EUROPEAN CENTRAL BANK

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The global economy remains on a recovery path, although persisting supply bottlenecks, rising commodity prices and the emergence of the Omicron variant of the coronavirus (COVID-19) continue to weigh on the near-term growth prospects. Recent surveys of economic activity suggest that growth momentum remained weak at the start of the fourth quarter, particularly in the manufacturing sector owing to the above-mentioned supply bottlenecks, whereas the services sector benefited from the reopening of large economies. Compared with the previous projections, the growth outlook for the global economy in the December 2021 Eurosystem staff macroeconomic projections has been revised downwards for 2021, remained unchanged for 2022 and been revised upwards for 2023. Global real GDP growth (excluding the euro area) is estimated to increase to 6.0% in 2021, before slowing to 4.5% in 2022, 3.9% in 2023 and 3.7% in 2024. Euro area foreign demand is projected to expand by 8.9% in 2021, 4.0% in 2022, 4.3% in 2023 and 3.9% in 2024. However, foreign demand has been revised downwards for 2021 and 2022 compared with the previous projections. This reflects the adverse impact of the ongoing supply bottlenecks on global imports. Supply bottlenecks are expected to start easing from the second quarter of 2022 and to fully unwind by 2023. The export prices of euro area competitors have been revised upwards for 2021 and 2022 amid the confluence of higher commodity prices, supply bottlenecks and recovering demand. The future course of the pandemic remains the key risk affecting the baseline projections for the global economy. Other risks to the growth outlook are judged to be tilted to the downside, whereas the balance of risks to global inflation is more uncertain.

The euro area economy continues to recover. Growth is moderating, but activity is expected to pick up again strongly in the course of this year. The continued economic recovery is foreseen to be driven by robust domestic demand. The labour market is improving, with more people having jobs and fewer in job retention schemes. This supports the prospect of rising household income and consumption. The savings built up during the pandemic will also support consumption. Economic activity moderated over the final quarter of last year and this slower growth is likely to extend into the early part of this year. We now expect output to exceed its pre-pandemic level in the first quarter of 2022. To cope with the current pandemic wave, some euro area countries have reintroduced tighter containment measures. This could delay the recovery, especially in travel, tourism, hospitality and entertainment. The pandemic is weighing on consumer and business confidence and the spread of new virus variants is creating extra uncertainty. In

addition, rising energy costs are a headwind for consumption. Shortages of equipment, materials and labour in some sectors are hampering production of manufactured goods, causing delays in construction and slowing down the recovery in some parts of the services sector. These bottlenecks will persist for some time, but they should ease during 2022.

Although the COVID-19 crisis continued to weigh heavily on public finances in 2021, the December Eurosystem staff macroeconomic projections show that the fiscal balance is already on a path to improvement. Having peaked at 7.2% of GDP in 2020, the deficit ratio is estimated to have fallen to 5.9% in 2021 and is projected to fall further to 3.2% in 2022 and to stabilise just below 2% by the end of the forecast horizon in 2024. These improvements are due to a combination of higher cyclically adjusted primary balances and, particularly from 2022, a significantly larger contribution from the economic cycle. In terms of the euro area fiscal stance, a strong expansion in 2020 was followed by only a marginal tightening in 2021 once adjusted for Next Generation EU (NGEU) grants. In 2022, the stance is projected to tighten considerably, albeit much less than forecast previously, mainly owing to a reversal of a significant part of crisis emergency support. The tightening is projected to continue over the remainder of the forecast horizon, but to a much smaller extent, as significant support to the economy will remain in place over the coming years. Targeted and growth-friendly fiscal measures should continue to complement monetary policy. This support will also help the economy adjust to the structural changes that are under way. An effective implementation of the NGEU programme and the “Fit for 55” package will contribute to a stronger, greener and more even recovery across euro area countries.

Growth is expected to rebound strongly over the course of 2022. The December Eurosystem staff macroeconomic projections foresee annual real GDP growth at 5.1% in 2021, 4.2% in 2022, 2.9% in 2023 and 1.6% in 2024. Compared with the September staff projections, the outlook has been revised down for 2022 and up for 2023.

Inflation

Inflation increased further to 4.9% in November. It will remain above 2% for most of 2022. Inflation is expected to remain elevated in the near term, but to decline in the course of this year. The upswing in inflation primarily reflects a sharp rise in prices for fuel, gas and electricity. In November, energy inflation accounted for more than half of headline inflation. Demand also continues to outpace constrained supply in certain sectors. The consequences are especially visible in the prices of durable goods and those consumer services that have recently reopened. Base effects related to the reversal of the VAT cut in Germany are still contributing to higher inflation, but only until the end of 2021. There is uncertainty as to how long it will take for these issues to resolve. But, in the course of 2022, energy prices are expected to stabilise, consumption patterns to normalise, and price pressures stemming from global supply bottlenecks to subside. Over time, the gradual return of the economy to full capacity and further improvements in the labour market should support faster

growth in wages. Market and survey-based measures of longer-term inflation expectations have remained broadly stable since the October monetary policy meeting. But overall, these have moved closer to 2% in recent months. These factors will help underlying inflation to move up and bring headline inflation up to the ECB's 2% target over the medium term.

The December 2021 Eurosystem staff macroeconomic projections foresee annual inflation at 2.6% in 2021, 3.2% in 2022, 1.8% in 2023 and 1.8% in 2024 – significantly higher than in the previous projections in September. Inflation excluding food and energy is projected to average 1.4% in 2021, 1.9% in 2022, 1.7% in 2023 and 1.8% in 2024, also higher than in the September projections.

Risk assessment

The Governing Council sees the risks to the economic outlook as broadly balanced. Economic activity could outperform the ECB's expectations if consumers become more confident and save less than expected. By contrast, the recent worsening of the pandemic, including the spread of new variants, could be a more persistent drag on growth. The future path of energy prices and the pace at which supply bottlenecks are resolved are risks to the recovery and to the outlook for inflation. If price pressures feed through into higher than anticipated wage rises or the economy returns more quickly to full capacity, inflation could turn out to be higher.

Financial and monetary conditions

Market interest rates have remained broadly stable since the October Governing Council meeting. Over the review period (9 September to 15 December 2021), euro area financial markets were predominantly influenced by shifts in the inflation outlook and renewed uncertainty about further COVID-19-related economic repercussions. The news of the new Omicron variant created volatility, but the strong initial negative impact, especially on risk assets, partly reversed towards the end of the review period.

Money creation in the euro area edged up in October 2021, reflecting greater uncertainty related to the COVID-19 pandemic and policy support measures. Eurosystem asset purchases remained the dominant source of money creation. Bank lending rates for firms and households remained at historically low levels. Overall, financing conditions for the economy remain favourable. Lending to firms is partly driven by short-term funding needs stemming from supply bottlenecks that increase their expenses for inventory and working capital. At the same time, corporate demand for loans remains moderate because of retained earnings and generous cash holdings, as well as high debt. Lending to households remains robust – driven by demand for mortgages. Euro area banks have further strengthened their balance sheets thanks to higher capital ratios and fewer non-performing loans.

Banks are now as profitable as they were before the pandemic. Bank funding conditions remain favourable overall.

In line with the new monetary policy strategy, twice a year the Governing Council assesses in-depth the interrelation between monetary policy and financial stability. An accommodative monetary policy underpins growth, which supports the balance sheets of companies and financial institutions, as well as preventing risks of market fragmentation. At the same time, the impact of accommodative monetary policy on property markets and financial markets warrants close monitoring as a number of medium-term vulnerabilities have intensified. Still, macroprudential policy remains the first line of defence in preserving financial stability and addressing medium-term vulnerabilities.

Monetary policy decisions

At its monetary policy meeting in December, the Governing Council judged that the progress on economic recovery and towards the ECB's medium-term inflation target permits a step-by-step reduction in the pace of its asset purchases over the coming quarters. But monetary accommodation is still needed for inflation to stabilise at the ECB's 2% inflation target over the medium term. In view of the current uncertainty, the Governing Council needs to maintain flexibility and optionality in the conduct of monetary policy. With this is mind, the Governing Council took the following decisions.

First, in the first quarter of 2022, the Governing Council expects to conduct net asset purchases under the pandemic emergency purchase programme (PEPP) at a lower pace than in the previous quarter. Net asset purchases under the PEPP will be discontinued at the end of March 2022.

Second, the Governing Council decided to extend the reinvestment horizon for the PEPP. It now intends to reinvest the principal payments from maturing securities purchased under the 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.

Third, 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 the ECB's monetary policy and made the efforts to achieve the Governing Council's goal more effective. Within the ECB'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. In particular, 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 of the pandemic. Net purchases

under the PEPP could also be resumed, if necessary, to counter negative shocks related to the pandemic.

Fourth, in line with a step-by-step reduction in asset purchases and to ensure that the monetary policy stance remains consistent with inflation stabilising at the ECB's 2% target over the medium term, the Governing Council decided on a monthly net purchase pace of €40 billion in the second quarter and €30 billion in the third quarter under the asset purchase programme (APP). From October 2022 onwards, net asset purchases under the APP will be maintained at a monthly pace of €20 billion for as long as necessary to reinforce the accommodative impact of the policy rates. The Governing Council expects net purchases to end shortly before it starts raising the key ECB interest rates.

The Governing Council also confirmed its other measures to support the ECB's price stability mandate, namely the level of the key ECB interest rates and the forward guidance on the future path of policy rates. This is crucial for maintaining the appropriate degree of accommodation to stabilise inflation at the ECB's 2% inflation target over the medium term.

The Governing Council will continue to monitor bank funding conditions and ensure that the maturing of operations under the third series of targeted longer-term refinancing operations (TLTRO III) does not hamper the smooth transmission of its monetary policy. It will also regularly assess how targeted lending operations are contributing to its monetary policy stance. As announced, the Governing Council expects the special conditions applicable under TLTRO III to end in June this year. It 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, as appropriate and in either direction, to ensure that inflation stabilises at the ECB's 2% target over the medium term.

1 External environment

The December 2021 Eurosystem staff macroeconomic projections suggest that the global economy remains on a recovery path, although headwinds relating to supply bottlenecks and high commodity prices and the emergence of the Omicron variant of the coronavirus (COVID-19) continue to weigh on near-term growth prospects. Recent surveys of economic activity suggest that growth momentum remained weak at the start of the fourth quarter, particularly in the manufacturing sector owing to supply bottlenecks, whereas the services sector has benefited from the reopening of large economies. Compared with the previous projections, the growth outlook for the global economy has been revised downwards for 2021, remained unchanged for 2022 and been revised upwards for 2023. Global (excluding the euro area) real GDP growth is estimated to increase to 6.0% in 2021, before slowing to 4.5% in 2022, 3.9% in 2023 and 3.7% in 2024. Euro area foreign demand is projected to expand by 8.9% in 2021, 4.0% in 2022, 4.3% in 2023 and 3.9% in 2024. However, foreign demand has been revised downwards in 2021 and 2022 compared with the previous projections. This reflects the adverse impact of ongoing supply bottlenecks on global imports. Supply bottlenecks are expected to start easing from the second quarter of 2022 and to fully unwind by 2023. The export prices of the euro area's competitors have been revised upwards for 2021 and 2022 amid the confluence of higher commodity prices, supply bottlenecks and recovering demand. The future course of the pandemic remains the key risk affecting the baseline projections for the global economy. Other risks to the growth outlook are judged to be tilted to the downside, whereas the balance of risks to global inflation is more uncertain.

Global economic activity and trade

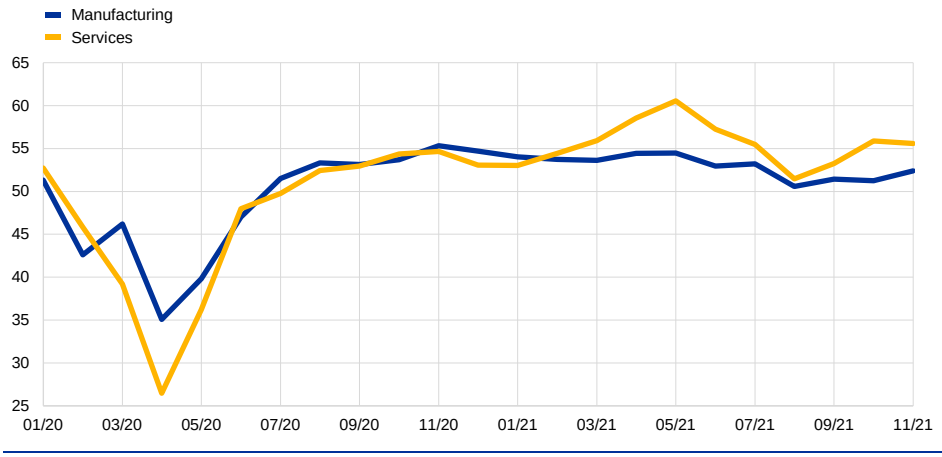
In 2021 the recovery in global economic activity and trade was less smooth than previously expected. Pandemic developments dented consumer confidence, even in the absence of strong containment measures. More recently, the emergence of the Omicron variant, has threatened an intensification of the pandemic on a global scale and further raised uncertainty about its future evolution. Meanwhile other headwinds weighed on activity and trade and put upward pressure on prices. Strains on global production networks have intensified in the course of 2021 and particularly affected large advanced economies and the manufacturing sector (especially the automotive industry). The turmoil in China's residential property market and a tightening of monetary policy in some emerging market economies (EMEs) have further capped the speed of recovery. Finally, rising commodity prices have led to the build-up of inflationary pressures across the globe. Compared with the September 2021 ECB staff macroeconomic projections, real GDP growth in the third quarter disappointed in a number of countries, including the United States, China and the United Kingdom. The global picture is, however, influenced by India, where a strong resurgence of COVID-19 infections in the second quarter of last year caused a sharp contraction in economic activity, followed by a V-shaped recovery in the third quarter – in contrast to several other economies that were facing new spikes in the number of infections at that time. The sheer size of the decline and subsequent recovery of

activity in India entails an increase in global real GDP growth (excluding the euro area) in the third and fourth quarters; however, this is not supported by developments in other large economies.

Survey indicators confirm weak momentum in activity going into the fourth quarter of 2021 amid persisting supply-side disruptions. Global industrial production stalled in August amid continued chip shortages, with the automotive sector exerting a significant drag. The global composite output Purchasing Managers' Index (PMI) for November confirms weak dynamics in the manufacturing sector, while the services sector remained comparatively stronger amid the gradual reopening of large economies. Overall, recent PMI data suggest a two-speed recovery across sectors at the start of the fourth quarter (Chart 1).

Chart 1

Global (excluding the euro area) output PMI by sectors



Sources: Markit and ECB calculations.
Note: The latest observations are for November 2021.

Global financial conditions were stable until news about the Omicron variant sparked a sell-off in risky assets and increased volatility. Financial conditions feeding into the December 2021 Eurosystem staff macroeconomic projections remained accommodative and broadly stable compared with the previous projection round. This stability reflected a steady increase in equity prices supported by buoyant earnings outcomes, which were broadly offset by increasing expectations of a tighter monetary policy stance against the backdrop of rising inflation, as well as a renewed surge in COVID-19 infections in Europe. Following the Federal Open Market Committee (FOMC) communication in November, financial markets started to price in expectations of an accelerated tapering of asset purchases and the earlier and steeper tightening path implied by the federal funds futures curve rate. Concerns about property developer Evergrande in China were largely confined to local financial markets. Sovereign and corporate bond spreads in other EMEs remained broadly stable. After the cut-off date for the December projections, news about the Omicron variant sparked a sell-off in risky assets, resulting in tighter financial conditions across advanced economies and EMEs. Since then global equity markets

have recouped part of their losses and the upward trend in the federal funds futures curve has continued.

The near-term outlook for global economic activity and trade will be shaped by the evolution of the pandemic and the pace at which supply bottlenecks unwind. Pandemic developments intensified in some regions, particularly Europe, while improving across others. A resurgence of containment measures could materially cloud the near-term global outlook and increase the dispersion of growth outcomes across countries. Global trade in goods continues to be constrained by supply bottlenecks, while global demand for goods remains strong.[1] This is reflected, for instance, in semiconductor production and shipping volumes, which are well above their respective pre-pandemic trends. Strains in global production networks might indeed be further amplified by a precautionary hoarding of intermediary goods in some industries as firms seek to build buffers against possible shortages.

Global (excluding the euro area) real GDP growth is estimated at 6.0% for 2021 and is projected to gradually moderate over the projection horizon. This is slightly weaker (by 0.3 percentage points) than forecast in the September 2021 ECB staff macroeconomic projections. The weaker activity is due to the resurgence of COVID-19 infections, the detrimental impact of supply bottlenecks and weaker growth in China. Supply bottlenecks are projected to continue weighing on activity across advanced economies in 2022, although to a lesser extent than on trade, as consumers may substitute unavailable foreign products with domestic ones. Moreover, the progressive rotation of consumption demand from goods back to services is also expected to mitigate the impact of bottlenecks on goods consumption. Looking ahead, global (excluding the euro area) real GDP growth is projected to reach 4.5% in 2022, before moderating to 3.9% in 2023 and 3.7% in 2024. Compared with the September 2021 ECB staff macroeconomic projections, growth remains unchanged for 2022 and has been revised slightly upwards for 2023 (by 0.2 percentage points). While global (excluding the euro area) real GDP had surpassed its pre-pandemic level in late 2020, it is projected to remain somewhat below its pre-pandemic path over the projection horizon. In fact, while advanced economies and China have returned to their pre-crisis trajectories, the recovery continues to lag behind in other EMEs and will weigh on the level of global activity going forward.

In the United States, economic activity is recovering following subdued growth in the third quarter caused by a resurgence of COVID-19 infections. Activity data for October has generally rebounded, suggesting solid short-term growth expectations. Since April, consumer demand has rotated towards services, away from durable goods, which were also subject to supply bottlenecks amid strong demand. In recent weeks, the waiting times and costs of shipping between China and the United States have declined. However, volumes of durable goods inventories remain below pre-pandemic levels, which should support growth once current bottlenecks fully unwind. Annual headline consumer price index (CPI) inflation increased to 6.8% in November. Energy prices accelerated, to 33% in

[1] See Box 1 entitled "Supply chain disruptions and the effects on the global economy" in this issue of the Economic Bulletin.

annual terms, while annual food price inflation further increased to 6.1%. Excluding food and energy, annual core inflation increased to 4.9% in November from 4.6% in the previous month. Price pressures were more visible in goods, amid persistent supply chain bottlenecks, while remaining generally more contained in services. Overall, inflationary pressures are expected to remain high in the coming months, with annual headline CPI inflation forecast to only start gradually decreasing from its currently elevated levels from early 2022. Meanwhile wage pressures are rising, as suggested by the employment cost index, which increased by close to 4% in annual terms in the third quarter. This increase was substantially stronger and also broader across industries compared with outturns from earlier in the year.

In China, activity decelerated sharply owing to energy shortages, the turmoil in the residential property sector and renewed COVID-19 outbreaks. Consumer confidence surveys provided mixed signals regarding private consumption, while production and investment are possibly being constrained by supply bottlenecks. Energy demand remains elevated, but there have been recent signs of easing pressure, partly owing to the policies to boost coal supply and the use of national stockpiles in an effort to bring domestic oil prices down and ensure energy security. The turmoil in the residential property sector continued, as the real estate developer Evergrande was declared to be in "restricted default" by a rating agency. The default was largely expected and follows those of smaller firms. Evergrande had already entered a managed restructuring process, with government representatives joining a risk management committee to oversee Evergrande, maintain its operations and restructure its debts. Authorities have provided policy support, with the People's Bank of China cutting the banks' reserve requirement ratio in December and the central government signalling a more supportive stance towards the property sector. These policy actions are aimed at managing the slowdown and avoiding a sharper contraction in both the residential sector and the broader economy. Headline year-on-year CPI inflation increased to 2.3% in November from 1.5% in October, largely owing to base effects, fuel price rises and food price increases amid disruptions to harvests caused by adverse weather conditions.

In Japan, the economy slowed in the third quarter in the face of supply bottlenecks and the resurgence in COVID-19 infections. Economic activity is expected to rebound in the fourth quarter, reflecting a gradual easing of containment measures, progress in vaccinations and continued policy support. These factors should also support a more solid recovery in early 2022. Annual CPI inflation is projected to return to positive territory and further rise over the projection horizon, while remaining below the central bank's target.

In the United Kingdom, incoming data suggest that activity remains subdued following a weak outturn in the third quarter of 2021. A combination of supply chain disruptions and labour shortages, driven by global conditions and Brexit, led to a moderation in growth to 1.3% in the third quarter (down from 5.5% in the previous quarter).[2] Private consumption remained a driver of real activity as COVID-19 restrictions eased further, while investment, by contrast, continued to be very weak.

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[2] See Box 2 entitled "The US and UK labour markets in the post-pandemic recovery" in this issue of the Economic Bulletin.

The factors that weighed on activity over the summer months are expected to continue into the coming months. As a result, economic activity in the United Kingdom is expected to reach its pre-pandemic levels in the first quarter of 2022, somewhat later than previously expected. Employment and participation in the workforce have been slowly rising over recent months, whereas vacancies have increased strongly, contributing to a sharp tightening in the labour market. This tightness is a result of both a lower supply of EU workers and still below pre-pandemic participation of national workers in the workforce. Shortages are particularly pronounced in industries such as hospitality, construction and food. Headline CPI inflation picked up to 4.2% in October from 3.1% in September. The rise in annual headline inflation was mostly driven by energy prices, reflecting the increase in the household energy price cap, a regulatory measure reset every April and October. While underlying inflation remains more contained, inflationary pressures started to broaden and are expected to remain sustained in the short run, mainly on account of ongoing supply chain disruptions and rising energy prices. Inflation is expected to peak in April 2022 owing to the scheduled adjustment of the energy price cap, which will most likely be sizeable, as it will absorb energy price increases from the second part of 2021.

In central and eastern EU Member States, activity remained solid in the third quarter, but is expected to moderate. This moderation reflects a significant deterioration of the epidemiological situation and persistent supply bottlenecks. Rising energy prices are expected to put additional pressure on CPI inflation, which is projected to peak in 2022 before gradually declining over the rest of the projection horizon.

In large commodity-exporting countries, economic activity hinges on the ability to tackle the COVID-19 outbreaks and the amount of policy space available. In Russia, sharply increasing numbers of COVID-19 infections have led to tighter containment measures, while rising global demand for oil and gas and the associated positive terms of trade effect should support economic activity. Food prices and demand pressures are projected to keep inflation high in the near term; however, it is projected to return to the central bank's target in the medium term. In Brazil, economic activity is constrained by a tighter monetary policy stance and limited fiscal space. CPI inflation, which continues to increase and recently reached double digits, is expected to decline over the projection horizon.

In Turkey, economic activity has decelerated amid weakening domestic demand. A supportive external environment was the main driver of growth in 2021. Inflation has increased and is expected to remain at double digits over the forecast horizon as a result of an overly expansive monetary policy stance which pushed the lira to record lows against the US dollar, notwithstanding the central bank's interventions.

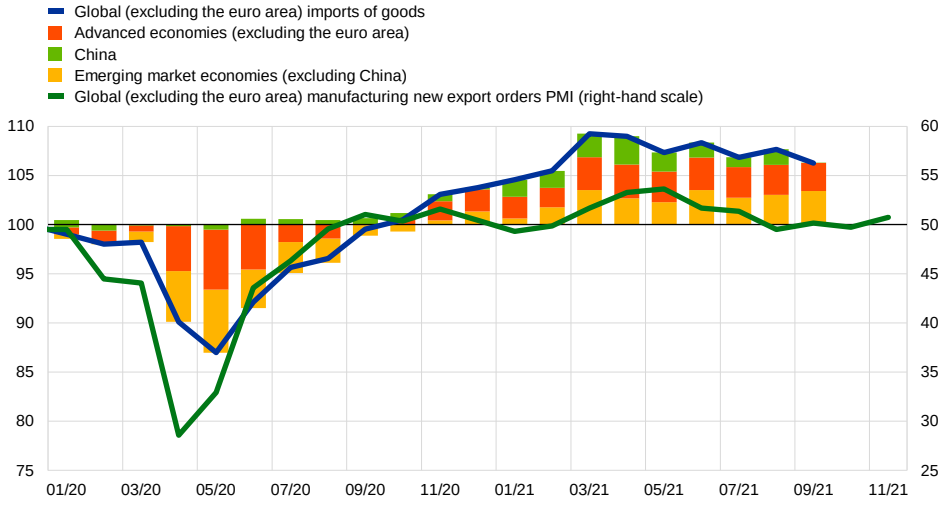
Global (excluding the euro area) trade growth moderated in 2021, reflecting intensifying supply bottlenecks. The strong rebound in global trade that materialised after the reopening of the global economy in mid-2020 started to moderate in 2021. Global trade in goods peaked in March and has since progressively decelerated, while remaining well above its pre-pandemic levels (Chart

2). Incoming data on global (excluding the euro area) merchandise trade in the third quarter point to downside risks to global trade estimates, mainly on account of persisting supply bottlenecks, which are evident in lengthening supplier delivery times. Furthermore, the weakness in the logistics sector affects trade more than industrial production, as a shift towards domestic goods and suppliers helps cushion the impact on industrial production. The impact of contracting merchandise trade on global trade is somewhat mitigated by the growth in services trade, which has been gathering momentum following the relaxation of international travel restrictions.

Chart 2

Global (excluding the euro area) imports of goods and new export orders

(left-hand scale: index, December 2019 = 100; right-hand scale: diffusion index)



Sources: Markit, CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations.
Note: The latest observations are for November 2021 for the PMI data and September 2021 for global imports of goods.

Strains in global production networks, also referred to as supply bottlenecks, are a multifaceted phenomenon. They reflect a combination of demand and supply imbalances, resulting in shortages of intermediate inputs that are particularly felt in large advanced economies and in the manufacturing sector (especially the automotive industry).[3] In the December 2021 Eurosystem staff macroeconomic projections, supply bottlenecks are expected to affect a larger number of countries and sectors than was forecast in the previous projection round. According to survey data, these bottlenecks have intensified further in recent months and are assumed to gradually start easing as of the second quarter of 2022, before fully unwinding by 2023.

These factors are weighing on euro area foreign demand, which was revised downwards for 2021 and 2022 compared with the previous projections. The unwinding of supply bottlenecks is then expected to lead to somewhat stronger euro area foreign demand in the outer years of the projection horizon. Euro area foreign demand growth is estimated to reach 8.9% in 2021 before decreasing to 4.0% in 2022, 4.3% in 2023 and 3.9% in 2024, respectively. The level of euro area foreign

[3] See Box 1 entitled "Supply chain disruptions and the effects on the global economy" in this issue of the Economic Bulletin.

demand is expected to initially remain below the level projected in the September 2021 ECB staff macroeconomic projections, before gradually converging back to the previously forecast level by the end of the projection horizon. The projected path for global (excluding the euro area) imports resembles that of euro area foreign demand: it is estimated to increase by 11.1% in 2021, 3.9% in 2022, 4.4% in 2023 and 4.0% in 2024.

Risks around the baseline projections relate primarily to the evolution of the pandemic. The baseline projections for the global economy are complemented by two alternative pandemic scenarios – one mild and one severe. Key parameters in these scenarios are the evolution of the pandemic, the associated path of containment measures and the vaccine rollout. The severe scenario assumes that, in EMEs, the first two parameters are more adverse and the vaccine rollout slower than in advanced economies.[4] The outcomes for global activity and euro area foreign demand as a result of the two alternative pandemic scenarios are broadly comparable to those presented in the September 2021 ECB staff projections. The emergence of the Omicron variant is likely to induce higher volatility in global growth, but at this stage its exact impact is highly uncertain.

The balance of other risks around the global (excluding the euro area) growth outlook is tilted to the downside. An earlier and faster tightening of monetary policy in large advanced economies may have spillover effects on financial conditions in EMEs and would represent a downside risk to growth. In China, a stronger slowdown in the real estate sector than currently expected would pose downside risks to the outlook for global activity. Upside risks to growth include the possibility that the US fiscal package has a larger fiscal multiplier than currently assumed and that the stock of excess savings unwinds faster than expected in advanced economies.

Global price developments

High energy prices remain a headwind for the global economy. Energy prices have increased since the September 2021 ECB staff macroeconomic projections, with the rise in oil prices reflecting both recovering demand and supply-side developments. Oil demand rebounded as more countries reopened their economies, including their borders to international travel, which led mobility levels to increase. Oil demand has also been supported by the surge in gas prices, which has led to substitution to other energy sources, including oil. Supply factors have also contributed to the higher oil prices, as OPEC+ failed to reach its production targets and Hurricane Ida caused extended supply disruptions in the United States. At the end of November energy prices moderated somewhat amid a sharp drop in oil prices caused by the emergence of the Omicron variant, reflecting concerns that a resurgence in COVID-19 cases may weigh on global oil demand. Non-energy commodity prices decreased over the review period. This was due to a decline in metal commodity prices, driven by a marked drop in iron ore prices, partly reflecting

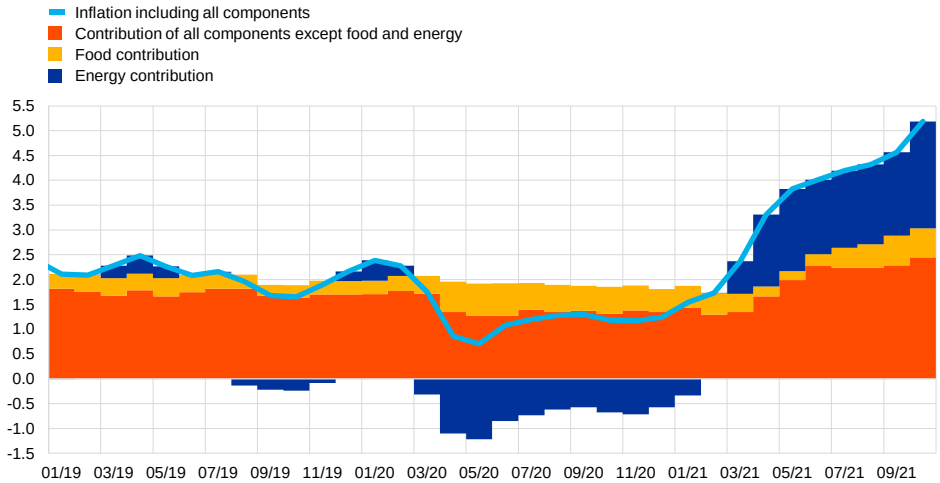
[4] For further details, see Box 5 of "Eurosystem staff macroeconomic projections for the euro area, December 2021", published on the ECB's website on 16 December 2021.

falling steel demand from China. In contrast, food commodity prices increased owing to tightness in the coffee and wheat markets.

Incoming data point to ongoing inflationary pressures. Strains on global logistics and production networks – as well as labour market frictions in key advanced economies – point to continued pipeline price pressures, as signalled by rising global producer prices.[5] CPI inflation across advanced economies remained elevated and well above its historical average over the last two decades. In EMEs, CPI inflation has also increased, but developments have been more diverse and, on average, less pronounced. The impact of positive base effects from suppressed price levels during the peak of pandemic lockdowns in 2020 has been significant for advanced economies, as shown by the difference in inflation rates calculated over 12 and 24 months. For EMEs, this effect seems less pronounced. Looking ahead, the rise in global CPI inflation is expected to be more persistent than previously anticipated and to gradually moderate only in the course of 2022. Across member countries of the Organisation for Economic Co-operation and Development (OECD), annual headline CPI inflation increased to 5.2% in October from 4.6% in September (Chart 3). This steep increase was driven by the surge of energy price inflation to the highest level observed over the last four decades (24.2%), with base year effects still playing a role. OECD core CPI inflation also increased in October to 3.5%, up from 3.2% in the previous month.

Chart 3
OECD consumer price inflation

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



Sources: OECD and ECB calculations.
Note: The latest observations are for October 2021.

Inflationary pressures are expected to remain elevated until mid-2022 and ease thereafter as the underlying drivers fade. While the factors supporting inflationary pressures, such as supply bottlenecks and labour shortages, are proving less transitory than predicted in the September 2021 ECB staff macroeconomic projections, these are assumed to start dissipating as of mid-2022. Over the

[5] See Box 2 entitled "The US and UK labour markets in the post-pandemic recovery" in this issue of the Economic Bulletin.

projection horizon, the expected rise in headline inflation globally will be reflected in higher euro area competitor export prices. This increase is to a large extent explained by rising global commodity prices, which in part reflect the base effects from the pandemic shock in spring 2020.

2 Financial developments

Over the review period (9 September to 15 December 2021), euro area financial markets have been predominantly influenced by shifts in the inflation outlook and renewed uncertainty about further economic repercussions relating to the coronavirus (COVID-19). Specifically, the information about the new Omicron variant induced significant intra-period volatility, but the strong initial impact, especially on risk assets, partly reversed towards the end of the review period. The short end of the benchmark euro short-term rate (€STR) forward curve increased markedly until the end of October before falling back somewhat, signalling overall a significant repricing by market participants towards an earlier rate hike compared to the start of the review period. In line with short-term rates, risk-free long-term overnight index swap (OIS) rates also followed a sawtooth pattern, increasing slightly overall. Sovereign spreads over the OIS rate widened marginally in some jurisdictions and tightened slightly in others, in the context of intra-period volatility. Equity markets advanced globally until end-November, supported by a strong earnings season, but thereafter suffered the worst setback in more than a year amid a sharp deterioration in risk sentiment. Euro area corporate bond spreads widened slightly over the period, but remained broadly unchanged overall. The euro depreciated against most major currencies.

The benchmark €STR averaged -57 basis points over the review period. Excess liquidity increased by approximately €26 billion to around €4,430 billion, mainly reflecting asset purchases under the pandemic emergency purchase programme (PEPP) and the asset purchase programme (APP), as well as the €97.57 billion take-up of the ninth operation under the third series of targeted longer-term refinancing operations (TLTRO III). At the same time, the growth in excess liquidity was curtailed substantially by early repayments amounting to €79.24 billion of funds borrowed under previous TLTRO III operations and by a net decline in other assets of around €246 billion over the review period. This net decline in other assets was predominantly driven by an increase of around €201 billion in Eurosystem liabilities to non-euro area residents denominated in euro over the review period.

The short end of the €STR forward curve has shifted up markedly compared to the September Governing Council meeting, suggesting a significant repricing of rate hike expectations by market participants (Chart 4).[6] The short end of the €STR forward curve moved up during the first half of the review period in an environment of increasing market-based inflation-compensation measures and stronger expectations of a tightening of monetary policy at the global level. In the second half of the review period, the curve moved down following the monetary policy communication after the October Governing Council meeting and amid intensifying coronavirus-related concerns. Overall, the market-implied rate lift-off date – defined as the time when the €STR forward curve surpasses the current level

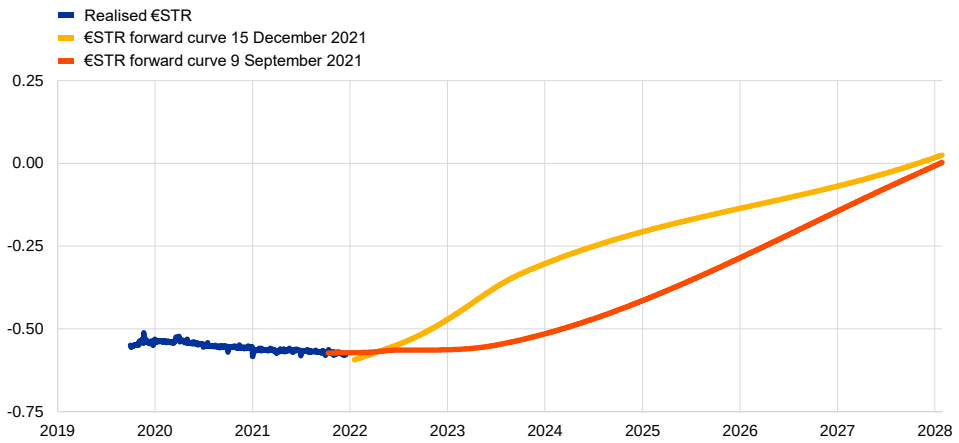
[6] From now on, the €STR OIS forward curve will be reported rather than the EONIA OIS forward curve. The change is being made because the EONIA was discontinued on 3 January 2022 as it no longer complied with benchmark rate regulations. The two OIS forward curves are mechanically linked as, since 2 October 2019, the EONIA has been computed as the €STR plus a fixed spread of 8.5 basis points. See the box entitled "Goodbye EONIA, welcome €STR!", *Economic Bulletin*, Issue 7, ECB, 2019.

of the €STR plus 10 basis points – has shifted forward by about a year, to late December 2022. However, the expected rate path and lift-off timing has been surrounded by a high level of uncertainty, as reflected in money markets' elevated volatility.

Chart 4

€STR forward rates

(percentages per annum)



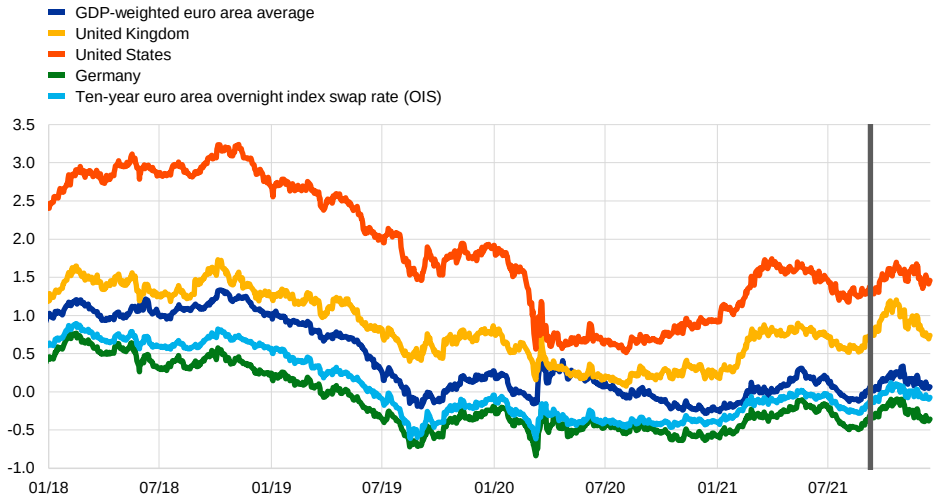
Sources: Bloomberg and ECB calculations.

Long-term average euro area sovereign bond yields continued to follow risk-free rates closely and stood slightly higher at the end of the review period amid some intra-period volatility (Chart 5). In the context of improving medium-term economic prospects at the global level, long-term euro area sovereign yields increased between early September and the end of October. However, these subsequently declined, following central bank communication and reflecting perceived downside risks for the economic outlook amid fears about the impact of new coronavirus-related restrictions, fuelled in particular by news about the Omicron variant. Overall, both the GDP-weighted euro area ten-year sovereign bond yield and the ten-year risk-free OIS rate based on the €STR increased by almost 10 basis points, to 0.06% and -0.07% respectively. Developments were fairly similar in the United States, where the ten-year sovereign bond yield initially increased before partially reversing that trend to stand 16 basis points higher at 1.46% at the end of the review period.

Chart 5

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

(percentages per annum)

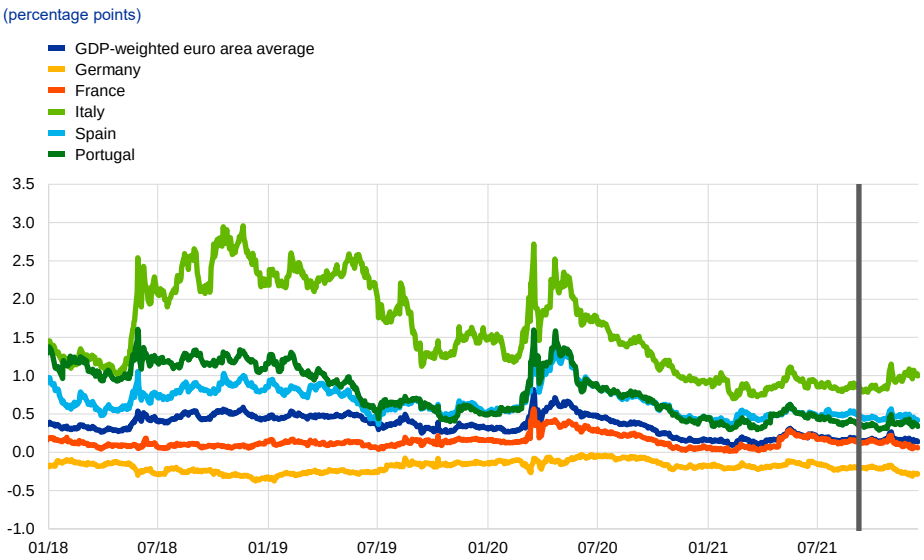


Sources: Refinitiv and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 9 September 2021. The latest observation is for 15 December 2021.

Long-term euro area sovereign spreads relative to OIS rates widened in some jurisdictions and tightened slightly in others amid the increased uncertainty (Chart 6). Sovereign bond markets displayed significant but temporary spread increases in the last week of October (e.g. 32 basis points in Italy, 18 basis points in Portugal and 14 basis points in Spain). As of November, long-term sovereign spreads decreased somewhat in Germany and France, overall standing lower by around 10 basis points, driven by high demand for safe bonds amid thin sovereign market liquidity, and to some extent exhibiting a typical year-end pattern. Overall, spreads remained relatively stable in Portugal and Spain but increased in Italy by around 15 basis points over the review period.

Chart 6

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

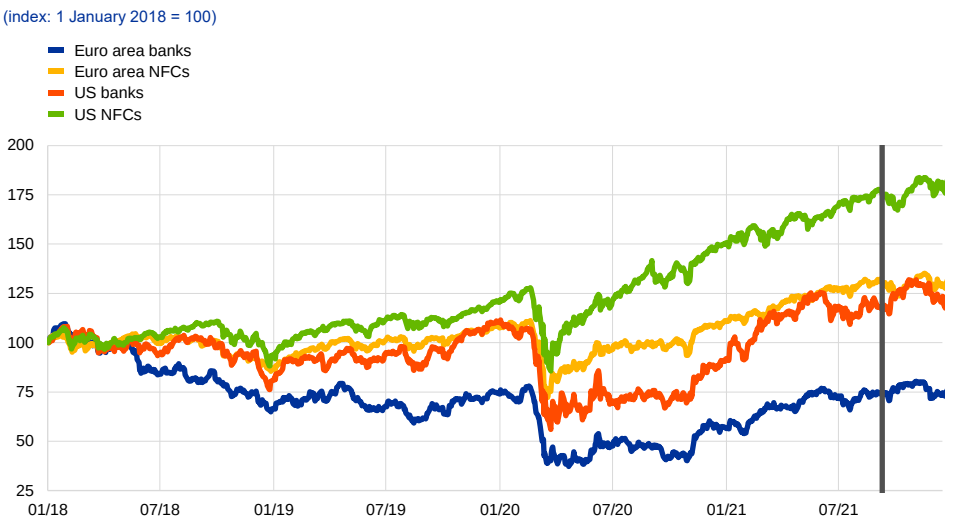


Sources: Refinitiv and ECB calculations.
Notes: The spread is calculated by subtracting the ten-year €STR OIS rate from the ten-year sovereign bond yield. The vertical grey line denotes the start of the review period on 9 September 2021. The latest observation is for 15 December 2021.

Supported by a strong corporate earnings season, global equity markets continued their rise in the first part of the review period, before dropping sharply in response to news about the recently discovered Omicron variant (Chart 7). For most of the review period, solid earnings growth expectations supported the overall positive evolution of euro area equity prices, which by 25 November had risen by 2% overall. From the end of November, however, uncertainty about the rapid spread of the Omicron variant and its impact on the global economy put a stop to the continued strong rise in equity prices on both sides of the Atlantic and prices decreased sharply, largely reflecting a rise in the equity risk premium. The market impact of this new, potentially faster-spreading coronavirus variant was larger in the euro area than in the United States. Equity prices of euro area non-financial corporations (NFCs) edged down by 1.1% while they increased by 3.0% in the United States. US bank equity prices recorded an increase of 3%, while in the euro area they edged up by just 0.2%.

Chart 7

Euro area and US equity price indices

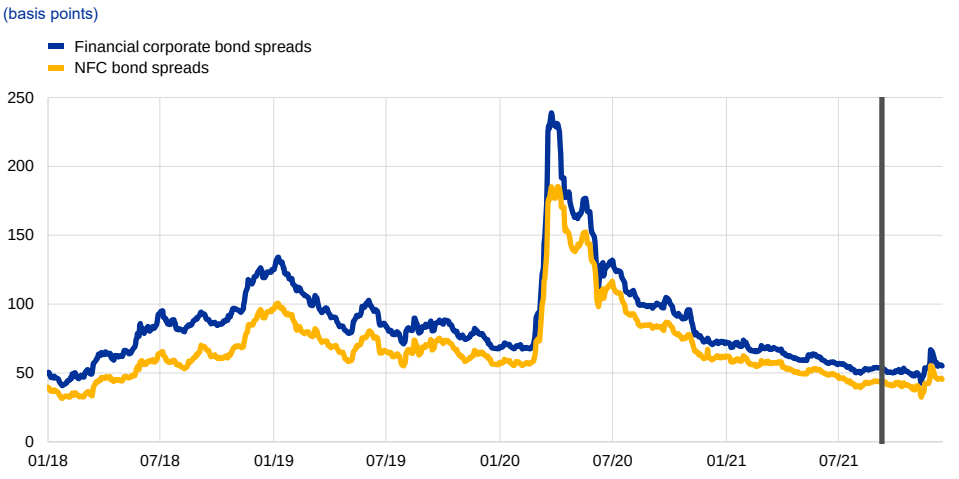


Sources: Refinitiv and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 9 September 2021. The latest observation is for 15 December 2021.

Mirroring the developments in equity prices, euro area corporate bond spreads widened slightly on the news of the Omicron variant and displayed some volatility thereafter (Chart 8). Over the review period as a whole, the investment-grade NFC bond spread and the financial sector bond spread (relative to the risk-free rate) remained broadly unchanged. Taking a longer-term view, the continued declining trend in recent months can largely be attributed to excess bond premia, i.e. the component of euro area corporate bond spreads that is unexplained by economic, credit and uncertainty-related factors.

Chart 8

Euro area corporate bond spreads

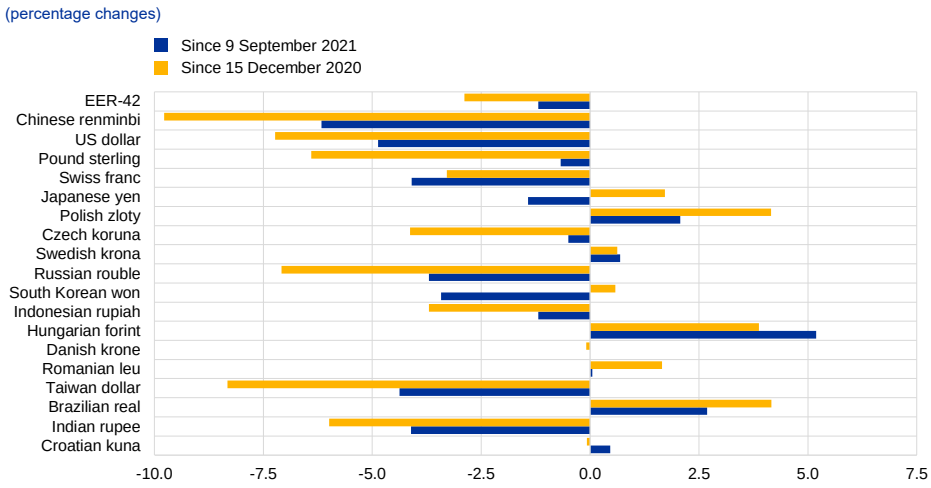


Sources: Markit iBoxx indices and ECB calculations.
Notes: The spreads are the difference between asset swap rates and the risk-free rate. The indices comprise bonds of different maturities (with at least one year remaining) with an investment-grade rating. The vertical grey line denotes the start of the review period on 9 September 2021. The latest observation is for 15 December 2021.

In foreign exchange markets, the euro depreciated in trade-weighted terms (Chart 9), reflecting a broad-based weakening against the US dollar in particular as well as against most other major currencies. 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 1.2%. The euro depreciated markedly against the US dollar (by 4.9%), reflecting the widening of the short-term interest rate expectations differential between the euro area and the United States, driven by the faster rebound in economic activity and higher inflation in the United States and the path of US monetary policy. The euro also weakened against other major currencies, including the Chinese renminbi (by 6.2%), the Swiss franc (by 4.1%), the Japanese yen (by 1.4%) and the pound sterling (by 0.7%). Over the same period, the euro strengthened against the currencies of several non-euro area EU Member States, including the Hungarian forint (by 5.2%) and the Polish zloty (by 2.1%).

Chart 9

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 15 December 2021.

