.1	350.9	165.7	159.4
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	142.4	-48.8	-48.0
2021	53.1	-26.4	-74.2	-5.0	-33.1	85.9	-122.0	-87.1	-11.3	-2.3
2021 Q1	-40.5	-27.3	-20.9	-0.9	-29.6	24.1	10.9	-120.6	-2.9	-8.9
Q2	-24.0	-19.4	-21.9	-1.0	-24.5	28.0	-16.5	-30.1	-3.6	4.3
Q3	10.8	1.8	-18.1	-1.5	8.2	13.3	-44.6	29.6	15.3	11.5
Q4	106.7	18.4	-13.3	-1.6	12.9	20.4	-71.7	34.0	-20.2	-9.2
2021 Sep.	-17.9	11.2	-1.0	-0.4	4.0	8.6	-53.4	41.1	13.7	17.6
Oct.	48.6	22.3	-7.7	-0.5	29.0	1.5	-2.6	69.5	0.9	1.6
Nov.	-32.3	-11.1	-13.4	-0.5	1.7	1.0	-31.5	-62.6	4.6	2.2
Dec.	90.4	7.2	7.8	-0.6	-17.9	17.9	-37.6	27.1	-25.7	-13.1
2022 Jan.	-69.5	-9.9	-10.0	-0.3	-0.4	0.7	-9.2	-94.5	46.4	29.0
Feb. [(p)]	7.9	-19.0	-9.9	-0.2	-8.4	-0.5	-5.9	-40.9	0.2	0.7
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	-0.4	-3.9	-11.9	-1.7	2.9	-	-	-8.7	-1.7
2021 Q1	56.2	-0.3	-1.6	-12.6	-4.1	3.5	-	-	-30.7	-33.7
Q2	-10.3	-0.6	-2.7	-8.2	-4.8	3.9	-	-	-22.3	-22.9
Q3	-12.9	-0.7	-3.5	-9.9	-4.4	3.9	-	-	-0.6	-0.9
Q4	7.1	-0.4	-3.9	-11.9	-1.7	2.9	-	-	-8.7	-1.7
2021 Sep.	-12.9	-0.7	-3.5	-9.9	-4.4	3.9	-	-	-0.6	-0.9
Oct.	-11.3	-0.2	-3.9	-10.5	-1.8	3.5	-	-	-5.9	-4.3
Nov.	-5.6	-0.3	-5.1	-11.2	-1.2	3.5	-	-	-2.4	1.9
Dec.	7.1	-0.4	-3.9	-11.9	-1.7	2.9	-	-	-8.7	-1.7
2022 Jan.	5.4	-0.1	-4.2	-12.1	-0.5	2.9	-	-	12.1	13.1
Feb. [(p)]	6.2	-0.4	-4.3	-11.8	-0.7	2.5	-	-	13.8	14.3

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
2017	-0.9	-1.4	0.1	0.2	0.2	1.0
2018	-0.4	-1.0	0.1	0.2	0.3	1.4
2019	-0.6	-1.0	0.0	0.0	0.3	1.0
2020	-7.2	-5.9	-0.4	0.0	-0.9	-5.7
2020 Q4	-7.2	.	.	.	.	-5.7
2021 Q1	-8.3	.	.	.	.	-6.8
Q2	-6.9	.	.	.	.	-5.4
Q3	-6.2	.	.	.	.	-4.8

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				Compen-sation of employees	Intermediate consumption	Interest	Social benefits	
	1	2	3	4	5	6	7	8	9	10	11	12	13
2017	46.2	45.8	12.8	13.0	15.2	0.4	47.1	43.3	9.9	5.3	1.9	22.4	3.8
2018	46.4	45.9	12.9	13.0	15.2	0.5	46.9	43.2	9.9	5.3	1.8	22.3	3.7
2019	46.3	45.8	12.9	13.0	15.0	0.5	46.9	43.2	9.9	5.3	1.6	22.4	3.7
2020	46.6	46.1	13.0	12.8	15.6	0.5	53.8	49.2	10.7	6.0	1.5	25.5	4.6
2020 Q4	46.6	46.1	13.0	12.8	15.6	0.5	53.8	49.2	10.7	6.0	1.5	25.5	4.6
2021 Q1	46.6	46.1	13.0	12.7	15.7	0.5	54.9	50.2	10.8	6.1	1.5	25.8	4.7
Q2	46.5	45.9	12.9	12.8	15.5	0.6	53.4	48.7	10.5	6.0	1.5	25.0	4.7
Q3	46.7	46.0	13.0	12.9	15.4	0.7	52.9	48.2	10.4	6.0	1.5	24.7	4.7