3 Economic activity

The euro area recovery continued in the third quarter of 2021, with activity strengthening further to stand close to the pre-pandemic level of output. Private consumption was the main driver of third-quarter growth, with a further modest contribution from net trade. A further substantial increase in services activity was a major contributor, particularly in the hospitality and leisure segments, which benefited from the progressive loosening of restrictions over the course of the summer. Meanwhile, industry and construction detracted from headline growth amid deepening supply shortages over the summer months.

Supply disruptions, energy price increases and further restrictions on activity related to a resurgence of the pandemic in some euro area countries are estimated to have weighed on activity in the final quarter of the year. The surge in coronavirus (COVID-19) infection rates since late November, a reintroduction of containment measures in several euro area countries and growing concerns about the Omicron variant are likely to weigh further on near-term confidence and activity.

Near-term disruptions and uncertainties notwithstanding, the basis for the ongoing euro area recovery remains intact. The medium-term outlook continues to envisage a further strengthening of domestic demand, alongside an improving labour market, strengthening global growth and ongoing policy support from both monetary and fiscal policy in the transition to self-supporting growth. This assessment is broadly reflected in the baseline scenario of the December 2021 Eurosystem staff macroeconomic projections for the euro area, which envisages annual real GDP growth of 5.1% in 2021, 4.2% in 2022, 2.9% in 2023 and 1.6% in 2024, with a return to pre-pandemic quarterly levels of activity expected by the first quarter of 2022. Compared with the September 2021 ECB staff macroeconomic projections, the outlook for economic activity has been revised downward for 2022, largely on account of the recent intensification of global supply bottlenecks and tighter pandemic-related restrictions in some euro area countries. In the medium term, however, the unwinding of these headwinds is expected to lead to a strong upward revision to growth in 2023 and increasingly self-sustaining growth thereafter.

Overall, the risks surrounding the outlook for euro area GDP growth are assessed as being broadly balanced. On the one hand, growth could underperform if the recent worsening of the pandemic, and the spread of new variants, results in a more persistent drag on growth. On the other hand, a faster recovery could be expected if the pandemic-driven increase in the stock of household savings unwinds more quickly, or current supply-side bottlenecks ease faster, than is currently envisaged.

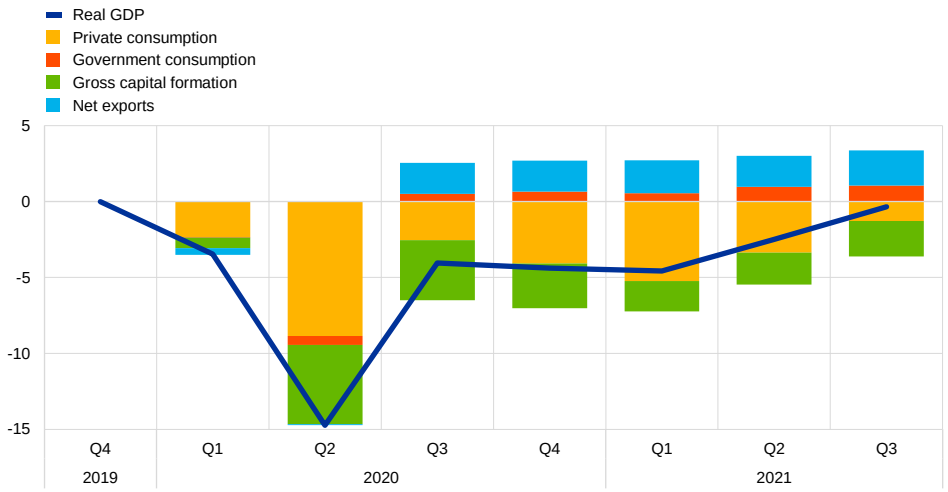
Euro area economic activity grew by a further 2.2% in the third quarter of 2021, confirming that a strong mid-year recovery was under way despite intensifying supply chain disruptions. After the technical recession at the start of 2021, real GDP growth was robust in the second and third quarters – growing at a quarter-on-quarter rate of 2.2% in both quarters – as pandemic containment measures were progressively relaxed. The outcome is broadly in line with the profile envisaged in the September 2021 ECB staff macroeconomic projections, with quarterly activity just 0.3% below the pre-pandemic level seen at the end of 2019 (Chart 10). Third-quarter

growth continued to be driven largely by a strong rebound in private consumption, with a further small positive contribution from net trade. After a strong showing in the second quarter, investment contracted in the third quarter, particularly in the machinery and equipment segment. Inventories also detracted modestly from headline growth.

Chart 10

Euro area real GDP and components

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



Sources: Eurostat and ECB calculations.

Supply chain bottlenecks continued to constrain output in the manufacturing sector in the fourth quarter (Chart 11). Shortages of materials, equipment and space have risen to record levels since the second quarter, with widespread reports of supply bottlenecks for semiconductors, metals and plastics, alongside ongoing transport disruptions. Shortages have been particularly acute in the industrial sector, restricting growth to just 0.1% quarter on quarter in industry excluding construction and contributing significantly to a 0.6% contraction in the construction sector in the third quarter.[7] By contrast, contact-intensive consumer-facing services grew strongly, supported by the continued relaxation of containment measures and high levels of consumer confidence.[8]

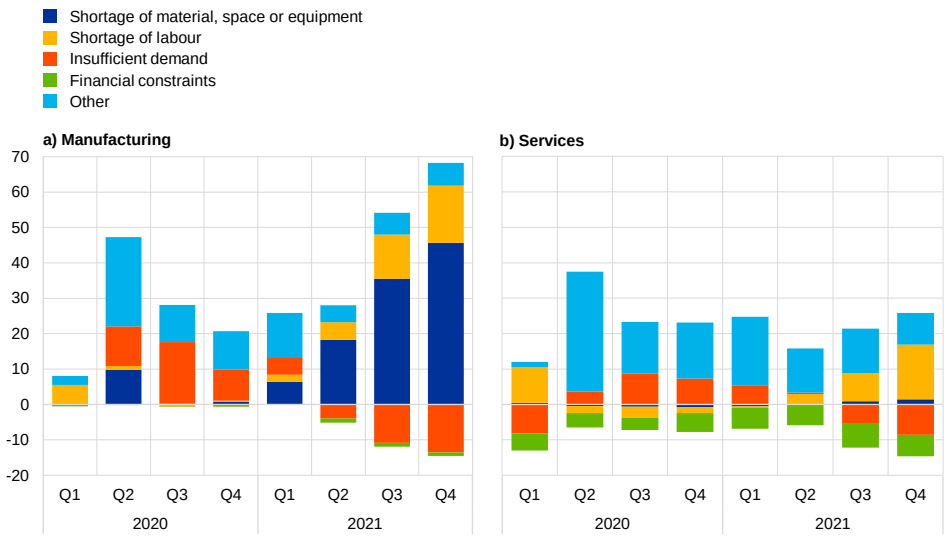
7 See the box entitled "Sources of supply chain disruptions and their impact on euro area manufacturing" in this issue of the Economic Bulletin.

8 The trade, transport and hospitality sector expanded by almost 7% quarter on quarter in the third quarter, while the arts and recreational activities sector grew by 12%. Both sectors, however, were still some way from their pre-pandemic levels of activity.

Chart 11

Factors limiting activity in the euro area

(percentages of respondents; difference relative to long-term average)



Source: European Commission.
Notes: The long-term average is computed for the period between 2003 and 2019. Quarterly surveys are carried out in the first month of each quarter. The latest observations are for the fourth quarter of 2021 (October).

Euro area GDP growth is estimated to have slowed significantly in the fourth quarter, amid high levels of short-term uncertainty. While a normalisation of growth rates was expected following the strong rebound seen during the summer, the current slowdown is likely to be amplified by the combined effects of the intensification of supply chain disruptions, sharp increases in energy prices, a renewed surge in COVID-19 infection rates and further concerns related to the Omicron variant. The average of the composite output Purchasing Managers' Index (PMI) for October and November was lower than the third-quarter average (at 54.8, down from 58.4), although the index still pointed to growth. The decline was broad-based, but slightly stronger in manufacturing than in services. The European Commission's Economic Sentiment Indicator (ESI) worsened slightly in November, but the average for the first two months of the fourth quarter remained in line with its third-quarter average. Importantly, however, the latest surveys for the PMI and ESI were largely concluded before the recent strong rises in COVID-19 cases and the subsequent reintroduction of restrictions on activity in some euro area countries, as well as being conducted before the first cases of the Omicron variant were identified in Europe. Consumer confidence had already declined – from high levels – over the first two months of the fourth quarter, following a resurgence of the pandemic and strong increases in energy prices, which have constrained households' purchasing power. The European Commission's quarterly business survey for the fourth quarter pointed to intensifying shortages of materials and – increasingly – labour compared with the third quarter (Chart 11). These shortages are likely to constrain near-term activity through trade and investment to a stronger degree than was previously envisaged. While near-term uncertainty about the degree and duration of these challenges remains high, renewed progress with vaccination campaigns, learning effects from earlier waves of the pandemic, the continuing favourable demand and

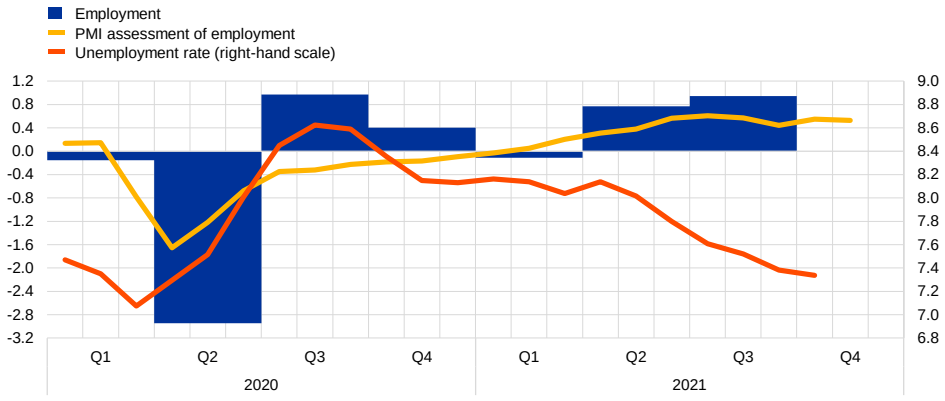
lending conditions for firms[9], and direct support for households to offset much of the recent surge in energy prices are expected to contain the impact of recent adverse developments on activity.

The euro area labour market continued to improve in the third quarter of 2021. Labour demand increased further in the third quarter, as evidenced by higher job vacancy rates. Employment grew by 0.9% quarter on quarter in the third quarter of 2021 (Chart 12). While this was the second highest quarterly increase since 1999, employment remained 0.2% below its pre-pandemic level. The unemployment rate declined further to stand at 7.3% in November, albeit it was still supported in part by workers in job retention schemes. These workers were estimated to account for 2.0% of the labour force at the end of the third quarter of 2021, a share that declined to 1.8% in October. This is a substantial decrease relative to the average of 6.3% in the first five months of the year, reflecting the easing of pandemic-related restrictions. Moreover, the labour force has continued to increase, steadily recovering to stand just 0.5% below its pre-pandemic level in the third quarter of 2021.

Chart 12

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

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



Sources: Eurostat, Markit and ECB calculations.
Notes: The PMI employment indicator and the unemployment rate are shown at a monthly frequency, while employment is shown at a quarterly frequency. The PMI is expressed as a deviation from 50 divided by 10. The latest observations are for the third quarter of 2021 for employment, November 2021 for the PMI and October 2021 for the unemployment rate.

Short-term indicators point to a further strengthening of the labour market. The monthly composite PMI employment indicator, which encompasses both industry and services, decreased slightly to stand at 55.3 in November, down from 55.5 in October, but remains well above the threshold of 50 that indicates growth in employment. The PMI employment indicator has fully recovered from its all-time low in April 2020 and is still close to its July 2021 level – the highest level since March 2000.

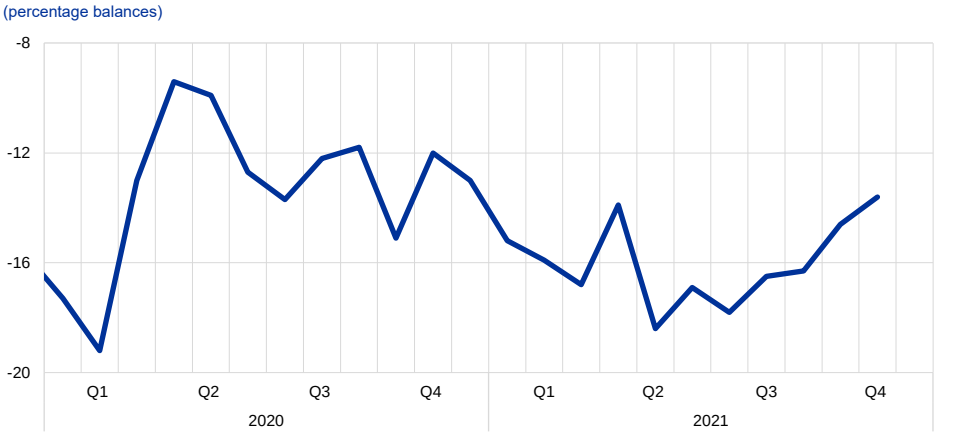
9 See also the box entitled "Financing conditions through the lens of euro area companies" in this issue of the Economic Bulletin.

Private consumption continued its rebound in the third quarter, driven by the consumption of services. Private consumption increased by 4.1% quarter on quarter in the third quarter of 2021. However, retail trade increased by just 0.8% over the same period. Strong aggregate consumption and subdued goods consumption suggest that the rebound was mainly on account of contact-intensive services, in line with the strong recovery in tourism activities during the summer months. By contrast, the more subdued dynamics of goods consumption continued at the start of the fourth quarter, as revealed by October data for retail trade (0.2% month on month) and car registrations (-3.1% month on month).

New pandemic-related risks are again causing concern for households. Consumer confidence fell to -6.8 in November, its lowest level since April 2021, seemingly reflecting growing concerns about the recent evolution of the pandemic. Since the summer, respondents to the European Commission's monthly consumer survey have become increasingly uncertain about their future financial situation (Chart 13). As news concerning the pandemic worsened further in November and December, monthly consumer confidence figures may still understate the current situation. Adverse pandemic-related developments during the winter months are expected to weigh on the consumption of contact-intensive services over the next few quarters.

Chart 13

Uncertainty among euro area households about their future financial situation



Source: European Commission.
Notes: Since the spring of 2019, the European Commission's monthly consumer survey has included an additional question that explicitly asks about the ease with which households are able to predict their future financial situation. The latest observation is for November 2021.

Corporate (non-construction) investment fell back in the third quarter of 2021, despite strong demand for capital goods. Euro area non-construction investment (excluding Ireland[10]) declined by 0.6% quarter on quarter in the third quarter of 2021, offsetting an expansion in the previous quarter and remaining slightly below the pre-pandemic level seen in the last quarter of 2019. Among the largest euro area countries, non-construction investment increased in Italy and Spain, while it declined in Germany and the Netherlands and remained roughly unchanged in France. As for

[10] Ireland is excluded owing to the high volatility of Irish investment data, which would otherwise mask underlying euro area developments.

the components of non-construction investment, investment in transport equipment contracted strongly in the euro area for a third consecutive quarter, mostly related to input shortages as a result of the ongoing supply chain bottlenecks.[11] By contrast, investment in non-transport equipment and intellectual property products continued to expand. Alongside the reported shortages of equipment and labour, which are seen as key factors limiting production in the euro area, short-term indicators for the fourth quarter of 2021 suggest continued strong demand for capital goods. New orders of capital goods continue to rise, with the October PMI clearly pointing to growth. Information from the euro area bank lending survey[12] is also in line with upbeat expectations regarding firms' investment activities, as banks expect demand for long-term loans (typically used in the financing of investment) to increase in the fourth quarter of 2021.[13]

Housing investment declined in the third quarter of the year and is likely to remain subdued on account of continuing supply bottlenecks and pandemic-related uncertainties. Housing investment in the third quarter fell by 1.2% relative to its second-quarter level. The European Commission's indicator of recent trends in construction activity declined significantly, on average, in the first two months of the fourth quarter, although it remained well above its long-term average. The PMI for housing activity increased somewhat, rising further into expansionary territory. On the household side, European Commission survey data show buoyant demand, with consumers' short-term intentions to buy or build a home reaching their highest level since early 2002, while intentions to renovate were at their highest level ever in the fourth quarter of 2021. Favourable demand is also reflected in data for firms, where confidence has improved again, driven by a further increase in firms' assessments of order book levels. However, supply concerns have also increased again, with companies reporting a further increase in material and labour shortages, which were already at an all-time high in the third quarter. These supply bottlenecks are also reflected in the latest PMI surveys, which show very long delivery times for suppliers, and are likely to have contributed to construction companies' somewhat less optimistic assessment of business activity over the next 12 months.

Although net trade contributed positively to GDP growth in the third quarter, goods exports were held back by the ongoing supply disruptions. In the third quarter of 2021, euro area exports increased by 1.2% quarter on quarter while imports expanded by 0.7%, resulting in a 0.3 percentage point contribution to GDP growth. Trade in goods and services had divergent outcomes. Exports and imports of goods declined (by 1.0% and 0.9% respectively quarter on quarter) as global demand softened and supply disruptions persisted. By contrast, exports and imports of services expanded strongly (by 7.3% and 5.9% respectively quarter on quarter), with exports driven by double-digit growth rates in countries that are summer tourist destinations. Looking ahead, order-based indicators for goods exports signal a

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11 For an assessment of the key factors causing supply chain disruptions and their impact on euro area industrial production, see the box entitled "Sources of supply chain disruptions and their impact on euro area manufacturing" in this issue of the Economic Bulletin.

12 See "The euro area bank lending survey – Third quarter of 2021".

13 For analysis of perceived financing conditions in the euro area based on the survey on the access to finance of enterprises (SAFE), see the box entitled "Financing conditions through the lens of euro area companies" in this issue of the Economic Bulletin.

moderation in demand. Moreover, the renewed intensification of the pandemic threatens the recovery in services exports, particularly travel-related services. Passenger and flight data show a deceleration in the recovery as of September 2021, while forward-looking indicators based on orders and expectations point to momentum slowing in the coming months.

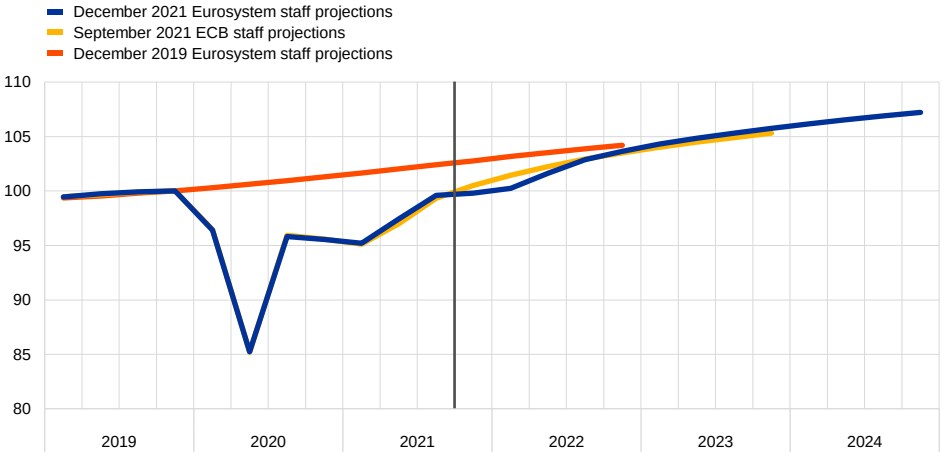
Near-term uncertainties notwithstanding, euro area activity is expected to exceed pre-crisis levels in the course of 2022. The medium-term outlook envisages a further strengthening of domestic demand alongside an improving labour market and strengthening global growth as near-term disruptions subside, as well as ongoing policy support from both monetary and fiscal policy in the transition to self-supporting growth. Furthermore, progress with the implementation of the Next Generation EU programme is an additional factor helping to support the recovery. This is reflected in the December 2021 Eurosystem staff macroeconomic projections for the euro area, which foresee annual real GDP growth of 5.1% in 2021, 4.2% in 2022, 2.9% in 2023 and 1.6% in 2024 (Chart 14). Compared with the September 2021 ECB staff macroeconomic projections, the growth profile has been revised downward in 2022, but upward in 2023. The downward revisions in the near term reflect the recent intensification of global supply bottlenecks and tighter pandemic-related restrictions in the face of a resurgence in COVID-19 case numbers in some euro area countries, which are now expected to continue into 2022. As a consequence, quarterly euro area activity is now expected to return to pre-pandemic levels by the first quarter of 2022, one quarter later than was envisaged in the September 2021 projections. However, growth is expected to rebound strongly towards the end of 2022 as these headwinds gradually dissipate. Consequently, euro area GDP is now expected to rise above the level foreseen in the September 2021 projections by the end of 2022, resulting in substantial carry-over effects into 2023 and an upward revision to annual growth in that year.[14]

[14] See the article entitled "Eurosystem staff macroeconomic projections for the euro area, December 2021", published on the ECB's website on 16 December 2021.

Chart 14

Euro area real GDP (including projections)

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



Sources: Eurostat and the article entitled "Eurosystem staff macroeconomic projections for the euro area, December 2021", published on the ECB's website on 16 December 2021.
Note: The vertical line indicates the start of the December 2021 projections and follows the last observation for euro area real GDP, which relates to the third quarter of 2021.

4 Prices and costs

Euro area annual inflation rose to a record high of 4.9% in November 2021 according to Eurostat's flash estimate. The upswing in inflation primarily reflects a sharp rise in energy prices. In November, energy inflation accounted for more than half of headline inflation. Demand also continued to outpace constrained supply in certain sectors. The consequences are especially visible in the prices of durable goods and those consumer services that have recently reopened. Base effects related to the end of the VAT cut in Germany are still contributing to higher inflation, but only until the end of 2021. Inflation is expected to remain elevated in the near term, but to decline in the course of 2022. Over time, the gradual return of the economy to full capacity and further improvements in the labour market should support faster growth in wages, underpinned by an upward movement of inflation expectations towards the target. These factors should help underlying inflation to move up and bring headline inflation up to the target over the medium term. These developments are reflected in the December 2021 Eurosystem staff macroeconomic projections for the euro area, which foresee annual inflation at 2.6% in 2021, 3.2% in 2022, 1.8% in 2023 and 1.8% in 2024 – revised up from the September 2021 ECB staff macroeconomic projections. Inflation excluding food and energy is projected to average 1.4% in 2021, 1.9% in 2022, 1.7% in 2023 and 1.8% in 2024, also higher than in the September 2021 projections.

HICP inflation reached a record high in November 2021 (Chart 15). According to Eurostat's flash estimate for November, HICP inflation increased sharply again, rising from 3.4% in September to 4.1% in October and 4.9% in November. This is the highest level of HICP inflation since the start of Economic and Monetary Union in 1999. The increase was driven by a further rise in energy inflation, which accounted for just over half of headline inflation in November, hitting an all-time high of 27.4% after 17.6% in September. However, HICP inflation excluding food and energy (HICPX) also increased substantially, up from 1.9% in September to 2.0% in October and 2.6% in November – a record high since 1999. This surge reflects sharp increases in both services inflation (which went up from 1.7% in September to 2.7% in November) and non-energy industrial goods inflation (which rose from 2.1% in September to 2.4% in November).[15] The euro area inflation rate also continued to be affected by the changes in both the VAT rate in Germany in 2020 – affecting inflation until the end of 2021 – and HICP weights[16]. Excluding the upward impact on annual rates of change from the reversal of the temporary cut in the German VAT rate in January 2021 would reduce headline inflation by 0.35 percentage points for the period since July. Additionally, while the change in HICP weights had a dampening impact in October, it made no difference in November. Net of the impact of the VAT cut and HICP weight changes, both the level of inflation and the upward movement between October and November would be somewhat less significant.

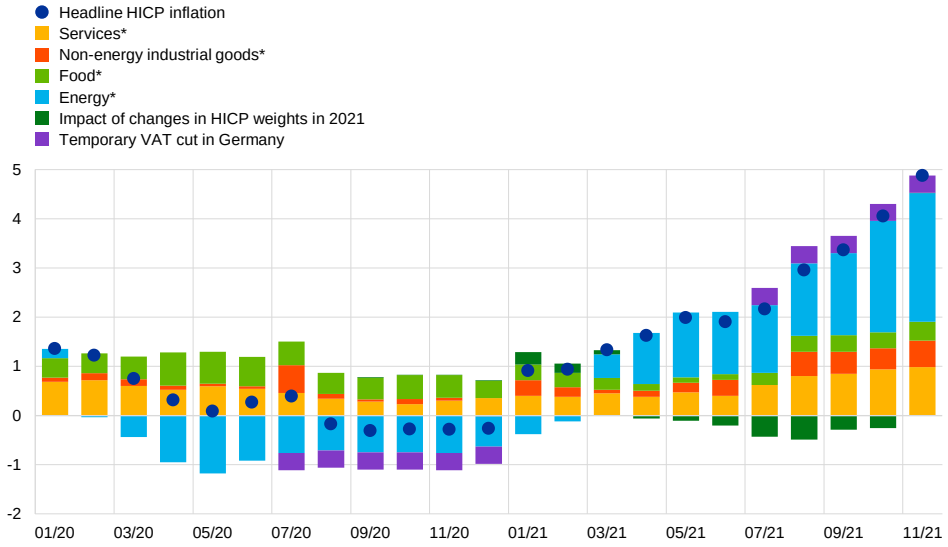
15 Net of the effect of the change in HICP weights, the increase in services inflation was somewhat more moderate, rising from 2.2% in September to 2.5% in November.

16 For a detailed overview of the role of the changes in HICP weights on the measurement of inflation in 2021, see the box entitled "2021 HICP weights and their implications for the measurement of inflation", *Economic Bulletin*, Issue 2, ECB, 2021.

Chart 15

Headline inflation and its components

(annual percentage changes; percentage point contributions)



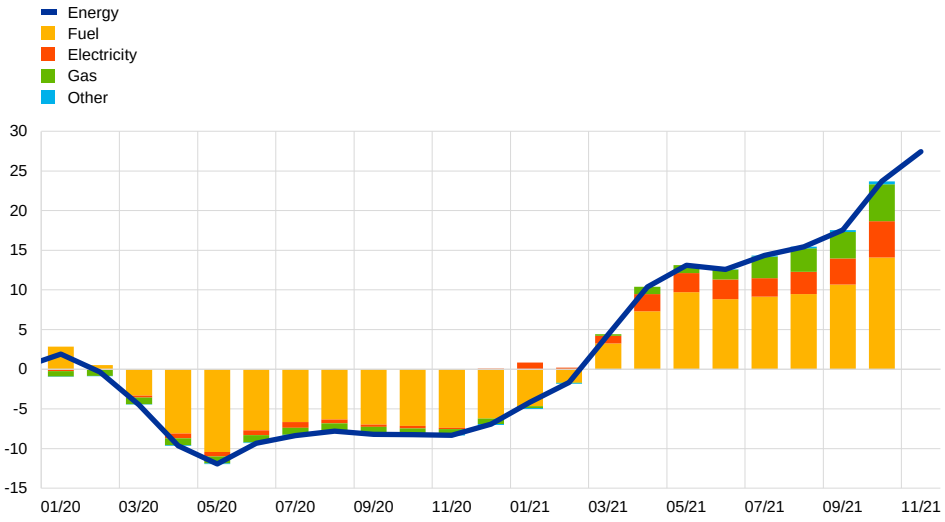
Sources: Eurostat, ECB staff calculations and the Narrow Inflation Projection Exercise.
Notes: Components highlighted with * exclude both the impact of the changes in HICP weights in 2021 and the temporary reduction in VAT in Germany in 2020. The impact of the changes in HICP weights is estimated by the ECB and the impact in November may change depending on Eurostat's full release for that month. The latest observations are for November 2021 (flash estimates).

The surge in energy inflation to a historical high largely reflected the sharp pick-up in global commodity prices. Oil price developments gave rise to a large contribution from the fuel component of the HICP. However, the recent increases in consumer prices for gas and electricity also resulted in larger contributions from those components in November, accounting for more than 0.8 percentage points of headline inflation (Chart 16) for the first time since 1999. The greater contribution from the gas component was driven by the rise in global and European wholesale gas prices, which, in turn, pushed up EU wholesale electricity prices, as electricity prices are based on the short-run marginal costs of power plants. Higher allowance prices under the EU Emissions Trading Scheme also had an upward impact, albeit a much smaller one. For a discussion of the energy inflation outlook in relation to these factors, see the box entitled "Developments in energy commodity prices and their implications for HICP energy price projections" in the December 2021 Eurosystem staff macroeconomic projections for the euro area.

Chart 16

Energy inflation decomposition

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.
Notes: "Fuel" refers to the HICP component "liquid fuels and fuels and lubricants for personal transport equipment". "Other" includes the items "solid fuels" and "heat energy" at the COICOP 5-digit level of aggregation. COICOP stands for classification of individual consumption according to purpose. The latest observations are for October 2021 for COICOP subcomponents and for November 2021 for energy inflation.

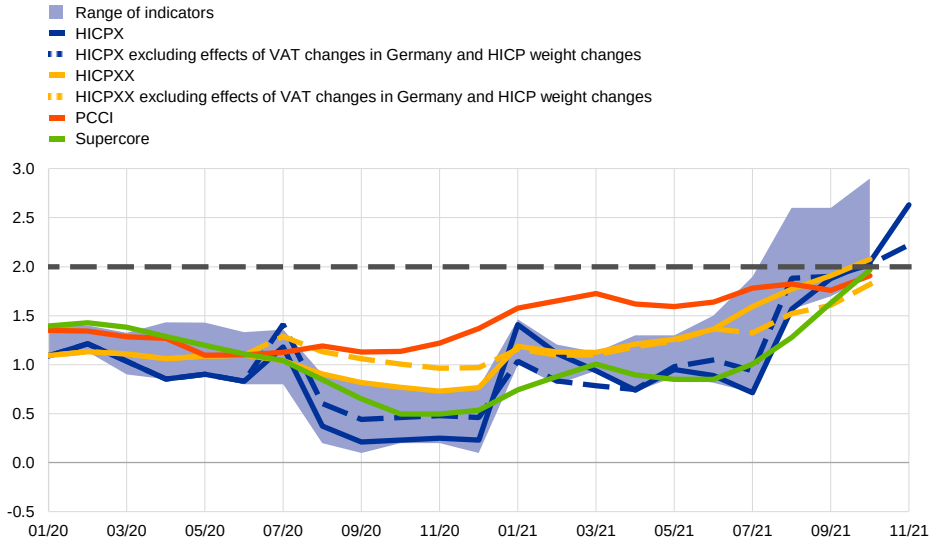
Indicators of underlying inflation continued to increase (Chart 17). HICPX increased to 2.6% in November (estimated at 2.5% when excluding the effects of changes in HICP weights, and at 2.2% when also taking into account the VAT cut in Germany in 2020). Data for other indicators of underlying inflation are only available up to October. HICP inflation excluding energy, food, travel-related items, clothing and footwear (HICPXX) rose from 1.9% in September to 2.1% in October, while the model-based Persistent and Common Component of Inflation (PCCI) went up from 1.8% to 1.9% over the same period. The Supercore indicator, which comprises cyclically sensitive items, increased for the fourth consecutive month, edging up to 2.0% in October from 1.6% in September. The distribution of inflation rates across HICP items is currently very broad, and 46% of the items included in HICPX recorded inflation rates above 2%. This implies that exclusion-based indicators of underlying inflation, especially the so-called trimmed means, derived from the items in the HICP basket, still include a number of items with relatively high and volatile growth rates, which in recent months have pushed up the corresponding measures into the upper end of the range of indicators of underlying inflation.[17]

[17] Trimmed means (which remove around 5% or 15% from each tail of the distribution of annual price changes) stand well above the target of 2% because they include some energy items with currently very high inflation rates. For further information on these and other measures of underlying inflation, see Box 2 and Box 3 in the article entitled "Measures of underlying inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2018.

Chart 17

Indicators of underlying inflation

(annual percentage changes)



Sources: Eurostat and ECB calculations.
Notes: The range of indicators of underlying inflation includes HICP excluding energy, HICP excluding energy and unprocessed food, HICPX (HICP excluding energy and food), HICPXX (HICP excluding energy, food, travel-related items, clothing and footwear), the 10% and 30% trimmed means and the weighted median. The latest observations are for November 2021 for HICPX and for October 2021 for all other indicators.

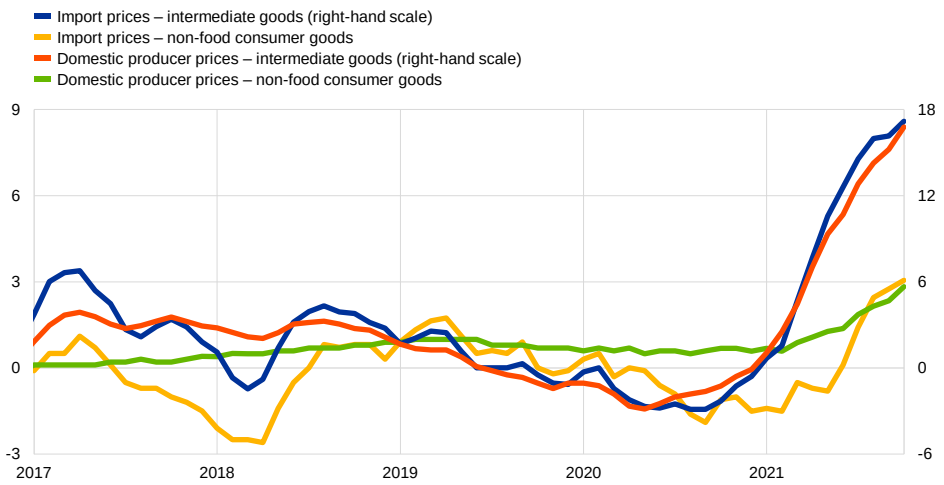
Pipeline pressures on prices for non-energy industrial goods continued to build up in October (Chart 18). At the earlier input stages, the annual rate of change in producer prices for domestic sales of intermediate goods rose sharply, up from 14.3% in August to 15.2% in September and 16.8% in October, while the annual rate of change in import prices for intermediate goods increased from 16.0% in August to 16.2% in September and 17.2% in October. Pipeline pressures have extended to the later stages of the pricing chain: producer price inflation for domestic sales of non-food consumer goods continued to rise, up from 2.2% in August to 2.3% in September and 2.8% in October – a new historical high – while import price inflation for non-food consumer goods rose from 2.4% in August to 2.8% in September and 3.1% in October, which is also attributable to the recent depreciation in the nominal effective exchange rate of the euro. This increase in pipeline price pressures is taking place in an environment where surges in global commodity prices (reinforced by the depreciation in the euro) and supply bottlenecks are affecting firms' production costs, raising the question of the extent to which these pressures will ultimately be passed through to consumer goods prices. Recent findings from the Corporate Telephone Survey show that companies anticipated a higher pass-through of input costs not only to other businesses, but also to consumers.[18] However, under the current pandemic circumstances, there remains considerable uncertainty about the degree of pass-through of these pipeline pressures to consumer goods prices.

[18] See the box entitled "Main findings from the ECB's recent contacts with non-financial companies", *Economic Bulletin*, Issue 7, ECB, 2021.

Chart 18

Indicators of pipeline pressures

(annual percentage changes)



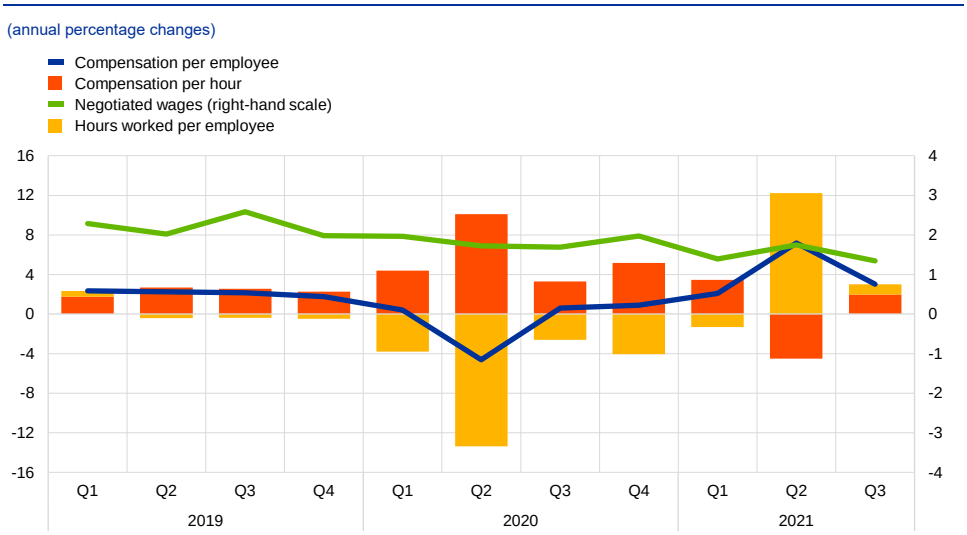
Sources: Eurostat and ECB calculations.
Note: The latest observations are for October 2021.

Wage pressures have remained moderate so far, but measures of wage growth continue to be blurred by pandemic-related developments. Growth in compensation per employee and compensation per hour converged in the third quarter of 2021, after a large gap between the two measures in the second quarter, with annual growth in compensation per employee moderating to 3.0% in the third quarter, down from 7.2% in the second quarter, and compensation per hour rising to 2.0% in the third quarter, up from -4.5% in the second quarter (Chart 19). These large movements in the year-on-year growth rates mainly reflect base effects associated with developments in 2020, when short-time work and temporary lay-off schemes meant that people retained their employment status but worked fewer hours. However, policy measures remain in place and are still distorting measures of wage growth to some degree. Negotiated wages, which are not directly affected by developments in hours worked or the recording of benefits from job retention schemes, declined to 1.3% in the third quarter of 2021, down from 1.8% in the second quarter.[19] Although this measure is more stable than actual wage growth, it does also entail some volatility, as it includes some special pandemic-related one-off payments. While negotiated wages suggest that wage growth is only moderate, the data probably cover negotiations that were concluded before the recent surge in inflation.

[19] For more information, see the box entitled "Assessing wage dynamics during the COVID-19 pandemic: can data on negotiated wages help?", *Economic Bulletin,* Issue 8, ECB, 2020.

Chart 19

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



Sources: Eurostat and ECB calculations.
Note: The latest observations are for the third quarter of 2021.

Market-based indicators of inflation compensation displayed significant intra-period volatility, rising strongly in the first half of the review period and reversing only some of those increases in the second half, while survey-based measures of inflation expectations went up in the second half of 2021.

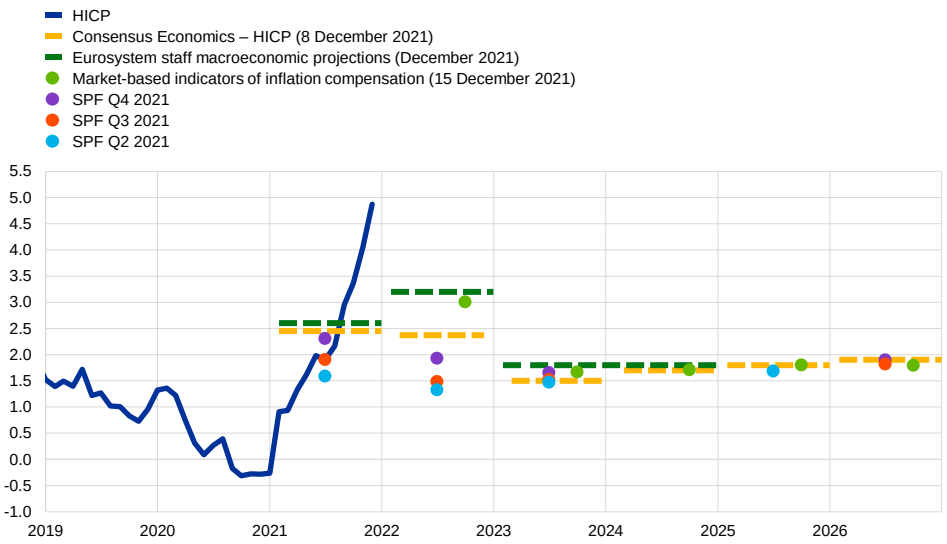
Sustained supply chain tensions, rising energy prices and positive euro area inflation surprises continued to exert upward pressure on euro area inflation-linked swap (ILS) rates in the first part of the review period. ILS forward rates peaked towards the end of October at levels above 2% for horizons beyond five years. For instance, the five-year forward ILS rate five years ahead reached 2.1%, a level last seen during the summer of 2014. Reversing some of those increases, market-based indicators of inflation compensation have declined since late October on both sides of the Atlantic, amid falling prices for energy, in particular for oil. Overall, markets are pricing in a rise in euro area inflation over the short term, and the increase being priced in is sharper and more persistent than previously anticipated. At the same time, they are still pricing in the rise in inflation as transitory, with the one-year forward ILS rate one year ahead standing at around 1.7% and the five-year forward ILS rate five years ahead slightly higher at 1.8%. However, inflation options are signalling an increasing risk that average inflation will exceed levels well above 2% over the next five years, while the risk of inflation surpassing the 3% mark remains low. From a longer-term perspective, model-based estimates show that the significant rise in market-based measures of inflation compensation since mid-2020 is attributable mainly to inflation risk premia (for more details, see the box entitled "Decomposing market-based measures of inflation compensation into inflation expectations and risk premia" in this issue of the Economic Bulletin). Over the summer there was an uptick in survey-based indicators of inflation expectations, which – similarly to the December 2021 Eurosystem staff macroeconomic projections for the euro area – support the notion of a hump-shaped profile for inflation. According to the ECB Survey of Professional

Forecasters for the fourth quarter of 2021, which was conducted in the first week of October, as well as the October Consensus Economics forecasts, longer-term inflation expectations increased to 1.9% (Chart 20).

Chart 20

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

(annual percentage changes)



Sources: Eurostat, Refinitiv, Consensus Economics, ECB Survey of Professional Forecasters, Eurosystem staff macroeconomic projections for the euro area, December 2021 and ECB calculations.
Notes: The market-based indicators of the inflation compensation series are based on the one-year spot inflation rate and 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 15 December 2021. The ECB Survey of Professional Forecasters for the fourth quarter of 2021 was conducted between 1 and 11 October 2021. The Consensus Economics cut-off date is 8 December for 2021 and 2022, and 14 October 2021 for 2023, 2024, 2025 and 2026. The cut-off date for data included in the projections was 1 December 2021.

The December 2021 Eurosystem staff macroeconomic projections for the euro area foresee inflation to be higher for longer, but falling to rates below the 2% target in 2023 and 2024. Having reached 4.9% in November 2021, HICP inflation is expected to decrease sharply over the course of 2022, before stabilising in 2023 to rates below the inflation target. The baseline projections point to headline HICP inflation averaging 2.6% in 2021, 3.2% in 2022, 1.8% in 2023 and 1.8% in 2024 (Chart 21). Compared with the September 2021 ECB staff macroeconomic projections for the euro area, the projection for HICP inflation has been revised upwards for the entire projection horizon, specifically by 0.4 percentage points for 2021, 1.5 percentage points for 2022 and 0.3 percentage points for 2023. High prices for energy (transport fuels, electricity and gas), stronger demand in the context of the reopening of the economy and increasing producer prices as a result of global supply bottlenecks and higher transport costs have led to a strong surge in inflationary pressures, which are also expected to sustain inflation into 2022. However, HICP inflation is expected to decline in 2022 mainly owing to base effects in both the energy and non-energy components, partly related to the reversal of the temporary cut in the German VAT rate in January 2021. HICPX is projected to broadly mimic the near-term developments in headline inflation before strengthening towards the end of the projection horizon, to stand at 1.4% in 2021, 1.9% in 2022,

1.7% in 2023 and 1.8% in 2024. The upward revisions to HICPX similarly reflect the impact of supply bottlenecks. The strengthening of underlying inflation towards the end of the projection horizon is supported by the economic recovery, stronger wage growth and higher inflation expectations.

Chart 21

Euro area HICP inflation (including projections)

(annual percentage changes)

Sources: Eurostat and Eurosystem staff macroeconomic projections for the euro area, December 2021.
Notes: The vertical line indicates the start of the projection horizon. The latest observations are for the third quarter of 2021 (data) and the fourth quarter of 2024 (projections). The cut-off date for data included in the projections was 1 December 2021.

5 Money and credit

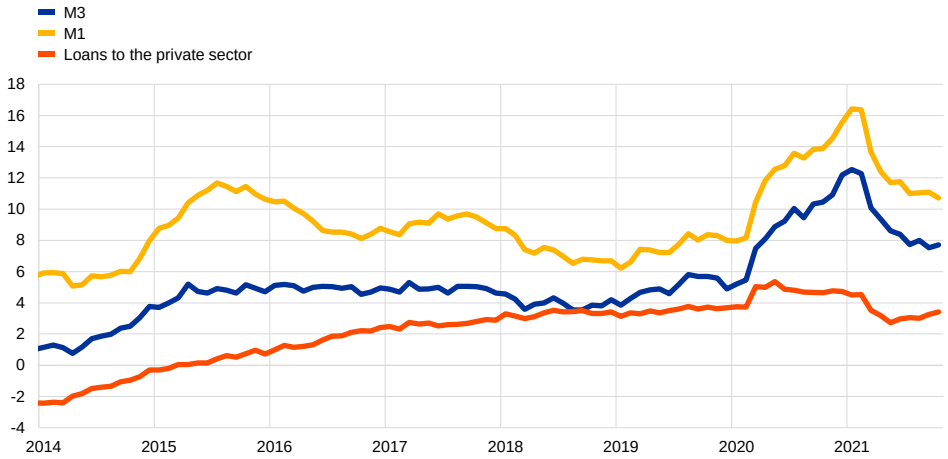
Money creation in the euro area edged upward in October 2021, reflecting greater uncertainty related to the coronavirus (COVID-19) pandemic and policy support measures. Eurosystem asset purchases remained the dominant source of money creation. Growth in loans to the private sector increased slightly, continuing to benefit from favourable financing conditions, while firms' working capital needs supported demand for short-term loans. In the third quarter, the total volume of external financing for firms picked up, supported by debt securities issuance and bank loans to firms. The overall cost of firms' external financing increased slightly over the period from July to October 2021 – driven by the cost of raising equity – but remained well below the peak observed at the onset of the pandemic.

In October 2021 broad money growth edged upward. The annual growth rate of M3 increased to 7.7% in October, up from 7.5% in September (Chart 22), driven by a large inflow that coincided with greater uncertainty related to the impact that the fourth COVID-19 wave would have on the European economy. The quarterly pace of money growth continued to move closer to its longer-term average. On the components side, the main driver of M3 growth was the narrow aggregate M1, which includes the most liquid components of M3. During the pandemic, money holders have generally displayed a strong preference for liquid assets, which reflects precautionary motives. With containment measures being relaxed in spring and summer 2021 and economic activity recovering, growth in M1 moderated in the second and third quarters of 2021 following the high growth rates observed during the first year of the pandemic. In October the annual growth rate of M1 decreased further, falling from 11.1% to 10.7%, mainly reflecting developments in overnight deposits. Meanwhile, the annual growth rate of currency in circulation, which had been declining since the first quarter of 2021, stabilised at 8.5% in October. The contribution of other short-term deposits remained negative in that month, reflecting a decrease in demand for time deposits. Moreover, the contribution of marketable instruments increased from a very low level owing to search-for-yield behaviour in a low interest rate environment.

Chart 22

M3, M1 and loans to the private sector

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



Source: ECB.
Notes: Loans are adjusted for loan sales, securitisation and notional cash pooling. The latest observations are for October 2021.

Growth in overnight deposits moderated further. The annual growth rate of overnight deposits fell to 11.1% in October, down from 11.5% in September. This decline was driven mainly by households, which make the largest contribution from a sectoral perspective. At the start of the pandemic, deposit inflows were substantial, since household savings increased as a consequence of containment measures and firms created additional liquidity buffers. In an environment of increased uncertainty, these inflows then continued beyond the early phase of the pandemic.[20] More recently, households have started to reduce their saving rate as consumer confidence has increased and improved spending opportunities have emerged. As vaccination campaigns have progressed and economic activity has rebounded, the quarterly pace at which households and firms accumulate bank deposits has slowed, returning to its pre-pandemic average. Growth in the deposit holdings of firms and households has varied across countries, reflecting differences in liquidity needs and national (fiscal) support measures.

Money creation continued to be driven by Eurosystem asset purchases in October 2021. As in previous quarters, the largest contribution to M3 growth came from the Eurosystem's net purchases of government securities under the asset purchase programme (APP) and the pandemic emergency purchase programme (PEPP) (red portion of the bars in Chart 23). As in previous quarters, credit to the private sector provided significant support to money creation (blue portion of the bars). Other counterparts also supported broad money growth (dark green portion of the bars), as favourable conditions for targeted longer-term refinancing operations (TLTROs) provided incentives to shift bank funding away from longer-term liabilities. However, two main factors dampened money creation: first, sales of government bonds or reduced issuance of government securities (light green portion of the bars), which resulted in the reduction of bank credit to general government; and second,

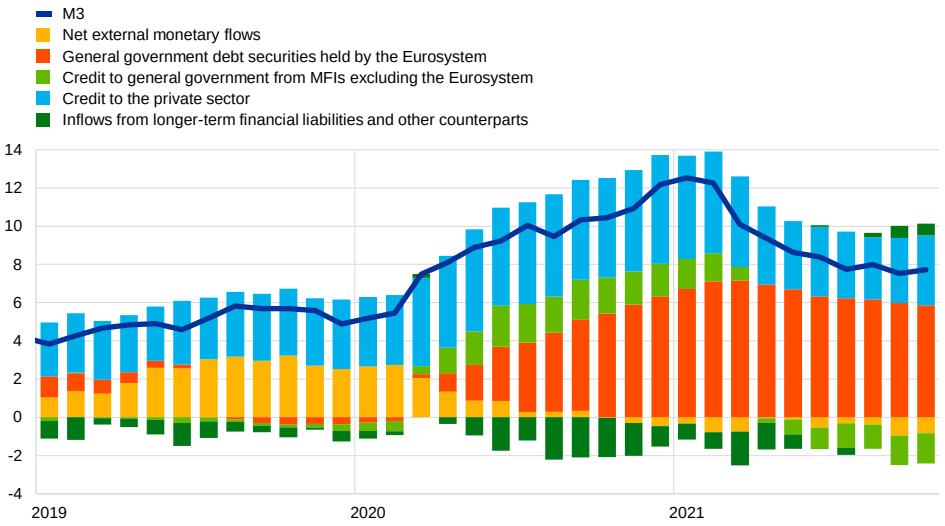
[20] See the box entitled "COVID-19 and the increase in household savings: an update", *Economic Bulletin*, Issue 5, ECB, 2021.

net external monetary outflows (yellow portion of the bars), driven by a strengthening of portfolio substitution and coinciding with a weakening of the euro's effective exchange rate.

Chart 23

M3 and its counterparts

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



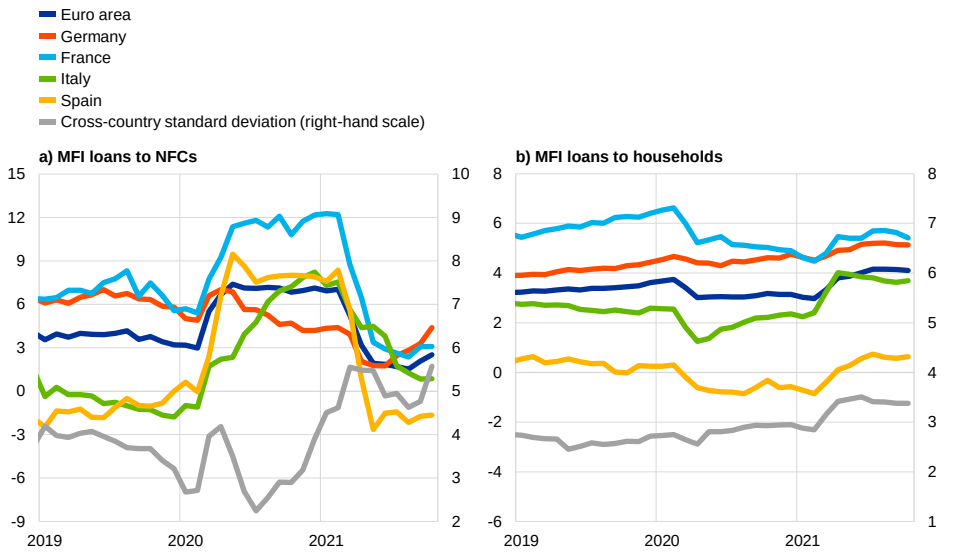
Source: ECB.
Notes: Credit to the private sector includes monetary financial institution (MFI) loans to the private sector and MFI holdings of debt securities issued by the euro area private non-MFI sector. As such, it also covers the Eurosystem's purchases of non-MFI debt securities under the corporate sector purchase programme and the PEPP. The latest observations are for October 2021.

Growth in loans to the private sector increased slightly in October 2021 (Chart 22). Lending to firms and households continued to benefit from favourable financing conditions and improved economic prospects. Following a moderation in the first half of the year, growth in loans to the private sector rose to 3.4% in October, up from 3.2% in September, driven by lending to firms. The annual growth rate of loans to firms rose to 2.5% in October, up from 2.1% in September, driven by an increase in short-term loans that was probably related to firms' working capital needs. At the same time, loan growth remained moderate on account of large cash balances, the strengthening of internally generated funds and the availability of other non-bank funding sources, which continued to weigh on firms' demand for bank loans. The growth rate of loans to households remained unchanged at 4.1% in October (Chart 24). Mortgage lending continued to be the main driver of household borrowing, with growth in consumer credit remaining subdued. Loan developments also mask considerable differences across euro area countries, which reflect, among other things, unevenness in the impact of the pandemic and the progress of the economic recovery.

Chart 24

MFI loans in selected euro area countries

(annual percentage changes; standard deviation)

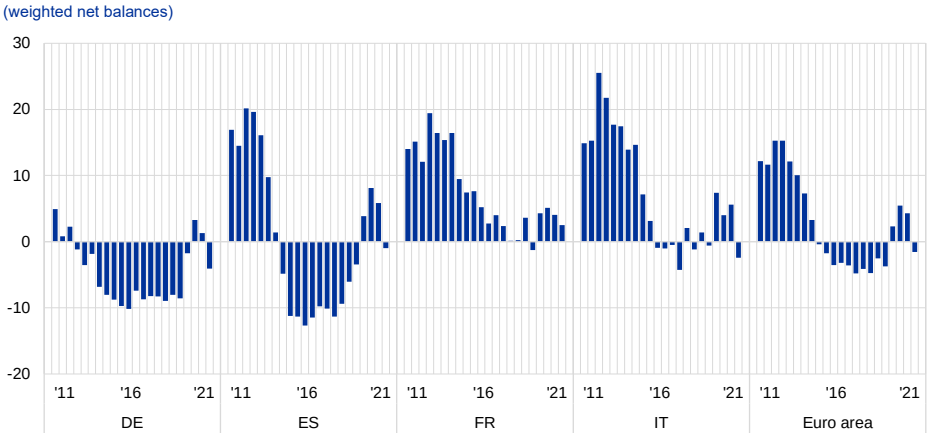


Source: ECB.
Notes: Loans are adjusted for loan sales and securitisation; in the case of non-financial corporations (NFCs), loans are also adjusted for notional cash pooling. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for October 2021.

Small and medium-sized enterprises (SMEs) recently reported improved access to external finance over the past six months relative to early 2021, and they expect a further improvement going forward. According to the November 2021 survey on the access to finance of enterprises (SAFE), euro area SMEs felt that the improvement in their access to external funds had outweighed the corresponding increases in their financing needs, resulting in a slightly negative external financing gap of -2% (down from 4%) (Chart 25). Moreover, those SAFE responses showed that SMEs – and even more so large firms – expected to see an improvement in the availability of most external financing sources. In particular, firms' improved overall perceptions of financing conditions played an increasingly important role in explaining their expectations regarding the future availability of bank loans (see Box 3 in this issue). Reflecting the ongoing economic recovery, euro area SMEs signalled an increase in their turnover, while profits fell by much less than in the previous survey round. The lacklustre performance in terms of profits generally reflected higher commodity prices and labour costs.

Chart 25

Changes in the external financing gap reported by SMEs across euro area countries



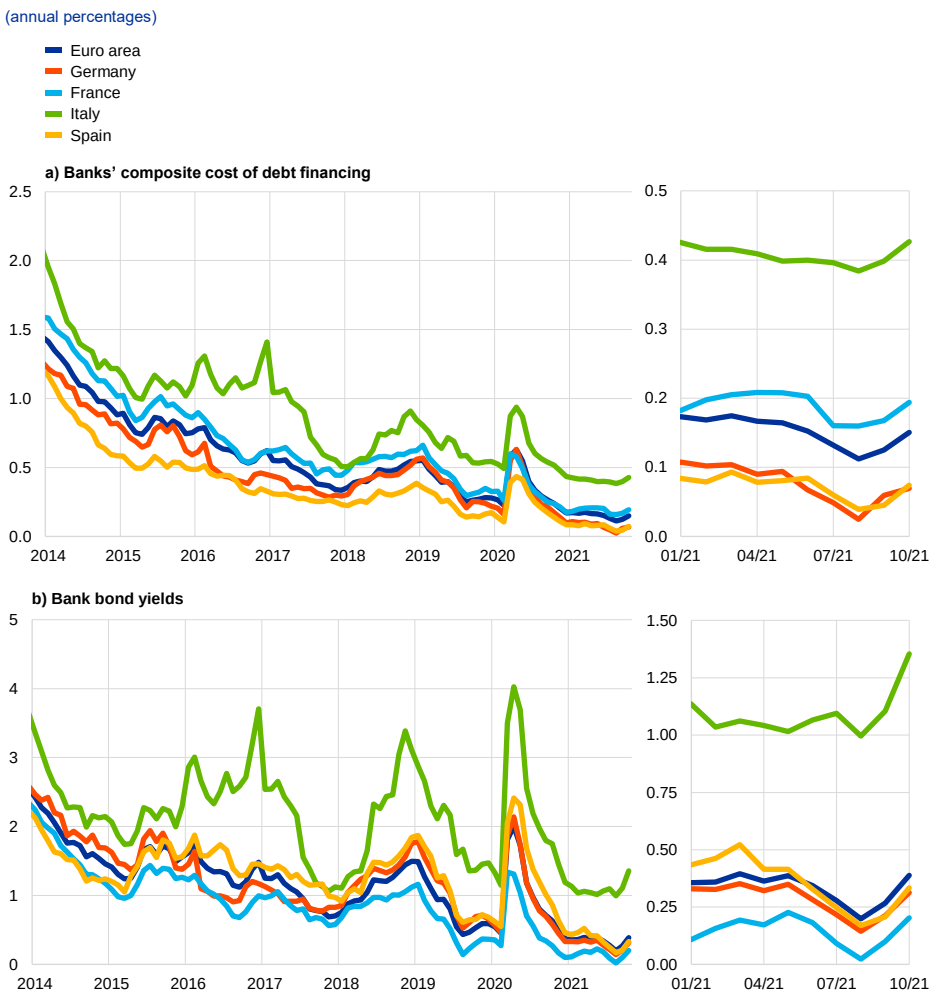
Source: ECB survey on the access to finance of enterprises (SAFE).
Notes: The financing gap indicator combines both financing needs and the availability of bank loans, credit lines, trade credit, and equity and debt securities issuance at the firm level. For each of the five financing instruments, the indicator of the perceived change in the financing gap takes a value of 1 (-1) if the need increases (decreases) and availability decreases (increases). If enterprises perceive only a one-sided increase (decrease) in the financing gap, the variable is assigned a value of 0.5 (-0.5). The composite indicator is a weighted average of the financing gap for the five instruments. A positive value for the indicator points to an increase in the financing gap. Values are multiplied by 100 to obtain weighted net balances in percentages. The figures refer to rounds 3-25 of the survey (March 2010-September 2010 to April 2021-September 2021).

Debt funding costs for euro area banks remain close to their historical lows, supported by the ECB's monetary policy measures. The composite cost of debt financing remains below pre-pandemic levels, notwithstanding an increase in risk-free rates and bank bond yields since September 2021 (Chart 26). Bank funding costs have so far remained insulated from upward pressure for three reasons. First, repricing of deposits has continued, with euro area banks charging negative interest rates on an increasing share of corporate deposits, while the percentage of household deposits that have negative rates has also increased (albeit from relatively low levels) and now stands at 6.5%.[21] Second, banks' share of debt funding has declined significantly, as banks have made use of the third series of targeted longer-term refinancing operations (TLTRO III) and the pandemic emergency longer-term refinancing operations (PELTROs) at very favourable conditions. Third, the ECB's APP and PEPP policy measures have helped to contain upward pressure on bank bond yields and reduce divergence in funding conditions across countries, risk classes and maturities relative to the levels observed before the pandemic. In addition, prices for covered bank bonds have been supported by the ECB's third covered bond purchase programme (CBPP3). In addition to the ECB's policy measures, the Next Generation EU programme is also supportive of lower yields, as it contributes to a stronger and more uniform recovery across the euro area.

21 See the November 2021 Financial Stability Review.

Chart 26

Composite bank funding rates in selected euro area countries



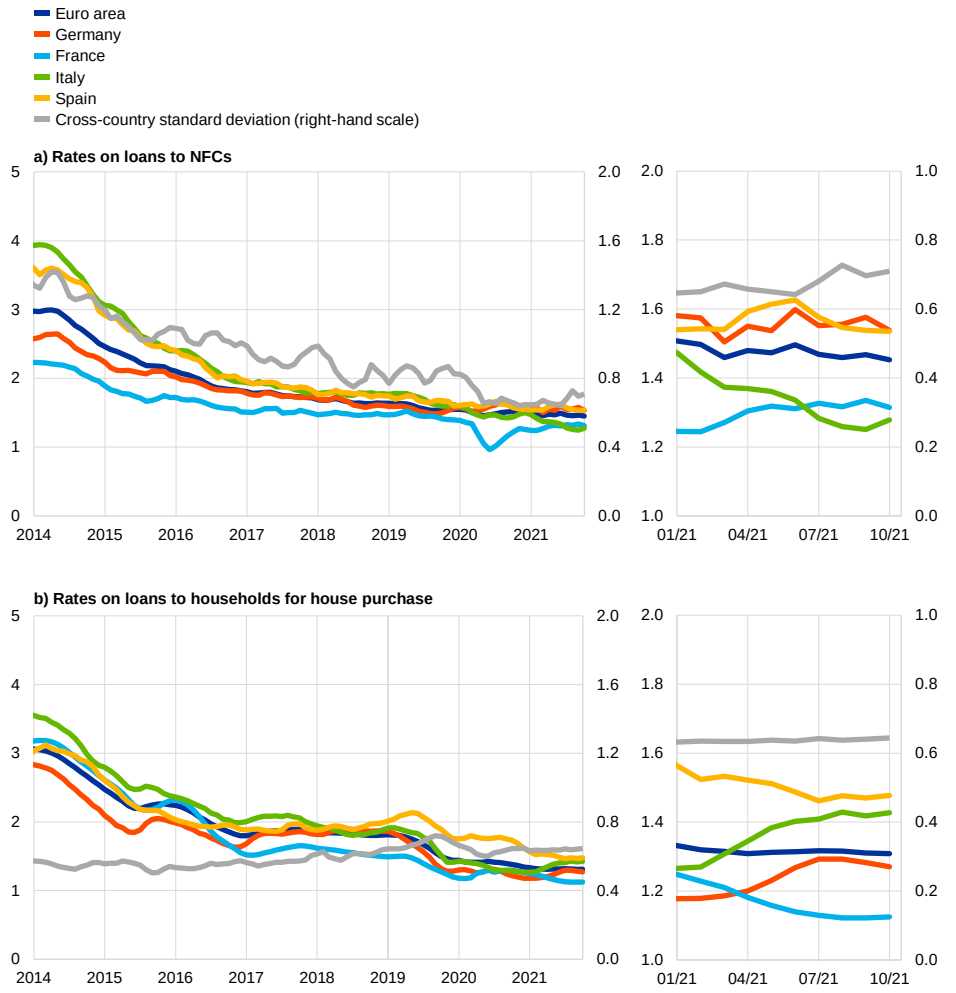
Sources: ECB, ECB calculations and Markit iBoxx indices.
Notes: Composite bank funding rates are the weighted cost of deposits and unsecured market-based debt financing. The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their corresponding outstanding amounts. Bank bond yields refer to monthly averages of senior-tranche bonds. The latest observations are for October 2021.

Bank lending rates remained close to their historical lows in October 2021. The composite bank lending rate for loans to non-financial corporations fell to 1.43%, while the equivalent rate for loans to households for house purchase remained broadly unchanged at 1.31% (Chart 27). The decline in lending rates for firms was mostly driven by developments in the largest euro area countries. Moreover, the spread between bank lending rates on very small loans and those on large loans increased but remained below pre-pandemic levels, mainly reflecting increases in rates on very small loans. Uncertainty regarding the economic consequences of the pandemic has increased with the global spread of new variants and the fourth COVID-19 wave. However, the ECB's policy measures have so far prevented a broad-based tightening of financing conditions, which would have amplified the adverse impact of the new variants on the euro area economy.

Chart 27

Composite bank lending rates in selected euro area countries

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



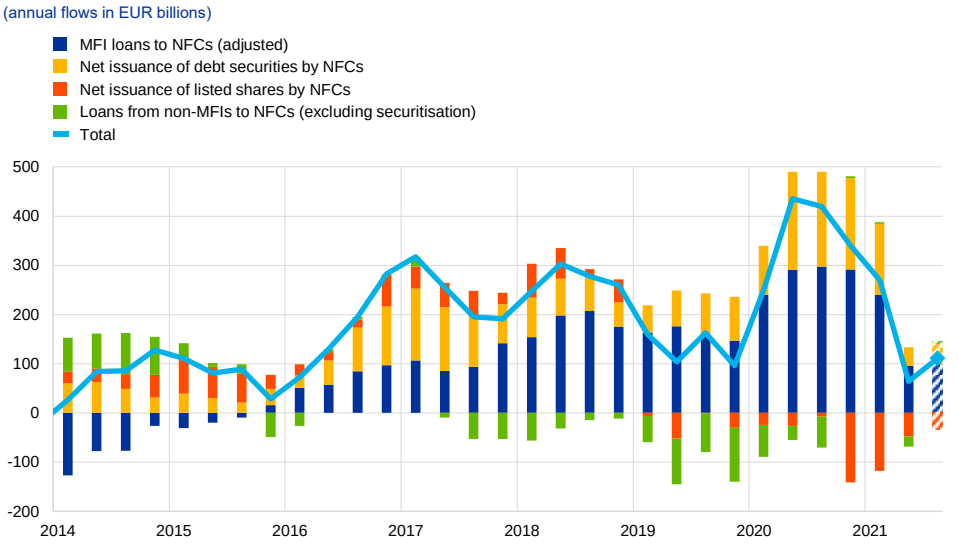
Source: ECB.
Notes: The indicator for the total cost of bank borrowing is calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for October 2021.

The total volume of external financing for firms picked up in the third quarter of 2021. The annual growth rate of external financing edged upward from 2.1% in June to 2.2% in September, supported by the low cost of debt financing. In the third quarter of 2021, larger external financing flows mostly stemmed from an increase in bank loans to firms and greater issuance of debt securities, while loans from non-banks made a smaller positive contribution (Chart 28). Firms' demand for credit was supported by stronger business investment, while improved profits and retained earnings, sizeable liquidity buffers and firms' high gross debt levels continued to dampen demand. In countries and sectors that have been particularly affected by supply bottlenecks, increased working capital needs on account of production delays and the rebuilding of inventories have led to an increase in short-term borrowing. On balance, however, firms have continued to display a stronger preference for financing instruments with longer maturities, which suggests that external finance

tends to be used for business investment, as opposed to the establishment of liquidity buffers.

Chart 28

Net external financing flows for euro area NFCs



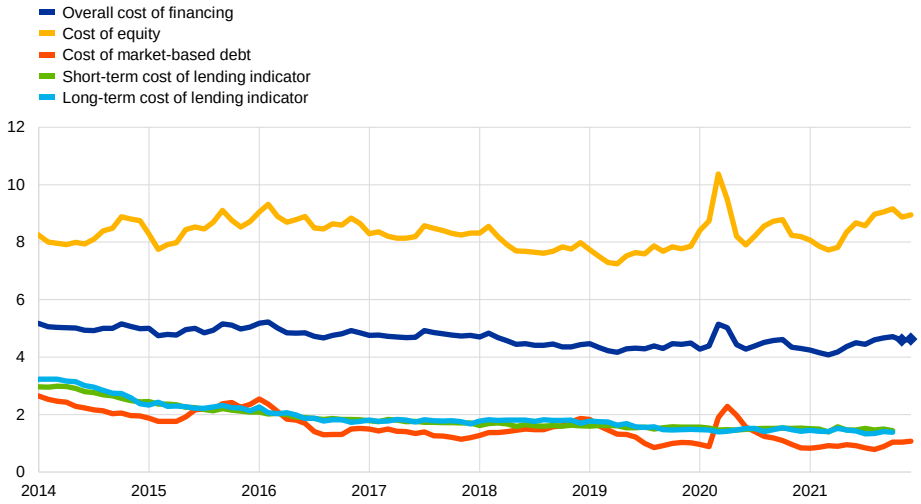
Sources: ECB and ECB estimates, Eurostat and Dealogic.
Notes: Net external financing is the sum of MFI loans, net issuance of debt securities, net issuance of listed shares and non-MFI loans. MFI loans are adjusted for sales, securitisation and cash-pooling activities. Loans from non-MFIs include loans from other financial institutions and insurance corporations and pension funds net of securitised loans. The striped vertical bar and the light blue diamond indicate the nowcast for the third quarter of 2021. The latest observations are for the second quarter of 2021 for euro area accounts data; estimates for the third quarter of 2021 are based on ECB balance sheet items (BSI) and securities (SEC) data, as well as Dealogic.

The total nominal cost of external financing for NFCs (comprising bank lending, debt issuance in the market and equity finance) increased between July and October 2021, driven by the cost of equity. The cost of external financing rose to 4.7% in October 2021 (Chart 29), around 40 basis points below the peak seen in March 2020 but 60 basis points higher than the historical low of March 2021. The increase observed in October was mainly accounted for by the higher cost of equity, which reflected a pick-up in both risk-free rates and, to a much lesser extent, the equity risk premium. The increase in risk-free rates was also responsible for the higher cost of market-based debt, which reached levels last seen in October 2020, despite corporate bond spreads remaining virtually unchanged. The overall cost of financing is estimated to have declined marginally between the end of October and 15 December, with a fall in the cost of equity more than compensating for a slight further increase in the cost of market-based debt. The fall in the cost of equity over that period was brought about by a decline in risk-free rates that more than compensated for the slight increase in the equity risk premium. However, that decline in risk-free rates was not sufficient to lower the cost of market-based debt because of the widening of corporate bond spreads, most notably in the high-yield segment.

Chart 29

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 bank borrowing, market-based debt and equity, based on their respective outstanding amounts. The dark blue diamonds indicate nowcasts for the overall cost of financing in November and December 2021, assuming that bank lending rates remain unchanged at their October 2021 levels. The latest observations are for 15 December 2021 for the cost of market-based debt (monthly average of daily data), 10 December 2021 for the cost of equity (weekly data) and October 2021 for the cost of lending (monthly data).

6 Fiscal developments

Although the coronavirus (COVID-19) crisis continued to weigh heavily on public finances in 2021, the December 2021 Eurosystem staff macroeconomic projections show that the fiscal balance is already on a path to improvement. Having peaked at 7.2% of GDP in 2020, the deficit ratio is estimated to have fallen to 5.9% in 2021 and is projected to fall further to 3.2% in 2022 and to stabilise thereafter just below 2% by the end of the forecast horizon in 2024. These improvements are due to a combination of higher cyclically adjusted primary balances and, particularly from 2022, a significantly larger contribution from the economic cycle. In terms of the euro area fiscal stance, a strong expansion in 2020 was followed by only a marginal tightening in 2021 once adjusted for Next Generation EU (NGEU) grants. In 2022, the stance is projected to tighten considerably, albeit much less than previously projected, mainly owing to a reversal of a significant part of crisis emergency support. The tightening is projected to continue over the remainder of the forecast horizon but to a much smaller extent since significant support to the economy remains in place over the coming years. In general, supportive fiscal policies that rest on a gradual withdrawal of fiscal measures would help to sustain the recovery of the euro area economy and mitigate the longer-term scarring effects. This support would also help the economy adjust to the structural changes that are under way. Fiscal measures should be growth-friendly and targeted in nature to address vulnerabilities effectively. As a complement to national fiscal measures, the NGEU and the "Fit for 55" package are expected to contribute to a stronger, greener and more even recovery.

According to the December 2021 Eurosystem staff macroeconomic projections, the euro area general government budget balance will show a steady improvement starting in 2021.[22] The general government deficit ratio for the euro area is estimated to have declined to 5.9% of GDP in 2021, after reaching an unprecedented 7.2% in 2020. It is forecast to then fall even more strongly to 3.2% in 2022 and further to 2.1% and 1.8% of GDP in the subsequent two years (Chart 30). Following economic support measures in response to the pandemic of around 4.1% of GDP in 2020, the crisis and recovery support is projected to have increased to about 4.4% of GDP in 2021. This reflects the fact that governments have prolonged emergency measures, gradually expanded their size and/or adopted new ones to support the recovery, including measures funded through grants that they receive from the NGEU.[23] The large negative cyclical component, which contributed to the large increase in the government deficit in 2020, is expected to start contributing less, albeit only moderately so, in 2021. The more significant improvement in the budget balance from 2022 onwards is projected to be driven by a higher cyclically adjusted primary balance, as a large share of the emergency measures not funded by NGEU grants will expire. Moreover, the negative contribution from the economic cycle is expected to fade swiftly as of 2022, turning

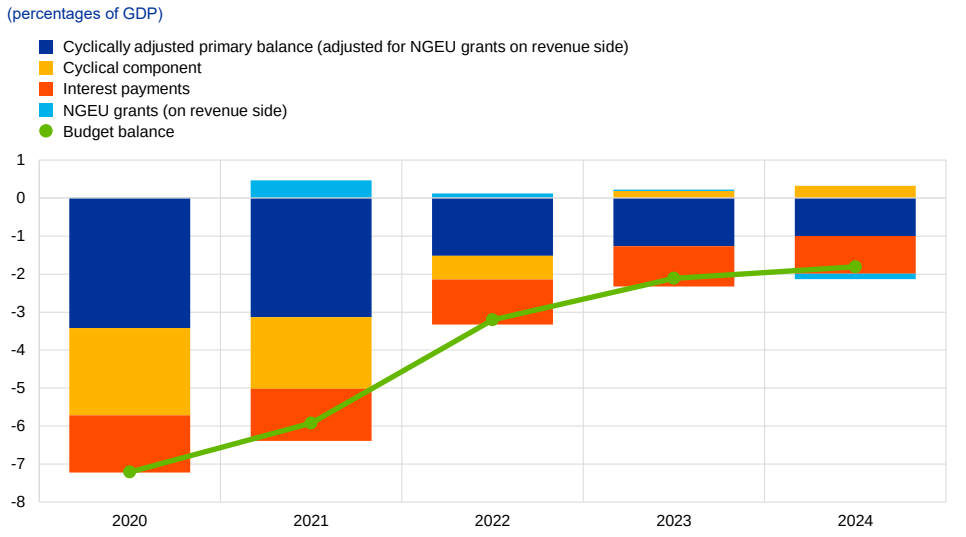
22 See the "Eurosystem staff macroeconomic projections for the euro area, December 2021", published on the ECB's website on 16 December 2021.

23 NGEU grants amount to around 0.5% of GDP, on average, over the projection horizon, declining gradually after 2022. Together with a limited amount of loans, they are assumed to finance about 2.5% of GDP of budget spending. The fiscal developments described in this section do not include the European supranational deficit and debt related to NGEU transfers.

slightly positive as of 2023. To a lesser extent, but over the whole projection horizon, the improvement in the budget balance will also be helped by gradually falling contributions from interest payments.

Chart 30

Budget balance and its components



Sources: ECB and *December 2021 Eurosystem staff macroeconomic projections*.
Note: The data refer to the aggregate general government sector of euro area countries.

The euro area aggregate fiscal stance is estimated to have tightened marginally in 2021, following a very large expansion in 2020.[24] From still high levels of support, a more significant tightening of the fiscal stance is expected to take place in 2022, as the fiscal support fades along with the expiry of pandemic and temporary support measures. In 2023 and 2024 the fiscal stance is projected to continue tightening moderately.[25] This notwithstanding, the level of fiscal support to the economic recovery remains large over the whole projection horizon, which is reflected in the overall primary fiscal balance remaining firmly negative.

In addition to the fiscal support for their economies, euro area countries have provided sizeable loan guarantee envelopes to bolster the liquidity positions of firms. In total, these guarantee envelopes amount to around 19% of GDP for the euro area in 2021. The cumulative take-up of these guarantees over the period 2020-21 is estimated at 9% of GDP. It should be noted that these figures mask significant differences in both the envelope and the take-up rate across countries. The loan guarantees are contingent liabilities for governments and any calls on the

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

25 The euro area aggregate fiscal stance was -4.2 percentage points of GDP in 2020, is estimated to have been +0.2 percentage points of GDP in 2021, and is projected to be +1.1, +0.3 and +0.3 percentage points of GDP in 2022, 2023 and 2024, respectively, after adjustment for revenues related to NGEU grants.

guarantees will therefore constitute additional public spending that increases government debt.

Compared with the September 2021 ECB staff macroeconomic projections, the budget balance in 2021 is projected to have improved significantly while a small deterioration is foreseen for 2022. Specifically, the euro area general government budget balance as a share of GDP has been revised up by 1.1 percentage points for 2021 to -5.9% and down by 0.2 percentage points in 2022 to - 3.2% while the balance in 2023 is unrevised at -2.1%. This profile is mostly determined by revisions in the fiscal stance, which is estimated to have tightened in 2021, mostly on account of higher revenue collections than previously estimated and somewhat lower discretionary stimulus measures. For 2022, the revisions in the fiscal stance reflect mainly the additional stimulus measures incorporated in the context of the 2022 budgets and, to a lesser extent, non-discretionary revenue factors with a loosening effect.

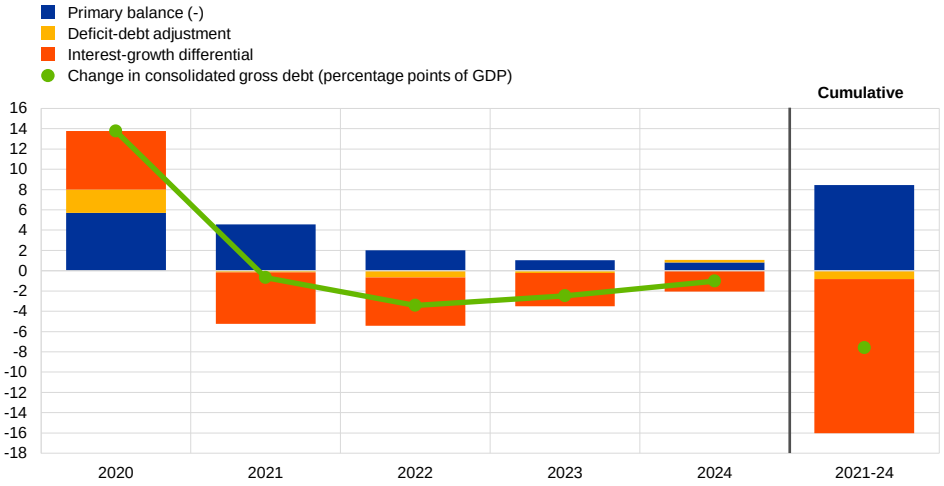
Following a large increase in 2020, the euro area government debt-to-GDP ratio is projected to decline slightly to just below 97% in 2021 and further to about 90% in 2024. After a 14 percentage point increase in the debt ratio in 2020, a falling but still high primary deficit in 2021 will be more than compensated by a significant debt-reducing contribution from the interest-growth differential. In 2022 and 2023, the debt ratio is projected to decline more quickly as debt-increasing primary deficits, though falling, are outweighed by favourable contributions from interest-growth differentials and, to a lesser extent, by negative deficit-debt adjustments (Chart 31). At the end of the projection horizon in 2024, the debt-to-GDP ratio is expected to stabilise at around 90%, 6 percentage points above its pre-crisis level. Overall, the COVID-19 crisis has had a significantly smaller adverse impact on the euro area aggregate debt path than was generally expected in the initial phase of the crisis.[26]

[26] For instance, in the June 2020 Eurosystem staff macroeconomic projections, the debt-to-GDP level at the end of 2022 was projected to stand 6.7 percentage points higher than in the current projections.

Chart 31

Drivers of change in euro area government debt

(percentages of GDP, unless otherwise indicated)



Sources: ECB and December 2021 Eurosystem staff macroeconomic projections.
Note: The data refer to the aggregate general government sector of euro area countries.

National fiscal policies should provide targeted and growth-friendly support to the firms and households most exposed to the ongoing pandemic. This, based on a gradual withdrawal of fiscal support, would help to sustain the recovery and mitigate the longer-term scarring effects. The gradual reduction of budgetary imbalances should rest on a decisive shift towards a more growth-friendly composition of public finances and structural reforms that raise the growth potential of euro area economies. The NGEU's Recovery and Resilience Facility and the "Fit for 55" package can provide important support in this respect, not least by accelerating the green and digital transitions.

Boxes

1 Supply chain disruptions and the effects on the global economy

Prepared by Maria Grazia Attinasi, Mirco Balatti, Michele Mancini and Luca Metelli

Strains in global production networks, which started to emerge in late 2020, are a reflection of imbalances between the supply and demand of certain goods and are creating headwinds for the ongoing global economic recovery. Strains in global production networks, also commonly referred to as supply bottlenecks, are a multifaceted phenomenon. The decline and subsequent recovery in economic activity during the COVID-19 pandemic have been unprecedented, reflecting the massive shifts in demand and supply triggered by the closing and reopening of economies, and amid considerable monetary and fiscal stimulus and high levels of accumulated savings, especially in advanced economies. Moreover, as pandemic-related containment measures severely restricted consumption opportunities in the services sector (in particular travel, tourism and recreational activities), there was a rotation in demand towards merchandise goods, which compounded the already strong cyclical recovery in the goods sector. Faced with that strong surge in demand, suppliers of goods worldwide have been struggling to meet the increase in orders. In addition, idiosyncratic supply chain disruptions (owing to the waves of the pandemic and adverse weather events, for instance) have also played a role, capping activity and trade growth and ultimately pushing up prices. This box reviews the main features of the ongoing supply bottlenecks. First, it aims to disentangle supply chain disruptions from demand-side factors, claiming that while the latter are a manifestation of the current phase of the business cycle, the former may indeed curb the pace of the recovery and therefore warrant close monitoring. Second, it provides an empirical assessment of the impact of supply chain disruptions on global economic activity and prices, and the assumptions about how they will evolve going forward.[1]

Supply chain disruptions are putting a drag on activity and trade at the global level. The most relevant elements are i) difficulties in the logistics and transportation sector, ii) semiconductor shortages, iii) pandemic-related restrictions on economic activity, and iv) labour shortages. Global shipping of merchandise goods has been severely disrupted owing to container misplacement and congestion on the back of not only the rapid recovery in the global economy, the rotation of consumption demand from services to goods, and the associated high import volumes, but also port closures because of localised and asynchronous outbreaks of COVID-19.[2] As a

1 For an analysis of the impact of supply chain disruptions on euro area industrial production, see the box entitled "Sources of supply chain disruptions and their impact on euro area manufacturing" in this issue of the Economic Bulletin.

2 See also the box entitled "What is driving the recent surge in shipping costs", *Economic Bulletin*, Issue 3, ECB, 2021.

result, shipping costs, especially from the main Asian ports to the United States and Europe, have skyrocketed since the end of 2020. Semiconductor shortages started to materialise in the second half of 2020 and are especially pronounced in the automotive sector. During the great lockdown, car producers reduced their chip orders, while demand for chips used in other electronic equipment rose significantly (mostly on account of the work from home instruction). Producers were surprised by the sharp increase in new car orders in the second half of 2020, and with little spare capacity left in the semiconductor industry, chip production was unable to keep up with the high demand – possibly also as a result of underinvestment in the years prior to the pandemic.[3] Labour shortages appear to be less widespread and more concentrated in certain economies, such as the United States and the United Kingdom. In both countries, indicators of labour market tightness are already above their pre-crisis levels, in contrast to the slow recovery after the global financial crisis. Declines in both matching efficiency and labour force participation partly reflect increases in unemployment benefits, early retirements and the need to care for children and other family members during the pandemic, as well as a reluctance to work in contact-intensive sectors.[4] Finally, the impact of the aforementioned factors in terms of clogging up supply chains might be exacerbated by the "bullwhip-effect", a standard amplification channel phenomenon whereby firms build up their inventories because they are expecting robust demand amid a shortage of key inputs in the production process, such as raw materials and intermediates.

The lengthening of suppliers' delivery times across advanced economies since the end of 2020 is the most evident manifestation of widespread strains in global production networks. One of the indicators most commonly used as a proxy for such strains is the global Purchasing Managers Index suppliers' delivery times (hereinafter referred to as the "PMI SDT"), which quantifies developments in the time required for the delivery of inputs to firms. One key advantage of the PMI SDT is that it is able to capture capacity constraints of a different nature (e.g. intermediate goods shortages, transportation delays or labour supply shortages), making it an all-encompassing indicator of strains in global production networks.[5] This indicator suggests that suppliers' delivery times have lengthened massively in recent months (Chart A, panel a) and that the lengthening is proving to be more protracted than during the initial COVID-19 shock. The chart also suggests that there is a significant amount of heterogeneity between advanced economies and emerging economies, with economies like the United States, the euro area and the United Kingdom being much more affected than key emerging economies. Finally, while the increase in the PMI SDT is common to most sectors, it is particularly pronounced for certain types of product, such as technology equipment and machinery (Chart A, panel b), suggesting that the shortage of intermediate products is more severe in those sectors.

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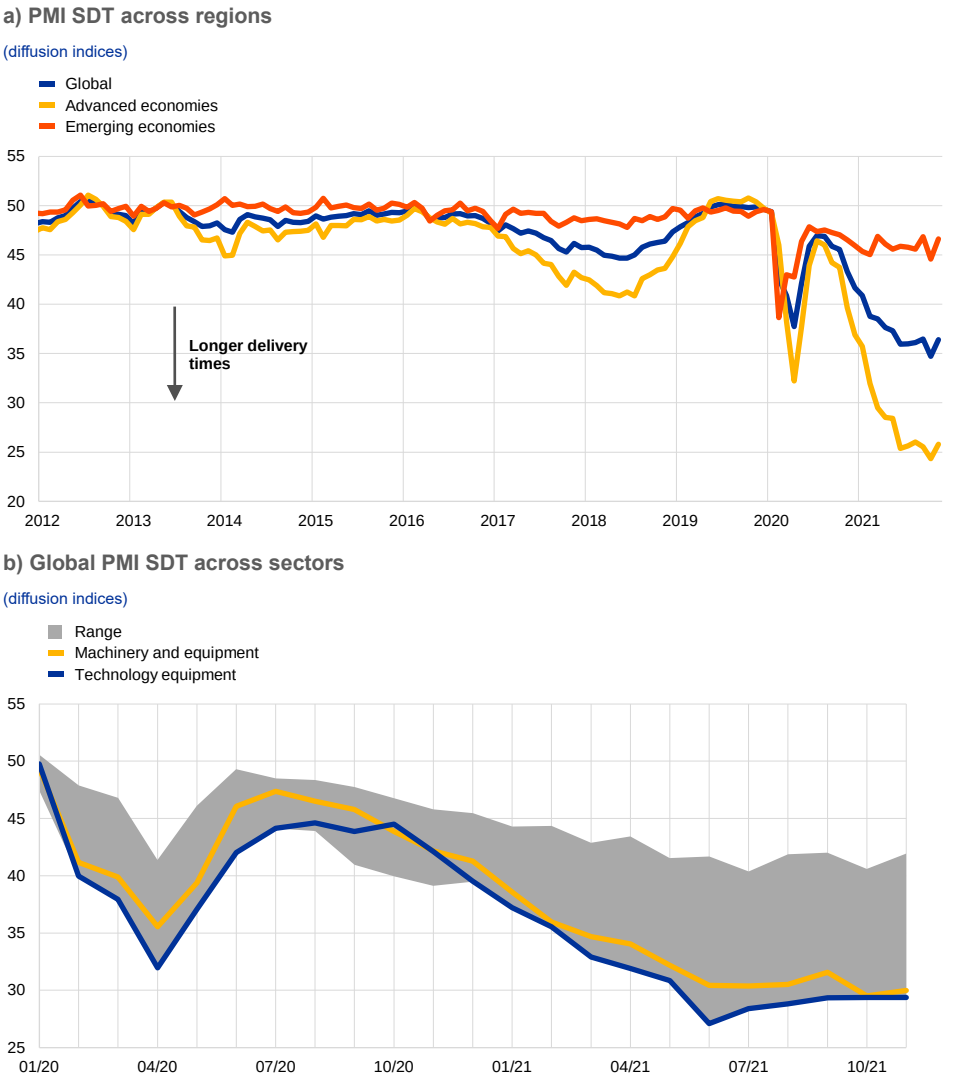
3 See also the box entitled "The semiconductor shortage and its implication for euro area trade, production and prices", *Economic Bulletin*, Issue 4, ECB, 2021.

4 See also the box entitled "The US and UK labour markets in the post-pandemic recovery" in this issue of the Economic Bulletin.

5 An alternative indicator of supply bottlenecks is shipping prices, but these provide only a partial picture of the phenomenon, as they only cover the logistics sector, whereas the PMI SDT is broader and co-moves more with economic activity.

Chart A
Suppliers' delivery times



Sources: Markit and ECB calculations.
Notes: The shaded area in panel b) indicates the range between the minimum and the maximum PMI SDT level across 15 sectors (basic materials, chemicals, resources, forestry and paper products, metals and mining, consumer goods, automobiles and auto parts, beverages and food, beverages, food, house/personal use products, industrial goods, construction materials, machinery and equipment, technology equipment). The latest observations are for November 2021.

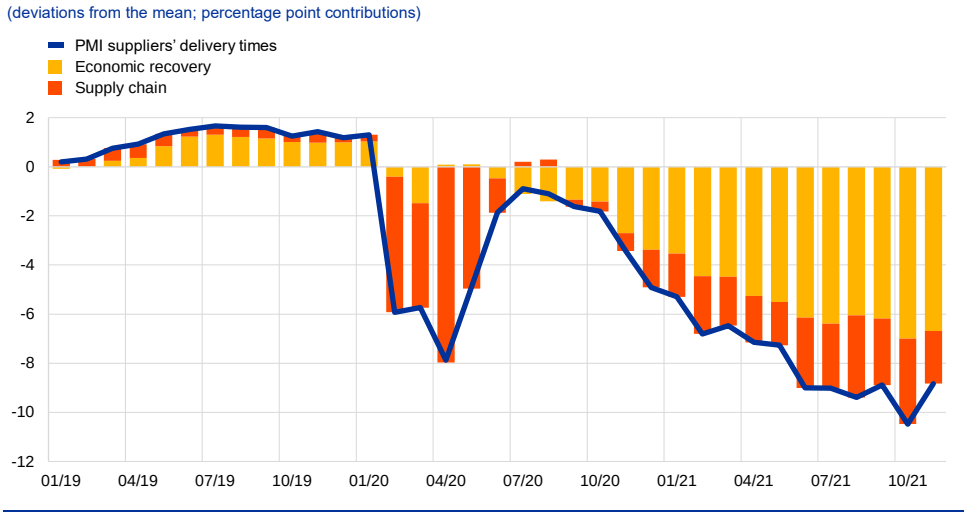
Suppliers' delivery times reflect strains in production networks and display some procyclicality vis-à-vis output fluctuations. The PMI SDT tends to co-move closely with the global PMI manufacturing output, which is a proxy for the business cycle, suggesting that as output increases, delivery times tend to lengthen. In order to purge movements in the PMI SDT from the normal lengthening associated with cyclical fluctuations, we use a monthly bivariate vector autoregression (VAR) model for the global (excluding euro area) PMI manufacturing output and the global PMI SDT, in which shocks stemming from the recovery in demand and supply chain

disruptions are identified using sign restrictions.[6] More specifically, we assume that disruptions to supply chains lengthen delivery times and reduce output, while the rise in demand induced by the economic recovery increases both delivery times and output. This approach enables us to recover the structural shocks underlying movements in the PMI SDT, and in particular the supply-side shock, which we take as our measure of supply chain shocks.

Our empirical analysis suggests that supply chain shocks account for around one-third of the strains in global production networks. The historical decomposition shows that, even though demand factors played a primary role in driving the overall level of the PMI SDT, supply chain disruptions accounted for one-third of the lengthening in delivery times over the last six months, and their contribution has been growing (Chart B). By contrast, the greater contribution of demand factors is not surprising given the procyclicality of delivery times in periods of economic recovery and the unprecedented economic recovery that has followed the initial COVID-19 shock.[7]

Chart B

A model decomposition of PMI suppliers' delivery times



Source: ECB calculations based on Markit data.
Notes: Historical decomposition of global (excluding euro area) PMI suppliers' delivery times, which was obtained via a two variable Bayesian VAR with PMI output and PMI suppliers' delivery times, identified through sign restrictions and estimated over the period from May 2007 to November 2021. The latest observations are for November 2021.

Supply chain disruptions have a negative impact on global industrial production and trade, and a positive impact on inflation. Our analysis aims to quantify the impact of the aforementioned supply chain shock on activity, trade and prices, and, in turn, the headwinds it creates for the economic recovery. To achieve this, we estimate a companion VAR, with five endogenous variables (exports, imports and industrial production, together with the inflation rates for the consumer

6 This identification strategy was inspired by Bhushan, S. and Struyven, D., "Supply Chains, Global Growth, and Inflation", *Global Economics Analyst*, Goldman Sachs Research, 20 September 2021. The use of global PMI manufacturing output measure in this VAR model enables a timely estimation of the supply chain shock. This would not be possible using hard data on economic activity, which are published with a longer lag.

7 At the peak of the COVID-19 shock in April 2020, supply chain disruptions were the main reason for the longer delivery times.

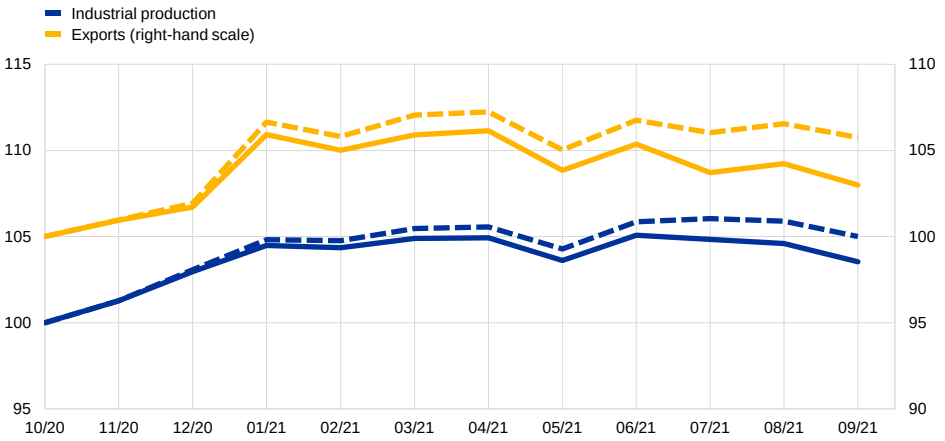
price index and the producer price index). The estimated supply chain shock is plugged into the model as an exogenous variable. In order to quantify the headwinds for activity, trade and prices, we then generate a counterfactual scenario by running a conditional forecasting exercise for the period from November 2020 to September 2021, which assumes that there are no supply chain disruptions (i.e. the supply chain shock is set at zero throughout). For that period, we find that world trade would have been around 2.7% higher cumulatively in the absence of supply chain shocks, while global industrial production would have been around 1.4% higher (Chart C, panel a). The effects are greater on trade than on industrial production because the weakness in the logistics sector disproportionately affected trade. Moreover, the shift towards domestic suppliers and domestic goods might have mitigated the repercussions on industrial production. Our findings also suggest that supply chain disruptions have a significant – and increasing over time – effect on prices, which is much more prominent in the producer price index than in the consumer price index (Chart C, panel b).[8] This could be attributed to the fact that producers are more directly exposed to supply chain disruptions than consumers. Moreover, rising producer prices are passed on to consumers only partially and/or with a lag. Finally, it is worth noting that the aforementioned aggregate results mask significant heterogeneity across countries given that not all countries are affected by supply bottlenecks to the same degree. For instance, we find that the effects are greater in the United States, where trade and industrial production stand at 4.3% and 2.0% below the disruption-free counterfactual scenario respectively.

8 The impulse response functions of the VAR suggest that, after a one period shock, the effects on inflation dissipate in six to nine months, while those on real variables take around four months.