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

6.3 Government debt-to-GDP ratio

(as a percentage of GDP; outstanding amounts at end of period)

	Total	Financial instrument			Holder			Original maturity		Residual maturity			Currency	
		Currency and deposits	Loans	Debt securities	Resident creditors	MFIs	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 curren-cies
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2017	87.5	3.2	14.5	69.9	48.0	32.0	39.5	8.6	78.9	16.4	28.9	42.3	85.7	1.8
2018	85.5	3.1	13.7	68.7	47.9	32.2	37.7	8.1	77.5	16.0	28.3	41.2	84.1	1.5
2019	83.6	3.0	12.9	67.6	45.2	30.4	38.4	7.6	75.9	15.6	27.7	40.3	82.2	1.4
2020	97.3	3.2	14.2	79.9	54.6	39.1	42.7	11.3	86.0	19.1	31.5	46.7	95.6	1.7
2020 Q4	97.3	3.2	14.2	79.9	.	.	.	.	.	.	.	.	.	.
2021 Q1	100.0	3.2	14.1	82.7	.	.	.	.	.	.	.	.	.	.
Q2	98.3	3.1	13.9	81.3	.	.	.	.	.	.	.	.	.	.
Q3	97.7	3.0	13.8	80.8	.	.	.	.	.	.	.	.	.	.

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

6 Fiscal developments

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

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

	Change in debt-to-GDP ratio [2)]	Primary deficit (+)/ surplus (-)	Deficit-debt adjustment								Interest-growth differential	Memo item: Borrowing requirement
			Total	Transactions in main financial assets					Revaluation effects and other changes in volume	Other		
				Total	Currency and deposits	Loans	Debt securities	Equity and investment fund shares				
	1	2	3	4	5	6	7	8	9	10	11	12
2017	-2.5	-1.0	-0.1	0.4	0.5	0.0	-0.1	0.1	-0.2	-0.4	-1.3	1.0
2018	-2.0	-1.4	0.4	0.5	0.4	-0.1	0.0	0.2	0.1	-0.1	-1.0	0.8
2019	-2.0	-1.0	0.1	0.3	0.1	0.0	0.0	0.2	-0.2	0.0	-1.1	0.9
2020	13.8	5.7	2.3	2.5	2.0	0.4	-0.1	0.1	-0.1	-0.1	5.8	9.6
2020 Q4	13.8	5.7	2.3	2.5	2.0	0.4	-0.1	0.1	-0.1	-0.2	5.8	9.6
2021 Q1	14.2	6.8	1.9	2.2	1.6	0.5	0.0	0.2	-0.1	-0.2	5.5	10.3
Q2	3.9	5.4	-1.1	-0.4	-1.0	0.4	0.0	0.2	0.0	-0.7	-0.4	5.8
Q3	1.1	4.8	-1.0	-0.3	-0.7	0.2	0.0	0.2	0.0	-0.7	-2.8	5.3

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

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

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

6.5 Government debt securities [1)]

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

	Debt service due within 1 year [2)]					Average residual maturity in years [3)]	Average nominal yields [4)]						
	Total	Principal		Interest			Outstanding amounts					Transactions	
			Maturities of up to 3 months		Maturities of up to 3 months		Total	Floating rate	Zero coupon	Fixed rate	Maturities of up to 1 year	Issuance	Redemption
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	12.2	10.8	3.6	1.4	0.4	7.5	2.2	1.3	-0.1	2.5	2.1	0.3	1.1
2020	14.9	13.6	4.2	1.4	0.3	7.6	1.9	1.1	-0.2	2.2	2.3	0.0	0.8
2021	15.2	13.9	4.6	1.3	0.3	7.9	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5
2020 Q4	14.9	13.6	4.2	1.4	0.3	7.6	1.9	1.1	-0.2	2.2	2.3	0.0	0.8
2021 Q1	15.6	14.2	5.5	1.4	0.4	7.8	1.8	1.1	-0.2	2.1	2.1	0.0	0.5
Q2	15.5	14.1	5.2	1.4	0.3	7.9	1.7	0.5	-0.3	2.0	2.1	-0.1	0.5
Q3	15.6	14.2	4.7	1.4	0.3	7.9	1.7	1.1	-0.3	2.0	1.8	-0.1	0.5
2021 Sep.	15.6	14.2	4.7	1.4	0.3	7.9	1.7	1.1	-0.3	2.0	1.8	-0.1	0.5
Oct.	15.4	14.1	4.3	1.4	0.3	8.0	1.6	1.1	-0.3	2.0	1.9	-0.1	0.5
Nov.	15.5	14.1	4.2	1.4	0.3	8.0	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5
Dec.	15.2	13.9	4.6	1.3	0.3	7.9	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5
2022 Jan.	15.2	13.8	5.2	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.9	-0.1	0.6
Feb.	15.1	13.8	5.5	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5

Source: ECB.