Chart C
Impact estimates

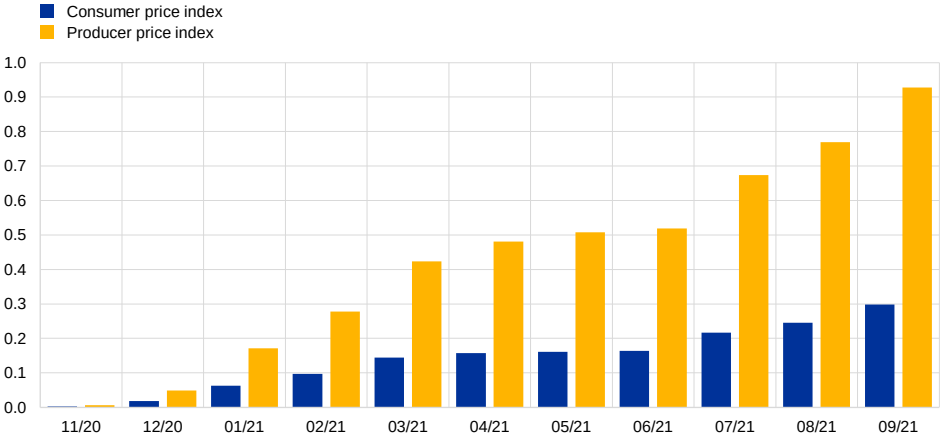
a) World (excluding euro area) trade and industrial production

(October 2020 = 100)



b) World (excluding euro area) consumer price index and producer price index

(percentage point deviations from year-on-year monthly inflation)



Source: ECB calculations based on Markit, CPB and OECD data.
Notes: The effects of supply chain disruptions on quantities and prices are obtained by means of a VAR in which a structural supply shock (recovered from a sign restricted structural VAR with PMI output and PMI delivery times) is plugged in as an exogenous variable. The effects are computed as the difference between the path of the variables obtained under the realisation of the shock and under a counterfactual scenario in which the shock between November 2020 and September 2021 is set at zero (i.e. no supply chain disruptions). In panel a) the dashed lines show the estimated evolution of exports and industrial production in the absence of supply bottlenecks. In panel b) the bars show the estimated effects of supply bottlenecks on the consumer price index and the producer price index. All global aggregates exclude the euro area. The latest observations are for September 2021.

Supply chain disruptions are expected to improve gradually in the second half of 2022, although there is still a high level of uncertainty about their evolution. Given their multifaceted nature, some disruptions might need more time to be resolved than others. For example, a significant boost to semiconductor production requires a large amount of investment to increase foundry capacity, and given the lead time that this requires, fundamental improvements can only be expected later in 2022 or in 2023. Any easing in labour shortages in the coming months will depend on the evolution of government support, as well as pandemic containment measures and the number of new COVID-19 cases. Shipping costs have fallen recently, mainly on account of temporary factors (e.g. the reopening of ports in South Asia as the number of COVID-19 infections had declined), but they are still close to their

historical highs. Available survey-based information summarising the views of the corporate sector suggests that the situation is expected to remain difficult throughout most, if not all, of 2022.[9]

Looking ahead, risks of further supply-side disruptions cannot be ruled out, especially if the pandemic situation intensifies. The new Omicron variant has reignited concerns about an intensification of the pandemic on a global scale. Outbreaks may result in localised closures at ports or firms, which would induce further disruptions in production and shipping, and hence act as a drag on activity while putting upward pressures on prices. In addition, new containment measures to limit its spread (e.g. restrictions on mobility and international flights), as well as voluntary limitations, may again trigger a shift in consumer demand from services to goods, thereby exacerbating supply bottlenecks. However, if overall consumer demand declines, there could be some easing in the global supply constraints which, as shown above, seem to be mostly the result of strong demand. Finally, a faster than expected increase in semiconductor production and transportation capacity in the shipping industry may lead to a quicker resolution of the supply-side disruptions.

9 See the box entitled "Main findings from the ECB's recent contacts with non-financial companies", ECB *Economic Bulletin*, Issue 7, ECB, 2021; Oxford Economics, Research Briefing Global, "Supply chain problems peaking, but risks remain" by Tim Hunter, 18 November 2021; *The Beige Book*, Federal Reserve System, 20 October 2021; *The CFO Survey*, Duke University, Federal Reserve Bank of Richmond and Federal Reserve Bank of Atlanta, 14 October 2021; *Business Outlook Survey of Industrial and Service Firms*, Banca d' Italia, 8 November 2021.

2 The US and UK labour markets in the post-pandemic recovery

Prepared by Katrin Forster van Aerssen, Ramon Gomez-Salvador, Michel Soudan and Tajda Spital

During the post-pandemic recovery, the US and UK labour markets show many similarities, albeit with different implications for wages. This box reviews post-pandemic labour market developments in the United States and United Kingdom. It shows that, in both countries, imbalances between labour demand and labour supply are causing a high and unusual tightness for such an early stage in a recovery. This could translate into broad-based wage pressures, in turn posing a risk to inflation. Such pressures are becoming increasingly visible in the United States, but are less marked in the United Kingdom.

In the United States, labour demand outstrips supply. According to the latest available data, in October 2021 the labour force participation rate still stood significantly below its pre-crisis level (1.7 percentage points below the level prevailing in February 2020). Such a level is commonly observed at an early stage of a recovery in the labour market cycle. The maximum employment objective for the Federal Reserve System, of which the participation rate is one element, appears to be far from being reached (Chart A). At the same time, firms are opening positions at a fast pace in response to the rapid recovery of the US economy. This has brought vacancies to very high, even unprecedented, levels, which are usually associated with a late stage in the labour market cycle. As a result, labour market tightness has already jumped above pre-crisis levels, instead of making a slow recovery, as was the case after the global financial crisis (Chart A).[1] The lack of response on the part of labour supply (low participation) to rising labour demand (high level of vacancies) is indicative of a decline in matching efficiency in the current recovery. This appears to be the case especially for businesses with frequent customer contact, such as bars and restaurants, which have encountered difficulties in attracting workers. Moreover, a temporary increase in unemployment benefits (particularly significant for low-paid workers), early retirement, and an increased need to care for children and other family members during the pandemic, particularly for women, has also reduced the labour supply.[2] This partly accounts for what has been called the “Great Resignation”, as support programmes have allowed people more freedom to leave their jobs or to be more selective when looking for new ones.

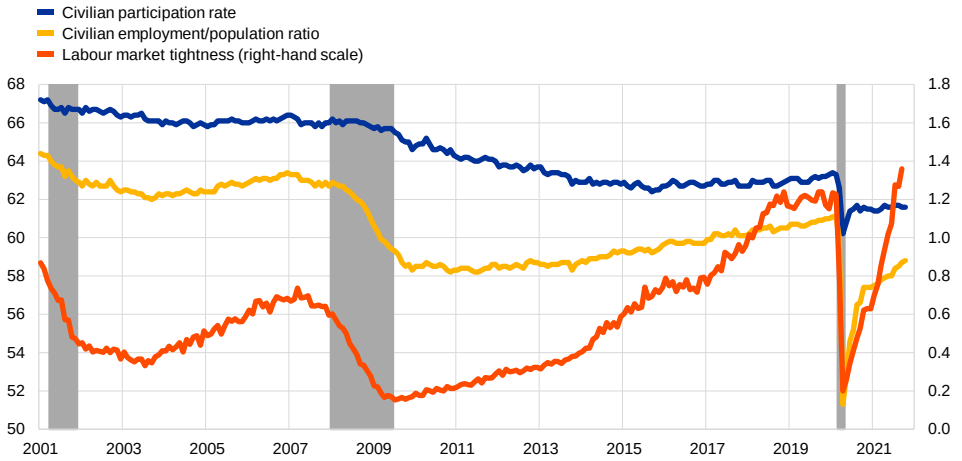
1 The Empire State Manufacturing Survey confirms that firms are struggling to expand the workforce.

2 The slow recovery of older groups’ participation in the United States could be partly due to fears related to the pandemic. For a detailed analysis at the euro area level, see the box entitled “Labour supply developments in the euro area during the COVID-19 pandemic”, *Economic Bulletin*, Issue 7, ECB, 2021.

Chart A

US employment rate, participation rate and labour market tightness

(percentages of civilian population; ratio of vacancies to unemployment; monthly)

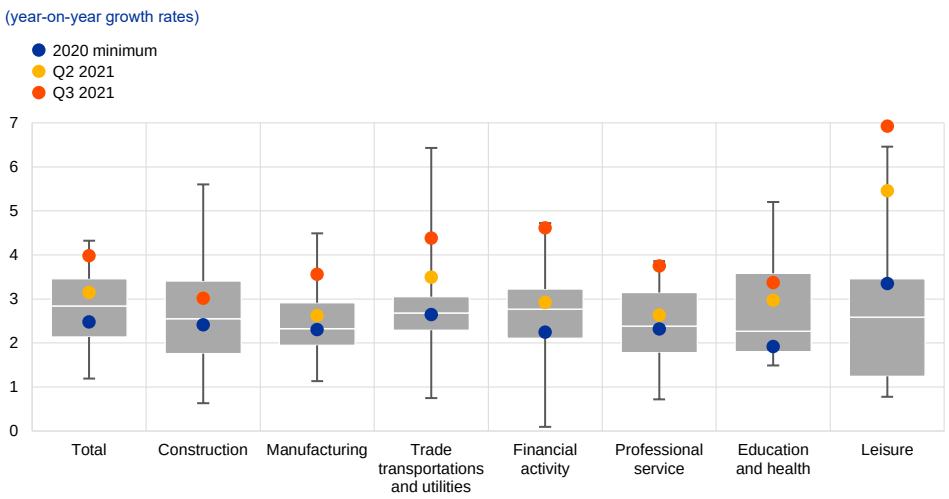


Sources: BLS and author's calculations.
Notes: Labour market tightness is measured by the ratio of vacancies to unemployment. Shaded areas indicate recessions. The latest observations are for September 2021 for tightness and October 2021 for employment and participation rates.

The increase in labour market tightness has translated into broadening wage pressures. While the high level of vacancies has been broad-based across industries, up to the second quarter of this year wage growth – as measured by the employment cost index – was limited to leisure and hospitality, as firms tried to make these contact-intensive and mostly low-paid jobs more attractive (Chart B). In the third quarter of this year, however, an acceleration in wages also became visible in most other industries, such as trade and, to a lesser extent, manufacturing, financial activities and professional services, although for the latter three industries still remaining within ranges observed in the past. This development has sparked a debate about the risk of a further broadening of wage pressures, and if it could ultimately lead to a wage-price spiral. Whether these risks materialise depends on various factors. First, most of the factors which have held back labour supply in the United States are expected to be temporary and to revert in the coming months, therefore reducing the level of tightness. The temporary increase in unemployment benefits has already expired. Second, new coronavirus (COVID-19) infections have been falling since summer, which should attenuate fears about returning to work in high-contact industries, and the reopening of schools should favour a return to work by parents. At the same time, above average productivity growth has kept unit labour costs, a measure that is more relevant for firms in setting prices than nominal wages, close to long-term averages. Third, the recent increase in inflation has to a large extent been driven by goods and services, for which wage growth has remained subdued (for example car manufacturing), or is related to other factors (such as rents, which are linked to housing market developments). On the other hand, although indexation clauses are not a common practice in the United States, the high inflation environment (highest headline inflation rate recorded since 1990), coupled with labour market tightness could translate into a heightened risk of higher wage demands proliferating going forward.

Chart B

US employment cost index by industry



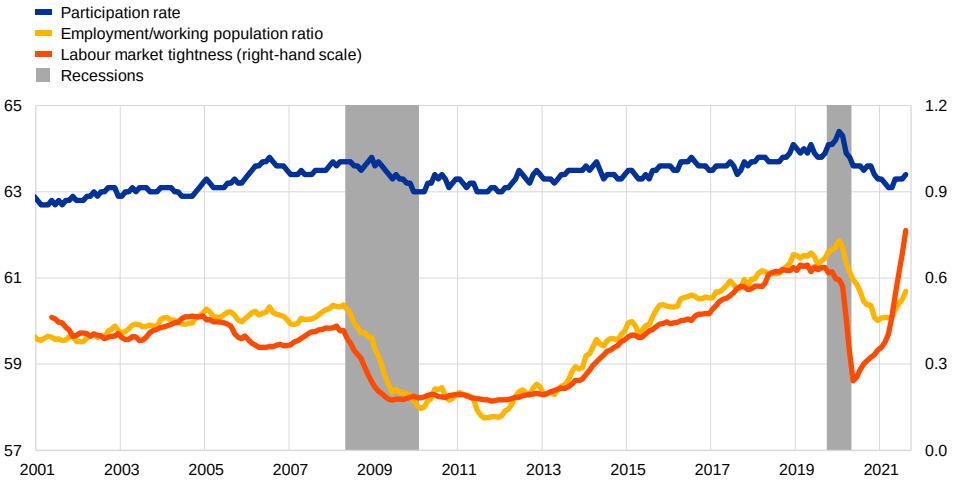
Sources: BLS and author's calculations.
Notes: The box plots represent the minimum, the first quartile, the median, the third quartile and the maximum from the first quarter of 1997 to the fourth quarter of 2019. The latest observations are for the third quarter of 2021.

The UK labour market is also showing signs of increased tightness, coupled with a slow recovery in employment and labour market participation. As in the United States, both the employment rate and the labour force participation rate have only slowly been approaching their pre-crisis levels. The respective gaps of 1.2 percentage points and 0.9 percentage points compared with February 2020 levels remain considerable and indicate an early cycle stage of the labour market recovery (Chart C). In contrast, vacancies have been increasing rather sharply, as UK firms have faced both an increased demand for goods and services (driven by the re-opening of the economy) and a decreased supply of low-skilled EU workers (owing to Brexit). As a result, labour market tightness has already surpassed pre-crisis levels, pointing towards a late stage in the cycle, as opposed to the slower recovery experienced in the aftermath of the global financial crisis (Chart C). Similar to the United States, the sluggish response of UK labour supply relative to strong labour demand suggests lower matching efficiency. This is for similar reasons, but also because of lower participation by many younger people who have chosen to stay in education. The furlough scheme may be another explanation for the tightness in the labour market, as employees on furlough had less incentive to join the pool of available workers and apply for new jobs. However, the scheme ended in September, meaning that labour market tightness might already be lower than the official data show.

Chart C

UK employment rate, participation rate and labour market tightness

(percentages of working age population and ratio of vacancies to unemployment, 3-month moving average)



Sources: ONS and authors' calculations.
Notes: Labour market tightness is measured by the ratio of vacancies to unemployment. Shaded areas indicate recessions. The latest observations are for September 2021.

Reflecting the diverse developments in vacancies, wage pressures have so far remained limited to specific sectors. While economy-wide growth in average weekly earnings remains high (at 5.8% in September), most of the increase comes from negative base effects reflecting the introduction of the furlough scheme last year.[3] This can also be observed on a sectoral level, as base effects drove wages in the second quarter of this year to historically high rates across most industries. The latest data for the third quarter indicate that wage growth has not increased further and, in most cases, has even decelerated (Chart D).[4] Wage increases were most pronounced in professional and business services and in sectors previously relying on low-skilled migrant labour (construction, and leisure and hospitality). It is worth noting that even though specific professions (such as lorry drivers) experienced a substantial increase in earnings, this increase did not extend to the industry as a whole (trade, transportation and utilities). Therefore, the risk of broad-based wage pressures and a wage-price spiral appears less likely at this stage of the recovery, considering that the underlying wage growth remains much more contained.

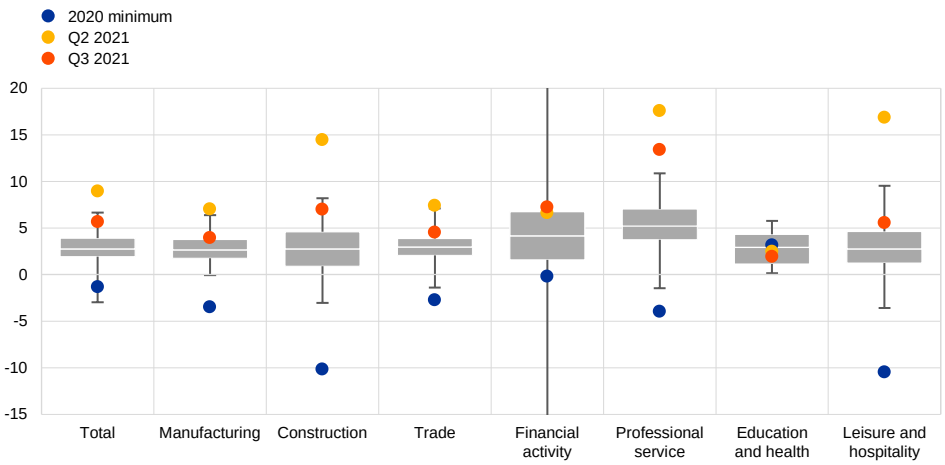
3 The government-run furlough scheme in the United Kingdom provided staff on furlough with 80% of their usual salary, up to a maximum of £2,500 per month. This resulted in a considerable decrease in average weekly earnings.

4 When annualised growth rates are compared over two years, the influence of base effects disappears, and the second and third quarters show only moderate wage pressures.

Chart D

Average weekly earnings by industry in the United Kingdom

(year-on-year growth rates, 3-month moving average)



Sources: ONS and authors' calculations.
Notes: The box plots represent the minimum, the first quartile, the median, the third quartile and the maximum from the first quarter of 2002 to the fourth quarter of 2019. The latest observations are for the third quarter of 2021.

Overall, while both the United States and United Kingdom are experiencing labour shortages, developments on the wage front differ to some extent. Factors constraining labour supply are expected to fade somewhat in both countries. In the United Kingdom, this is likely to reduce labour market tightness and to dampen what have been – up until now – very localised wage pressures. In the United States, expectations of further strong economic growth in the short term could prolong labour market tightness, in turn leading to broader-based wage increases.

3 Financing conditions through the lens of euro area companies

Prepared by Annalisa Ferrando and Sofia Gori

This box explores new indicators of the financing conditions faced by euro area companies, based on firm-level survey data. Since the beginning of the pandemic, and especially since December 2020, the Governing Council has committed itself to preserving favourable financing conditions for the duration of the pandemic, seeing them as the compass guiding monetary policy.[1] The ECB uses a holistic approach to measure financing conditions, covering a broad spectrum of indicators over the entire transmission chain of monetary policy. These indicators range from "upstream" stages, with interest rates that are at the beginning of the transmission process (i.e. risk-free interest rates and sovereign yields), to "downstream" stages, with indicators which measure the effects on the cost and volume of external finance available to firms and households. This box focuses on new indicators of the downstream financing conditions faced by non-financial corporations in the euro area, derived from information taken from the survey on the access to finance of enterprises (SAFE). Such information complements an analysis of financial conditions based on quantitative bank-based and market-based indicators.

Based on the rich SAFE dataset, three synthetic indicators encapsulate how firms have perceived financing conditions in the euro area since 2009. The SAFE survey includes questions divided into four groups. The first group covers changes in price terms and conditions, and is related to bank interest rates and other costs of bank financing (charges, fees and commissions), while the second focuses on changes in non-price terms and conditions and covers collateral and other factors such as required guarantees, information requirements, procedures, time required for loan approval, and loan covenants. The third group of questions relates to the financial position of firms and focuses on changes in profits, own capital and credit history, insofar as these variables are perceived to affect a firm's access to credit. Changes in these variables reveal information on the financial solidity of borrowers' balance sheets and are used by banks to decide whether or not to provide credit. The fourth group of questions covers firms' perceptions of changes in the "willingness" of banks to provide credit and also provides significant information on the supply of external financing. Such questions can indirectly signal the extent to which monetary policy operations are helping to ease access to bank funding and therefore to maintain lending to the real economy. Starting from the individual responses of about 35,000 firms to the four groups of questions above,[2] it is possible to capture various aspects of overall financing conditions by applying factor

1 See Lane, P., "The compass of monetary policy: favourable financing conditions", *speech at Comissão do Mercado de Valores Mobiliários*, 25 February 2021.

2 This corresponds to a total of 58,000 observations in the period 2009-21 (until September).

analysis.[3] The analysis detects three "principal components", which can be interpreted as relating to the financial position of firms, non-price terms and conditions, and price terms and conditions. These are presented in Chart A, in the order of their importance in explaining the total variance of overall financing conditions. A positive value for a principal component signals a tightening in financing conditions.

Overall, the three indicators suggest there have been several important phases in firms' perceptions of their financing conditions, which closely align with the monetary policy measures taken by the ECB over time (Chart A, all panels). The indicators suggest that there has been a general easing of financing conditions over the last decade, which is consistent with the accommodative monetary policy stance in place during the period and with the measures taken to restore the transmission mechanism since the global financial crisis.[4] While financing conditions were generally tighter for small and medium-sized enterprises than for large companies throughout most of the period, conditions eased for companies of all sizes, and this easing continued with only temporary periods of reversal.

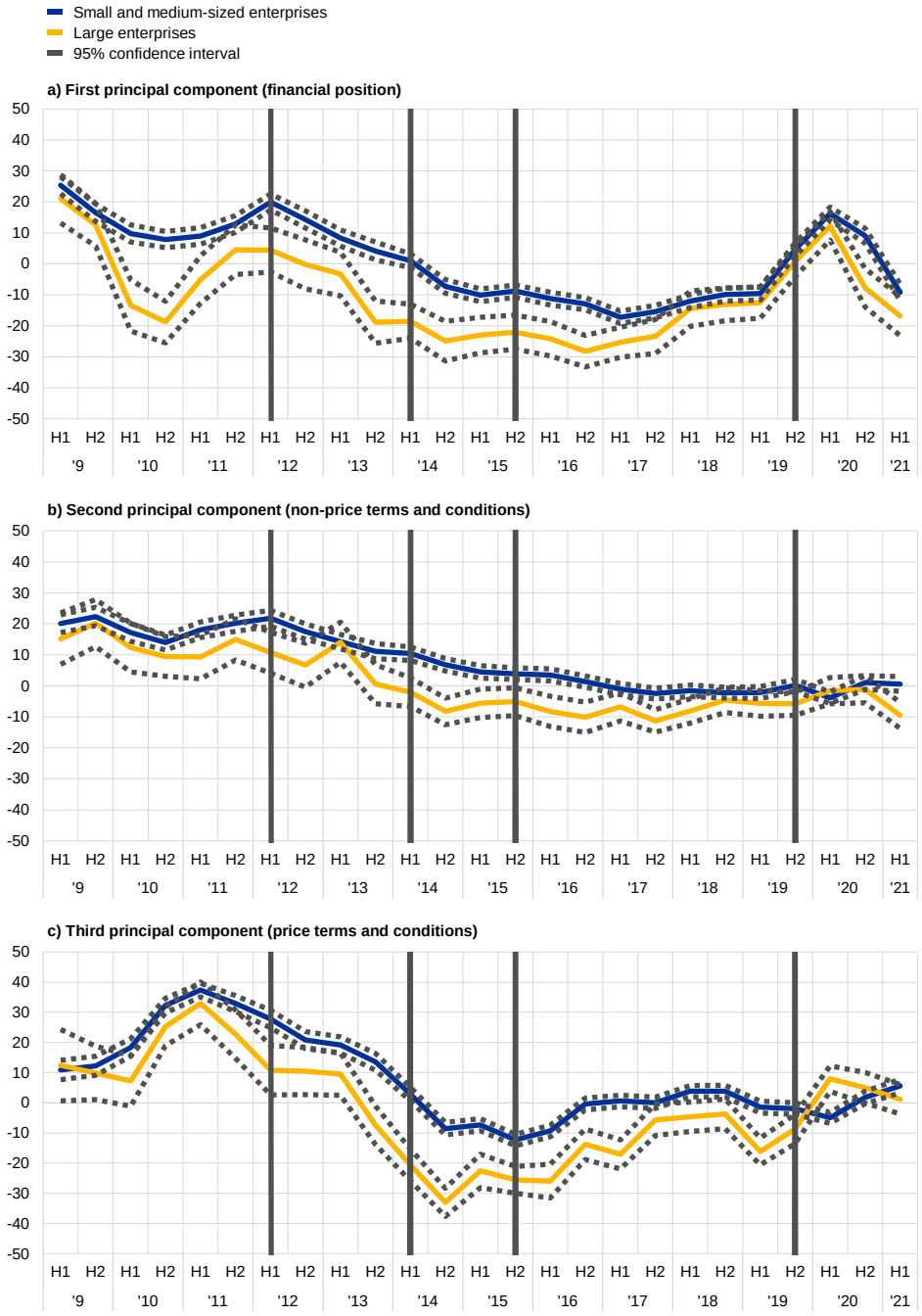
3 Technically, the factor analysis provides a greater number of principal components. Using Horn's parallel analysis, three principal components were retained. These components explain more than 65% of the total variance in the dataset of eight individual variables. After the validity of the data reduction had been assessed using Kaiser-Meyer-Olkin and Cronbach's alpha statistics, the factor loadings were rotated obliquely in order to produce correlated factors. On the basis of the rotated factor loadings matrix, we assigned each principal component a specific meaning by looking at the highest loadings for each variable.

4 For a detailed description of the different phases and the related ECB measures adopted up until the onset of the COVID-19 pandemic, see the article entitled "Access to finance for small and medium-sized enterprises after the financial crisis: evidence from survey data", *Economic Bulletin*, Issue 4, ECB, 2020.

Chart A

Indicators of financing conditions based on factor analysis

(weighted scores in percentages)



Source: ECB and European Commission survey on the access to finance of enterprises (SAFE).
Notes: Positive values indicate a tightening in financing conditions, as measured by the principal components. Small and medium-sized enterprises have fewer than 250 employees. The individual scores for each principal component are weighted by size class, economic activity and country to reflect the economic structure of the underlying population of firms. The individual scores are standardised so they have a range of between -1 and 1 and are multiplied by 100 to obtain weighted balances in percentages. The first vertical grey line denotes the announcement of Outright Monetary Transactions; the second vertical grey line denotes the start of the first series of targeted longer-term refinancing operations (TLTRO I) and the negative interest rate policy; the third vertical grey line denotes the start of TLTRO II and the corporate sector purchase programme; and the last vertical grey line denotes the start of the pandemic emergency purchase programme and TLTRO III. The dotted lines show the 95% confidence bands. The latest observations are for April 2021 to September 2021.

The most recent phase in firms' perceptions of changes in financing conditions coincided with the launch of the pandemic emergency purchase programme (PEPP) and the easing of conditions for the third series of targeted longer-term refinancing operations (TLTRO III). The latest survey results, which cover the period April 2021 to September 2021, show that, following the rapid economic downturn, access to finance improved to the extent that the availability of external finance was considered to exceed demand. However, during this latest phase the three principal components offered diverging assessments of financing conditions, given the specific nature of the pandemic-induced economic crisis.

The first indicator of financing conditions emphasises the role played by changes in firms' balance sheet quality (profits, own capital and creditworthiness) in determining their access to external finance (financial position: Chart A, panel a). Focusing on the period just before and during the pandemic (the last four survey rounds), after a significant deterioration at the beginning of the pandemic the financial position of firms has improved in tandem with the recent rebound in economic activity. From April 2020 to March 2021, small and medium-sized enterprises reported a pronounced fall in profits as well as some erosion of their capital positions. Since both indicators are important determinants of banks' lending decisions, this deterioration was perceived by firms as an impediment to their access to external finance. In the latest survey round (April 2021 to September 2021) small and medium-sized enterprises signalled a return to an easing of conditions, which reflected their optimistic perceptions of long-term turnover growth, despite their continuing lacklustre performance in terms of profits. Large companies also saw a deterioration in their profit situation, but it was short-lived.

The second component focuses mainly on factors related to changes in collateral requirements and other guarantees (non-price terms and conditions: Chart A, panel b). This indicator has been more stable over time, with a trend which is declining overall. The indicator points to an easing in financing conditions during the pandemic for large companies only, while small and medium-sized enterprises signalled a deterioration due to increases in collateral requirements and other requirements such as covenants.

The third component mostly reflects changes in interest rates and other costs of financing (price terms and conditions: Chart A, panel c). This is the component that might best reflect the transmission of monetary policy to firms' financing conditions during the four phases described earlier. For small and medium-sized enterprises it signals some tightening related to banking costs since October 2020, while for large firms it signals a tightening at the beginning of the pandemic which has moderately considerably in the most recent period (April 2021 to September 2021).

Firms' perceptions of financing conditions related to price terms and conditions closely follow the trend for terms and conditions reported by euro area banks. Chart B compares the dynamics of the price terms and conditions component with two important aspects of banks' terms and conditions agreed in loan contracts. These are the margins on average loans and the margins on riskier loans,

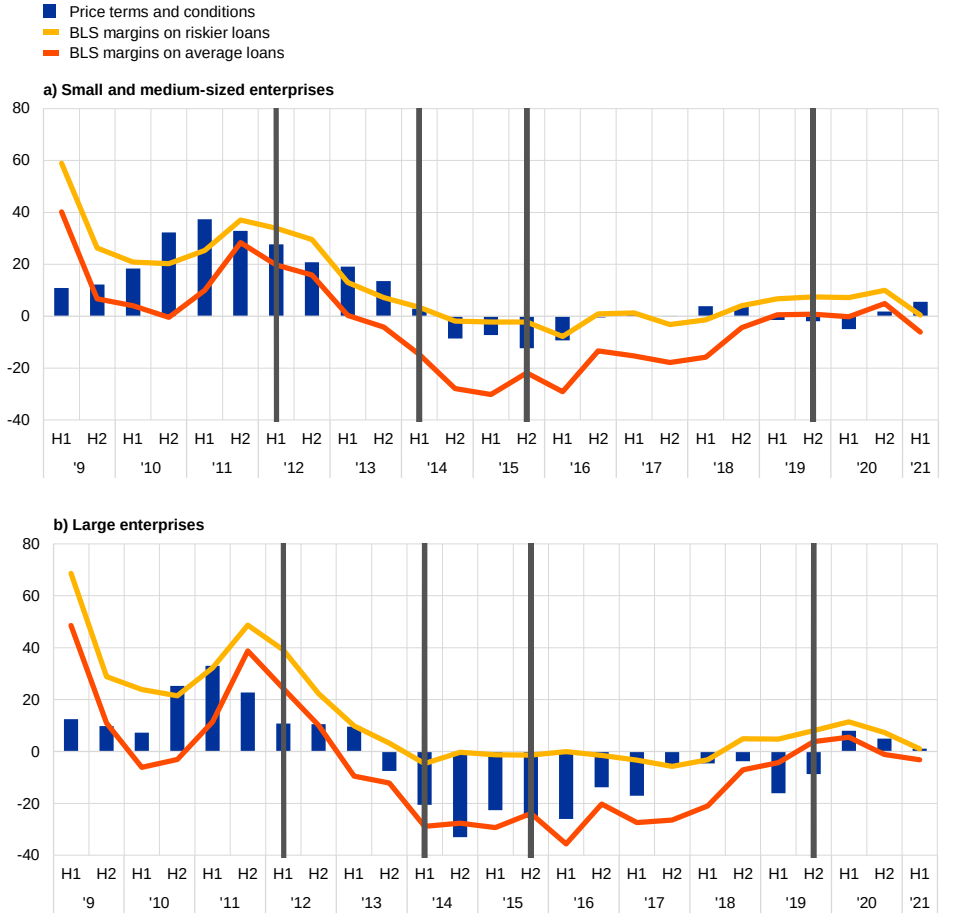
defined as the spread over relevant market reference rates. Changes in these variables are regularly reported by euro area banks in the quarterly bank lending survey (BLS).[5] Since 2009 a widening (narrowing) of banks' margins has been reflected in a worsening (improvement) of financing conditions reported by firms. Just before the onset of the pandemic, the signals from the BLS pointed to a broad-based tightening of credit conditions, although bank lending rates remained at historically favourable levels. Banks attributed this tightening to the intensification of risks to the creditworthiness of firms (also captured here by the first indicator) and the prospect of possible loan losses in the future. As the economic recovery increasingly included more firms, the tightening diminished and loan margins were reported as broadly unchanged in the BLS during the latest available SAFE round. At the same time, however, small and medium-sized enterprises perceived a deterioration in financing conditions related to price terms and conditions. This most recent tightening, in the period April 2021 to September 2021, might be due to the reduced use of pandemic-related government guaranteed loans, which have typically been granted by banks under very favourable conditions including more relaxed loan approval criteria.

5 For each (biannual) round of the SAFE survey the corresponding two quarters of BLS responses have been averaged.

Chart B

Banks' lending conditions and the third principal component (price terms and conditions)

(net percentages for margins; weighted scores for price terms and conditions in percentages)



Sources: Euro area bank lending survey (BLS), ECB and European Commission survey on the access to finance of enterprises (SAFE).
Notes: Positive values indicate a deterioration in the principal component and a net widening in loan margins. Small and medium-sized enterprises have fewer than 250 employees. The individual scores for the principal component are weighted by size class, economic activity and country to reflect the economic structure of the underlying population of firms. The individual scores are standardised so they have a range of between -1 and 1 and are multiplied by 100 to obtain weighted balances in percentages. For each (biannual) round of the SAFE survey the corresponding two quarters of BLS responses have been averaged. The first vertical grey line denotes the announcement of Outright Monetary Transactions; the second vertical grey line denotes the start of the first series of targeted longer-term refinancing operations (TLTRO I) and the negative interest rate policy; the third vertical grey line denotes the start of TLTRO II and the corporate sector purchase programme; and the last vertical grey line denotes the start of the pandemic emergency purchase programme and TLTRO III. The latest observations are for April 2021 to September 2021.

A tightening of financing conditions reflected in an increase in any of the principal components raises the probability of a firm reporting expectations of a deterioration in the future availability of bank loans (Chart C). In the SAFE survey, firms are asked to give their expectations for the future availability of external finance in the six months after the fieldwork is carried out.[6] Following the approach taken by Ferrando and Ganoulis[7], a logit model is used to link the expected deterioration in the future availability of bank loans to the three principal components,

6 For instance, in the last survey round firms were asked between mid-September and mid-October 2021 about changes in access to finance for the period April 2021 to September 2021, and also about expected changes in access to finance for the period October 2021 to March 2022.

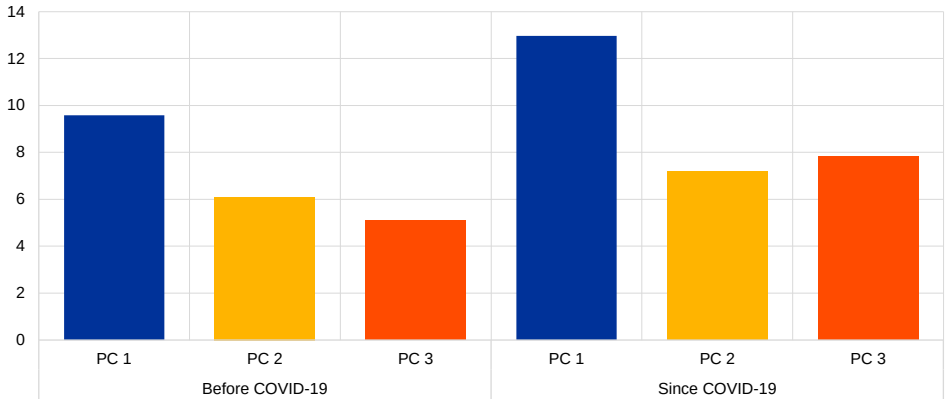
7 Ferrando, A. and Ganoulis, I., "Firms' expectations on access to finance at the early stages of the COVID-19 pandemic", *Working Paper Series*, No 2446, ECB, 2020.

a set of dummies controlling for macroeconomic developments separately for each country and time, and a set of firm characteristics (sector and size).[8] Chart C reports the probability of a firm reporting a deterioration in the future availability of bank loans as a result of changes in financing conditions (average marginal effects). The first three columns are based on estimations for the period before the pandemic and the second three on estimations for the period after the beginning of the pandemic. All the reported marginal effects are positive and statistically significant.

Chart C

Contributions of the indicators of financing conditions to a deterioration in perceived future availability of bank loans

(average marginal effects, percentages)



Source: ECB and European Commission survey on the access to finance of enterprises (SAFE).
Notes: Average marginal effects of the increase by one standard deviation in the principal components on a deterioration in the future availability of bank loans based on logit regressions. PC stands for "principal component". PC 1 refers to firms' financial positions; PC 2 to non-price terms and conditions; PC 3 to price terms and conditions.

Since the onset of the COVID-19 pandemic, firms have become increasingly concerned that the future availability of bank loans may be reduced if financing costs rise. The importance of the component related to changes in bank interest rates and other costs of financing in predicting the future availability of bank loans has increased the most since the onset of the COVID-19 pandemic. A worsening of this component, which is directly linked to the assessments made by firms of banks' behaviour, by one standard deviation now increases the probability of a deterioration in the future availability of bank loans by 7.8%. This figure was 5.1% until March 2020. Nevertheless, the expected availability of finance is still most strongly influenced by the financial position of firms (the first principal component), with average marginal effects of 9.6% before COVID-19 and 13% since the onset of the pandemic. For the component related to non-price terms and conditions (the second principal component), the corresponding rise since the onset of the pandemic is 1.1 percentage points to a level of 7.2%.

To conclude, the empirical analysis shows that, since the beginning of the pandemic, the overall financing conditions signalled by firms in the SAFE survey, and distilled

[8] A second specification includes the change in the availability of bank loans. This variable plays a similar role to a lagged dependent variable in a cross-sectional model, although it is reported by firms at the same time as expectations. The econometric results are confirmed under this second specification, although these results are not reported in the box.

via the three principal components, have become more important in gauging the beliefs of firms about the future availability of bank loans.

4 Decomposing market-based measures of inflation compensation into inflation expectations and risk premia

Prepared by Valentin Burban, Bruno De Backer, Fabian Schupp and Andreea Liliana Vladu

This box presents a model-based approach for distinguishing between two unobserved components embedded in market-based measures of inflation compensation, namely inflation expectations and inflation risk premia. The approach relies on econometric models used to analyse the term structure of inflation-linked swap (ILS) rates. Estimates indicate that the rise in forward ILS rates observed since mid-2020 is attributable more to inflation risk premia than to inflation expectations. This suggests that the rise is mainly related to a shift in the inflation risks priced in, from lower than expected to higher than expected.

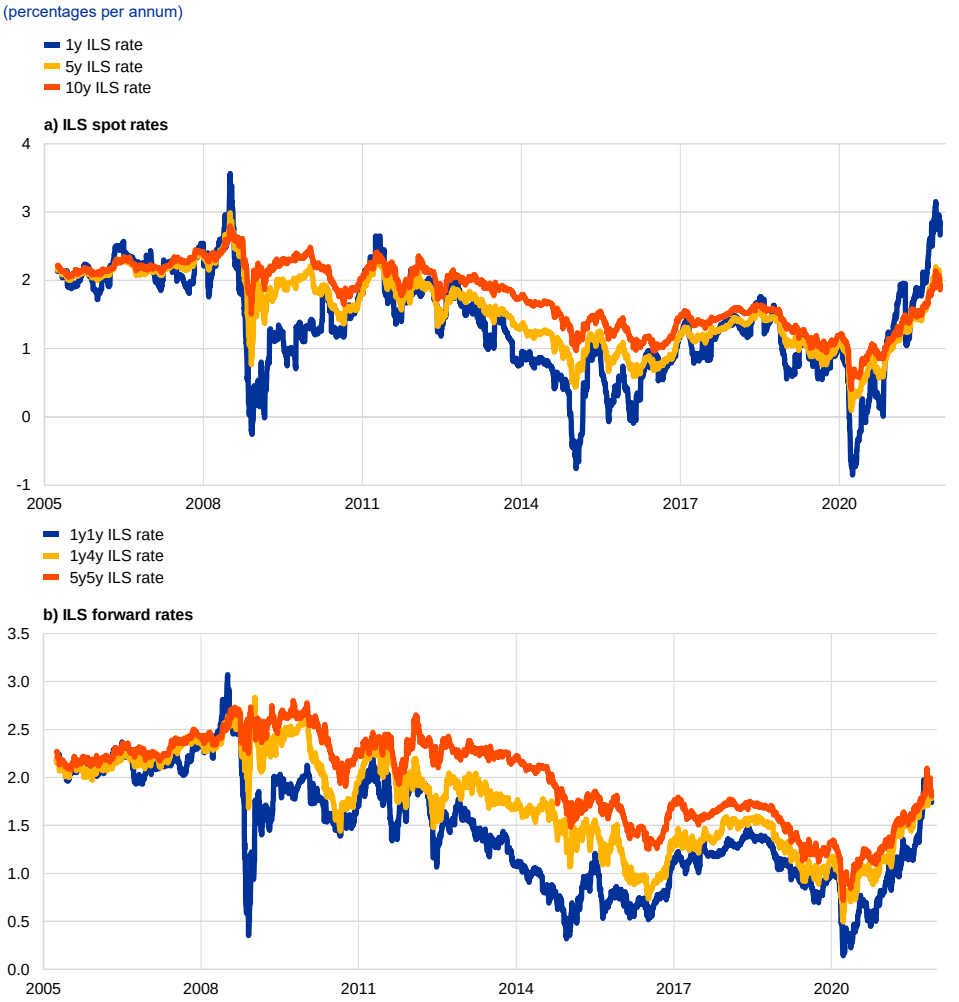
ILS rates are often used as a benchmark for market-based measures of inflation compensation in the euro area. ILS contracts exchange at maturity the fixed swap rate agreed in advance against the average inflation rate realised over the life of the swap, with both rates applied to a notional amount. Unlike break-even inflation rates derived from inflation-linked and nominal sovereign bonds issued by specific euro area member states, ILS rates are less affected by market liquidity issues.[1]

Because ILS rates reflect financial market participants' views about future inflation, they are closely monitored by central banks (Chart A). ILS rates were relatively stable at slightly above 2% over the period 2005-07 but plummeted in the second half of 2008 as the global financial crisis unfolded. While they had returned to close to 2% by the end of 2010, they gradually declined again to levels incompatible with the ECB's inflation target at the time of "below, but close to" 2%. For example, the one-year forward ILS rate four years ahead stood slightly below 1% in mid-2016. Although ILS rates recovered somewhat by mid-2018, they subsequently slid again to low levels until the coronavirus (COVID-19) crisis induced another dramatic decline, with a trough reached at the end of March 2020. They then increased significantly over the next year and a half. Most recently, the one-year ILS rate has reached as high as 3%, but the one-year forward rate one year ahead has remained below 2%. This suggests that the financial markets are pricing the recent rise in inflation as transitory. Importantly for the medium-term objective of price stability, the five-year forward rate in five years ahead has returned to levels close to 2%.

[1] For an overview of the ILS market, see "Derivatives transactions data and their use in central bank analysis", *Economic Bulletin*, Issue 6, ECB, 2019; "Interpreting recent developments in market-based indicators of longer-term inflation expectations", *Economic Bulletin*, Issue 6, ECB, 2018; Work stream on inflation expectations, "Inflation expectations and their role in Eurosystem forecasting", *Occasional Paper Series,* No 264, ECB, 2021. By market convention, the reference price index for euro area ILS rates is the HICP excluding tobacco (HICPxT). ILS rates refer to the HICPxT with a three-month indexation lag.

Chart A

Euro area inflation-linked swap rates



Sources: Refinitiv and ECB calculations.
Notes: The "1y4y ILS rate" is the one-year forward ILS rate in four years' ahead, and similarly for the "1y1y ILS rate" and "5y5y ILS rate". The latest observation is for 26 November 2021.

ILS rates and other market-based measures of inflation compensation reflect not only financial market participants' actual inflation expectations, but also inflation risk premia. The presence of inflation risk premia is due to financial market participants being risk-averse and having to deal with uncertainty. In general, theory suggests that inflation risk premia tend to be positive in times dominated by supply shocks and negative in times dominated by demand shocks.[2] Adverse supply shocks, for instance, support positive inflation risk premia, as they imply that inflation tends to increase when financial asset payoffs (in real terms) are highly valued, i.e. when real activity declines and the marginal utility of consumption rises.

Econometric models of the term structure of ILS rates can be used to decompose ILS rates into inflation expectations and inflation risk premia.

2 See, for instance, Rostagno, M., Altavilla, C., Carboni, G., Lemke, W., Motto, R., Saint Guilhem, A. and Yiangou, J., "Monetary Policy in Times of Crisis: A Tale of Two Decades of the European Central Bank", Oxford University Press, 2021.

Estimated models typically incorporate the key economic drivers of the short-term inflation rate ("pricing factors") and a mechanism for the dynamics of these pricing factors (the "law of motion"). These constituents allow forecasts of the short-term inflation rate and averages of these forecasts to be generated for any maturity. Inflation expectations can then be estimated as the average short-term inflation rate over a given horizon, and inflation risk premia can be proxied as the difference between ILS rates and these inflation expectations.[3]

Two variants of an econometric term structure model are used in this box to decompose ILS rates into inflation expectations and inflation risk premia. The models incorporate three pricing factors that explain the bulk of the variation in end-of-month ILS rates of different maturities over time.[4] Both models imply that the short-term ILS rate converges on a fixed number over the long run, as will any stationary term structure model. As this endpoint is hard to pin down empirically,[5] it is calibrated to a level of 1.9%. This is in line with the all-time average of long-term inflation forecasts from the Survey of Professional Forecasters and Consensus Economics, and compatible with numerical implementations of the ECB's objective for most of the period analysed.[6] The two variants differ in the way they estimate the law of motion for the pricing factors. Specifically, the method used to estimate one of the variants accounts for a well-known bias afflicting estimates of persistent processes; the other method does not take this bias into account.[7]

Decomposition results are represented as averages of the two model outcomes. Inflation expectations based on the first approach have the advantage of being relatively close to the level of survey forecasts, which is a meaningful cross-check since survey data are not taken into consideration at the estimation stage. However, inflation expectations for longer horizons based on the first approach tend to be fairly rigid and possibly underestimate the true and unobserved time variation. The second approach, which corrects for the estimation bias, renders long-term expectations more variable, but occasionally seems to establish too tight a

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3 Inflation risk premia are usually estimated as the difference between "fitted" ILS rates (i.e. implied by the estimated model) and estimated expectation components.

4 The reference model follows the methodology of the seminal paper by Joslin, S., Singleton, K.J. and Zhu, H., "A new perspective on Gaussian dynamic term structure models", *The Review of Financial Studies*, Vol. 24, Issue 3, 2011, pp. 926-970, and is applied to end-of-month ILS rates adjusted for the three-month indexation lag, as in Camba-Mendez, G. and Werner, T., "The inflation risk premium in the post-Lehman period", *Working Paper Series*, No 2033, ECB, 2017.

5 See, for instance, Villani, M., "Steady-state priors for vector autoregressions", *Journal of Applied Econometrics*, Vol. 24, Issue 4, 2009, pp. 630-650.

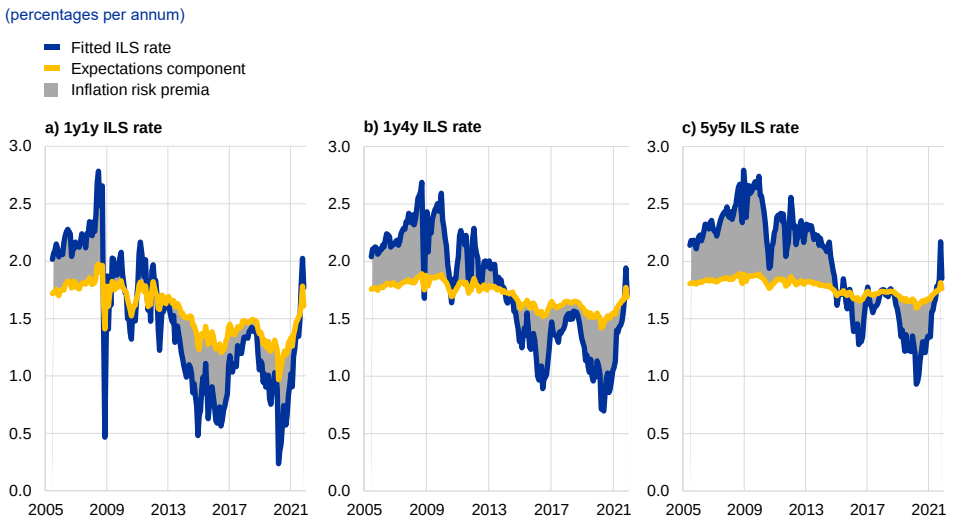
6 Calibrating the long-run inflation mean at 1.9% is in line with the New Area-Wide Model in which, prior to the adoption of the ECB's new inflation target of 2%, the central bank's long-run inflation objective was set to 1.9% per annum (see Christoffel, K., Coenen, G. and Warne, A., "The New Area-Wide Model of the euro area: a micro-founded open-economy model for forecasting and policy analysis", *Working Paper Series*, No 944, ECB, 2008; and Coenen, G., Karadi, P., Schmidt, S. and Warne, A., "The New Area-Wide Model II: an extended version of the ECB's micro-founded model for forecasting and policy analysis with a financial sector", *Working Paper Series*, No 2200, ECB, 2019). See also Mazelis, F., Motto, R., and Ristiniemi, A., "Monetary policy strategies in a low interest rate environment for the euro area", *forthcoming,* who also use 1.9%. The ECB's 2020-21 strategy review adjustment to aim for 2% inflation over the medium term means the long-run mean of inflation expectations may need to be updated at some point, which would result in slightly lower inflation risk premia estimates overall.

7 Augmented Dickey-Fuller tests and Philips and Perron tests fail to reject the null hypothesis of a unit root in ILS rates. The correction of the estimation bias (toward a lack of persistence) in the second model follows the methodology of Kilian, L., "Finite sample properties of percentile and percentile-t bootstrap confidence intervals for impulse responses", *Review of Economics and Statistics*, Vol. 81, No 4, 1999, pp. 652-660.

connection between short-term ILS rates and long-horizon expectations. Model averaging strikes a balance between the two approaches.[8] At the same time, it should be noted that model-based inflation expectations (and, conversely, premia) extracted from ILS rates are subject to estimation uncertainty and their levels cannot be validated directly by an observed counterpart.[9]

Chart B

Model-based decomposition of euro area inflation-linked swap rates



Sources: Refinitiv and ECB calculations.
Notes: Average estimates based on two affine term structure models following Joslin, Singleton and Zhu (2011) applied to ILS rates adjusted for the indexation lag, as in Camba-Mendez and Werner (2017). The latest observation is for November 2021 (monthly models).

Estimated decompositions suggest that inflation expectations are in general more stable than ILS rates, and that inflation risk premia across tenors have changed sign in the past, including recently (Chart B). Decompositions indicate that inflation expectations can vary significantly through time, although they are in general smoother than ILS rates. This holds especially true for more distant forward rates, which is in line with the intuition that inflation expectations are, in principle, better anchored in the long run. Inflation risk premia are estimated to have gone from positive to negative around 2013-14, suggesting that markets increasingly accounted for the risk of inflation outcomes falling below their expectations. More recently, as the effects of the coronavirus (COVID-19) pandemic have started to dissipate, inflation risk premia estimates have increased significantly, and even changed sign to possibly become slightly positive again. This change in sign might be related to the pricing in of a greater likelihood, or at least risk, of the economy being dominated

8 As a broad check for "reasonableness", the standard deviation of the expectation components obtained from the average of the two model estimates is relatively close to that of inflation forecasts derived from the Survey of Professional Forecasters and Consensus Economics (e.g. around 10 basis points at the four to five-year horizon).

9 Specifically, survey estimates can differ from true (unobserved) expectations embedded in ILS rates by the simple fact that different market players are expressing their views.

by supply shocks in the foreseeable future in the context of ongoing supply bottlenecks.[10]

[10] See for instance Box 4, "The impact of supply bottlenecks on trade", *Economic Bulletin*, Issue 6, ECB, 2021.

5 Liquidity conditions and monetary policy operations from 28 July to 2 November 2021

Prepared by Elvira Fioretto and Juliane Kinsele

This box describes the ECB's monetary policy operations and liquidity developments during the fifth and sixth reserve maintenance periods of 2021. Together, these two maintenance periods ran from 28 July to 2 November 2021 (the "review period").

Average excess liquidity in the euro area banking system rose by €175.5 billion during the fifth and sixth maintenance periods of 2021, reaching a record level of €4,367 billion. This was largely due to asset purchases conducted under the pandemic emergency purchase programme (PEPP) and the asset purchase programme (APP) as well as the settlement of the eighth and ninth operations of the third series of targeted longer-term refinancing operations (TLTRO III.8 and III.9). The effect of monetary policy operations on excess liquidity was partially offset by a sizeable increase in net autonomous factors.

Liquidity needs

The average daily liquidity needs of the banking system, defined as the sum of net autonomous factors and reserve requirements, increased by €170.8 billion to €2,290.2 billion in the review period. The significant increase compared to the previous two maintenance periods was almost totally due to an increase in net autonomous factors by €167.8 billion to €2,138.4 billion (see the section of Table A entitled "Other liquidity-based information"), while minimum reserve requirements increased only marginally by €3 billion to €151.9 billion.

Liquidity-absorbing autonomous factors in the review period increased by €120.3 billion to €3,116.6 billion, driven by other autonomous factors as well as increases in banknotes in circulation and government deposits. Other autonomous factors (see Table A below for further information) increased in the review period by €55.1 billion to €959.4 billion. At the same time, banknotes in circulation increased by €28.7 billion to €1,503.7 billion. Government deposits remain at a very high level after increasing by €36.6 billion to €653.5 billion, although this is below the record high of €729.8 billion reached in 2020.

Liquidity-providing autonomous factors decreased by €47.5 billion to €978.6 billion. This decrease was the net effect of a decline of €63.1 billion in net assets denominated in euro and an increase of €15.6 billion in net foreign assets.

Table A provides an overview of the autonomous factors[1] discussed above and their changes.

Table A

Eurosystem liquidity conditions

Liabilities

(averages; EUR billions)

	Current review period: 28 July 2021 to 2 November 2021						Previous review period: 28 April 2021 to 27 July 2021	
	Fifth and sixth maintenance periods		Fifth maintenance period: 28 July to 14 September		Sixth maintenance period: 15 September to 2 November		Third and fourth maintenance periods	
Autonomous liquidity factors	**3,116.6**	**(+120.3)**	**3,086.2**	**(+28.8)**	**3,147.0**	**(+60.8)**	**2,996.3**	**(+46.9)**
Banknotes in circulation	1,503.7	(+28.7)	1,499.9	(+14.1)	1,507.4	(+7.5)	1,475.0	(+35.0)
Government deposits	653.5	(+36.6)	635.7	(-16.5)	671.3	(+35.6)	616.9	(-1.3)
Other autonomous factors (net)[1)]	959.4	(+55.1)	950.6	(+31.2)	968.3	(+17.7)	904.3	(+13.2)
Current accounts above minimum reserve requirements	**3,614.5**	**(+143.3)**	**3,575.3**	**(+72.3)**	**3,653.7**	**(+78.4)**	**3,471.2**	**(+338.8)**
of which exempted excess reserves under the two-tier system	904.2	(+17.1)	899.2	(+4.4)	909.2	(+10.0)	887.1	(+13.1)
of which non-exempted excess reserves under the two-tier system	2,709.5	(+123.2)	2,675.3	(+67.2)	2,743.7	(+68.4)	2,586.3	(+317.9)
Minimum reserve requirements[2)]	**151.9**	**(+3.0)**	**150.9**	**(+0.8)**	**152.8**	**(+1.9)**	**148.9**	**(+1.9)**
Exemption allowance[3)]	**911.3**	**(+18.1)**	**905.6**	**(+4.5)**	**916.9**	**(+11.3)**	**893.2**	**(+11.6)**
Deposit facility	**752.6**	**(+32.2)**	**766.6**	**(+30.1)**	**738.5**	**(-28.2)**	**720.4**	**(+86.2)**
Liquidity-absorbing fine-tuning operations	**0.0**	**(+0.0)**	**0.0**	**(+0.0)**	**0.0**	**(+0.0)**	**0.0**	**(+0.0)**

Source: ECB.
Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.
1) Computed as the sum of the revaluation accounts, other claims and liabilities of euro area residents, capital and reserves.
2) Memo item that does not appear on the Eurosystem balance sheet and therefore should not be included in the calculation of total liabilities.
3) Exempted and non-exempted excess reserves are explained on the ECB's website.

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

Assets

(averages; EUR billions)

	Current review period: 28 July 2021 to 2 November 2021						Previous review period: 28 April 2021 to 27 July 2021	
	Fifth and sixth maintenance periods		Fifth maintenance period: 28 July to 14 September		Sixth maintenance period: 15 September to 2 November		Third and fourth maintenance periods	
Autonomous liquidity factors	978.6	(-47.5)	987.2	(-19.9)	970.0	(-17.2)	1,026.1	(-39.9)
Net foreign assets	830.9	(+15.6)	826.7	(+5.0)	835.1	(+8.3)	815.3	(-11.2)
Net assets denominated in euro	147.7	(-63.1)	160.5	(-24.9)	134.9	(-25.5)	210.8	(-28.6)
Monetary policy instruments	6,657.3	(+346.3)	6,592.2	(+151.6)	6,722.3	(+130.1)	6,311.0	(+513.8)
Open market operations	6,657.3	(+346.3)	6,592.2	(+151.6)	6,722.3	(+130.1)	6,311.0	(+513.8)
Tender operations	2,211.7	(+63.5)	2,213.3	(+17.2)	2,210.0	(-3.3)	2,148.2	(+234.4)
MROs	0.2	(+0.0)	0.2	(+0.1)	0.2	(+0.0)	0.1	(-0.2)
Three-month LTROs	0.1	(-0.1)	0.1	(-0.0)	0.1	(+0.0)	0.1	(-0.4)
TLTRO II operations	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)	0.0	(-9.7)
TLTRO III operations	2,195.0	(+74.3)	2,188.9	(+20.4)	2,201.1	(+12.3)	2,120.7	(+244.3)
PELTROs	16.4	(-10.8)	24.2	(-3.2)	8.6	(-15.6)	27.2	(+0.5)
Outright portfolios	4,445.6	(+282.8)	4,378.9	(+134.4)	4,512.3	(+133.4)	4,162.8	(+279.4)
First covered bond purchase programme	0.4	(-0.0)	0.4	(-0.0)	0.4	(-0.0)	0.4	(-0.0)
Second covered bond purchase programme	2.4	(-0.0)	2.4	(+0.0)	2.4	(+0.0)	2.4	(-0.2)
Third covered bond purchase programme	295.9	(+4.4)	294.7	(+2.1)	297.1	(+2.4)	291.6	(+2.1)
Securities Markets Programme	9.5	(-7.7)	12.6	(-4.5)	6.5	(-6.1)	17.2	(-8.4)
Asset-backed securities purchase programme	27.0	(-1.4)	27.5	(-0.7)	26.6	(-1.0)	28.4	(-0.3)
Public sector purchase programme	2,448.0	(+36.0)	2,439.7	(+18.1)	2,456.3	(+16.6)	2,412.0	(+37.7)
Corporate sector purchase programme	294.8	(+15.4)	290.6	(+7.0)	298.9	(+8.3)	279.3	(+15.9)
Pandemic emergency purchase programme	1,367.5	(+236.1)	1,311.0	(+112.4)	1,424.1	(+113.2)	1,131.4	(+232.6)
Marginal lending facility	0.0	(+0.0)	0.0	(+0.0)	0.0	(-0.0)	0.0	(-0.0)

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

Other liquidity-based information

(averages; EUR billions)

	Current review period: 28 July 2021 to 2 November 2021						Previous review period: 28 April 2021 to 27 July 2021	
	Fifth and sixth maintenance periods		Fifth maintenance period: 28 July to 14 September		Sixth maintenance period: 15 September to 2 November		Third and fourth maintenance periods	
Aggregate liquidity needs[1)]	2,290.2	(+170.8)	2,250.3	(+49.3)	2,330.2	(+79.8)	2,119.4	(+88.8)
Net autonomous factors[2)]	2,138.4	(+167.8)	2,099.4	(+48.5)	2,177.3	(+78.0)	1,970.6	(+86.8)
Excess liquidity[3)]	4,367.0	(+175.5)	4,341.9	(+102.4)	4,392.2	(+50.3)	4,191.5	(+425.0)

Source: ECB.
Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.
1) Computed as the sum of net autonomous factors and minimum reserve requirements.
2) Computed as the difference between autonomous liquidity factors on the liability side and autonomous liquidity factors on the asset side. For the purposes of this table, items in the course of settlement are also added to net autonomous factors.
3) Computed as the sum of current accounts above minimum reserve requirements and the recourse to the deposit facility minus the recourse to the marginal lending facility.

Interest rate developments

(averages; percentages)

	Current review period: 28 July 2021 to 2 November 2021						Previous review period: 28 April 2021 to 27 July 2021	
	Fifth and sixth maintenance periods		Fifth maintenance period: 28 July to 14 September		Sixth maintenance period: 15 September to 2 November		Third and fourth maintenance periods	
MROs	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)
Marginal lending facility	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)
Deposit facility	-0.50	(+0.00)	-0.50	(+0.00)	-0.50	(+0.00)	-0.50	(+0.00)
EONIA[1)]	-0.485	(-0.005)	-0.484	(-0.003)	-0.486	(-0.002)	-0.480	(-0.001)
€STR	-0.569	(-0.004)	-0.569	(-0.003)	-0.570	(-0.002)	-0.565	(-0.001)

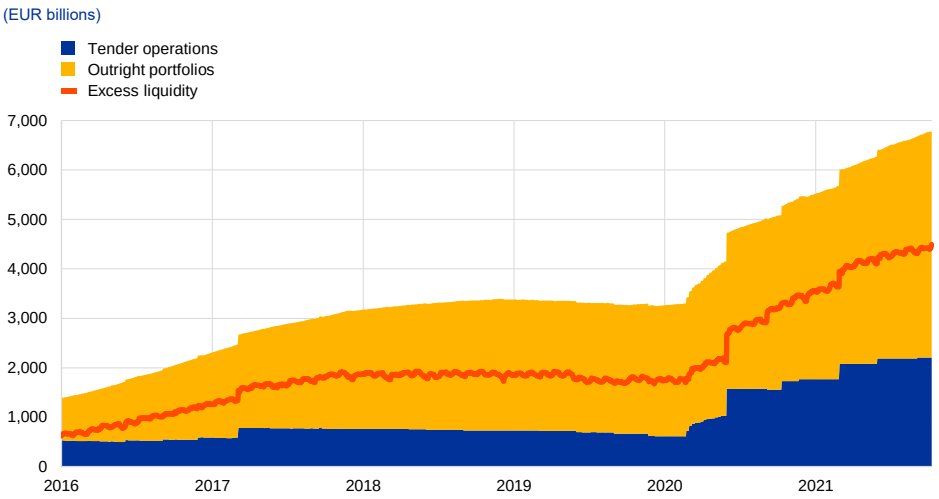
Source: ECB.
Notes: Figures in brackets denote the change from the previous review or maintenance period.
1) Computed as the euro short-term rate (€STR) plus 8.5 basis points since 1 October 2019. Differences in the changes shown for the euro overnight index average (EONIA) and the €STR are due to rounding.

Liquidity provided through monetary policy instruments

The average amount of liquidity provided through monetary policy instruments increased by €346.3 billion to €6,657.3 billion during the review period (Chart A). Around 82% of the increase was the result of ongoing net purchases under the asset purchase programmes, primarily the PEPP, and the remaining 18% originated from credit operations, particularly TLTRO III, while maturing operations and repayments drained liquidity.

Chart A

Evolution of liquidity provided through open market operations and excess liquidity



Source: ECB.
Note: The latest observation is for 2 November 2021.

The average amount of liquidity provided through credit operations increased by €63.5 billion during the review period. This increase was driven both by the effect of the €109.8 billion injected via the eighth TLTRO III operation settled in June (the full effect of which on period averages only materialises in the maintenance period after settlement) and by the €97.6 billion allotted in the ninth TLTRO III operation at the end of September. The liquidity providing effect of the ninth operation was partially offset by the first round of voluntary repayments under the TLTRO III programme, which totalled €79.3 billion in September. In addition, at the end of September three pandemic emergency longer-term refinancing operations (PELTROs) matured for an amount of €22.1 billion, while only €1.3 billion was allotted in the September PELTRO. Overall, the new PELTRO allotments and maturing tenders together resulted in an average net liquidity absorption of €10.8 billion compared to the previous review period. The main refinancing operations (MROs) and three-month longer-term refinancing operations (LTROs) continued to play a marginal role, with the average recourse to both of these regular refinancing operations staying at record low levels, as in the previous review period.

At the same time, outright portfolios increased by €282.8 billion to €4,445.6 billion, owing to net purchases under the PEPP and the APP. Average holdings in the PEPP increased by €236.1 billion to €1,367.5 billion when compared to the average of the previous review period. Purchases under the PEPP represented the largest increase across the ECB's asset purchase programmes, followed by the public sector purchase programme (PSPP) and the corporate sector purchase programme (CSPP), with average increases of €36 billion to €2,448 billion and €15.4 billion to €294.8 billion, respectively. The maturing of securities held in non-active programmes reduced the size of outright portfolios by €7.7 billion.

Excess liquidity

Average excess liquidity increased by €175.5 billion, reaching a new record high of €4,367 billion (Chart A). Excess liquidity is the sum of banks' reserves above the reserve requirement and the recourse to the deposit facility net of any recourse to the marginal lending facility. It reflects the difference between the total liquidity provided to the banking system and banks' liquidity needs. Banks' current account holdings in excess of minimum reserve requirements grew by €143.3 billion to €3,614.5 billion, while the average recourse to the deposit facility increased by €32.2 billion to €752.6 billion.

Excess reserves exempt from the negative deposit facility rate under the two-tier system[2] rose by €17.1 billion to €904.2 billion. Non-exempt excess liquidity, which includes the deposit facility, increased by €155.4 billion, reaching €3,462.1 billion. The aggregate utilisation rate of the maximum exemption allowance, i.e. the ratio of exempted reserves to the maximum exempted amount[3], which has remained above 98% since the third maintenance period of 2020, decreased marginally from 99.3% to 99.2%. The share of exempted excess reserves in total excess liquidity stood at 20.7%, compared to 21.2% in the previous review period.

Interest rate developments

The average €STR remained broadly unchanged at -56.9 basis points during the review period. As a consequence of the high level of excess liquidity, the €STR continues to be relatively inelastic, even to substantial fluctuations in liquidity. Since October 2019, the EONIA has been calculated as the €STR plus a fixed spread of 8.5 basis points. Therefore, it moved in lockstep with the €STR, and continued to do so until the discontinuation of the EONIA on 3 January 2022. Since 18 October 2021, as part of the transition to the €STR as the new benchmark rate, the EONIA is no longer used in new derivatives contracts cleared by central counterparties. The ECB policy rates – the rates on the deposit facility, MROs and the marginal lending facility – were left unchanged during the review period.

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

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

6 The ECB's communication on the economic outlook: a comparative analysis

Prepared by Julian Ashwin, Maarten Dossche, Katrin Forster van Aerssen, Ramon Gomez-Salvador, Eleni Kalamara and Beatrice Pierluigi

The ECB's communication on the economic outlook has changed significantly over the past 20 years. This box shows how the ECB's communication on the frameworks and concepts behind the economic outlook has evolved since the central bank was established in 1998. It also compares the ECB's communication on the economic outlook with that of the Board of Governors of the Federal Reserve System (Federal Reserve Board) and the Bank of England, covering the period 2015-19. The analysis ends in 2019 to avoid the results being affected by the measures related to the coronavirus (COVID-19) pandemic or by the monetary policy strategy reviews conducted by the Federal Reserve Board and the ECB respectively. While this box focuses on a specific part of the ECB's communication, the article entitled "ECB communication with the wider public" in this issue of the Economic Bulletin takes a wider perspective and includes the lessons learned from the ECB's recent strategy review.[1]

In 2015 the ECB's regular communication on the economic outlook saw two important changes. First, the ECB reduced the frequency of the Governing Council's monetary policy meetings from a four to a six-week cycle. Second, the ECB started publishing accounts of the Governing Council's monetary policy meetings. These changes reduced the risk of introducing noise in the communication of the economic outlook, which can arise when updates are published too frequently. They also increased the transparency and accountability of the decision-making process. Both changes brought the ECB's approach closer to the monetary policy deliberation practice of the Federal Reserve Board in the United States. While the official communication on the economic outlook has been reduced from twelve times (Monthly Bulletin) to eight times (Economic Bulletin) a year, communication by the ECB's Chief Economist via speeches and presentations on the economic outlook to external audiences (Chart A, panel a) has risen over the past 20 years. The Chief Economist also tended to give significantly more speeches on the economic outlook than the Chief Economist of the Bank of England or the Vice-Chair of the Federal Reserve Board (Chart A, panel b) during the period 2015-19.[2]

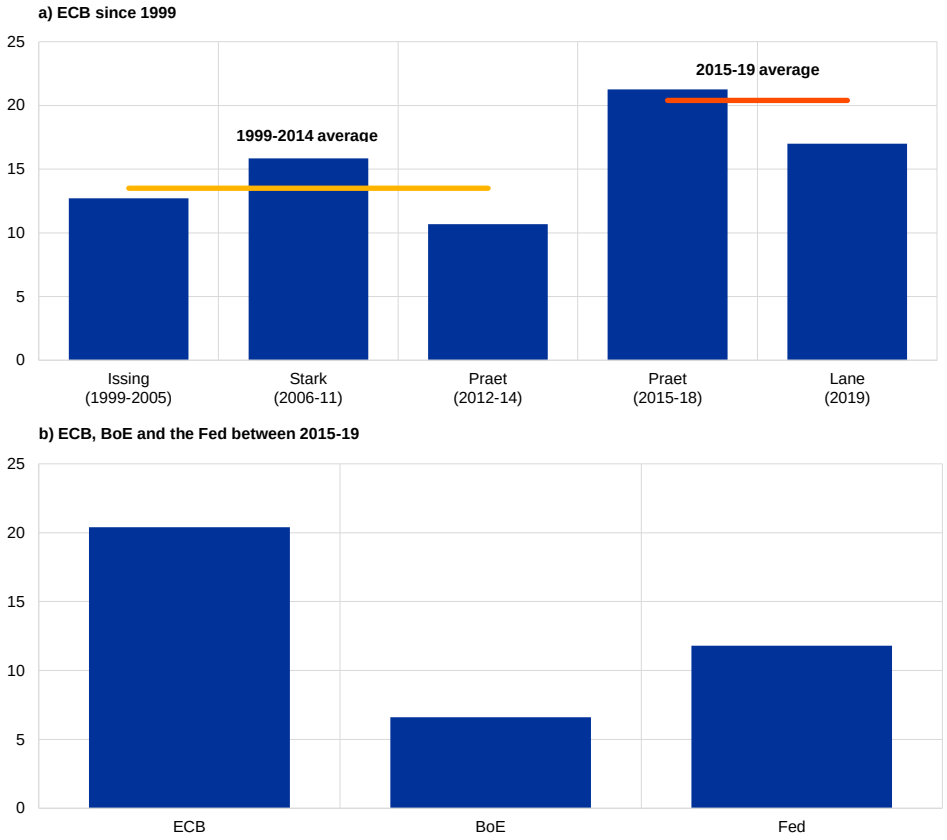
1 See the article entitled "ECB communication with the wider public" in this issue of the Economic Bulletin; and Assenmacher, K., Glöckler, G., Holton, S. and Trautmann, P., "Clear, consistent and engaging: ECB monetary policy communication in a changing world", Workstream on monetary policy communications, *Occasional Paper Series*, No 274, ECB, September 2021.

2 For the Bank of England speeches, the analysis focuses on the Chief Economist. Taking into consideration speeches by the Deputy Governor for Monetary Policy, who is closer to the ECB Chief Economist in terms of executive responsibility, in addition to those by the Chief Economist would not materially affect the results.

Chart A

Number of speeches on the economic outlook by the Chief Economist

(annual average)



Source: ECB staff calculations.
Notes: In panel (a) where the change in office took place during a year (i.e. 2006 Issing/Stark; 2019 Praet/Lane), the speeches have been attributed to the yearly average of the incoming Executive Board member. In panel (b) the Vice-Chair of the Federal Reserve Board (Fischer, Clarida) has been taken to correspond to the Chief Economist at the ECB (Praet, Lane) and at the Bank of England (Haldane). "BoE" stands for Bank of England; "Fed" stands for the Federal Reserve Board.

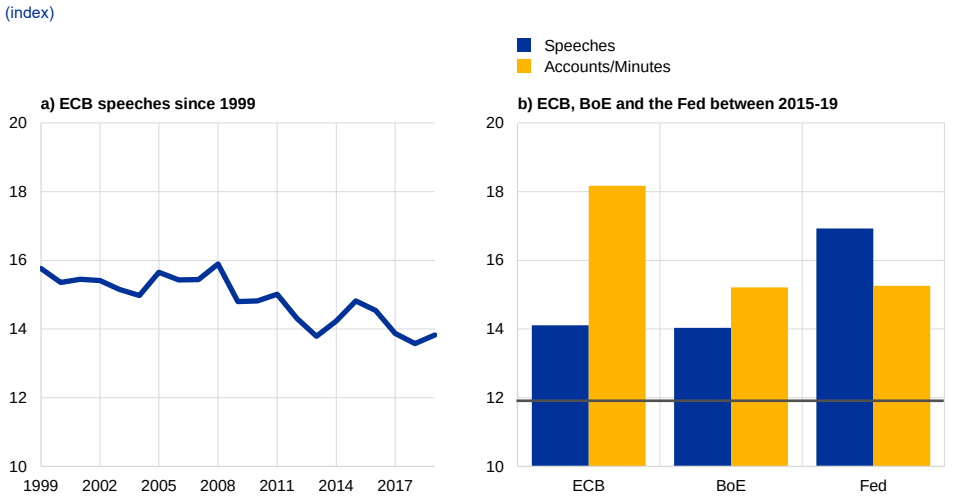
The readability of the ECB's communication on the economic outlook has improved since 2008. This is illustrated in Chart B, panel a, which reports the number of years of education required to understand the ECB's speeches on the economic outlook. It shows that the language used in speeches on the economic outlook has become less complex over time. This improvement is similar to that of the readability of all ECB speeches, including those on topics other than the economic outlook.[3] The readability of the ECB speeches on the economic outlook compares well with the readability of Bank of England speeches; the Federal Reserve Board speeches are somewhat more difficult to read than those of the ECB according to this metric (Chart B, panel b). On the other hand, the readability of the ECB's monetary policy accounts, which have been published since 2015, is significantly lower than that of the minutes of the Federal Open Market Committee or the minutes of the Monetary Policy Committee of the Bank of England. While the

3 See the article entitled "ECB communication with the wider public" in this issue of the Economic Bulletin.

ECB's accounts may be targeted at experts, the higher score also implies that they would be harder for a wider public to understand.

Chart B

Readability of speeches on the economic outlook and accounts/minutes



Source: ECB staff calculations.
Notes: Measured using the Flesch-Kincaid Grade Level score for the period 2015-19. The score can be understood as the number of years of education required to understand the text. The higher the Flesch-Kincaid Grade Level score, the more difficult the language is to understand. All scores above 12 require an education beyond secondary school. "BoE" stands for Bank of England; "Fed" stands for the Federal Reserve Board.

Changes in the way the ECB communicates on the economic outlook reflect the adoption of new theoretical concepts. Chart C, panel a shows that the occurrence of words or terms such as "output gap", "Phillips curve", "unemployment" and "slack" saw a clear upward trend during the second decade of the euro. Conversely, during the past ten years, the word "money" saw a pronounced downward trend. This reflects a shift in how growth and inflation in the euro area is interpreted and assessed – increasingly relying on a relationship between measures of capacity utilisation and wage and price pressures.[4] The decline in the use of the word "money" in ECB speeches and rising frequency of "unemployment" and "slack" is also clear in the speeches given by members of the Executive Board (Chart C, panel a).

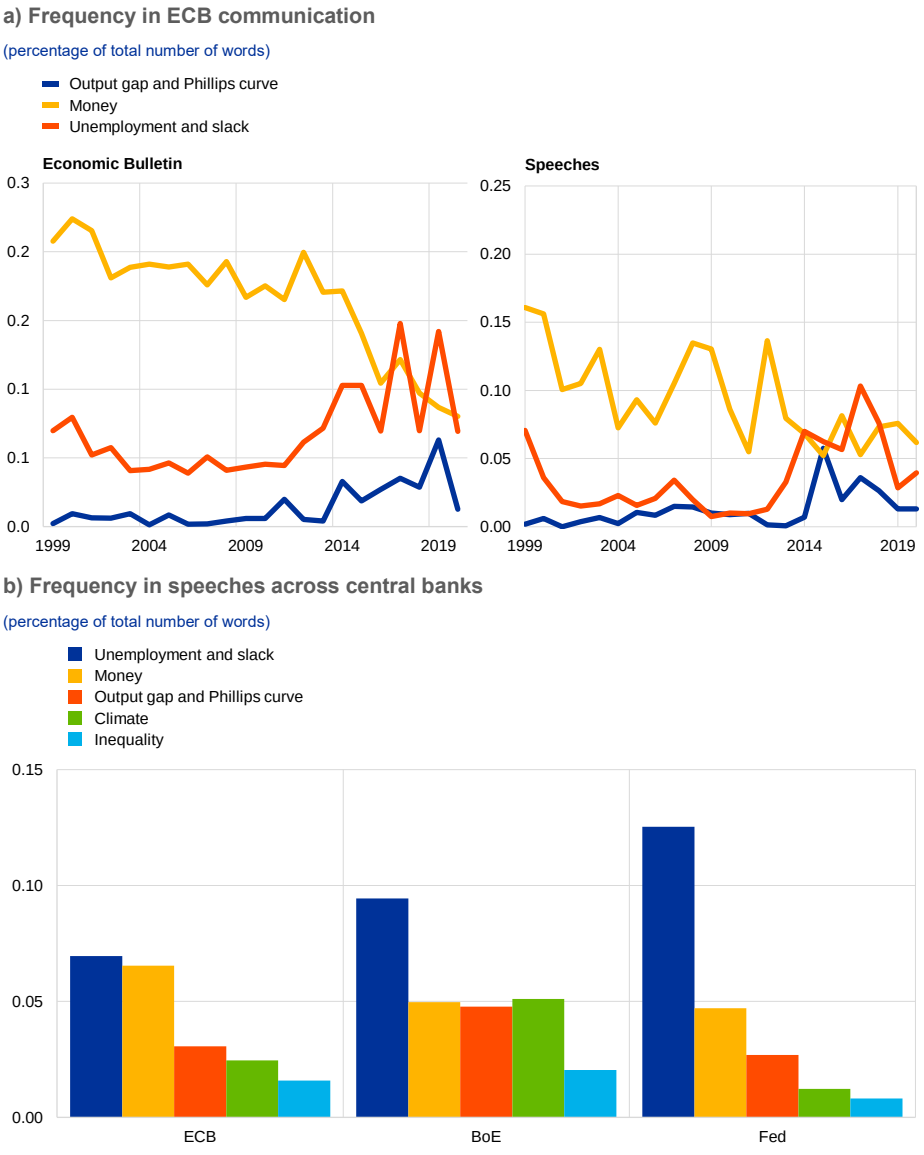
Two main differences between the ECB's communication and that of other central banks are related to differences in their monetary policy strategies. First, Chart C, panel b shows that the words "unemployment" or "slack" are less used by ECB Executive Board members than in speeches by the Bank of England or the Federal Reserve Board, while being the most frequently used among the various topics. For the Federal Reserve Board, this reflects the importance of the goal of maximum employment, which is part of its dual mandate. The frequency of references to "output gap" or the "Phillips curve" is similar across the three central banks. This suggests that while these concepts were less frequently used in communication by the ECB in the past, they are now used to a similar extent as the Bank of England or the Federal Reserve Board. Second, ECB speeches use the

4 For further evidence, see Hartmann, P. and Smets, F., "The first twenty years of the European Central Bank: monetary policy", *Working Paper Series*, No 2219, ECB, December 2018.

term “money” more frequently than the Federal Reserve Board or the Bank of England, which might reflect the importance of the monetary analysis in its monetary policy strategy.

Chart C

Frequency of words related to various topics across central banks



Source: ECB staff calculations.
Notes: The frequency of the specific term/word is computed as the number of times the specific term/word is used divided by the total number of words published that year. “BoE” stands for Bank of England; “Fed” stands for the Federal Reserve Board.

References to inequality are comparable across the three major central banks; climate change is also a prominent topic. While the focus on inequality has increased over time in most central banks, it seems that the ECB pays comparable attention to this topic as the two other major central banks. Discussions on climate change appear to be more frequent in the speeches of the Bank of England than in those of the ECB or the Federal Reserve Board.

Textual analysis underscores the importance of "narratives" in the communication of economic forecasts. Sharpe et al. document how sentiment, or "tonality", extracted from the narratives accompanying Federal Reserve Board economic forecasts is strongly correlated with future economic performance: positively with GDP and negatively with unemployment and inflation. Moreover, tonality conveys incremental information in that it predicts errors in both Federal Reserve Board and private-sector forecasts of GDP, and unemployment up to four quarters ahead.[5] The authors find that the forecasting power of tonality arises from its signalling of downside risks to economic performance. They also find that tonality has significant predictive power for monetary policy. A more optimistic tone in the Tealbook text precedes a higher than anticipated federal funds rate up to four quarters ahead.[6] Likewise, Jones et al. find that there is information in the qualitative discussion on output growth forecasts in the Bank of England's quarterly Inflation Report which improves its quantitative nowcasts and one-quarter-ahead forecasts.[7]

The above evidence illustrates how qualitative discussions (or "narratives") surrounding forecasts contain incremental information about the economy which supplements the quantitative analysis. This underscores the importance of clear and informative communication about the economic outlook – a priority which has also been reaffirmed during the ECB's recent strategy review.[8] The constant flow of new information means that the ECB's economic outlook narrative is updated constantly too, which requires a broad set of economic models, tools and surveys.

5 See Sharpe, S., Sinha, N. and Hollrah, C., "The Power of Narratives in Economic Forecasts", *Finance and Economics Discussion Series*, No 2020-001, Board of Governors of the Federal Reserve System, 2020.

6 The official title of the Tealbook is "Report to the FOMC on Economic Conditions and Monetary Policy", which is produced by the staff at the Federal Reserve Board. The "Tealbook" name was given when the Bluebook and Greenbook were merged in June 2010.

7 See Jones, J., Sinclair, T. and Stekler, H., "A textual analysis of Bank of England growth forecasts", *International Journal of Forecasting*, Vol. 36(4), 2020, pp. 1478-1487. For similar evidence from the Banco de España, see Sobrino, N., Ghirelli, C., Hurtado, S., Pérez, J. and Urtasun, A., "The narrative about the economy as a shadow forecast: an analysis using Bank of Spain quarterly reports", *Applied Economics*, November 2021.

8 See the article entitled "An overview of the ECB's monetary policy strategy", *Economic Bulletin*, Issue 5, ECB, 2021.

7 Sources of supply chain disruptions and their impact on euro area manufacturing

Prepared by Roberto A. De Santis

The euro area recovery over the course of 2021 has been affected by increasing global supply chain disruptions. Real GDP growth in 2021 was predominantly supported by a recovery in business services, while industry and construction have contributed to a lesser degree due to shortages of imported intermediated inputs and equipment. Global supply chain disruptions have been the result of the interplay of several factors, which can be grouped into five main categories: (i) early strong rebound in global demand for manufacturing goods; (ii) supply shortages of specific semiconductors; (iii) logistical disruptions in the transport sector, primarily linked to container vessel activity; (iv) strict lockdown measures in some key Asian countries that produce intermediated inputs; (v) time needed to increase supply capacity of semiconductor production and of vessels.

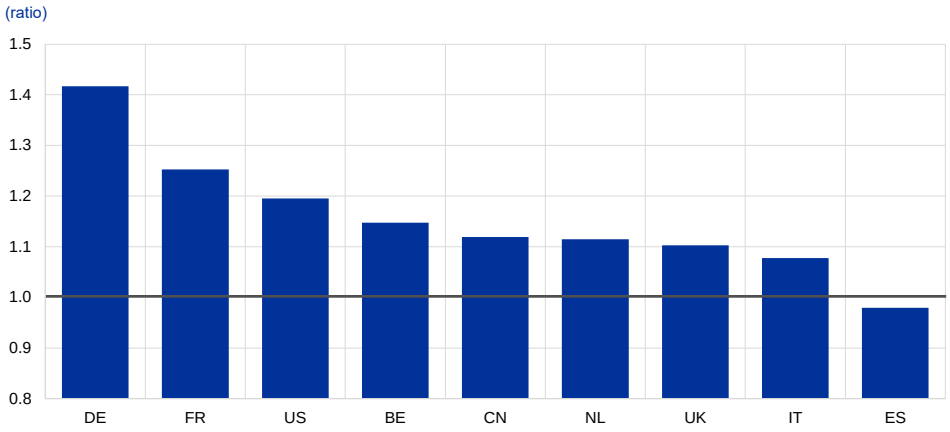
The imbalance between the sharp recovery in global demand and the supply shortages has been more severe and protracted than initially expected. The global surge in high-tech demand from households needing to work from home and from firms needing to upgrade their internet capacity and network access, together with supply disruptions resulting from the coronavirus (COVID-19) pandemic, has generated a crisis in the supply of semiconductors, which has, in particular, adversely affected the automobile industry.[1] Equally relevant is that container vessel activity also sustained a major shock as a result of the pandemic. With the collapse of world trade in April 2020, cargo ships were not able to run at full capacity and many containers were left to pile up in western countries' ports due to the lockdowns. After the summer of 2020, once global demand had picked up again, the lack of containers to transport these goods from Asia to the United States and Europe, as well as numerous vessels arriving at their destinations well outside of schedule (exacerbated by the massive container ship that blocked the Suez Canal), led to considerable supply bottlenecks. According to UNCTAD, the average time spent by container vessels in ports in the first half of 2021 was 11% higher compared with the pre-pandemic average in 2018-19. In Europe, due to congestion, scheduling delays and infrastructure constraints, German and French ports saw a very large increase in average port stays (e.g. 42% and 25% higher than their average in 2018 and 2019), thus standing even higher than those seen in the United States. Belgium, Italy and the Netherlands, on the other hand, all saw changes more in line with the global average (Chart A). Another issue that exacerbated these supply bottlenecks was the renewed lockdown measures resulting from the spread of the Delta variant in some countries of the Asia-Pacific region (including Malaysia, Singapore, Thailand and

[1] For further information on developments in semiconductor industries, see European Central Bank, "What is driving the recent surge in shipping costs", *Economic Bulletin*, Issue 3, ECB, 2021; European Central Bank, "The semiconductor shortage and its implication for euro area trade, production and prices", *Economic Bulletin*, Issue 4, ECB, 2021; the *Special Issue* in the Autumn 2021 European Economic Forecast by the European Commission, and the discussion paper entitled "Bottlenecks: causes and macroeconomic implications" by the Bank for International Settlements, *BIS Bulletin*, No 48, BIS, 2021.

Vietnam), which are key to the semiconductor chip production. According to the ECB's contacts in the corporate sector, both semiconductor foundry capacity and cargo vessel capacity are expected to remain tight into 2023.[2]

Chart A

Median time in ports for container ships in the first half of 2021 against the 2018-19 average



Sources: UNCTAD (United Nations Conference on Trade and Development) and ECB staff calculations.
Note: The latest observation is for June 2021.

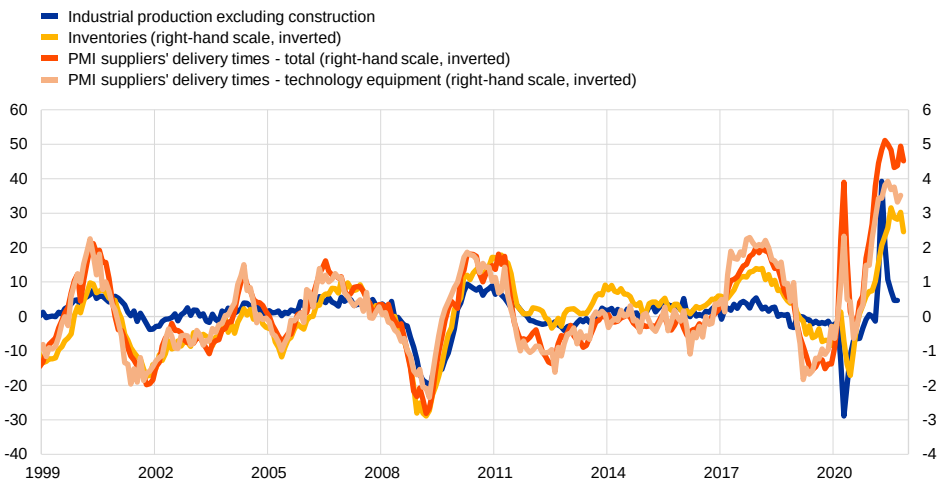
During normal times, increases in production are generally associated with longer suppliers' delivery times and declining inventories. Before the pandemic, the key mechanism at play was that an increase in demand would lead to an increase in production, delaying the delivery of goods to firms and lowering inventory levels; however, an efficient allocation of resources thanks to globalisation would help to improve supply processes and speed up delivery times. Since the second half of 2020, it is not only a strong demand that has triggered longer delivery times but also the supply bottlenecks that are causing severe delays, to the point of implying a decline in production (Chart B). These bottlenecks caused material and/or equipment shortages that prevented euro area firms from being able to adequately respond to the rapid recovery in demand for manufacturing goods, which subsequently led to a fall in inventories across all sectors (Chart C). This new development can be exploited to assess the degree to which supply bottlenecks are behind the weakness in euro area industrial production.

2 With regard to firms' views on the persistence of supply constraints, see European Central Bank, "Main findings from the ECB's recent contacts with non-financial companies", *Economic Bulletin*, Issue 7, ECB, 2021.

Chart B

Euro area industrial production, suppliers' delivery times and inventories

(left-hand scale: year-on-year growth rate; right-hand scale: z-scores)

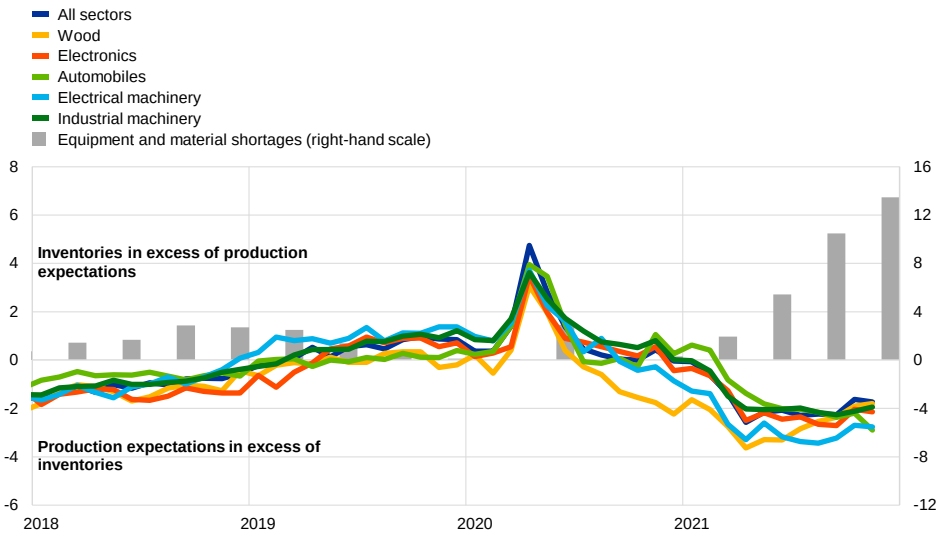


Sources: Eurostat, European Commission, IHS Markit and ECB staff calculations.
Notes: Z-scores are computed for each indicator by subtracting their respective means and dividing the obtained difference by their respective standard deviations computed over the period 1999-2019. The latest observations are for September 2021 (for industrial production), October 2021 (for PMI suppliers' delivery times for technology equipment) and November 2021 (for PMI suppliers' delivery times in total and inventories).

Chart C

Euro area inventories relative to production expectations by sector and equipment and material shortages

(z-scores)



Sources: Eurostat, European Commission and ECB staff calculations.
Notes: Z-scores are computed for each indicator by subtracting their respective means and dividing the obtained difference by their respective standard deviations computed over the period 1999-2019. The latest observations are for October 2021 (for inventories relative to production expectations) and November 2021 (for equipment and material shortages).

A structural vector autoregression (SVAR) model can be used to disentangle the relative importance of the key drivers of developments in both delivery times and industrial production. Specifically, this model identifies the contribution from demand, interest rate, financial, cost-push and bottleneck shocks, using the

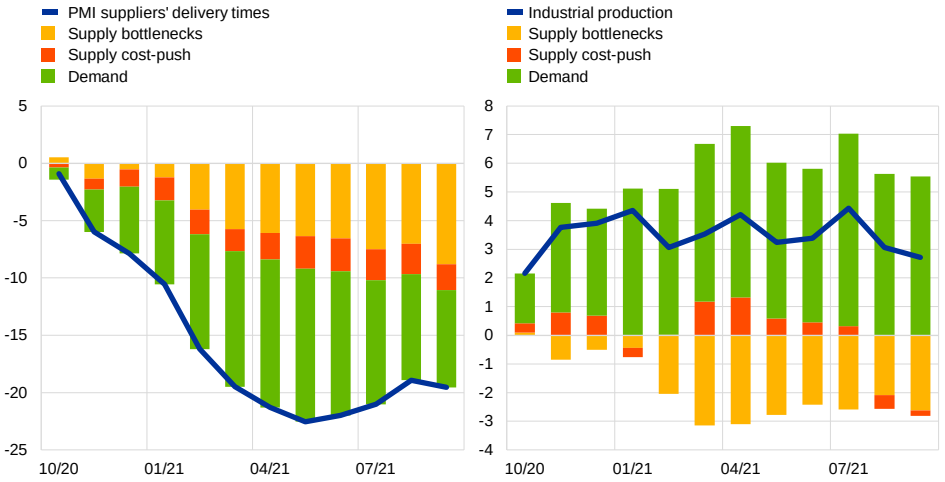
HICP, industrial production (excluding construction), the ten-year OIS rate, corporate spreads and PMI suppliers' delivery times.

The model suggests that supply bottlenecks have hampered industrial production considerably over the course of 2021. According to the model, between October 2020 and September 2021, around 45% of the change in euro area PMI suppliers' delivery times was driven by aggregate demand forces (i.e. the sum of demand, interest rate and financial shocks), around 45% by supply bottlenecks and roughly 10% by other types of cost-push shocks (Chart D, left-hand scale). The contribution from demand, supply bottlenecks and cost-push shocks to industrial production is shown in Chart D, right-hand scale. Everything else being equal, supply bottlenecks are estimated to have reduced the level of euro area industrial production by around 2.6% cumulatively between October 2020 and September 2021 compared with a scenario without bottlenecks.[3]

Chart D

Contribution from supply bottleneck shocks on euro area industrial production and PMI suppliers' delivery times

(left-hand side: diffusion index in deviation from baseline; right-hand side: percentage in deviation from baseline, cumulated from October 2020 to September 2021)



Sources: Eurostat, European Commission and ECB staff calculations.
Notes: The model shows the contribution from aggregate demand (demand, interest rate, financial shocks), cost-push and bottleneck shocks, using the HICP, industrial production (excluding construction), the ten-year OIS rate, corporate spreads and PMI suppliers' delivery times. The model is based on euro area aggregate data from January 1999 to September 2021 and the shocks are identified using the method employed by J. Antolín-Díaz and J.F. Rubio-Ramírez in the "Narrative Sign Restrictions for SVARs", *American Economic Review*, No 108, 2018, pp. 2802-2829. The assumed sign restrictions at impact are as follows: demand shocks imply HICP (+); industrial production (+); ten-year OIS rate (+); corporate spreads (-); and PMI suppliers' delivery times (-). Interest rate shocks imply HICP (-); ten-year OIS rate (+); corporate spreads (+). Financial shocks imply industrial production (-) and corporate spreads (+). Cost-push shocks imply HICP (+) and industrial production (-). Bottleneck shocks imply HICP (+); industrial production (-) and PMI suppliers' delivery times (-). The assumed narrative restrictions are as follows: the largest contribution to the forecast errors for the ten-year OIS rate in January 2015 is attributed to monetary policy shocks; for corporate spreads in July 2007 it is attributed to financial shocks; for PMI suppliers' delivery times in April 2020 and March 2021 it is attributed to bottlenecks shocks. It is also assumed that all financial shocks have a positive sign in September and October 2008 and that all demand shocks have a negative sign in March and April 2020.

By February 2021, the effect of supply bottlenecks on industrial production began to become increasingly noticeable. Survey indicators available for the fourth quarter of

[3] Exports have also been strongly affected by supply bottlenecks, as described in European Central Bank, "The impact of supply bottlenecks on trade", Economic Bulletin, Issue 6, ECB, 2021. For further details of the contribution from supply shocks to global industrial production and trade, see Box 1 entitled "Supply chain disruptions and the effects on the global economy" in this issue of the Economic Bulletin.

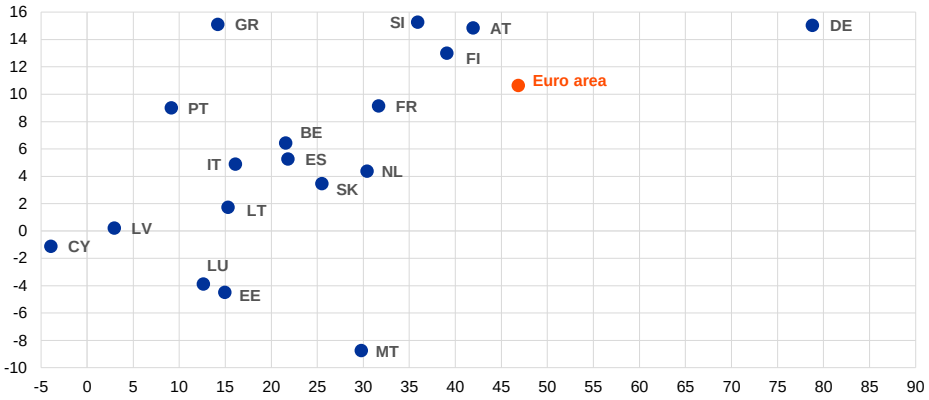
2021 suggest that this impact will most likely not have been reabsorbed by the last quarter of this year. Given that industry excluding construction accounts for roughly 20% of total euro area value added, the above estimates imply that in 2021 real GDP growth would have been around 0.5% higher in the absence of supply bottlenecks. This estimate can be considered a lower bound, as supply bottlenecks continued to affect production in the last quarter of 2021, as well as construction and business services.