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

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

3) Residual maturity at the end of the period.

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

6 Fiscal developments

6.6 Fiscal developments in euro area countries

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

	Belgium	Germany	Estonia	Ireland	Greece	Spain	France	Italy	Cyprus
	1	2	3	4	5	6	7	8	9
	Government deficit (-)/surplus (+)								
2017	-0.7	1.3	-0.5	-0.3	0.6	-3.0	-3.0	-2.4	1.9
2018	-0.8	1.9	-0.6	0.1	0.9	-2.5	-2.3	-2.2	-3.5
2019	-1.9	1.5	0.1	0.5	1.1	-2.9	-3.1	-1.5	1.3
2020	-9.1	-4.3	-5.6	-4.9	-10.1	-11.0	-9.1	-9.6	-5.7
2020 Q4	-9.1	-4.3	-5.6	-4.9	-10.1	-11.0	-9.1	-9.6	-5.7
2021 Q1	-8.8	-5.7	-5.6	-5.5	-12.6	-11.6	-10.3	-10.1	-7.4
Q2	-6.3	-5.0	-4.3	-4.3	-10.9	-8.7	-8.7	-8.9	-6.2
Q3	-6.5	-4.3	-3.8	-3.3	-9.5	-8.1	-8.6	-8.0	-4.6
	Government debt								
2017	102.0	64.7	9.1	67.8	179.5	98.6	98.1	134.2	92.9
2018	99.9	61.3	8.2	63.1	186.4	97.5	97.8	134.4	98.4
2019	97.7	58.9	8.6	57.2	180.7	95.5	97.5	134.3	91.1
2020	112.8	68.7	19.0	58.4	206.3	120.0	115.0	155.6	115.3
2020 Q4	112.8	68.7	19.0	58.4	206.3	120.0	115.0	155.6	115.3
2021 Q1	116.9	69.9	19.6	60.4	209.8	125.3	117.9	159.6	121.4
Q2	113.7	69.7	19.6	59.0	207.3	122.7	114.5	156.4	111.9
Q3	111.4	69.4	19.6	57.6	200.7	121.8	116.0	155.3	109.6

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	10	11	12	13	14	15	16	17	18	19
	Government deficit (-)/surplus (+)									
2017	-0.8	0.4	1.4	3.2	1.3	-0.8	-3.0	-0.1	-1.0	-0.7
2018	-0.8	0.5	3.0	1.9	1.4	0.2	-0.3	0.7	-1.0	-0.9
2019	-0.6	0.5	2.3	0.5	1.7	0.6	0.1	0.4	-1.3	-0.9
2020	-4.5	-7.2	-3.5	-9.7	-4.2	-8.3	-5.8	-7.7	-5.5	-5.5
2020 Q4	-4.5	-7.2	-3.5	-9.7	-4.2	-8.3	-5.8	-7.7	-5.5	-5.6
2021 Q1	-6.6	-7.1	-2.5	-9.9	-5.8	-10.6	-7.1	-8.2	-6.3	-6.1
Q2	-7.1	-5.3	-0.3	-8.4	-4.2	-8.5	-5.9	-6.3	-6.1	-4.5
Q3	-5.6	-3.4	-0.2	-8.5	-3.6	-7.1	-3.9	-6.3	-5.7	-3.7
	Government debt									
2017	39.0	39.1	21.8	47.7	56.9	78.5	126.1	74.2	51.6	61.2
2018	37.1	33.7	20.8	43.6	52.4	74.0	121.5	70.3	49.6	59.8
2019	36.7	35.9	22.3	40.7	48.5	70.6	116.6	65.6	48.1	59.5
2020	43.2	46.6	24.8	53.4	54.3	83.2	135.2	79.8	59.7	69.5
2020 Q4	43.2	46.6	24.8	53.3	54.3	83.2	135.2	79.8	59.7	69.6
2021 Q1	45.4	45.1	28.0	57.3	54.9	87.0	139.1	85.0	59.8	70.4
Q2	43.3	44.6	26.1	59.1	54.2	86.2	135.4	80.0	61.0	69.4
Q3	43.6	45.1	25.3	57.2	52.6	84.1	130.5	79.6	61.1	68.7

Source: Eurostat.

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

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