The effects of supply bottleneck shocks could persist through much of 2022. The semiconductor shortages, negative pandemic developments in Asia and current congestion at container ports are unlikely to ease very much, suggesting that the euro area economy is expected to continue to be affected by these shocks over the coming months and that the impact of supply bottleneck shocks could persist through much of 2022, as also highlighted by the ECB's contacts in the corporate sector. According to the European Commission business and consumer surveys in October 2021, businesses expected a further deterioration in material shortages over the next three months in all euro area countries, except for very few smaller countries (Chart E). The larger the share of respondents confirming that their businesses were affected by shortages compared with the respective long-term average, the larger the share of respondents that expected a further deterioration in their situation, which corroborates with the overall assessment of a prolonged and persistent impact from supply bottlenecks.

Chart E

Euro area countries' shortages of equipment and material expected in the fourth quarter of 2021

(x-axis: percentage of respondents, levels de-meaned by historical average; y-axis: percentage of respondents, difference compared with the third quarter of 2021)



Sources: Eurostat, European Commission and ECB staff calculations.
Notes: The values for each indicator are computed by subtracting their respective mean for each economy over the period 1999-2019. The latest observation is for October 2021.

8 Fiscal policies in 2022 – implications of the 2022 draft budgetary plans

Prepared by Giovanni Bardone, Stephan Haroutunian, Sebastian Hauptmeier and Philip Muggenthaler

On 24 November 2021 the European Commission released its opinions on the euro area governments' draft budgetary plans for 2022.[1] These opinions focus on the consistency of the plans with the Council recommendations of 18 June 2021, which advise Member States to adopt more differentiated fiscal policies in 2022. The Council recommended Member States with low or medium levels of debt to pursue or maintain a supportive fiscal stance in 2022 and Member States with high debt to use the Recovery and Resilience Facility (RRF) to finance additional investment in support of the recovery, while pursuing a prudent fiscal policy. It advised all Member States to preserve nationally financed investment. The Commission's assessment of the draft budgetary plans takes into account the continued application of the general escape clause of the Stability and Growth Pact in 2022. The clause is expected to be deactivated as of 2023.[2]

On the basis of an adjusted indicator that aims to capture the fiscal policy orientation in the current economic context, the euro area fiscal stance is projected to remain supportive in 2021 and 2022. For its assessment, the Commission uses a revised measure of the fiscal stance that was developed in light of the current crisis and the national and EU fiscal measures taken to address it. [3] First, the fiscal stance measure takes into account expenditures funded by the RRF and other EU funds, which provide a fiscal impulse to the economy but are not reflected in Member States' recorded budget balance. Second, it nets out temporary emergency measures taken in response to the crisis. According to the Commission's 2021 autumn forecast, which incorporates the 2022 draft budgetary plans, the fiscal expansion based on this definition of the fiscal stance will amount to around 1.75% of GDP in 2021, while a further expansion of nearly 1% of GDP is expected for 2022.[4]

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1 European Commission (2021), "Communication from the Commission to the European Parliament, the Council, and the European Central Bank on the 2022 Draft Budgetary Plans: Overall Assessment".

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

3 The Commission computes the fiscal stance by looking at the annual increase in net expenditure relative to ten-year potential growth. Following the Council's recommendations on the 2021 Stability Programmes, the net expenditure aggregate used to compute the overall fiscal stance was adjusted to include expenditure financed by RRF grants and other EU funds and to exclude the temporary emergency measures related to the coronavirus (COVID-19) crisis. In addition to the contribution from EU-financed expenditure, the Commission's assessment also looks at the contributions to the overall fiscal stance from different nationally financed expenditure aggregates namely (i) investment, (ii) other capital expenditure, and (iii) current primary expenditure (net of discretionary revenue measures).

4 European Commission (2021), op. cit.

According to the Commission's assessment, the individual draft budgetary plans are broadly in line with the fiscal policy recommendations adopted by the Council on 18 June 2021. When measured on the basis of the adjusted indicator capturing the orientation of fiscal policies in the current crisis, the majority of low and medium-debt euro area countries pursue a supportive fiscal stance. Of the Member States in this grouping (Germany, Estonia, Ireland, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Austria, Slovenia, Slovakia and Finland), only Malta and Slovakia are not projected to do so in 2022. The Commission assesses that all Member States in this grouping − with the exception of the Netherlands, which has not yet submitted its recovery and resilience plan − intend to use the RRF to support their recovery. All preserve or broadly preserve nationally financed investment.

The Commission further indicates the importance for high-debt Member States "to preserve prudent fiscal policies". To this end, the Commission assesses that Belgium, Greece, Spain, France and Italy, in line with the Council recommendations of June 2021, use the RRF to finance additional investment in support of the recovery and preserve nationally financed investment.[5] The Commission also stresses that these countries should "preserve prudent fiscal policy in order to ensure sustainable public finances in the medium term" when taking supporting budgetary measures.

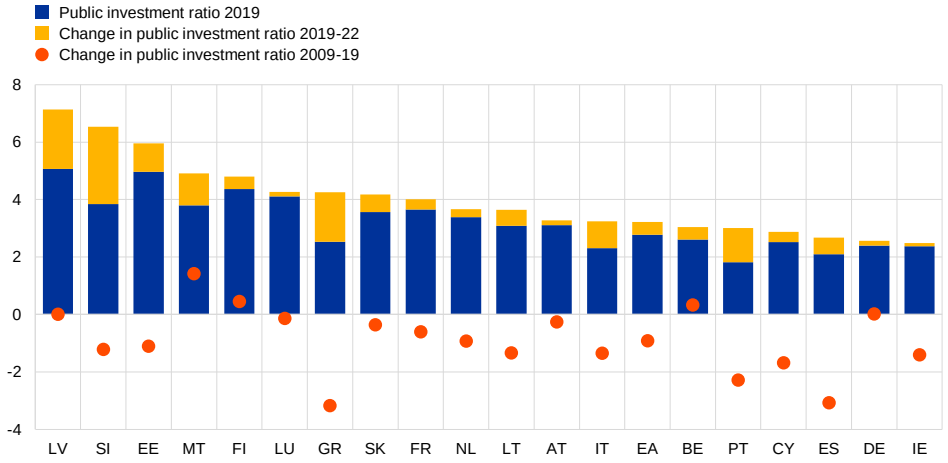
The Commission's assessment reflects the euro area-wide rise in government investment seen throughout the pandemic, which contrasts with the pattern observed in the aftermath of the global financial crisis, with a significant part of the increase being attributed to EU funding, including through the RRF. The Commission projects euro area government investment to increase from 2.8% of GDP in 2019 to 3.2% of GDP in 2022, thus partially reversing the pre-pandemic and post-global financial crisis trend of reduced public investment (Chart A). Both the Commission's 2021 autumn forecast and the draft budgetary plans point to the aggregate spending profile of RRF grants being frontloaded, with around two-thirds of the RRF grants allocated to euro area countries being spent by the end of 2023. In terms of GDP, RRF-funded expenditure is projected at around 0.5% of GDP in both 2022 and 2023. Overall, the high quality of government budgets and sustained public investment should support the twin transition towards green and digital economies.

[5] The European Commission did not adopt an opinion on the draft budgetary plan submitted by Portugal, as the Portuguese Parliament had in the meantime rejected the draft budget on which the plan was based.

Chart A

Public investment, 2009-22

(percentages of GDP)



Sources: European Commission (AMECO database) and ECB calculations.

At the same time, there is scope to reduce the contribution of current spending to the fiscal support, which would curtail the increase in government debt. The Commission indicates that, among the countries with low or medium levels of government debt, Latvia and Lithuania are not projected to sufficiently ensure the control of the growth of nationally financed current expenditure. Among the countries with high government debt-to-GDP ratios, Italy is not considered to sufficiently ensure the limitation in the growth of nationally financed current expenditure. The Commission and the Eurogroup[6] thus invite Italy to take the necessary measures to curtail such expenditures.

The correction of fiscal imbalances continues to evolve heterogeneously across the euro area countries.[7] According to the Commission's 2021 autumn forecast, deficits are projected to decrease in all euro area countries in both 2022 and 2023 (Chart B). Seven euro area countries are projected to record deficits above the 3% of GDP threshold in 2023. The largest deficits in the years 2022-23 are projected for some countries that entered the pandemic period with high government debt-to-GDP ratios. Debt-to-GDP ratios in most euro area countries are foreseen to drop in 2022, while in some they will remain on an increasing path until the end of the forecast horizon in a no-policy change scenario (Chart C). Generally, they are forecast to remain above the pre-crisis levels at the end of the projection horizon in 2023 − including in some Member States which entered the crisis with comparatively high debt-to-GDP ratios.

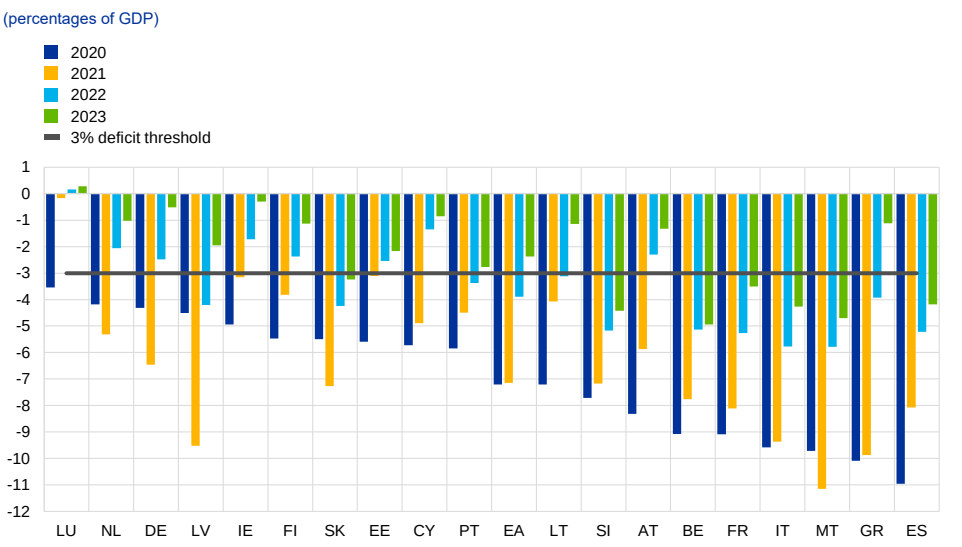
6 The Eurogroup Statement on the Draft Budgetary Plans of 2022, issued on 6 December 2021, "invites those high-debt Member States, where the growth of the nationally financed current expenditure is not planned to be sufficiently limited according to the Commission's assessment, to take the necessary measures within the national budgetary process."

7 For details on budgetary developments for the euro area aggregate based on the December 2021 Eurosystem staff macroeconomic projections for the euro area, see Section 6 of this issue of the Economic Bulletin.

Targeted and growth-friendly fiscal measures need to remain in place. Fiscal policies still need to balance achieving a safe and sustained exit from this crisis with remaining attentive to fiscal sustainability. Given the large uncertainty, fiscal support that is responsive to macroeconomic developments can facilitate this balancing act. Should the pandemic situation deteriorate, additional fiscal support would curtail the detrimental impact on output growth. At the same time, if economies learn to adapt more effectively to the pandemic and grow faster than currently foreseen, countries with high government debt could improve fiscal sustainability by utilising better than projected developments in nominal GDP for enhancing budgetary positions. If, in line with the June 2021 Council recommendations, the fiscal support in 2022 were to focus on productive spending – including investment financed through the RRF, the impact on economic growth would be particularly beneficial. Given the expected deactivation of the Stability and Growth Pact's general escape clause as of 2023 and the possible implications of the ongoing review of the EU's economic governance framework[8], a timely agreement on the orientation of fiscal policies appears warranted.

Chart B

General government budget balances, 2020-23



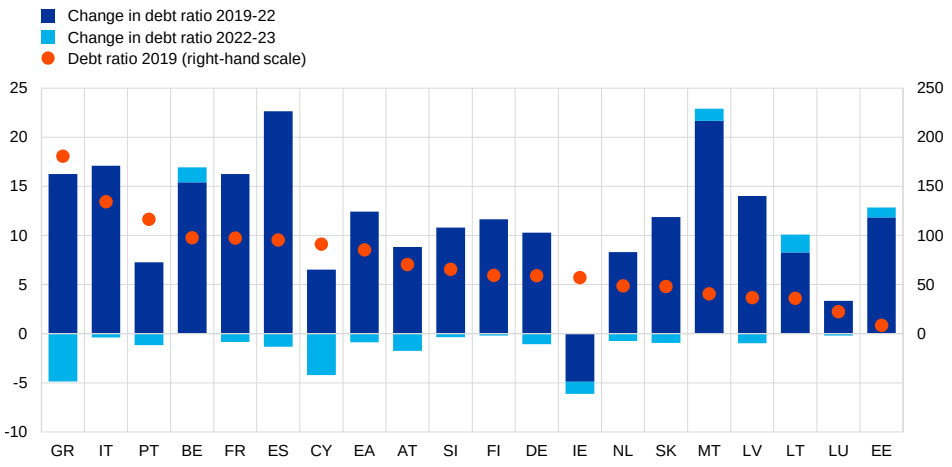
Sources: European Commission (AMECO database) and ECB calculations.

8 Eurosystem reply to the Communication from the European Commission "The EU economy after COVID-19: implications for economic governance" of 19 October 2021.

Chart C

General government gross debt, 2019-23

(percentages of GDP)



Sources: European Commission (AMECO database) and ECB calculations.

Articles

1 The ECB Survey of Monetary Analysts: an introduction

Prepared by Claus Brand and John Hutchinson

1 Introduction

Understanding the expectations of households, firms and financial markets regarding monetary policy and macroeconomic developments is important for the conduct of monetary policy. Expectations regarding macroeconomic developments and monetary policy matter for the transmission of monetary policy and can be used as a yardstick to assess the credibility of monetary policy. Their development over time also helps central banks understand the effectiveness of monetary policy.

Surveys can play an important role in understanding expectations and complement expectations inferred from market pricing. While it is not possible to measure expectations of households, firms and financial markets directly, surveys provide information on the expectations of these specific groups.

The ECB Survey of Monetary Analysts (SMA) brings together information on financial sector expectations of monetary policy and macroeconomic developments in a coherently structured and regularly updated survey.[1] Integrating survey information on both macroeconomic developments and monetary policy closes a knowledge gap that is left by surveys focusing either just on expectations of economic developments alone (e.g. the ECB Survey of Professional Forecasters – SPF) or only on monetary policy (e.g. private sector surveys available from Thomson Reuters and Bloomberg). The SMA is not the first survey of this type to be conducted by a central bank as part of its market intelligence gathering (see Box 1 for a description of how the SMA adds to information obtained from other surveys for the euro area, how it compares to the Federal Reserve Bank of New York's Survey of Primary Dealers (SPD) and how it contributes to the ECB's market intelligence gathering).

The key objective of the SMA is to "gather regular, comprehensive, structured and systematic information on market participants' expectations". This information is intended to serve three purposes (see examples in Section 5): (i) assessing financial market participants' expectations of the ECB's monetary policy measures, including their possible impact on financial markets; (ii) examining respondents' outlook for the economy; and (iii) understanding whether the ECB's communication and forward guidance is well understood.

1 For information on the SMA, see the ECB's website.

The ECB launched the SMA initially as a pilot project in April 2019, which ended in June 2021 with the publication of aggregate results. The survey runs eight times a year, ahead of the Governing Council's monetary policy meetings. The ECB decided to end the pilot phase and publish aggregate results on its website following a staff assessment that the SMA had significantly advanced the quality and comprehensiveness of systematic market intelligence gathering.[2]

Box 1

The role of surveys in gathering market intelligence related to monetary policy expectations and the economy

Prepared by John Hutchinson, Falk Mazelis, Martin Strukat and Olivier Vergote

This box examines the role of private sector and central bank surveys in gathering systematic market intelligence and how they contribute to the understanding of monetary policy expectations and expectations regarding the development of the economy.

Gathering market intelligence is important for central banks to be able to better understand financial market participants' monetary policy expectations, their participation in open market operations and their overall view of market developments and market functioning. For the most part, market intelligence gathering is qualitative in nature and takes the form of direct interactions with traders and market participants, complemented by information inferred from high-frequency market data and analysts' research reports.[3] Regular market contact group meetings are an important component of the ECB's market intelligence gathering.[4]

Surveys undertaken by private sector companies are a valuable market intelligence source for summarising market expectations in a more systematic way than bilateral exchanges or market contact group discussions. An advantage of surveys over discussing topics of interest with market participants is that surveys can provide a more systematic view of financial market participants' expectations by asking a broad set of respondents the same questions over a fixed time horizon. Such surveys also cover a wide range of respondent types (in a relatively stable but still changing composition). Bloomberg and Thomson Reuters run two of the most established surveys of market participants' expectations of ECB policy with, on average, 35 and 70 respondents, respectively, per survey round in 2021. The private sector surveys do not have fixed survey periods or fixed dates for the publication of their results, but typically occur in the week prior to the Governing Council's monetary policy meetings.[5]

Central banks also undertake their own surveys to address their specific informational needs and to better understand monetary policy expectations and the economy.[6] The key advantage of a central bank undertaking its own survey is that it can control the precise timing around monetary policy meetings, the scope and detail of the questions, the forecast horizons and the panel of

2 See the press release of 8 February 2021.

3 See "Market Intelligence Gathering at Central Banks", *Markets Committee Papers*, No 8, Bank for International Settlements, December 2016.

4 More information on the ECB's market contact groups is available on the ECB's website.

5 Such surveys typically ask questions concerning the path of key interest rates and other policy parameters, like the pace of asset purchases and communication aspects. Bloomberg also publishes the results of a separate monthly survey that focuses solely on the path of the deposit facility rate (DFR) and the main refinancing operations (MRO) rate.

6 The Federal Reserve System also gathers market intelligence on other topics, e.g. on banks' strategies and practices for managing reserve balances (via the Senior Financial Officer Survey).

respondents. Moreover, by having recurring questions and a broadly stable group of respondents, regular surveys provide comprehensive information about the evolution of expectations, while the inclusion of questions on key macroeconomic variables captures how policy expectations correlate with economic developments.

The SMA shares many similarities with the Federal Reserve Bank of New York's Survey of Primary Dealers (SPD), which is the most established survey undertaken by a major central bank.[7] Like the SMA, the SPD is staff-led, but the SPD is conducted by the Trading Desk of the Federal Reserve Bank of New York.[8] The SPD questionnaire is distributed to the 24 primary dealers of the Federal Reserve Bank of New York and published on its website approximately two weeks ahead of each scheduled meeting of the Federal Open Market Committee (FOMC). Both the SPD and the SMA focus on expectations regarding monetary policy measures, financial conditions and the macroeconomic outlook. However, while SMA policy questions only relate to communication from the Governing Council's monetary policy statement (formerly the introductory statement), the SPD also covers "topics that are widely discussed in the public domain". Both questionnaires typically ask respondents to provide modal expectations, which may be supplemented by probability distribution questions. The period of time between the end of the SPD's response period and the first day of the FOMC meeting is about one week, which is slightly shorter than the corresponding period for the SMA. Summaries of the SPD results are published about three weeks after each FOMC meeting. Since the end of the pilot phase in June 2021, the SMA results have been published in aggregate form on the Friday of the week after the Governing Council's monetary policy meeting.

This article looks at the structure of the survey and the rationale behind it and explains what role it plays in understanding changes in market participants' expectations of euro area monetary policy and the macroeconomy. Section 2 outlines the scope and main features of the SMA; Section 3 describes how the panel of respondents was initially selected and the survey's likely future evolution; Section 4 examines the SMA's governance along several dimensions; and Section 5 illustrates how the SMA's results can be used to inform views on market expectations.

2 Scope and main features of the SMA

The objective of the SMA is to gather "regular, comprehensive, structured and systematic information on market participants' expectations".[9] First, the SMA provides "regular" information by collecting market participants' expectations ahead of each Governing Council monetary policy meeting and making the results available

7 For more information on the SPD, see the Federal Reserve Bank of New York's website, and for an in-depth study, see "Understanding the New York Fed's Survey of Primary Dealers", *Current Issues in Economics and Finance*, Vol. 19, No 6, Federal Reserve Bank of New York, 2013. The Federal Reserve Bank of New York also conducts the Survey of Market Participants, which covers a subset of firms associated with its advisory groups and committees.

8 See, for example, "Responses to Survey of Primary Dealers", Federal Reserve Bank of New York, July 2021. The SMA is jointly formulated by ECB staff from the Directorate General Market Operations and the Directorate General Monetary Policy.

9 See press release of 30 January 2019.

to the Eurosystem committees, to the Governing Council and, since June 2021, also to the general public after the Governing Council meeting. For this purpose, it gathers "comprehensive" data on ECB policy expectations, such as: (i) the key ECB interest rates and other market interest rates – the euro interbank offered rate (EURIBOR) and the euro short-term rate (€STR) – over an extended horizon and in the long run, as well as expectations on interest rate forward guidance; (ii) the ECB's asset purchase programmes and expectations on changes in forward guidance; (iii) targeted longer-term refinancing operations (TLTROs) (repayments and take-ups); and (iv) the macroeconomic outlook (baseline and risks) over an extended horizon and in the long run. In addition, the SMA provides "structured" information by ensuring that the survey covers horizons that give visibility to the main policy parameters (e.g. interest rate lift-off, end of net asset purchases and end of reinvestments) and by collecting information on how changes in the macroeconomic outlook and policy expectations jointly evolve. Finally, the SMA provides "systematic" information by asking a set of questions that are intended to remain fairly stable over time, thereby fostering respondents' understanding of the questions and gradually building up the longitudinal dimension of the survey.

The questionnaire is structured around four sections pertaining to interest rate expectations, asset purchases, refinancing operations and the macroeconomic outlook. The questions in these sections are largely kept stable in order to facilitate comparability of replies over time. However, when new policy measures are announced by the Governing Council, these are systematically incorporated into the questionnaire. For example, in the September 2021 SMA, a dedicated section was included relating to the ECB's new monetary policy strategy. Over time the questionnaire has been adjusted, but its structure has been maintained, ensuring that all key policy parameters are always captured.

The questionnaire collects modal and probabilistic views of respondents. While it asks for the modal view (in the form of a point estimate), in many instances it also makes use of probabilistic questions to elicit the likelihood that respondents assign to different future events. This type of question is particularly suitable where there is a bimodality of expectations. Probabilistic questions also eliminate uncertainty about whether the respondent is referring to the mean, median or mode when asked to provide a point estimate.[10]

As intended, the information gathered by the SMA can be used to undertake the following analyses:

- **Assessing financial market participants' expectations regarding monetary policy:** To the extent that survey results can be understood as reflecting financial market expectations, these results can complement information in asset prices and inform analysis to extract such financial market expectations. Specifically, econometric models can be deployed that combine both surveys and prices to extract useful "underlying" or average expectations (for a more technical discussion, see Box 2). At the same time, survey data are not

[10] For an instructive overview of the rationale behind the Federal Reserve System's introduction of probability distribution questions in the SPD, see Fischer, S., "Monetary Policy Expectations and Surprises", speech at the School of International and Public Affairs, Columbia University, April 2017.

necessarily representative of financial market expectations: their cross-section dimension can be small (given the small size of the SMA panel), and the heterogeneity of panellists may affect aggregate results.

- **Examining respondents' outlook for the economy:** The SMA provides respondents' forecasts on key macroeconomic variables and risks that correspond to their policy expectations (see Section 5).

- **Examining how the ECB's communication and forward guidance are understood:**[11] As the SMA provides joint information on expected interest rates, asset purchases and macroeconomic developments, it allows a quantitative assessment of how forward guidance translates into expectations regarding the timing and pace of interest rate changes and net asset purchases and of the duration of reinvestments under the ECB's purchase programmes. Specifically, the SMA reveals information on respondents' expectations regarding the timing of "shortly before" the ECB rates start increasing, while expectations regarding the ending of full reinvestments provide insight on interpretations of the "extended period of time" after which the ECB rates will start increasing. It can also be used to analyse the extent to which the ECB's current interest rate forward guidance conditions regarding inflation are met (see Box 3).

Box 2
Inferring financial market participants' expectations from asset prices and surveys

Prepared by Bruno De Backer, Fabian Schupp and Andreea Liliana Vladu

The SMA captures survey panellists' expectations regarding monetary policy and macroeconomic developments. An alternative way to capture economic agents' expectations is to look at financial asset prices, which incorporate expectations of future payoffs, which in turn link to interest rates, inflation, economic growth, corporate profits and other key variables. As asset prices are available at daily or even higher frequency, these can be used to extract financial market participants' expectations in a timely manner. These prices can therefore complement survey information, which is available at lower frequency and only for a selection of forecast horizons.

Forward interest rates are indicators of market participants' interest rate expectations. These rates (e.g. the one-year interest rate four years ahead) are locked in today and apply to lending or borrowing contracts that start in the future.[12] Considering the simplest form of the expectations hypothesis, forward rates can be interpreted as expected short-term rates. By this logic, the current flatness of the short end of the €STR forward curve suggests that market participants expect the €STR (and hence also the ECB's DFR) to remain at its current level for an extended period of time.

11 For a description of the ECB's revised interest rate forward guidance, see Lane, P.R., "The new monetary policy strategy: implications for rate forward guidance", *The ECB Blog*, ECB, August 2021. The chained forward guidance structure of the asset purchase programme (APP) links the horizons of net asset purchases and reinvestments to the interest rate lift-off date.

12 Forward rates are often reported as "implied forward rates", i.e. they are computed from observed spot interest rates using the fact that one can replicate the pay-off stream of a forward contract by creating certain portfolios of long and short positions in bonds. The "implied forward rate" would then depend on the current yields of the bonds constituting the replicating portfolio. The one-year forward rate four years ahead, for instance, would be implied by the four-year and five-year bond yields.

Similarly, forward rates derived from inflation-linked swaps reflect expectations regarding future inflation rates.

However, forward rates do not exclusively reflect market participants' actual rate expectations; they also reflect a risk premium component compensating investors for the risk of rate changes or reinvestment risk.[13] This risk premium is measured by the difference between forward rates and a measure of the expected short-term interest rate at corresponding horizons. It can be positive or negative, it can change over time, and its absolute size varies with the uncertainty and risk aversion of market participants. While forward rates as such are readily available, their sub-components (rate expectations and risk premia) are not individually observable. This poses a challenge to the use of asset prices for monitoring market participants' expectations over time.

Chart A compares the three-month EURIBOR forward rate 12 months ahead (blue line) with survey forecasts of the three-month EURIBOR rate in 12 months. Survey figures represent the average of Consensus Economics' panellists' expected rate (yellow dots) and the median of SMA panellists' most likely rate (red dots). Assuming that aggregated survey responses are broadly in line with interest rate expectations embedded in three-month EURIBOR forward rates, Chart A illustrates the presence and time variation of forward risk premia measured by the difference between survey expectations and forward rates. An analysis of forward rates and Consensus Economics survey forecasts suggests that the 12 months ahead three-month EURIBOR forward risk premium has, on average, been slightly negative since 2014.[14] For the most recent period, aggregated SMA forecasts differ slightly from aggregated Consensus Economics forecasts, which might be due to panel compositional effects, different reporting periods, and discrepancies in underlying questions.

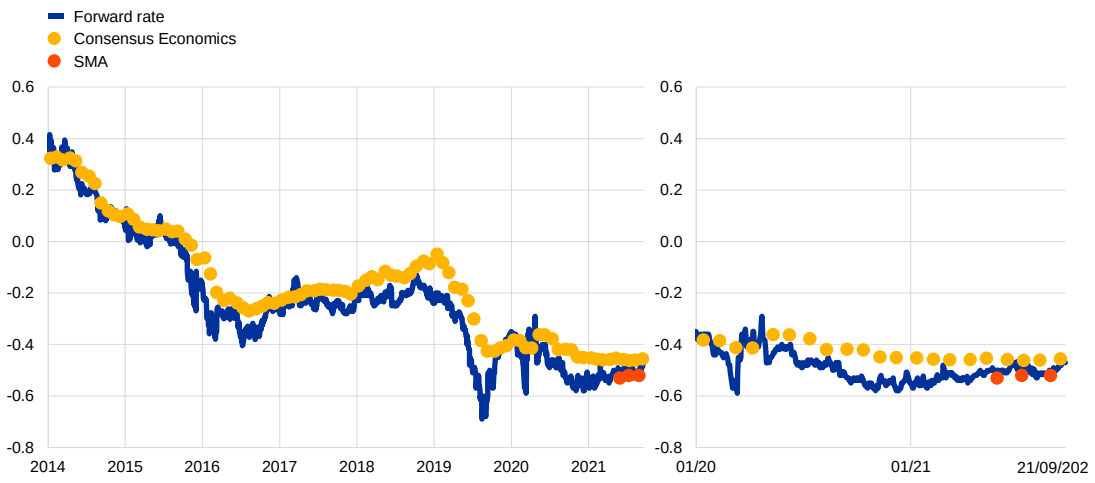
13 The size and sign of the forward risk premium will depend on the uncertainty about the future level of the short-term interest rate, but also on the economic environment in which those higher or lower-than-expected rate realisations are expected to happen. See, for example, Chapter 19.2 on "Yield curve and expectations hypothesis" in Cochrane, J.H., *Asset pricing*, Princeton University Press, 2001.

14 Paying a negative risk premium might be reasonable from an investor's perspective if an asset serves as insurance against adverse shocks – i.e. it tends to have a high pay-off in bad states of the world. For nominal risk-free assets this may, for example, be the case if investors are worried about low growth/low inflation scenarios (see Piazzesi, M. and Schneider, M., "Equilibrium Yield Curves", *NBER Macroeconomics Annual*, Vol. 21, 2006; and Campbell J.Y., Sunderam, A. and Viceira, L.M., "Inflation Bets or Deflation Hedges? The Changing Risks of Nominal Bonds", *Critical Finance Review*, Vol. 6, 2017, pp. 263-301).

Chart A

Three-month EURIBOR rate: 12-months-ahead forward rate and survey expectations

(percentages per annum)



Sources: Consensus Economics, SMA and ECB staff calculations.
Notes: The latest survey forecasts are for September 2021. Consensus Economics reports averages across survey panellists of mean point forecasts. The SMA reports medians across survey panellists of modal point forecasts.

As survey expectations are only available at certain points in time, these may not be available when they are most useful to gauge market participants' expectations, e.g. in times of crisis.[15] Asset prices, by contrast, are available daily, but, as argued above, their information content regarding interest rate expectations is blurred by the presence of risk premia. In order to reap the benefits of both data sources, econometric models have been developed to combine the timeliness of asset price data with the premia-free but more sporadic information from surveys. Econometric models of the term structure of interest rates, for instance, can be designed to include survey information.[16] Accounting for survey information in the estimation of term structure models helps econometricians to better estimate the degree of persistence of interest rates expectations. This could otherwise be underestimated, implying too strong a reversion of rate forecasts to their long-run model-implied mean.[17] In addition, including survey information in term structure models can also help to better pin down the long-run mean of interest rates.[18] Overall, these models provide a high-frequency

15 For instance, at the end of February and beginning of March 2020, when the financial market turmoil related to the coronavirus (COVID-19) outbreak in Europe intensified, surveys were only available on 9 March (Consensus Economics), 6 and 17 March (Bloomberg surveys on the DFR), and 1 March (SMA pilot phase), with survey results quickly becoming obsolete following their release.

16 A central assumption frequently imposed on econometric term structure models is the exclusion of arbitrage opportunities across maturities. This assumption implies that it is not possible to build bond portfolios across maturities such that the investor receives positive profits with certainty in the future without investing any capital today. Technically, the no-arbitrage constraint is imposed via restrictions across model parameters. See, for example, Joslin, S., Singleton, K.J. and Zhu, H., "A New Perspective on Gaussian Dynamic Term Structure Models", *The Review of Financial Studies*, Vol. 24, No 3, 2011, pp. 926-970.

17 See, for example, Kim, D.H. and Orphanides, A., "Term Structure Estimation with Survey Data on Interest Rate Forecasts", *Journal of Financial and Quantitative analysis*, Vol. 47, No 1, 2012, pp. 241-272; and Geiger, F. and Schupp, F., "With a little help from my friends: Survey-based derivation of euro area short rate expectations at the effective lower bound", *Discussion Paper*, No 27, Deutsche Bundesbank, 2018.

18 Models that use survey information to help pin down the (potentially time-varying) long-term mean of interest rates include Kozicki, S. and Tinsley, P.A., "Effective Use of Survey Information in Estimating the Evolution of Expected Inflation", *Journal of Money, Credit and Banking*, Vol. 44, No 1, 2012, pp. 145-169; Del Negro M., Giannone, D., Giannoni, M.P. and Tambalotti, A., "Safety, Liquidity, and the Natural Rate of Interest", *Brookings Papers on Economic Activity*, Spring, 2017, pp. 235-316; and Bauer, M.D. and Rudebusch, G.D., "Interest Rates under Falling Stars", *American Economic Review*, Vol. 110, No 5, 2020, pp. 1316-1354.

measure of interest rate expectations that reflects both sources of information: asset prices (the yield curve observed every day) and surveys (rate expectations at various horizons, sampled at certain points in time).

Importantly, model-based estimates of interest rate expectations typically do not (and need not) precisely match survey-based expectations. The difference between the two partly reflects the fact that models are subject to estimation and model uncertainty, as the true "data generating process" cannot be observed. Moreover, the reported average or median expectations across survey panellists may differ from expectations of the marginal investors who determine asset prices.[19] Besides, as models typically include average or median survey expectations, they neglect the heterogeneity across survey panellists.[20] In addition, survey expectations might suffer from misunderstandings or a misrepresentation of expectations induced by wrong incentives (like a reluctance to deviate too much from the consensus view).

Chart B compares snapshots of the EONIA and €STR forward curves with model-based forecasts and survey-based expectations of the money market rates at three different points in time over the last decade. The model-based results are obtained from an econometric term structure model with a lower bound on interest rates that takes Consensus Economics forecasts and recent SMA forecasts into account.[21] The upper and middle panels of Chart B show that survey expectations and model-implied expected rate paths can be below or above the forward curve, indicating that forward term premia can be positive or negative. Moreover, the panels illustrate that model-based expectations can be displayed for an arbitrary and dense set of horizons. By contrast, surveys can only cover the horizons specified in the respective questionnaires. The lower panel of Chart B compares the €STR forward curve prevailing in August 2021 with the median of the SMA participants' most likely path for the €STR.[22] The survey and model results suggest close to nil forward term premia up to about three years out, and negative forward term premia thereafter.

19 See, for example, Reis, R., "The People versus the Markets: A Parsimonious Model of Inflation Expectations", *CEPR Discussion Paper*, No 15624, 2021.

20 The availability of individual data across participants to measure the heterogeneity of views is an advantage of survey data. However, most econometric models deploying surveys focus on a measure of central tendency, ignoring such dispersion.

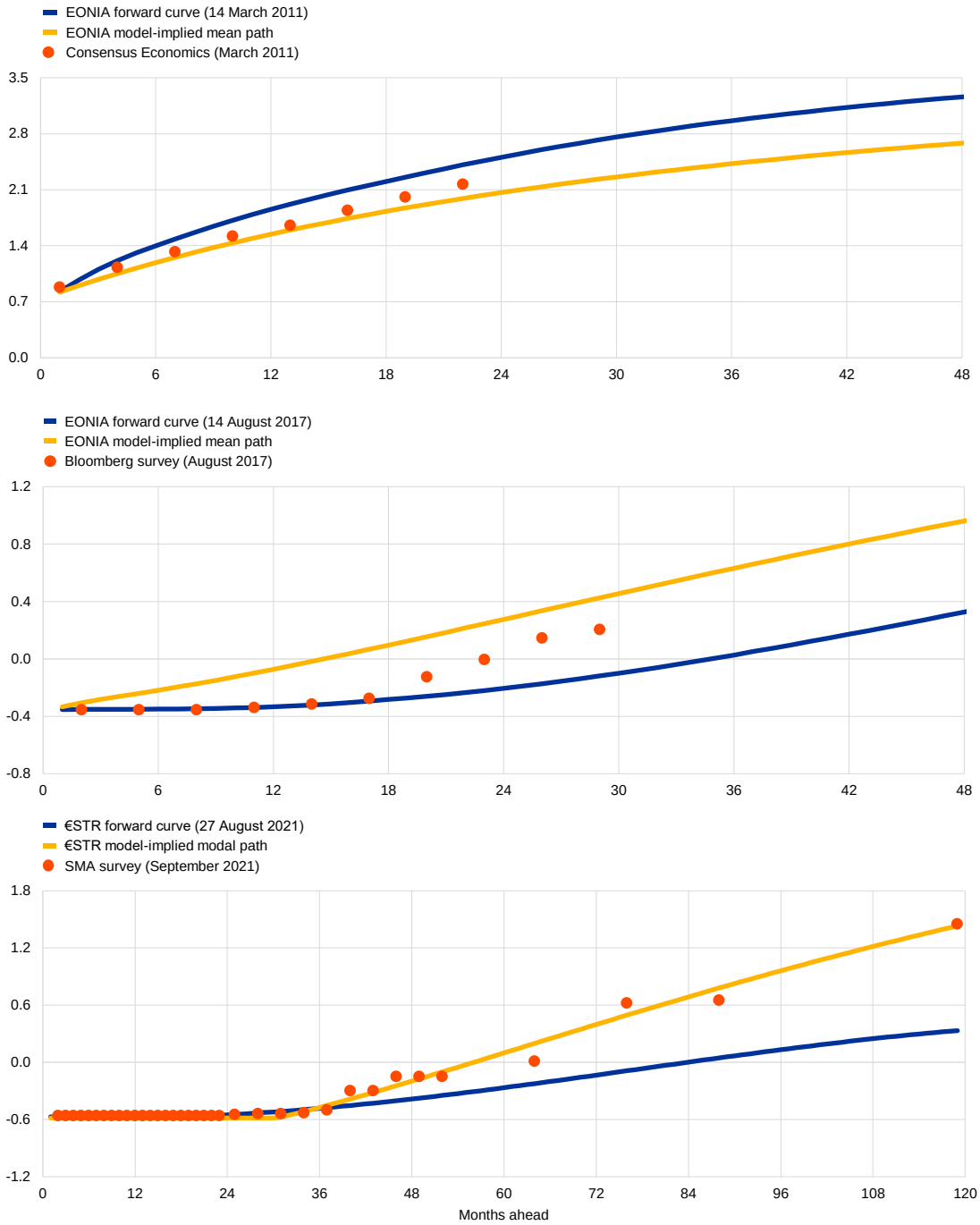
21 As Consensus Economics asks survey participants for their expectations for the three-month EURIBOR rate, these forecasts are adjusted for the observed spread between the three-month EURIBOR rate and the €STR before being input into the model.

22 For consistency, the model-based most likely rate path, i.e. the modal path, is shown instead of the mean path.

Chart B

Forward curves, model-based expectations and survey-based forecasts

(x-axis: months ahead; y-axis: percentages per annum)



Sources: Bloomberg, Consensus Economics, Refinitiv and ECB (SMA and staff calculations).
Note: Model-implied estimates follow Geiger, F. and Schupp, F., "With a little help from my friends: Survey-based derivation of euro area short rate expectations at the effective lower bound", *Discussion Paper*, No 27, Deutsche Bundesbank, 2018.

The SMA can be particularly helpful for models that decompose asset prices into expectations and risk premia, owing to its unique features: first, compared to other surveys, it provides forecasts for a broader range of variables (the three key ECB policy interest rates, the €STR, the three-month EURIBOR rate and inflation); second, unlike most other surveys, SMA vintages also provide a

consistent and dense grid of forecast horizons, reaching up to ten years ahead ("long term") for some variables; third, the survey is carried out shortly before Governing Council monetary policy meetings (every six weeks on average).

Owing to the still short history of the SMA, SMA survey results need to be complemented with other survey data to inform models used to extract interest rate or inflation expectations at high frequency. As more SMA vintages become available, such models will increasingly be informed by the survey.

3 Panel selection

The press release announcing the launch of the SMA gave four criteria for the selection of respondents. The criteria are: (i) market relevance, (ii) geographical representativeness, (iii) commitment to participating regularly in the survey, and (iv) having an active involvement in the areas of activity covered by the survey.[23]

The survey respondents have been selected from among members of the ECB's market contact groups, as these largely satisfy the four criteria.[24] The track record of the ECB's market contact groups provides an effective way to identify potential SMA participants, as their willingness to actively engage is critically important in ensuring the quality of the survey.[25] The degree of engagement is especially relevant as the SMA sample size consists of 29 institutions, so a high response rate is required if the survey is to be indicative of the market's view. The list of institutions is published on the ECB's website and the participation rate has been high, including during the pilot phase.[26] The panel composition, which has remained largely unchanged since the start of the survey, is currently being reviewed. Figure 1 illustrates the geographical distribution of the current panellists.

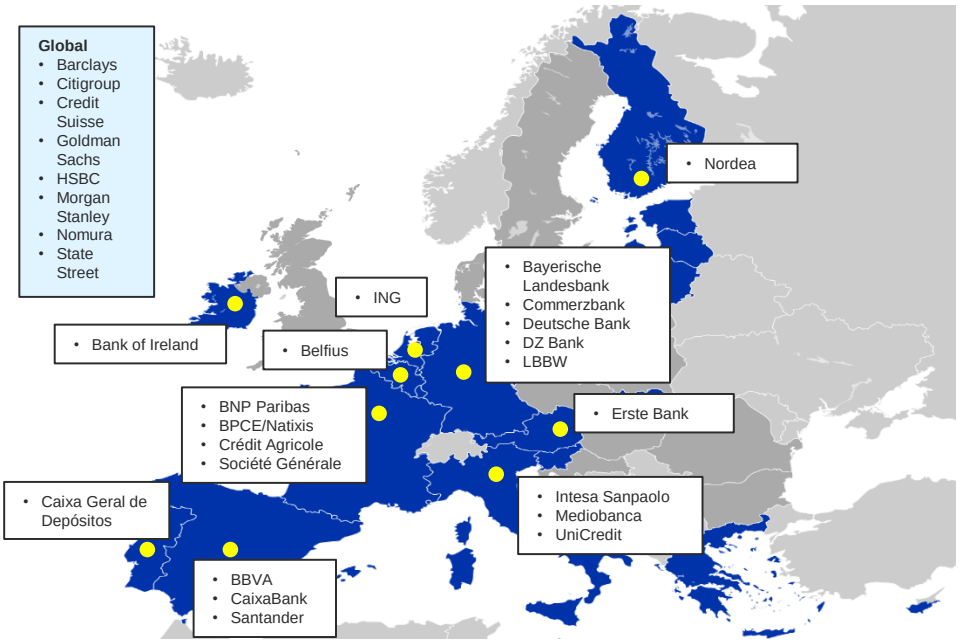
23 See the press release of 30 January 2019.

24 All respondents are given equal weight when constructing the summary statistics.

25 Details on the ECB's market contact groups are available on the ECB's website. It should be noted that these groups contain the largest institutions, as reflected in their market relevance and analytical capacity.

26 A list of SMA participants in the pilot phase can be found on the ECB's website.

Figure 1
Panel composition



Source: ECB.

The selection of respondents has focused on the banking community. One reason for this approach is the important role banks play in euro area monetary policy transmission, be it as counterparties to the ECB, traders in financial markets or as credit intermediators in the euro area bank-based system. In addition, banks' economic forecasting and market research can inform the views of their clients. As such, their expectations regarding monetary policy and the economy can also be considered as being informative of investor expectations. To obtain the "house view", SMA respondents were asked to coordinate the answers based on the views of their own economists, strategists and traders so as to ensure consistency.

The panel composition will henceforth be reviewed annually. The ECB periodically updates the panel of banks in its contact groups. Accordingly, the SMA panel composition is reviewed too, with a focus on assessing the quality of responses and the degree of engagement of respondents over the preceding 12 months. At the same time, new potential respondents may be invited to take part in the survey. Looking ahead, and in view of the increasing importance of the asset management industry in financial markets, buy-side institutions may eventually be invited to take part in the SMA too.

4 SMA governance

With the SMA being an ECB survey on monetary policy, specific safeguards are required to ensure that survey questions cannot be misinterpreted as revealing signals of future monetary policy decisions and, at the same time, to ensure that these capture decisions taken by the Governing Council in a timely

and comprehensive manner. Accordingly, the SMA's governance has been shaped along several dimensions:

Staff ownership: From the outset the SMA has been staff-led with the questionnaire disclaimer stating "This survey has been formulated by ECB staff; members of the ECB's decision-making bodies are not involved in the formulation of the survey" and "The questions never presume or signal an intention to undertake any particular policy action in the future".[27]

Scope of the questionnaire: The SMA questionnaire appears to be well-understood by respondents and has evolved considerably over the pilot phase to incorporate new policy measures introduced by the Governing Council through questions that are generally based on the monetary policy statement.

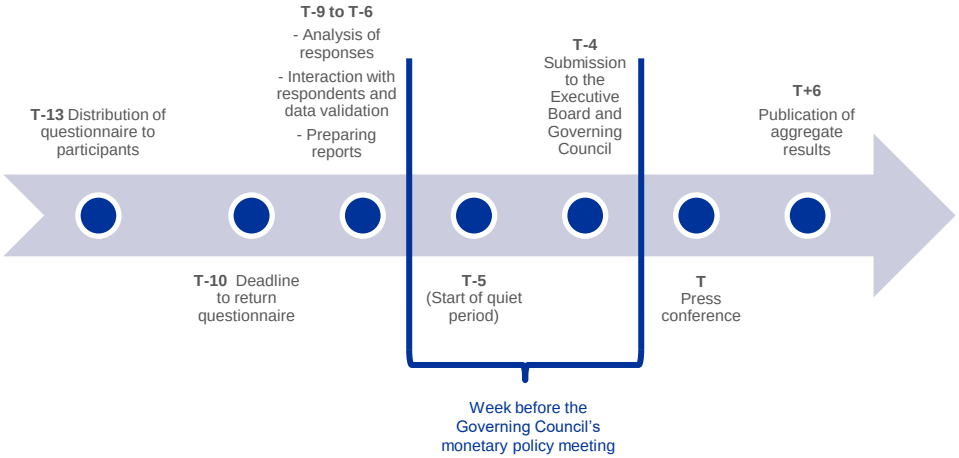
Formulation of the questions: Questions are formulated in a neutral manner.

Survey frequency: Since its launch, the frequency of the SMA has been aligned with the six-weekly schedule of the Governing Council's monetary policy meetings (see Figure 2 for a typical SMA timeline). 13 business days before the Governing Council meeting, typically on a Monday morning at 10:00 CET, the questionnaire is sent to the respondents and published simultaneously on the ECB's website. Respondents provide their responses by Thursday evening of the same week, then the SMA team validates and analyses the questionnaires before disseminating the aggregated results to the Governing Council four business days before the Governing Council meeting. Since June 2021, the results have been published on the ECB's website at 18:00 CET on the Friday of the week after the Governing Council meeting.

Quality control of results: Cross-checks of responses against other publicly available information and periodical statistical exercises are consistently applied.

27 For the full disclaimer, see, for example, "ECB Survey of Monetary Analysts (SMA), September 2021", ECB, August 2021.

Figure 2
SMA timeline



Source: ECB.
Note: The timeline is in business days with T referring to the date of the Governing Council's monetary policy meeting.

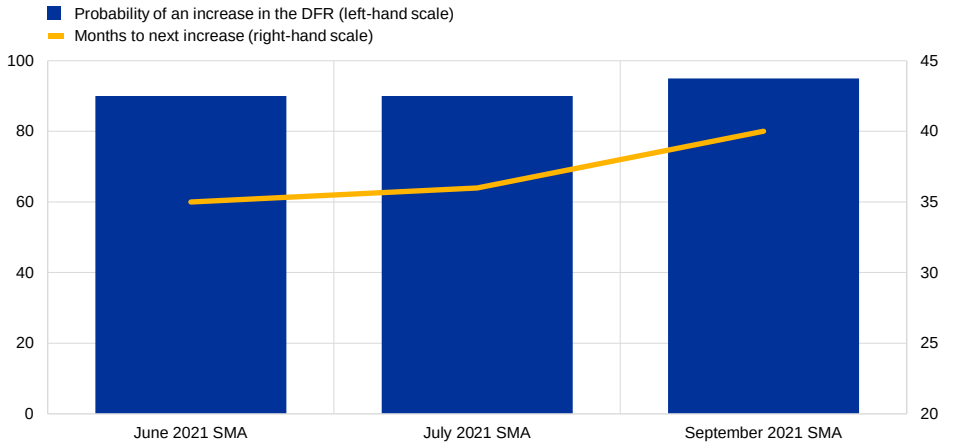
5 How the SMA results can inform views on financial market expectations

One of the main purposes of the SMA is to assess respondents' expectations regarding key interest rates, asset purchases and refinancing operations. Section 1 of the questionnaire asks respondents for their expectations regarding key ECB interest rates, market rates and market conditions. For example, the first question in the section asks respondents to indicate the probability that the next change in key ECB interest rates will be an increase or decrease, the most likely timing of the change and the expected size of the change. According to the September 2021 SMA, there was a near unanimous expectation with a median 95% probability that the next change in the DFR would be an increase (Chart 1, third column). In terms of the timing of the increase, the median expectation was that this would occur in the fourth quarter of 2024, six months later than expected in the July 2021 SMA (Chart 2). As described in Box 3, this development reflects the Governing Council's revised interest rate forward guidance announced in July 2021. This shows that the information in the SMA captures the way changes in respondents' expectations about the economic outlook, as covered in Section 4 of the survey, affect their policy expectations.

Chart 1

Probability attached to next change in the DFR being an increase

(left-hand scale: percentages; right-hand scale: months)

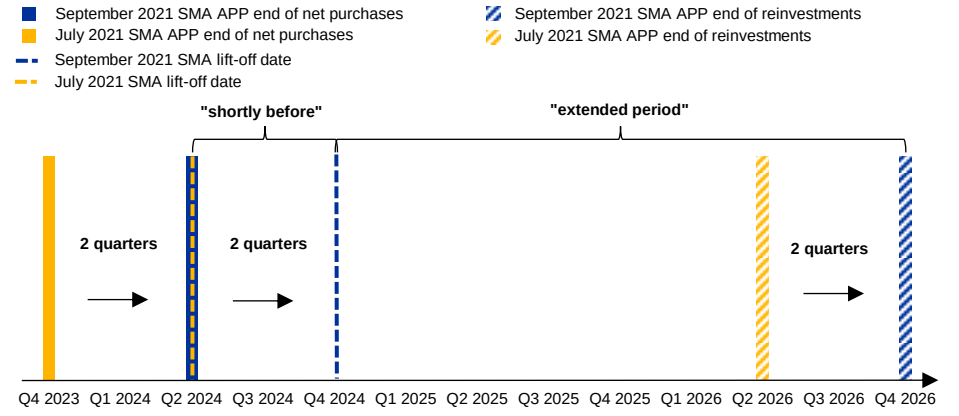


Source: ECB.
Note: Number of respondents is 21 for the September 2021 SMA, 21 for the July 2021 SMA and 22 for the June 2021 SMA.

Chart 2

Expectations for policy parameters

(x-axis: date)



Source: ECB.
Note: Number of respondents is 24 for the September 2021 SMA and 24 for the July 2021 SMA.

The respondents' expectations regarding the ECB's asset purchase programmes – the APP and the pandemic emergency purchase programme (PEPP) – and reinvestments are covered in Section 2 of the questionnaire. The section starts with the APP and asks multipart questions pertaining to when net asset purchases will end, the length of time the reinvestment of maturing securities purchased under the APP will continue, the evolution of the stock of the APP and whether respondents expect changes to the programme. In the September 2021 round, the median expectation was that the APP would end in mid-2024 with full reinvestments continuing until the end of 2026 (Chart 2).

SMA survey results on interest rates and asset purchases can be used to understand the effectiveness of the interaction between forward guidance on

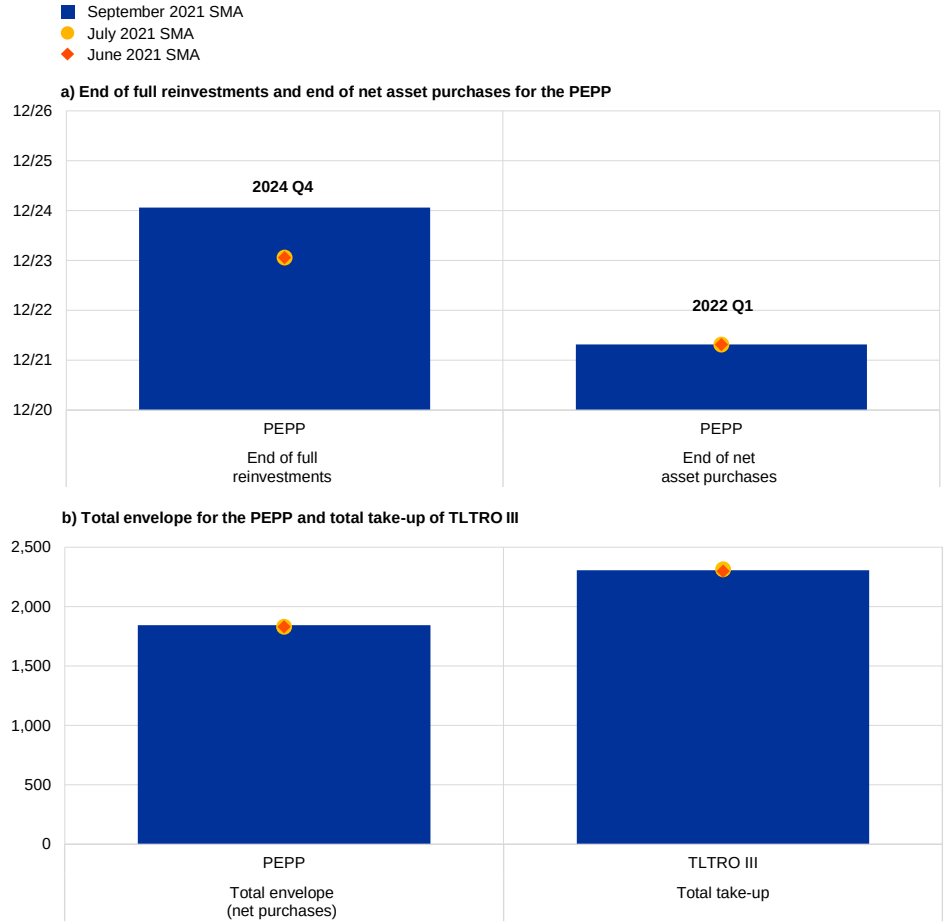
interest rates and on asset purchases. Forward guidance on APP parameters are linked to forward guidance on interest rates via the conditions that are required to be met before policy interest rates start increasing (see Box 3): net purchases will be conducted until "shortly before" the date on which the Governing Council starts raising interest rates, and reinvestments will run for "an extended period of time" past that date (see Chart 2). SMA survey results indicate that respondents have revised the expected timing of the end of net purchases, the interest rate lift-off, and the end of reinvestment in a consistent manner in line with the chained forward guidance on interest rates and asset purchases: the postponement of the DFR lift-off date is associated with the prolonged horizon of APP net purchases and reinvestments, and vice versa.

The second part of Section 2 of the questionnaire relates to respondents' expectations regarding the PEPP, which was introduced in response to the COVID-19 pandemic. Respondents were asked multipart questions covering the amount of the PEPP envelope they expect to be used by March 2022, when they expect the programme to end and what they expect the profile of quarterly purchases to be. In the September round, the median expectation was for the programme to end in the first quarter of 2022 (Chart 3, panel a), reinvestments to continue until the end of 2024 (Chart 3, panel a) and the €1,850 billion envelope to not be fully taken up by March 2022 (Chart 3, panel b). The median expectation that the entire PEPP envelope would not be fully exhausted by the second quarter of 2022 was also corroborated by Bloomberg and Thomson Reuters surveys. The respondents' median expectation was that the size of average monthly purchases per quarter would progressively decline over the final three quarters of the programme (Chart 4).

Chart 3

Expectations for the PEPP and TLTRO III

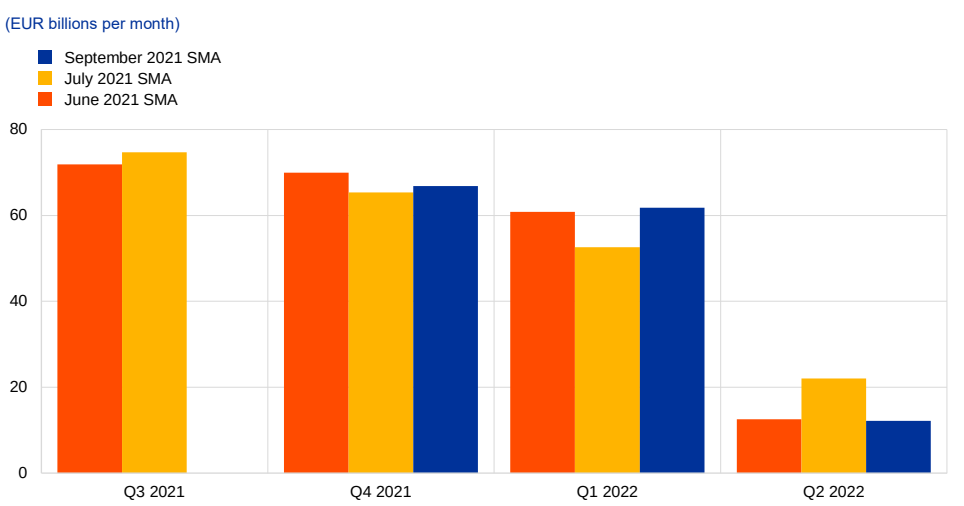
(panel a: date; panel b: EUR billions)



Source: ECB.
Note: Number of respondents is 24 for the September 2021 SMA, 24 for the July 2021 SMA and 24 for the June 2021 SMA.

Chart 4

Expectations for average monthly PEPP purchase pace by quarter



Source: ECB.
Notes: Number of respondents is 22 for September SMA, 21 for July 2021 SMA and 22 for June 2021. Pace derived as first difference of the PEPP holdings for the median respondent.

Section 3 of the questionnaire garners expectations of the ECB's refinancing operations. In the September round, the median respondent expected the total take-up of TLTRO III to be €2,304 billion (Chart 3, panel b). Together, Sections 1, 2 and 3 of the survey provide a very comprehensive assessment of financial market participants' expectations.

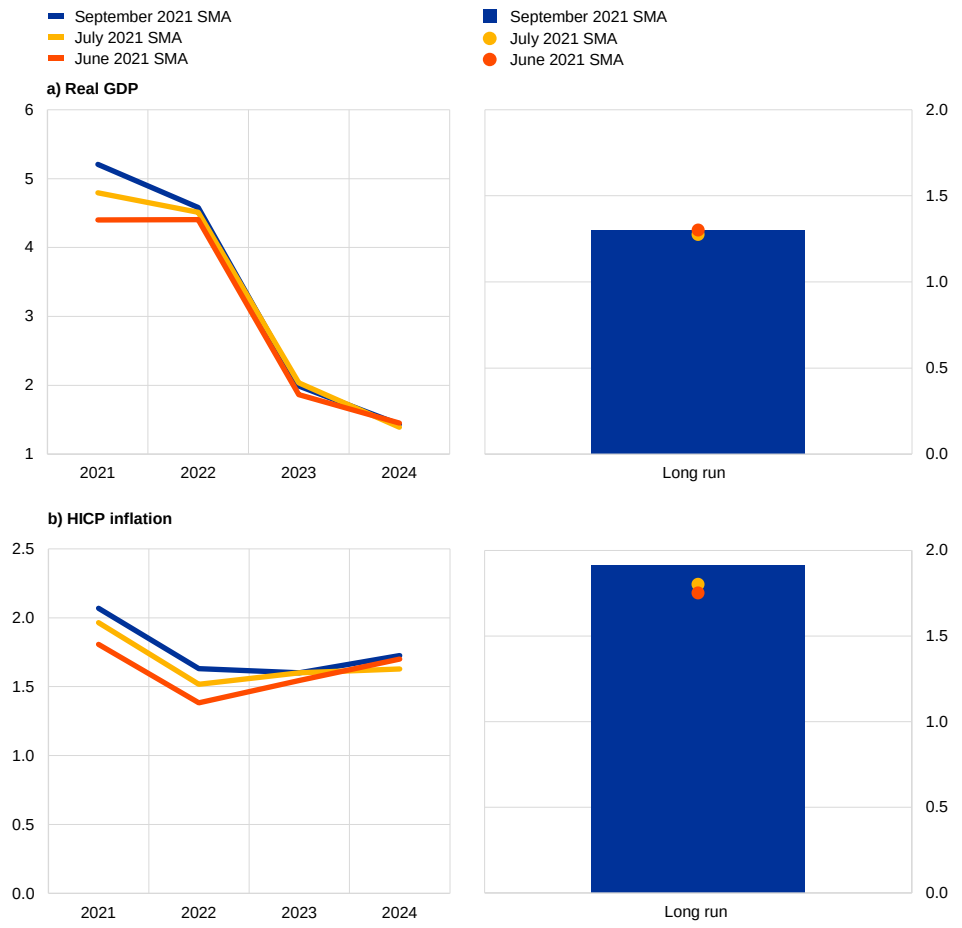
The macroeconomic outlook is captured in Section 4 of the questionnaire. Respondents are asked to provide forecasts for key macroeconomic variables over a long horizon as well as the associated risks surrounding the outlook. The survey rounds from June to September 2021 indicated upward revisions of the near-term euro area growth and inflation outlooks (Chart 5). The SMA gathers respondents' macroeconomic forecasts, longer-term outlook and risks which are commensurate with their policy expectations. Notably, the median expectation for long-run inflation was 1.9% in September and, as outlined in Box 3, there was an increase in the number of respondents indicating long-run inflation in the 1.8% to 2% range following the ECB's new strategy review.[28] As for risks associated with the panellists' outlook, the majority of respondents assess the risks to growth as being balanced, with upside risks to inflation increasing over recent surveys (Chart 6).

[28] The long run should be interpreted as the horizon over which the effects of all shocks will vanish. For the purposes of this survey and, for the sake of simplicity, this can be interpreted as around ten years.

Chart 5

Median forecasts of real GDP and HICP inflation

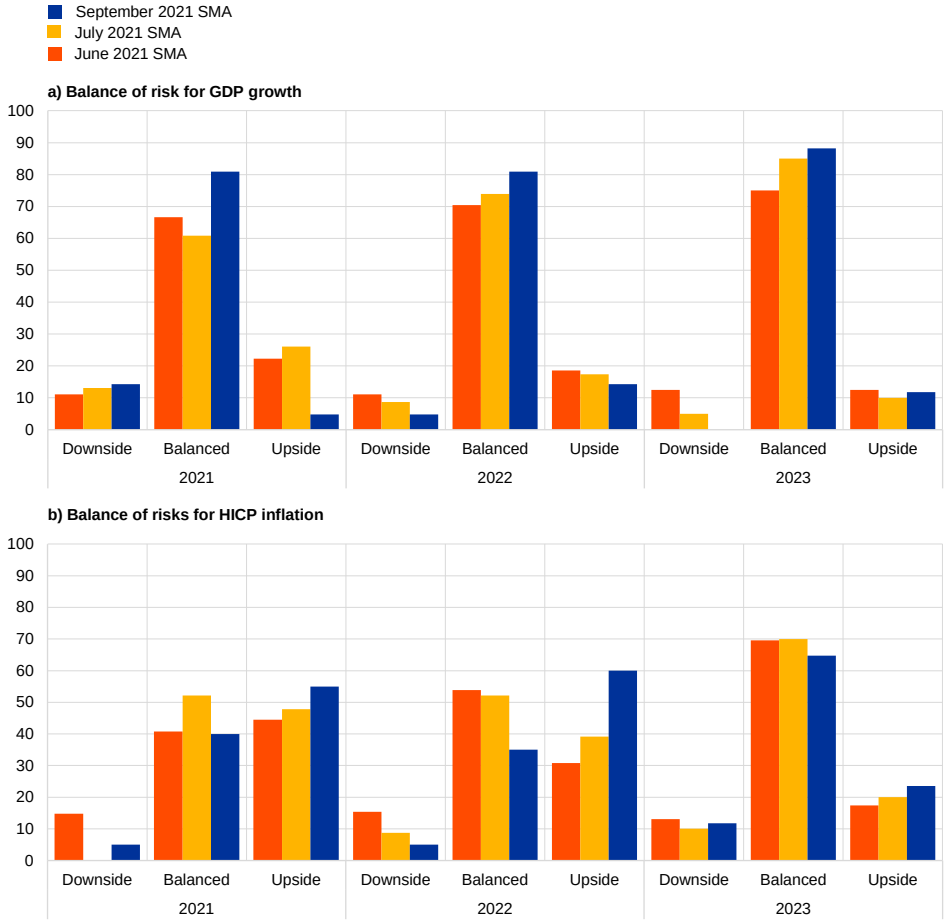
(year-on-year percentage changes)



Source: ECB.
Note: Number of respondents is 23 for the September 2021 SMA, 24 for the July 2021 SMA and 25 for the June 2021 SMA.

Chart 6
Balance of risks

(percentages of respondents)

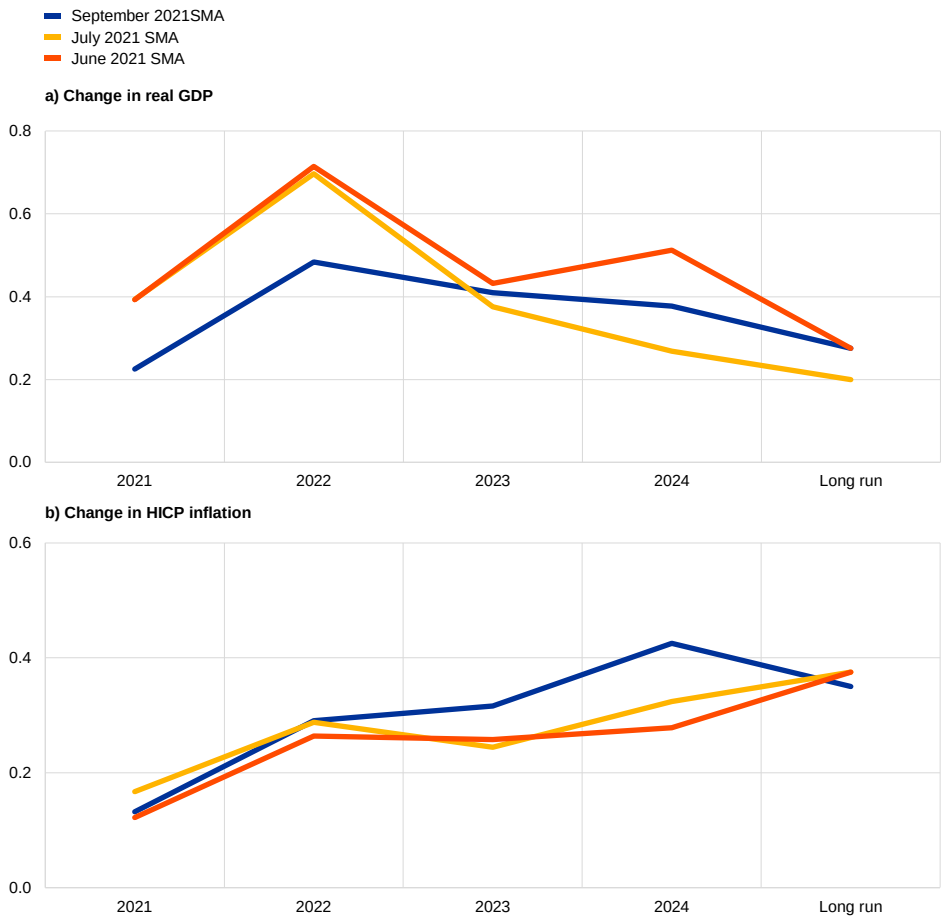


Source: ECB.
Note: Number of respondents is 21 for the September 2021 SMA, 23 for the July 2021 SMA and 27 for the June 2021 SMA.

The level of disagreement between respondents was limited in relation to the growth outlook and slightly more elevated for the inflation outlook. The survey allows the heterogeneity of replies across respondents to be examined, which can be illustrated by plotting the disagreement among respondents (calculated as the difference between the 75th percentile and 25th percentile) on growth and inflation forecasts (Chart 7). There was a similar degree of disagreement among respondents regarding the growth outlook, with a growing share of respondents assessing the outlook to be balanced (Chart 6, panel a). By contrast disagreement over the inflation outlook increased in the September 2021 SMA, with a growing share of respondents perceiving upside risks to inflation (Chart 6, panel b).

Chart 7

Disagreement on real GDP and HICP inflation among SMA respondents



Source: ECB.
Note: Number of respondents is 23 for the September 2021 SMA, 24 for the July 2021 SMA and 25 for the June 2021 SMA.

As mentioned above, SMA survey results have been used to examine how SMA respondents interpret the ECB's new strategy statement and revised interest rate forward guidance in order to analyse the effectiveness of ECB communication (see Box 3 for a more detailed discussion). The September 2021 SMA included a specific section dedicated to the new strategy statement with SMA respondents indicating that they now had greater clarity regarding the ECB's price stability target following the statement. Also, respondents appeared to have taken on board the conditions that need to be met, as outlined in the revised forward guidance on interest rates, before policy interest rates can begin increasing.

Box 3

Examining the impact of the ECB's revised strategy statement on market expectations through the lens of the SMA[29]

Prepared by Falk Mazelis and Arthur Saint-Guilhem

On 8 July 2021 the ECB communicated its new monetary policy strategy, which incorporates two key innovations: first, the redefinition of the price stability objective as a symmetric two per cent inflation target over the medium term; second, a conditional commitment to take into account the implications of the effective lower bound when conducting policy in an environment of structurally low nominal interest rates.[30]

On 22 July 2021 the Governing Council revised its interest rate forward guidance to align it with the achievement of the symmetric two per cent inflation target. The revised forward guidance stipulates three conditions that need to be met before policy interest rates start increasing: first, looking forward, inflation should be expected to reach the new two per cent target "well ahead" of the end of the projection horizon; second, this convergence should be reached "durably for the rest of the projection horizon"; third, progress in current-looking underlying inflation should be judged to be "sufficiently advanced" at the time of lift-off, so as to act as a safeguard against a premature policy tightening in the face of adverse cost-push shocks that might elevate headline inflation temporarily but fade quickly with no implication for inflation trends. Also, according to the revised forward guidance, and in line with the strategy review statement, the verification of these three conditions might imply a transitory period in which inflation is moderately above target.

The ECB's monetary policy strategy statement

SMA respondents reported that the revised strategy statement has improved their understanding of the ECB's communication. The September SMA round featured questions specifically tailored to gauge the effects of the ECB's revised strategy statement on market participants' perception of the ECB's reaction function. Respondents overwhelmingly considered the statement to have enhanced the clarity of the ECB's price stability definition, as well as to have clarified the ECB's reaction function (Chart A, panel a). Respondents' comments revealed that they welcomed the new strategy and signalled that it was broadly anticipated.[31] They also indicated that it remained to be seen how the revised strategy would translate into the practical implementation of monetary policy over time.[32]

29 All aggregate results referred to in this box are available on the ECB's website.

30 For more detail, see the ECB's monetary policy strategy statement and the accompanying overview of the ECB's monetary policy strategy.

31 The broad anticipation of the strategy review outcome implies that the comparison of the June, July and September SMA rounds may only partially capture the impact of the revised strategy on respondents' expectations. That the outcome of the strategy review was broadly anticipated is further evidenced by the limited reaction of financial markets on the day of the announcements. Indeed, reports by market analysts published ahead of the announcements support the view that market participants were correctly anticipating important elements of the new strategy and the revised forward guidance.

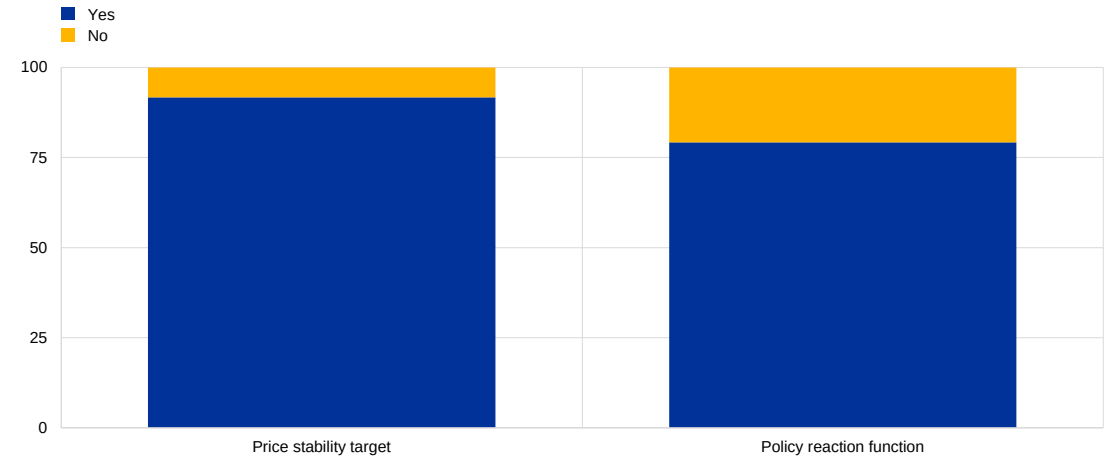
32 A favourable disposition towards the ECB's new monetary policy strategy was also evident from the results of a special survey of professional forecasters on the ECB's new monetary policy strategy.

Chart A

Strategy review announcement (list of survey respondents)

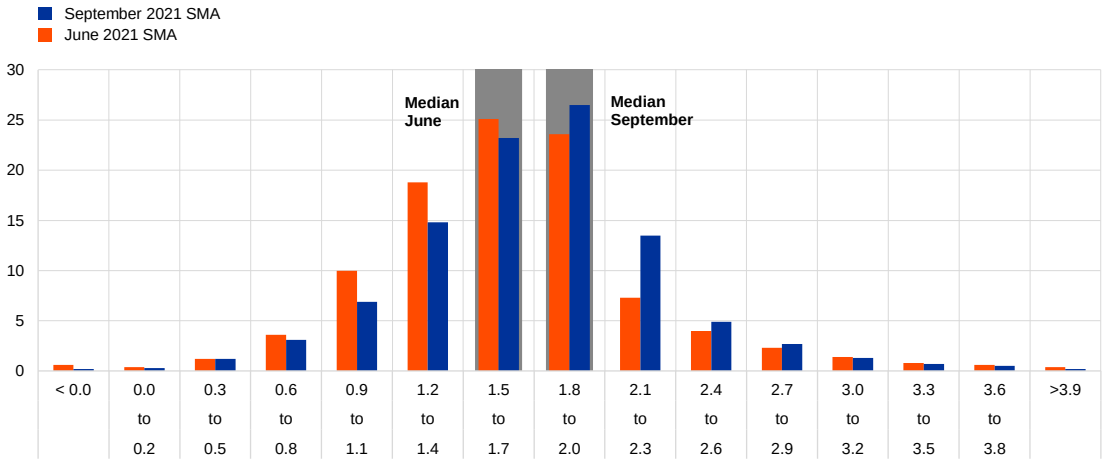
a) Improved understanding through strategy statement

(percentages of respondents)



b) Long-term inflation expectations (pooled probability distribution)

(x-axis: percentages per annum; y-axis: percentages)



Source: ECB.
Notes: Panel a depicts the share of respondents to the September 2021 SMA that answered "yes" (blue) or "no" (yellow) to Question 0.1 "Has [the ECB's monetary policy strategy statement] enhanced the clarity of your understanding of the ECB's price stability target?" (left column) and Question 0.2 "Has [the ECB's monetary policy strategy statement] enhanced the clarity of the ECB's policy reaction function" (right column). The number of respondents to each question was 24. In panel b, the grey areas highlight the medians for June (1.5% to 1.7%) and September (1.8% to 2.0%). The number of respondents was 19 for the September 2021 SMA and 20 for the June 2021 SMA.

The September 2021 SMA also indicated a noticeable upshift in respondents' long-term inflation expectations.[33] Compared to the June round, the median long-term inflation expectation across respondents has increased, from 1.5-1.7% in June to 1.8-2.0% in September (Chart A, panel b). In addition, respondents' expectations exhibited a slightly more symmetric distribution, as indicated by the reduced skewness compared to the June distribution. This change is also visible in the

[33] The assessment focuses on the September SMA, as the July round's deadline was only one day after the strategy announcement, allowing little time for respondents to digest the announcement. In addition, the September SMA is the first round available following the revised forward guidance announcement and therefore allows for a broader assessment of the joint impact of the strategy and forward guidance revisions on respondents' expectations. While respondents are asked to provide long-run inflation expectations referring to a horizon when the effects of all transitory disturbances have vanished, short-run inflation dynamics, which increased during the summer period, cannot be ruled out as a factor behind the increase in long-run dynamics.

increased probability – from 30% in June to 40% in September – attached to euro area long-term inflation ranging between 1.8% and 2.3% (Chart A, panel b).

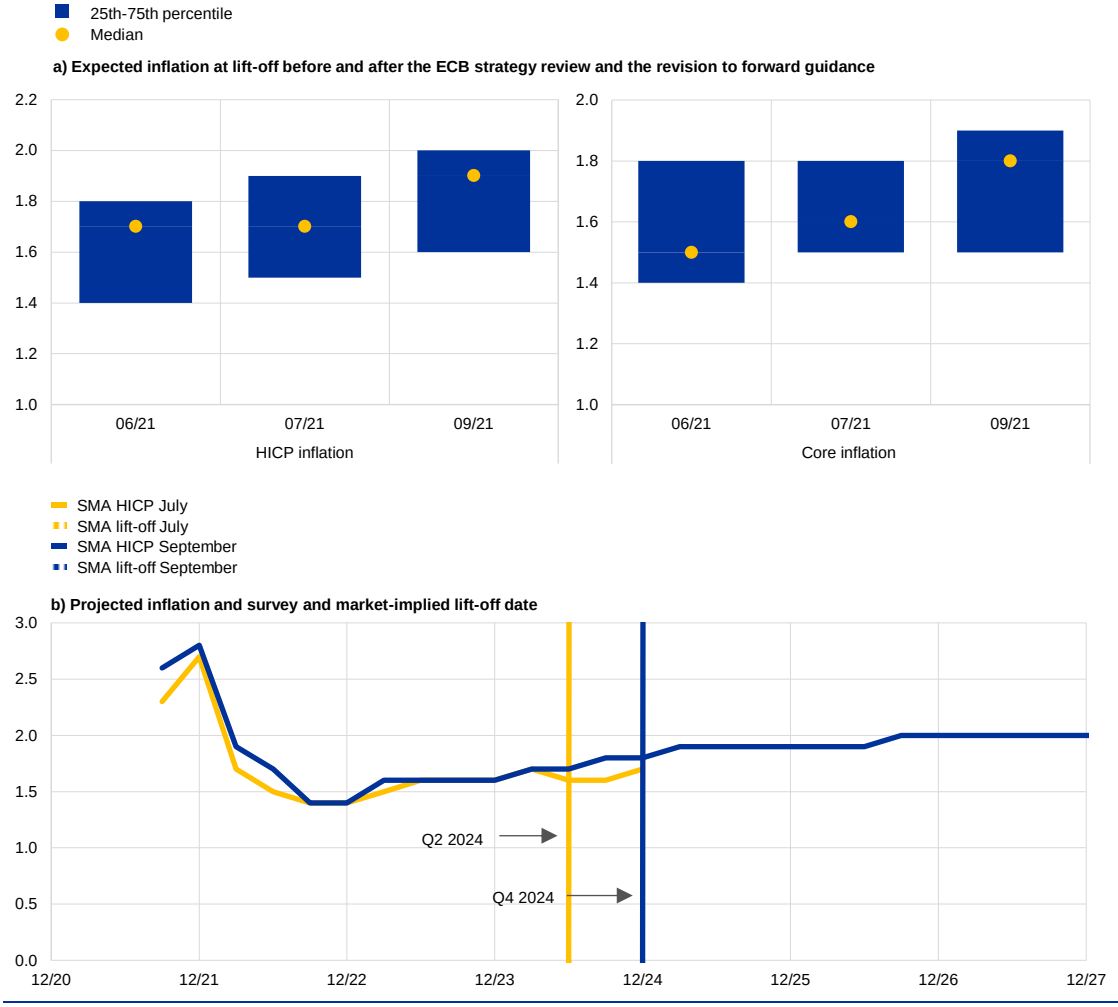
Revised interest rate forward guidance

In addition to the strategy statement, the evolution of respondents' expectations over the reviewed period also reflected the update to the Governing Council's interest rate forward guidance. First, in the September SMA, the median expected timing of the first increase in key interest rates was postponed by two quarters to the end of 2024, compared to mid-2024 in the July round, which was conducted before the revised forward guidance was announced. Second, respondents indicated that, at the time of lift-off, they expected the prevailing headline inflation rate to be higher, at 1.85%, compared to 1.7% in the two preceding rounds, albeit with significant dispersion across responses (Chart B, panel a). Third, responses to a direct question included in the September SMA imply the "well ahead" condition to be interpreted as around six quarters before the end of the projection horizon. Fourth, with regard to the "sufficiently advanced" progress in underlying inflation, the September SMA signalled expected HICP inflation excluding food and energy to be at 1.8% at the time of lift-off, which was an increase compared to 1.6% in July and 1.5% in June. A cross-check with a direct question on the third conditionality of rate forward guidance featured in the September SMA confirms this assessment, with respondents indicating their understanding that the "sufficiently advanced" condition would be fulfilled when euro area underlying inflation stands at 1.8%.

Chart B

Revised interest rate forward guidance

(year-on-year percentage changes)



Sources: ECB, Bloomberg, ECB calculations.
Notes: Panel a is based on Question 4.2: "Please indicate your estimate of the most likely value (i.e. the mode) for [inflation] during the quarter of the next increase in key interest rates". Panel b depicts the median responses to Question 1.1 (expected timing of the next increase in the DFR) and Question 4.1 (expectations for HICP inflation) from the July and September 2021 SMA rounds. The forecast horizon for macroeconomic variables was until the end of 2024 in the July round and until the end of 2028 in the September round.

Market participants' answers to additional questions in the SMA, such as respondents' expectations for the path of key interest rates combined with their expectations for the inflation outlook (Chart B, panel b), allows the fulfilment of the new interest rate forward guidance condition to be cross-checked. In the September round, median expectations were for interest rate lift-off to occur in the fourth quarter of 2024 and HICP inflation to reach 2% in the third quarter of 2026. From the fourth quarter of 2024 – when rate lift-off is expected to take place – the typical projection horizon would extend for three years until the end of 2027. Accordingly, as inflation is expected to reach 2% around five quarters ahead of the end of the projection horizon, the interpretation of the length of

the “well-ahead” period would be around five quarters, which is broadly consistent with the estimate from the above-mentioned direct question.[34]

Overall, the evolution of respondents’ answers over the June, July and September survey rounds provides valuable insights into market participants’ perception of the changes in the ECB’s reaction function following the strategy revision. Nonetheless, the understanding of the entire scope can be expected to take time and be fully internalised only over a longer horizon. Such a pattern would be consistent with the recent experience in the United States, where it took some time for the new strategy of the Federal Reserve System and the subsequent reformulation of forward guidance to be reflected in market-based inflation expectations.

6 Conclusions

Understanding the evolution of expectations of households, firms and financial markets pertaining to macroeconomic developments and monetary policy is crucial for the success of central banks in pursuing price stability. It is not possible to measure these expectations directly and in an all-encompassing, representative manner. However, surveys collecting forecasts on the expected use of monetary policy instruments and the macroeconomic outlook (alongside information contained in asset prices) can inform this understanding in important ways. The ECB’s SMA complements these sources of information. In particular, the SMA fills a knowledge gap concerning the joint evolution of both macroeconomic developments and monetary policy. It is also informative on financial market participant's understanding of the ECB’s reaction function. Specifically, the survey covers all ECB monetary policy measures and thereby provides important information to monitor the effectiveness of the ECB’s monetary policy decisions and forward guidance and the credibility of its inflation targets, as measured by long-run inflation expectations.

[34] In the SMA, minor differences in the assessment of the “well ahead” condition are to be expected and may arise for various reasons, e.g. different subsets of respondents that provided answers to the direct question and to the additional questions on lift-off and macroeconomic forecasts. Moreover, the implied “well ahead” conditionality derived from the macroeconomic forecasts is based on respondents’ own expectations of inflation developments, whereas the duration enquired about in the direct question is more likely to relate to the respondents’ interpretation of the Governing Council’s projections, in line with the revised forward guidance.

2 ECB communication with the wider public

Prepared by Marius Gardt, Siria Angino, Simon Mee, Gabriel Glöckler

1 Introduction

Central banks across the world have stepped up their efforts to communicate more effectively and reach wider audiences. With the rise of central bank independence in recent decades, central banks have become more transparent and are working harder to make themselves understood.[1] Furthermore, the wider set of tools that central banks have used and additional tasks entrusted to them since the global financial crisis have called for better explanations of what central banks do and why. Central banks have also made communication a core part of their monetary policy toolkit with the introduction of forward guidance. While central banks used to primarily address their communication to expert audiences, such as financial market participants, recently they have been making more of an effort to reach out to the non-expert wider public.

Central bank communication is important for the effectiveness of monetary policy because it can influence the expectations of market participants, firms, and consumers. For central banks to influence inflation expectations effectively, the wider public – defined here as the general, non-expert public and representative professional bodies such as employers' groups, trade unions, political groups, etc. – needs to be aware of central banks' messages and understand them. At the same time, attracting people's attention and reducing the complexity of central bank communication in an effective manner is challenging.

With the recent evolution in central banking, the ECB has revisited its communication practices. To account for significant shifts in the communication landscape and the clear demand from the wider public to make ECB communication more accessible, the ECB decided – as a result of its recent strategy review – to modernise its monetary policy communication and make "listening" a regular feature of its communication.[2]

This article examines the ECB's communication with the wider public. It starts from the premise that communication is a process that involves a "sending end" – the central bank – and a "receiving end", i.e. different audiences, ranging from experts to the wider public. For communication to work effectively, both ends, as well as the link between the two, need to be well understood. By shedding light on this process, this article builds upon the analysis conducted as part of the ECB's strategy

1 See Dincer, N. and Eichengreen, B., "Central Bank Transparency and Independence: Updates and New Measures", *International Journal of Central Banking*, Vol 10, No 1, 2014; Crowe, M. and Meade, E. E., "Central Bank Independence and Transparency: Evolution and Effectiveness", *IMF Working Paper*, 2008.

2 Data gathered from the "ECB Listens Portal" show that respondents find that the ECB uses too much economic jargon and that its communication is not accessible enough. Respondents called for clearer and more direct and modern communication from the ECB.

review, notably by the Work stream on monetary policy communications.[3] It also provides a first assessment of efforts to modernise ECB communication following the strategy review's conclusion.

2 The "receiving end" of central bank communication

The ECB faces various challenges in its efforts to "get through" to the wider public. First, as a supranational central bank, the ECB finds itself in a challenging position in that it speaks to diverse audiences across 19 Member States. Financial literacy levels, inflation expectations and trust in the ECB vary across and within euro area countries. ECB communication needs to take this plurality into account. Second, the ECB – like other central banks – has to overcome the challenge of people's inattention to its messages.[4] The complexity of central bank communication and low levels of financial literacy, among other factors, can make it too "costly" for people to pay attention to what central banks say.[5] Another challenge is that trust in the ECB, which declined significantly during the global financial crisis, is only slowly recovering to previous levels. Analysing the determinants of public trust in the ECB can help us understand if and how the ECB can build trust.

One central bank, many diverse audiences

When reaching out to the wider public, the ECB needs to consider the diversity of those who are at the receiving end of central bank communication. Compared with other major central banks, the ECB stands out in terms of the linguistic diversity of its audience. It communicates in 24 languages to an audience made up of 340 million citizens, spread across 19 Member States. Besides language diversity, ECB communication also needs to account for different financial literacy levels across countries (Chart 1)[6] and the heterogeneity of inflation expectations among the wider public (Chart 2). Results from the ECB Consumer Expectations Survey (CES) indicate that inflation expectations are higher for female consumers than male consumers, increase with age and decrease with a high level of financial literacy and income.[7]

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3 See Assenmacher, K., Holton, S., Glöckler, G., Trautmann, P., Ioannou. D., Mee, S. et al., "Clear, consistent and engaging: ECB monetary policy in a changing world", *Occasional Paper Series,* No 274, ECB, Frankfurt am Main, September 2021.

4 See Coibion, O., Gorodnichenko, Y., Knotek II, E. S. and Schoenle, R., "Average Inflation Targeting and Household Expectations", *Federal Reserve Bank of Cleveland Working Paper*, No 20-26, 2020.

5 See, for instance, Sims, C. A., "Rational inattention and monetary economics", *Handbook of monetary economics*, 2010, pp. 155-181; Binder, C., "Fed speak on main street: Central bank communication and household expectations", *Journal of Macroeconomics*, Vol 52, 2017, pp. 238-251.

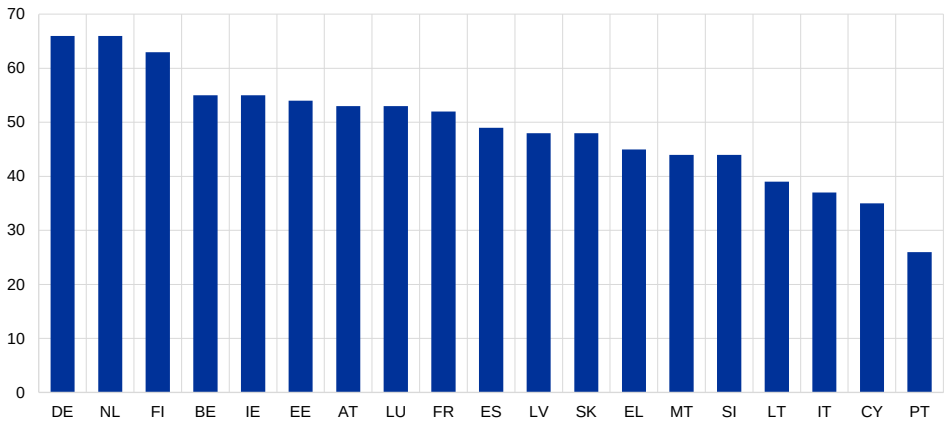
6 See Klapper, L. and Lusardi, A., "Financial literacy and financial resilience: Evidence from around the world", *Financial Management*, Vol 49, No 3, 2020, pp. 589-614.

7 See Baumann, U., Darracq Paries, M., Westermann, T., Riggi, M. et al., "Inflation expectations and their role in forecasting", *Occasional Paper Series*, No 264, ECB, Frankfurt am Main, September 2021.

Chart 1

Financial literacy of the general public by euro area Member State

(percentage share of respondents)



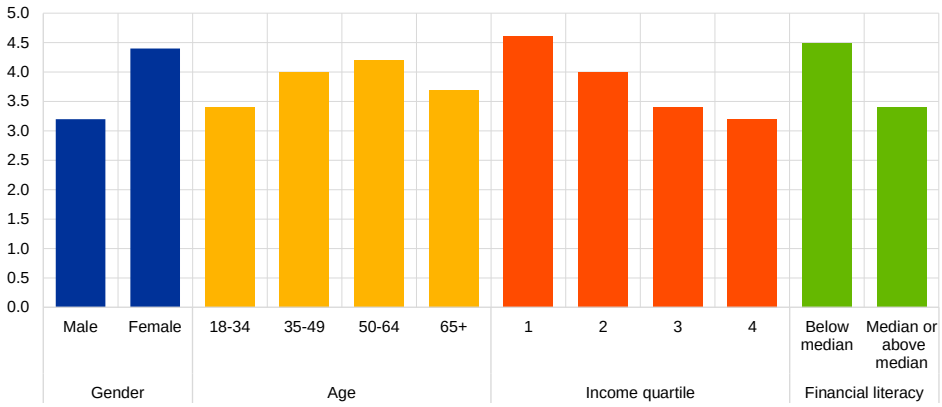
Source: Klapper, L. and Lusardi, A. (2020).
Notes: Share of respondents who answered at least three out of the five questions on financial literacy correctly in the S&P Global FinLit Survey. Questions concerned risk diversification, inflation, numeracy, and compound interest. The authors derived the data from a set of five questions from the Gallup World Poll survey. More than 150,000 nationally representative and randomly selected adults (age 15+) in more than 140 countries were interviewed during 2014. The surveys were conducted face-to-face in most emerging countries and by phone in high-income countries.

Chart 2

Consumer expectations for inflation across demographic groups

Expected inflation rates over next 12 months in selected euro area Member States

(percentages)



Source: ECB Consumer Expectations Survey
Notes: Averages using weighted data. Latest observation December 2020. Pooled data across waves. The CES collects information on perceptions and expectations of households in the euro area, as well as on their economic and financial behaviour. The survey is conducted online each month. Survey participants were located in six euro area countries: Germany, France, Italy, Spain, the Netherlands and Belgium. The sample size – during the pilot phase – targeted 10,000 respondents.

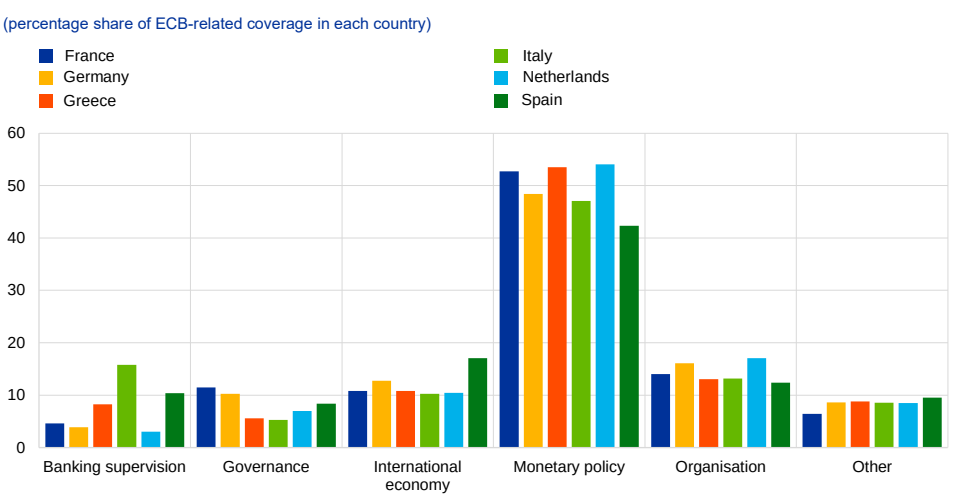
The wider public's interest in ECB-related themes also varies widely, though its main interest lies in monetary policy. Taking media coverage as a proxy for public preferences and interests,[8] Chart 3 shows commonalities across countries,

[8] See Soroka, S. N., Stecula, D. and Wlezien, C., "It's (Change in) the (Future) Economy, Stupid: Economic Indicators, the Media and Public Opinion", *American Journal of Political Science*, Vol 59, No 2, 2015, pp. 457-474.

but also indicates important differences across the euro area.[9] ECB-related coverage focuses mostly on monetary policy, but there are significant cross-country differences, depending on the topic. For example, in Italy and Spain, interest in banking supervision topics is much higher than in countries such as Germany or the Netherlands, while discussion about the ECB's mandate and accountability – under the category Governance – is more common in Germany and France than in the other countries in the sample.

Chart 3

Media attention to ECB-related topics in selected euro area Member States



Source: ECB data.
Notes: The sample includes ECB-related articles featured in the main media outlets of the selected countries for the period January 2019 to September 2021. The classification was performed manually by an external provider. The category "Governance" mostly captures media coverage of the ECB's mandate and accountability, while the category "Organisation" includes coverage of the governing bodies of the ECB and staffing issues.

There are also significant variations in the relative importance of the channels through which the public receives news about the ECB. Data from the Knowledge & Attitudes (K&A) survey[10] from May 2021 show that television (81%) is the most popular source of information about the ECB (Chart 4).[11] Printed press is the second most popular source, followed by online press, radio and information received through people's social circles. Relatively few people receive their news about the ECB on social media. The most popular of the social media channels is Facebook (14%), followed by Twitter and LinkedIn. At the same time, these figures mask country-level differences, which are shown in Chart 5.

9 While Chart 3 focuses on a selection of Member States, the underlying analysis covers all 19 Member States.

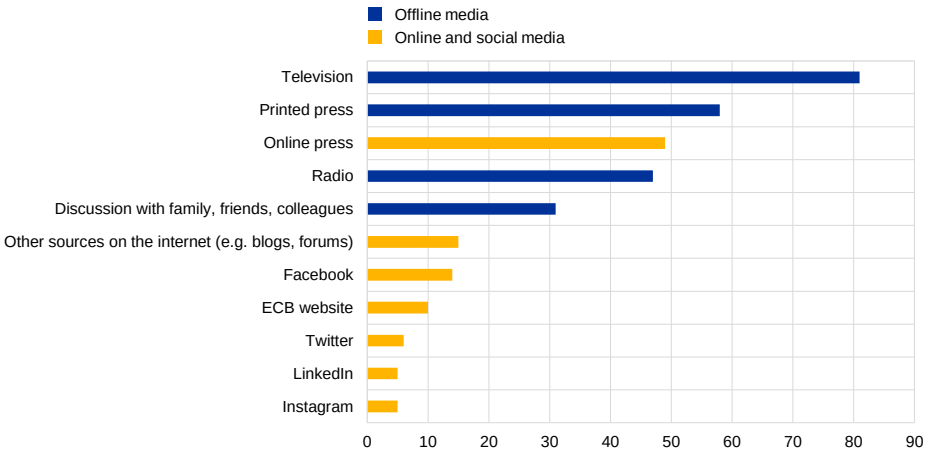
10 The ECB Knowledge and Attitudes (K&A) survey is an annual, cross-sectional survey conducted among the general public in the 19 euro area Member States. The May 2021 edition was carried out between 5 and 19 May 2021 with a sample of 15,500 respondents (approximately 1,000 in each Member State, except for Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta and Slovenia, where the sample size was around 500). Unlike the European Commission's Eurobarometer, which elicits opinions about a variety of themes, the K&A survey focuses exclusively on knowledge and perception of the ECB.

11 Television is the most popular source of information in all Member States, with the sole exception of Luxembourg, where the printed press was selected by a higher share of respondents.

Chart 4

Sources of information about the ECB in the euro area

(percentage share of respondents)

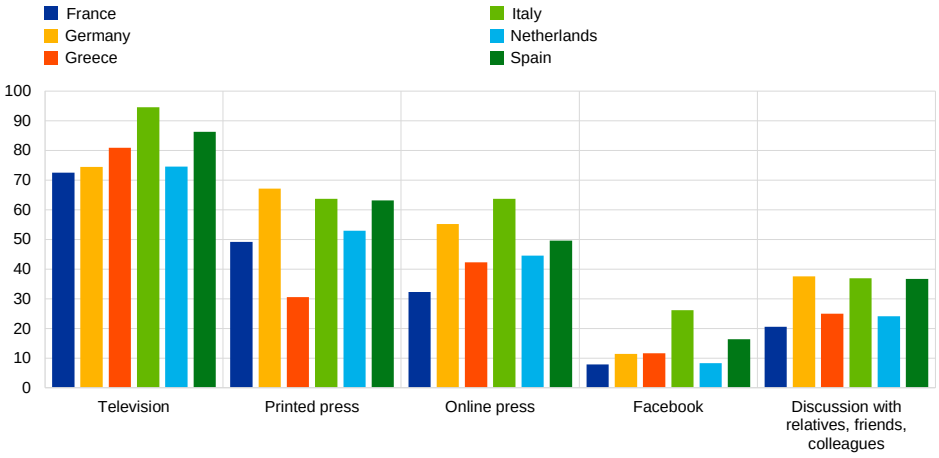


Source: ECB K&A Survey May 2021.
Notes: Respondents were asked the following question: "Where have you heard of the ECB?". Respondents were able to pick more than one answer.

Chart 5

Sources of information about the ECB in selected euro area Member States

(percentage share of respondents)



Source: ECB K&A Survey May 2021.
Notes: Respondents were asked the following question: "Where have you heard of the ECB?". The chart shows the share of respondents who selected a given source at the national level for selected countries. Respondents were able to pick more than one answer.

Against this background, efforts to tailor communication to specific needs, interests, local debates and media consumption habits can help the ECB get its messages through to different audiences more effectively. For example, the results of the analyses highlight that the ECB needs to take different inflation expectations and financial literacy levels into account when designing its

communication. At the same time, the nature of central bank communication calls for consistent messaging.[12]

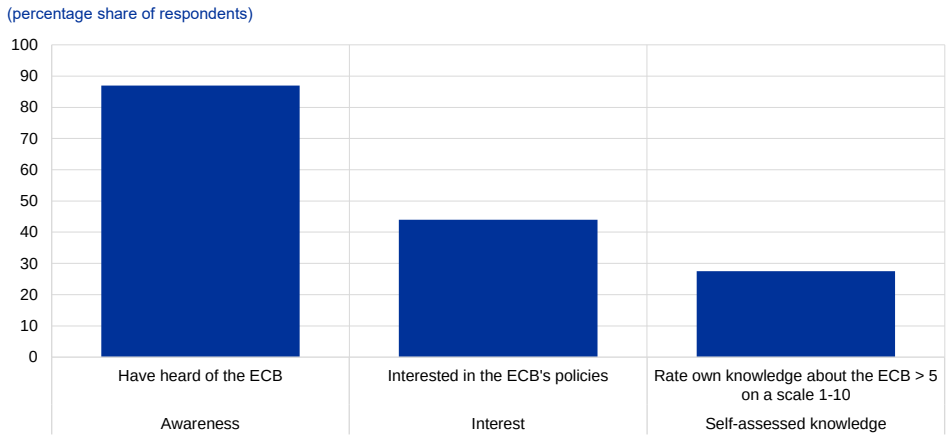
Mind the gap: awareness, interest and knowledge

Communication should be designed around solid evidence about how people view the ECB. Are they aware of the ECB? Do people know about the ECB's tasks and objectives? Do they care? Are they interested in learning more about the ECB?

Data reveal a gap between euro area citizens' awareness of the ECB on the one hand, and their interest in and knowledge of the ECB on the other. As Chart 6 shows, while awareness is high, interest and knowledge are relatively low. According to May 2021 K&A data, 87% of respondents have heard of the ECB. However, the majority of citizens (55%) are not interested in the ECB and its policies, with 27% of people not interested at all. Only 11% of respondents say they are very interested. Similarly, respondents' self-assessment of their knowledge about the ECB's tasks and objectives is low: on a scale of 1-10, respondents on average rate their own knowledge at 4.1. Only 3% rate their knowledge as very good (9-10), while 31% say it is very bad (1-2).

Chart 6

Awareness of, interest in, and knowledge about the ECB



Source: ECB K&A Survey May 2021.
Notes: Respondents were asked the following questions: "Have you heard of the European Central Bank?" (Possible answers: Yes, No, Don't know), "How interested are you in information about the European Central Bank and its policies?" (Possible answers: Very interested; Fairly interested; Not very interested; Not interested at all; Don't know) and "On a scale from 1 to 10, where 1 means that you know nothing at all and 10 means that you know a great deal, how would you assess your knowledge of the policies of the European Central Bank?" (Possible answers include Don't know). For the awareness question, the chart displays the share of "Yes" responses. For the interest question, the chart displays the share of "Very interested" and "Fairly interested" responses. For the self-assessed knowledge question, the chart displays the share of responses in the range 6-10.

Confusion about the ECB's tasks seems to be widespread. K&A data indicate that when respondents pick from a list of possible tasks and objectives of the ECB, they often select topics that are beyond the ECB's mandate (Chart 7). While 64% state that the ECB should "keep inflation at bay", 66% also believe it is the ECB's

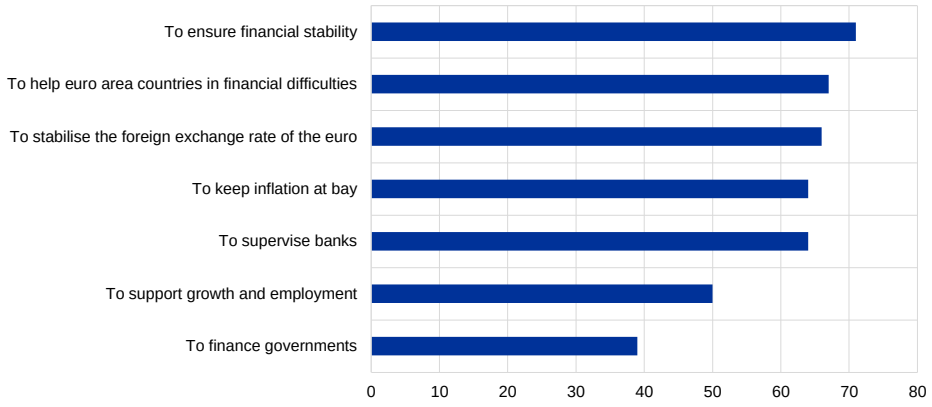
[12] See also Coibion, O., Gorodnichenko, Y., Kumar, S. and Pedemonte, M., "Inflation expectations as a policy tool?", *Journal of International Economics*, Vol 124, 2020.

task to “stabilise the foreign exchange rate”, while 39% indicate that the ECB’s job is to “finance governments”.

Chart 7

Perceived tasks and objectives of the ECB

(percentage share of respondents)



Source: K&A Survey May 2021.
Notes: Respondents were asked the following question: “To your knowledge, which of the following are tasks or objectives of the ECB?”

These data underscore the need for the ECB to close the gap between high levels of awareness and lower levels of interest and knowledge. As research shows, possible ways to overcome inattention are to make ECB communication not just simpler but also more engaging.[13] Central bank communication that is both understandable and effective in generating interest and increases knowledge among the wider public matters when it comes to accountability and trust.[14]

Proximity to the different audiences across the euro area is instrumental in adapting communication to local audiences and making it more effective. In this context, national central banks play a key role in connecting and engaging with diverse national audiences across the euro area and in helping to explain ECB decisions and the rationale behind them. They can reach out to people in their local language, and might have an informational advantage when it comes to the topics that resonate with citizens in the different countries and the channels they can best use to keep citizens informed. Effective and successful communication with the wider public is therefore something the entire Eurosystem must work together to achieve.

Public trust in the ECB

Public trust in the ECB is an essential prerequisite for it to deliver on its mandate of maintaining price stability. Various studies have analysed how trust in

13 See Brouwer, N. and de Haan, J., “Central bank communication with the general public: effective or not?”, SUERF Policy Brief, March 2021.

14 See Haldane, A., Macaulay, A. and McMahon, M., “The 3 E’s of central bank communication with the public”, *Bank of England Staff Working Paper*, No 847, 2020.

central banks can influence the formation of people's inflation expectations.[15] While greater trust in the ECB can anchor better public inflation expectations around the central bank's target,[16] low levels of trust in the ECB may play a part in leading inflation expectations away from the central bank's defined price stability target, which could undermine the ECB's ability to deliver on its mandate.[17] Trust in an institution like the ECB has many different facets and determinants, and the processes for building trust are multi-dimensional. Some of those aspects can be influenced by the ECB itself, while others lie beyond its reach.

What determines trust

A first and decisive factor that determines trust in the ECB – and one that is at least partially under the central bank's own control – relates to people's perception of its performance and of its leading personnel. Recent K&A data show that the association between specific perceptions of the ECB and trust in it is strong (see Chart 8). Two relevant dimensions of trust in the ECB emerge.[18] One dimension relates to the ECB's competence – is the ECB able to successfully deliver on its mandate, and is it credible? – which is most tightly linked to trust.[19] There is, however, also an ethical dimension: does the ECB care about its citizens and does it act responsibly?

15 See, among others, Easaw, J., Golinelli, R. and Malgarini, M., "What determines households inflation expectations? Theory and evidence from a household survey", *European Economic Review*, Vol 61, 2013, pp. 1-13; Mellina, S. and Schmidt, T., "The role of central bank knowledge and trust for the public's inflation expectations", *Deutsche Bundesbank Discussion Paper*, 2018.

16 See Christelis, D., Georgarakos, D., Jappelli, T. and Van Roij, M., "Trust in the Central Bank and Inflation Expectations", *International Journal of Central Banking*, Vol 16, No 6, December 2020.

17 See 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.

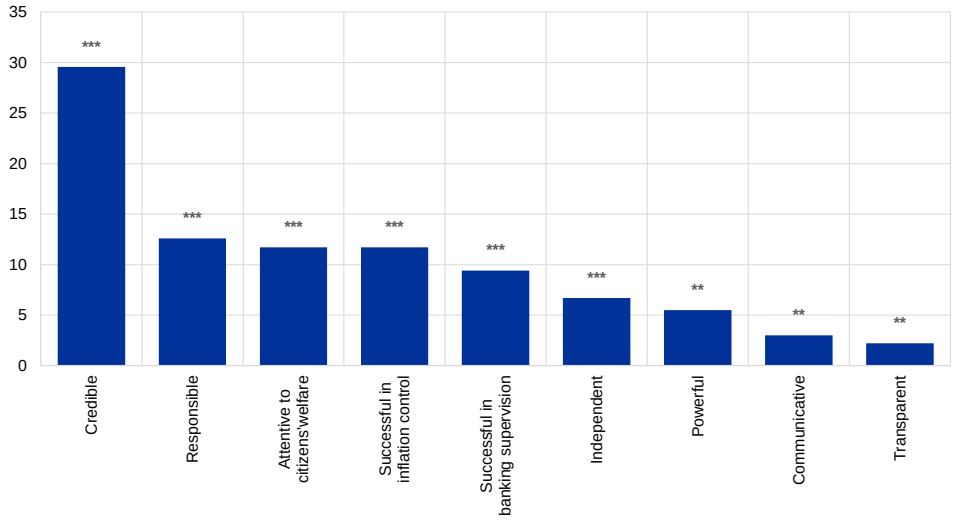
18 See Murtin, F., et al., "Trust and its determinants: Evidence from the Trustlab experiment", *OECD Statistics Working Paper,* 2018.

19 See Angino, S. and Secola, S., "Pillars of Trust: What determines trust in the ECB?", *mimeo*, 2019.

Chart 8

Strength of association between trust in the ECB and perceptions of the institution

(standardised beta coefficients)



Source: Angino and Secola (2019).
Notes: The chart displays the perception variables most strongly associated with trust in the ECB in an ordinary least square regression estimation that controls for individual characteristics such as socio-demographics, factual and self-assessed knowledge about the ECB, and country and time fixed effects. ECB K&A data were used. Perception variables are binary variables derived from two question batteries: "Please tell me for each of the following adjectives if it corresponds very well, fairly well, fairly badly or very badly to the idea you might have of the ECB" and "I am going to read you a list of statements. Please tell me if you totally agree, tend to agree, tend to disagree or totally disagree with each of them". Estimated effects marked by *** are statistically significant at the 0.01% significance level, those marked with ** at the 1%. Robust standard errors clustered at the country level are used.

To foster trust, the ECB not only needs to be successful in its policy performance, but also needs to show how its measures ultimately serve the people of Europe. Success at delivering price stability is an essential component of building trust among the wider public. However, by narrowly focusing on its policy performance in its communications, the ECB may miss out on important aspects of how people perceive it. Framing communication also in terms of how responsible ECB policy actually benefits people's welfare – in other words, how it makes a positive contribution to people's individual lives – can capture these additional dimensions and foster greater trust.

Beyond that, trust in the ECB is also determined – possibly more decisively, even – by a wide range of economic and non-economic factors. There are various studies linking trust in public institutions to economic conditions. With respect to the ECB, research shows that the public often holds the ECB responsible for macroeconomic conditions such as unemployment and stagnation, or crisis management on the part of EU institutions.[20] Besides the relevance of the perceived state of the economy, trust in the ECB depends on citizens' satisfaction with the performance of the EU as a whole, which again differs across countries.[21] In that

[20] See Roth, F. and Jonung, L., "Public support for the euro and trust in the ECB. The Economics of Monetary Unions: Past Experiences and the Eurozone", *VoxEU, December 2019.*

[21] See 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, January 2020, pp. 1178-1194. The authors measure performance evaluations of the EU on the basis of survey respondents' assessment of whether things "are going in the right direction in the EU" as well as their evaluations of the EU's crisis performance.

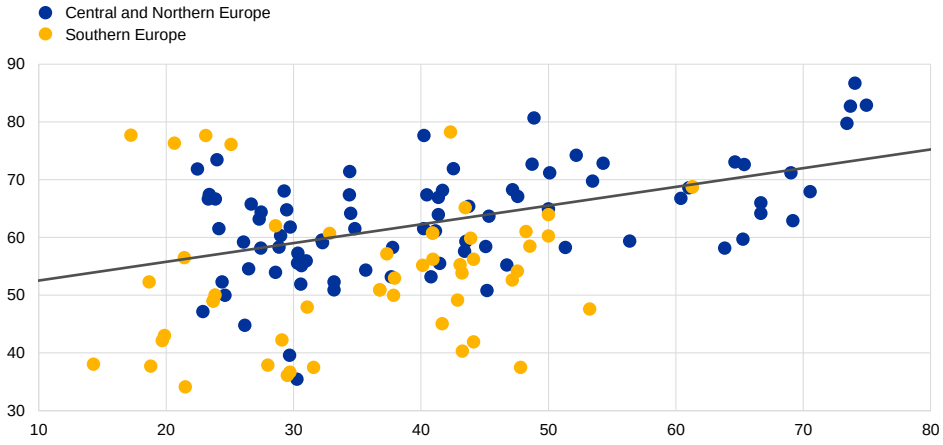
sense, these factors are at best indirectly related to the ECB and its performance, if not entirely exogenous.

Among non-economic determinants of trust, there is evidence that cultural and sociological factors also matter. Chart 9 shows the link between cultural traits, measured by social trust – that is, generally speaking, "faith in people"[22] – at the regional level in the euro area, and trust in the ECB. Individuals living in regions with lower levels of social trust systematically exhibit less trust in the ECB, and the underlying analysis supports a causal interpretation.[23] Clearly, these cultural and sociological factors are slow-moving components, and the scope for the ECB to influence them is limited.[24]

Chart 9

The relationship between trust in the ECB and social trust

(x-axis: regional share of respondents stating that other people can generally be trusted; y-axis: regional share of respondents stating that they trust the ECB)



Source: Angino et al. (2021).
Note: The chart displays the share of European Social Survey (ESS) respondents who state that most people can be trusted and the share of K&A respondents who state they trust the ECB. To measure social trust, data from the ESS between 2002 and 2016 are used. To measure trust in the ECB, data from the K&A survey collected in the 19 euro area countries in 2016, 2017 and 2018 are used.

Ways of building trust

Given the importance of trust for central banks, it is essential to have a deeper understanding of how public trust can be built and sustained. In this context, important societal shifts with respect to how trust is generated and lost are of great

22 The following survey item from the European Social Survey (ESS) was used: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?". Respondents are provided with a scale from 0 to 10; See also Pew Research Center, "Americans and Social Trust: Who, Where and Why", Report, 22 February 2017.

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

24 The same applies to socio-demographic factors such as gender, age and education; see Bergbauer, S., Hernborg, N., Jamet, J-F., Persson, E. and Schölermann, H., "Citizens' attitudes towards the ECB, the euro and Economic and Monetary Union", *Economic Bulletin*, Issue 4, ECB, Frankfurt am Main, 2020.

relevance for the ECB.[25] However, there is ample literature that confirms that by communicating in an accessible manner[26] and by engaging with citizens[27], central banks can build knowledge, increase understanding and ultimately affect people's trust in them. Two key mechanisms can be distinguished: "reflective trust", which builds on greater understanding as a stepping stone towards increased trust; and "instinctive trust", which builds more on emotion and personal experience and generates trust in the institution even in the absence of a clear understanding of its role or policy.[28]

A survey experiment conducted with K&A survey data highlights differences between reflective and instinctive trust levels in the ECB. In the survey experiment (Chart 10), respondents were randomly asked to answer the question "Do you tend to trust or tend not to trust the ECB?" either at the beginning of the questionnaire, in the middle of it, or at the end. The randomisation made it possible to check whether deeper consideration of the ECB – that is, "reflective trust" – promotes more or less trust in the institution compared with an on-the-spot judgement – "instinctive trust".

For the ECB it is important not to rely on instinctive trust alone but also strengthen reflective trust levels. The survey experiment shows that instinctive trust is fragile, especially for certain socio-demographic groups. When respondents had the opportunity to reflect about the ECB, the level of trust decreased for some of them. Mainly women then tend to trust the ECB less, in particular those who claim to know little about the institution. These findings suggest that for trust levels to remain steady even in times of crisis, the ECB should try and increase reflective trust levels. One way to do that could be to help improve people's factual and self-assessed knowledge of the ECB's tasks and objectives.

25 See Haldane, A.,"A Little More Conversation. A Little Less Action", Speech, Macroeconomics and Monetary Policy Conference, Federal Reserve Bank of San Francisco, March 2017, and Botsman, R., "Who can you trust? How Technology brought us together and why it could drive us apart", *Penguin*, 2017.

26 See Bholat, D., Broughton, N., Ter Meer, J. and Walczak, E., "Enhancing central bank communications using simple and relatable information", *Journal of Monetary Economics*, 2019, pp. 1-15.

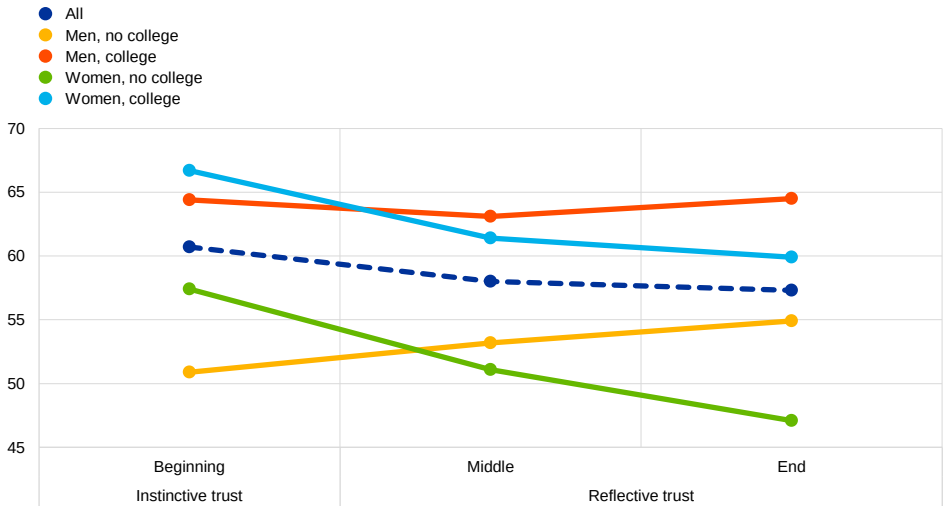
27 See Haldane, A., Macaulay, A. and McMahon, M., "The 3 E's of central bank communication with the public", *Bank of England Staff Working Paper*, 2020.

28 See Angino, S. and Secola, S., "Instinctive trust versus reflective trust in the European Central Bank", *mimeo*, 2021.

Chart 10

Evolution of net trust in the ECB by gender and education level

(percentage share of respondents)



Source: Angino and Secola (2021).
Notes: The survey experiment makes use of two consecutive waves of the ECB K&A survey. In the survey experiment, respondents were randomly asked to answer the question "Do you tend to trust or tend not to trust the ECB?" either at the beginning of the questionnaire, in the middle of it, or at the end. Net trust is calculated as the share of respondents answering "Tend to trust" divided by the sum of respondents answering either "Tend to trust" or "Tend not to trust" (i.e. "Don't know" answers are excluded). Levels of trust at the beginning of the questionnaire are what we refer to as "instinctive trust". Levels of trust in the middle and at the end of the questionnaire are what we refer to as "reflective trust".

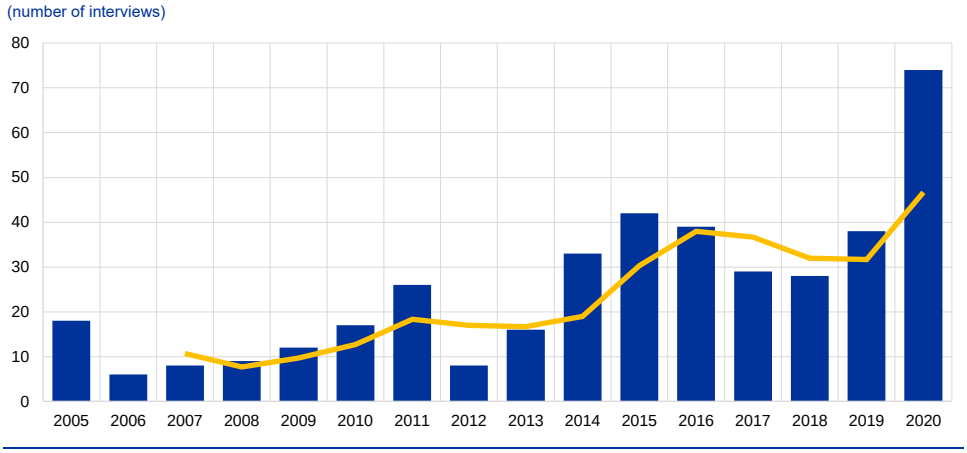
3 Analysing the "sending end" of central bank communication

Evolution of ECB communication

For central banks, communication via press conferences, speeches and interviews is a well-established means of reaching expert audiences as well as the interested, highly-educated public. As communication gains importance for central bank policy and its effectiveness, recourse to this type of communication has grown considerably. For example, Chart 11 shows the increase in the number interviews given by ECB Executive Board members over time. The increase mainly reflects the efforts made by the central bank to explain its increasingly complex policies during times of crisis and to reduce uncertainty. During the pandemic, media interviews given to both financial and general-interest media provided a suitable platform for sharing the ECB's messages.

Chart 11

Volume of ECB interviews over time



Source: ECB website.
Notes: Number of interviews by ECB Executive Board members published on the ECB's website. Three-year moving average is superimposed. No interviews dating before 2005 are published on the ECB's website.

Quantity alone, however, is no guarantee of more media coverage and, by extension, a greater chance of "getting through" to the wider public. To increase its voice in traditional media and social media, the ECB needs to focus on communicating simpler messages.[29] While stepping up communication, especially in times of crisis, is relevant in terms of ensuring accountability and legitimacy, the clarity of the central bank's messages matters for its reach. Chart 12 shows that clear communication in ECB speeches is a significant and robust predictor of media engagement. This also holds true for ECB communication on Twitter and via its press conferences.[30]

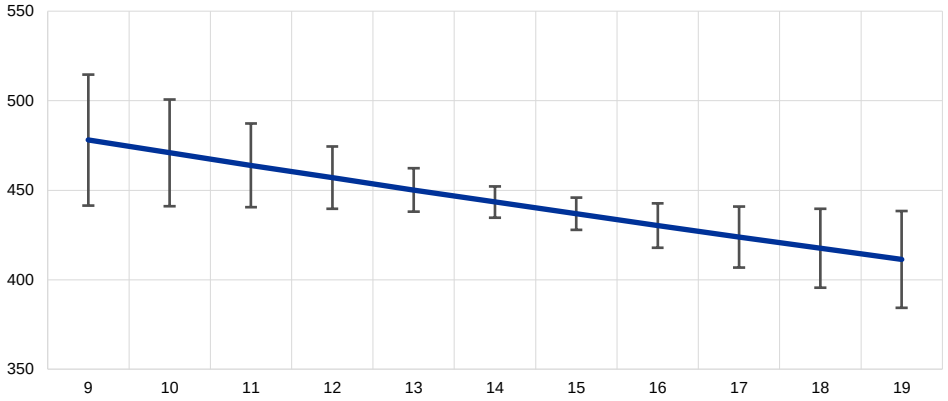
[29] It is important not to see online and offline media as mutually exclusive. ECB communication via TV or the printed press can spark debates on social media.

[30] See Ferrara, F. and Angino, S., "Does Clarity Make Central Banks More Engaging? Lessons from ECB Communications", *European Journal of Political Economy,* 2021.

Chart 12

Clarity of ECB speeches and media engagement

(x-axis: Flesh-Kincaid Grade Level of ECB speeches; y-axis: number of ECB-related articles on the day of the speech and the day after)

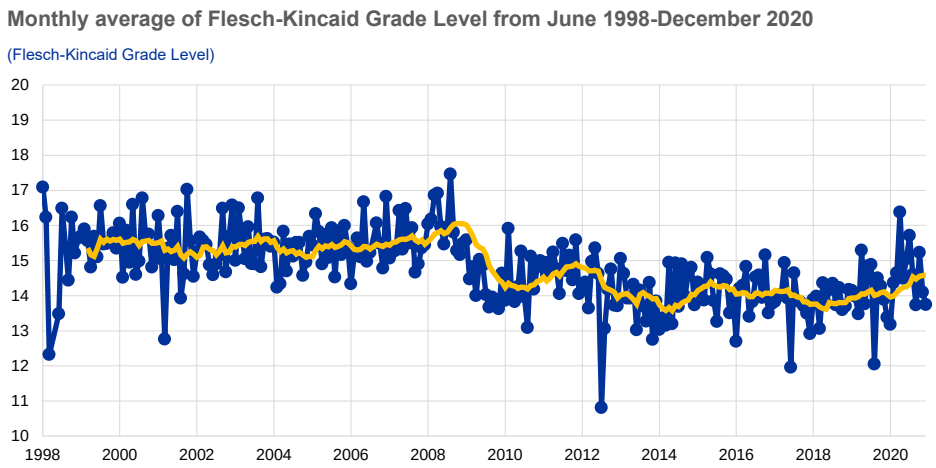


Source: Ferrara and Angino (2021).
Notes: Data refer to the period from 1999-2019. Clarity of communication (x-axis) is measured using the Flesh-Kincaid Grade Level, which indicates how many years of formal training are required to understand the text based on the length of its sentences and words. Media engagement (y-axis) is measured by the number of articles about the ECB, retrieved from the digital archive of Dow Jones Factiva. Predictions are based on a regression that controls, inter alia, for the topic distribution of the speech, whether the ECB President is speaking, whether the speaker belongs to the Executive Board or the Supervisory Board, and time fixed effects.

While the readability of ECB speeches has improved over time, the challenge of conveying messages in a simple, but not simplistic, way remains difficult, especially in times of crisis. Chart 13 shows that the readability of ECB speeches has generally improved since the launch of the euro, especially in the aftermath of the global financial crisis. At the same time, the pandemic and the policy response to it has led to more complex and complicated packages of measures, which is also reflected in the complexity of speeches, as is shown by the uptick in the readability score over the year 2020. The challenge for the future will be to return to the pre-pandemic downward trend when it comes to the complexity of communication activities.

Chart 13

Readability of ECB speeches over time



Source: ECB data, staff calculations.
Notes: The difficulty of the language employed is measured using the Flesch-Kincaid Grade Level score, which indicates how many years of formal training are required to understand the text, based on the length of its sentences and words. A 12-month moving average was superimposed.

The ECB has adapted its communication strategy to "new" communication platforms and technologies. Citizens, especially younger people, increasingly consume news on online platforms.[31] As a consequence, the ECB has expanded its activities on social media platforms. The ECB is now present on Twitter, LinkedIn, Instagram and YouTube with a combined followership of over a million.[32] While this number can still be considered modest given the size of the ECB's audience, the ECB's social media channels have already proved to be important platforms for reaching the wider public, as outlined in Box 1 below.

Box 1

ECB-related discussions on social media – an analysis of Twitter traffic

Prepared by Michael Ehrmann

The ECB's policies are actively discussed on social media. The ECB itself is an active player, posting material on its social media channels, but ECB-related social media posts originate from many different sources, with experts and non-experts both contributing. An analysis of Twitter traffic that comments on the ECB and its policies can help shed light on who is contributing to these discussions and how they respond to the ECB's communication. This box provides such an analysis, based on a dataset of tweets that mention the ECB and the Twitter accounts from which they were posted. The dataset is studied in Ehrmann and Wabitsch (2021) and contains tweets written in English and in German.[33]

31 See Newman, N., Fletcher, R., Schulz, A., Andi, S. and Nielsen, R. K., "Reuters Institute Digital News Report", 2020.

32 This figure does not refer to unique followers across social media platforms. In other words, one person might follow the ECB on multiple social media channels.

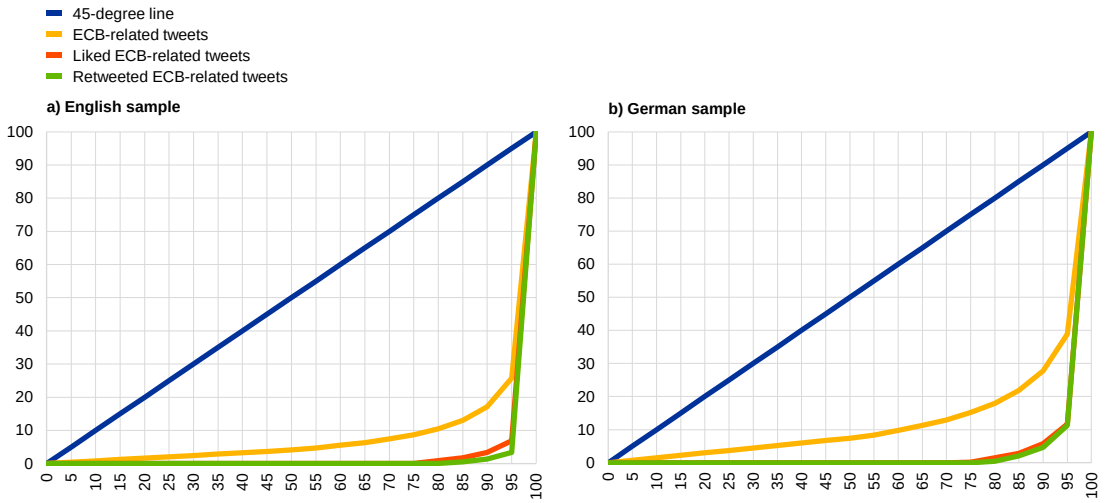
33 See Ehrmann, M. and Wabitsch, A., "Central bank communication with non-experts: a road to nowhere?", *Working Paper Series,* No 2594, ECB, October 2021.

A small number of Twitter accounts generates most of the ECB-related traffic, and an even smaller number constitutes the most influential opinion-makers. This can be seen in Chart A. The yellow line plots how the contribution to ECB-related Twitter traffic is distributed across the various Twitter accounts. The chart, which shows what is known as a Lorenz curve, reveals that most of the Twitter traffic stems from relatively few accounts. For instance, the top 5% of accounts generate 74% of tweets in English and 61% of tweets in German. This is far from a situation where each account contributes in equal proportion, a hypothetical case that is represented by the blue line in the chart. What is more, the top 5% Twitter accounts are responsible for 93% of tweets in English that get "liked" and for 97% of tweets that get retweeted. For tweets in German the top 5% Twitter accounts are responsible for 89% of retweeted tweets and likes.

Chart A

Distribution of tweets across Twitter accounts

(x-axis: cumulative share of accounts; y-axis: cumulative share of tweets)



Source: Ehrmann and Wabitsch (2021).
Notes: The chart shows the Lorenz curve of ECB-related Twitter activity in English and German, respectively. The 45-degree line (in blue) represents a hypothetical case where each account contributes to the Twitter traffic in equal proportion. The yellow line shows the distribution of tweets about the ECB, the red line the distribution of tweets about the ECB that got "liked" by other Twitter accounts, and the green line the distribution of tweets about the ECB that got retweeted by other users. Based on data covering the years 2012-2018.

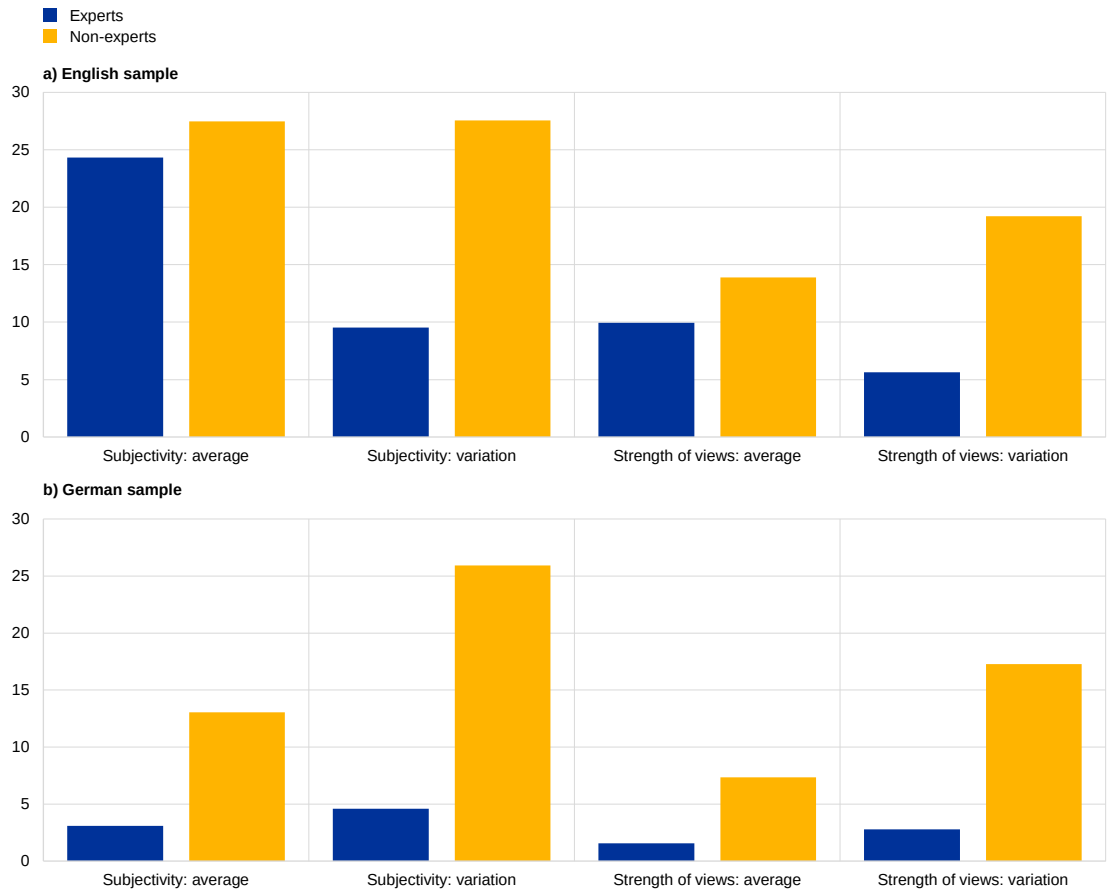
A more granular picture can be obtained by splitting the contributions into those stemming from experts in monetary policy matters and those written by non-experts. Differentiating these two groups is possible with a few assumptions: experts issue tweets regularly on the days of the ECB press conference, whereas non-experts do so more occasionally and post tweets about various topics, leading to a low ECB-centricity in their overall tweets.

Chart B shows how ECB-related tweets differ across expert and non-expert groups. It shows that, on average, tweets by non-experts are more subjective and express stronger views. This difference is relatively small for tweets in English, but more pronounced for those in German. The chart also plots the standard deviation of the average sentiment expressed by each Twitter account, i.e. it measures how different the sentiment is across Twitter accounts in each group. The differences between experts and non-experts are notable. Tweets issued by experts are much more aligned in terms of their subjectivity and the strength of views expressed than tweets by non-experts. This shows that tweets by non-experts reflect a much larger spectrum of views.

Chart B

Sentiment expressed in ECB-related tweets

(index ranging from 0-100)



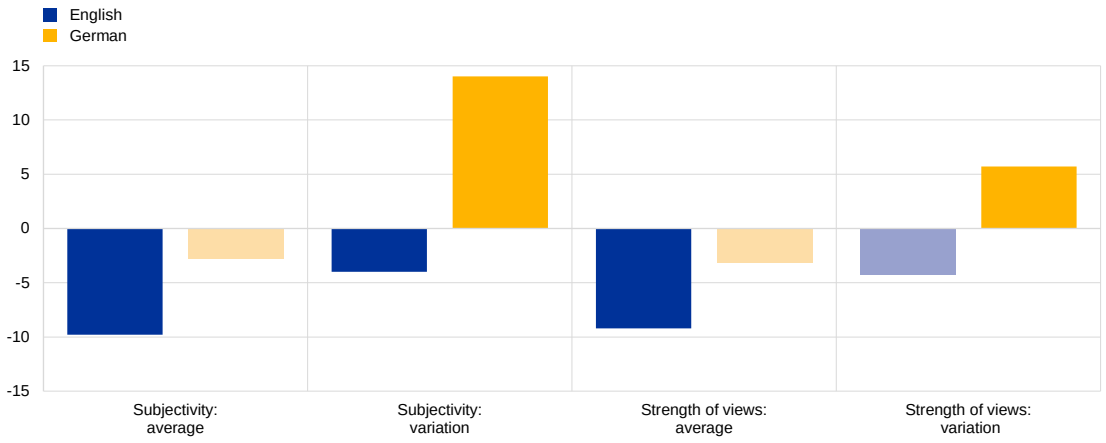
Source: Ehrmann and Wabitsch (2021).
Notes: The chart shows summary statistics for tweets issued by experts and by non-experts, in English and German respectively. Subjectivity and strength of views are measured based on a dictionary approach, and are restricted to lie between 0 and 100. The English lexicon is based on Princeton University's WordNet, the German lexicon on the German equivalent GermaNet. Being based on two different dictionaries, sentiment in English and German tweets is not directly comparable. Words that indicate subjectivity are, for instance, "terrible" or "actual", which yield subjectivity values of 100 and 0, respectively. Indicators for the strength of views are, for instance, "awful", "marvellous" or "consistent", which yield values of 100, 100 and 0, respectively. For both sentiment measures, the chart plots i) the average across all ECB-related tweets and ii) the standard deviation of the account-specific average sentiment measure as a measure of variation. Based on data covering the years 2012-2018.

How does sentiment respond to the ECB's communication? Chart C provides some estimates for the case of the ECB's press conference, around which Twitter traffic is elevated for several days, before and after the event. As Chart C shows, the reaction of non-experts' tweets in English and in German is quite different. Tweets in English become considerably more factual, and the views more moderate. In addition, there is less dispersion in subjectivity. This pattern suggests that tweets in English mainly relay information about the press conference. In contrast, tweets in German do not become significantly more factual, nor more moderate. At the same time, the increase in the variation of subjectivity and in the variation of the strength of views reveals that the views expressed become substantially more heterogeneous across Twitter accounts. Tweets in German around the time of the ECB press conference, therefore, seem to reflect a more controversial discussion among Twitter users.

Chart C

Change in sentiment in non-experts' tweets around the ECB press conference

(response coefficients)



Source: Ehrmann and Wabitsch (2021).
Notes: The chart shows the responsiveness of the sentiment expressed in non-experts' tweets in English and German, respectively, to the ECB's press conference. Response coefficients that are statistically significant at least at the 10% level are plotted in dark shaded colours. Based on data covering the years 2012-2018.

Even though the reception of the ECB's press conference by non-experts is different in the two languages, there is one common pattern that is important: Twitter traffic by non-experts intensifies around the time of the ECB's press conference, which suggests that the ECB's communication gets noticed and is discussed by non-experts. This implies that the first necessary step on the way to successful communication, namely that the sender manages to reach the intended recipient, is being taken.

Modernising ECB communication

Big economic, societal, and technological changes that are shaping a radically altered communications landscape are inevitably driving a further evolution in ECB communication. These trends include a loss of trust in expert authority[34], a 24-hour news cycle and greater controversy around and politicisation of central bank actions.[35] Moreover, as outlined in Chapter 2, more concerted engagement efforts are necessary to build knowledge and ultimately trust. To that end, the ECB's Governing Council decided, in the context of its recent strategy review, to adapt the substance, style and operational model of its monetary policy communication.

The Governing Council has made its monetary policy communication more accessible by replacing its "introductory statement" with the new "monetary policy statement", which is more streamlined and has a stronger narrative. Chart 14 shows how the length and complexity of monetary policy statements issued

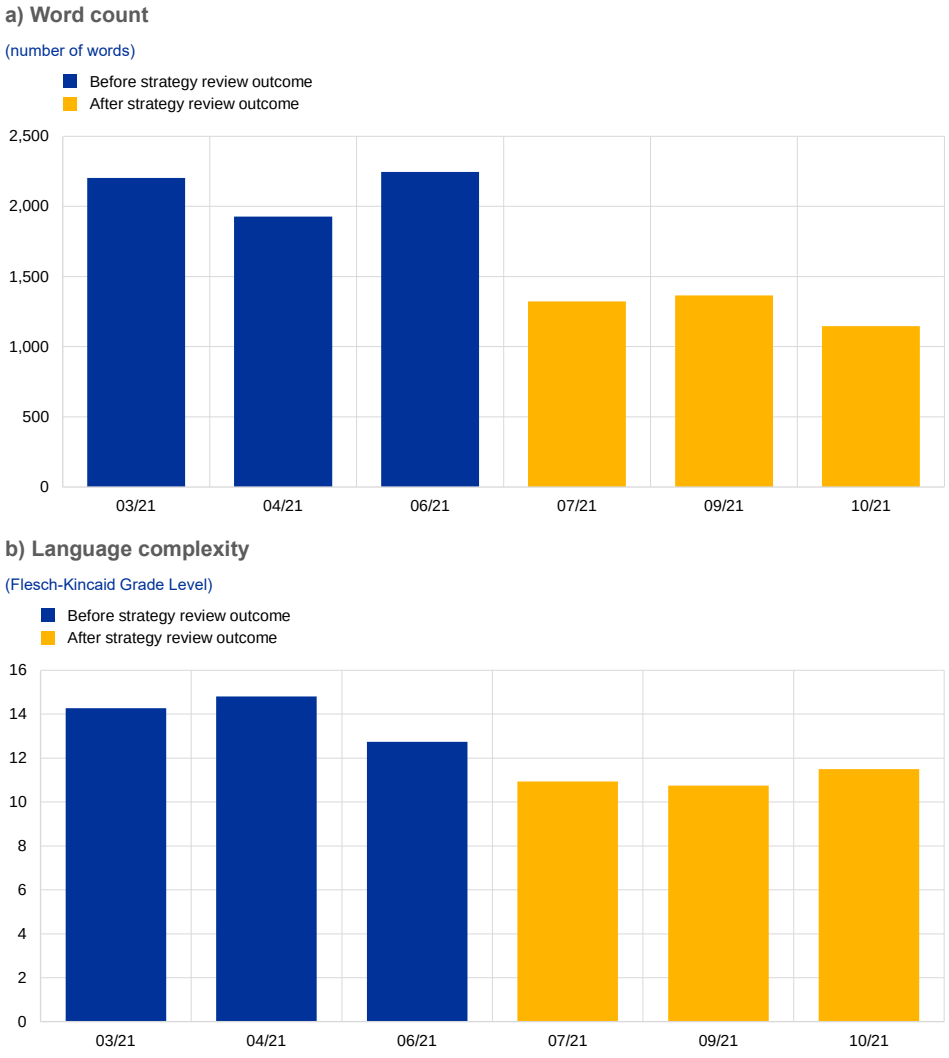
34 See Jacobs, R., "The downfall (and possible salvation) of expertise", *Chicago Booth Review*, November 2020.

35 See Moschella, M., Pinto, L. and Martocchia Diodati, N., "Let's speak more? How the ECB responds to public contestation", *Journal of European Public Policy*, Vol 27, No 3, 2020, pp. 400-418.

before the strategy review had concluded compare with those issued after the strategy review outcome measures had been implemented. Chart 15 shows the length and complexity of monetary policy communication over time, indicating that recent monetary policy statements are more accessible than previous ones.[36]

Chart 14

The ECB monetary policy statement: before and after

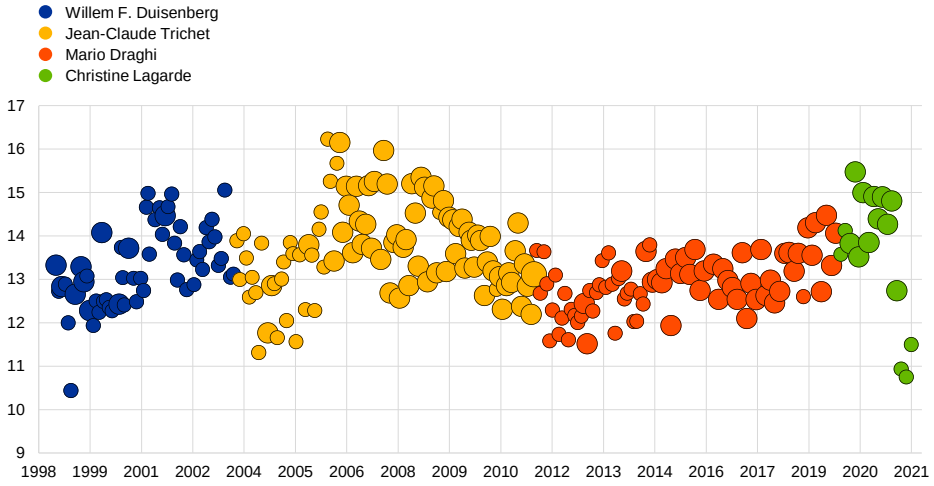


Source: ECB data.
Notes: The chart displays the length and the complexity of the last three monetary policy statements (until June 2021 "introductory statement") before the announcement of the outcome of the ECB strategy review (8 July 2021) and the first three following it. The difficulty of the language employed is measured using the Flesch-Kincaid Grade Level score, which indicates how many years of formal training are required to understand the text, based on the length of its sentences and words.

[36] See Coenen, G., Ehrmann, M., Gaballo, G., Hoffmann, P., Nakov, A., Nardelli, S., Persson, E. and Strasser, G., "Communication of monetary policy in unconventional times", *Working Paper Series*, No 2080, ECB, Frankfurt am Main, June 2017.

Chart 15

Complexity of ECB monetary policy statements



Source: Updated data (October 2021) from analysis in Coenen et al. (2017).
Notes: The figure depicts the length and the complexity of the ECB's monetary policy statements (until June 2021 "introductory statement"). The length is measured by the number of words (indicated by circle size). The difficulty of the language employed is measured using the Flesch-Kincaid Grade Level score, which indicates how many years of formal training are required to understand the text, based on the length of its sentences and words.

In addition, the Governing Council decided to complement its monetary policy communication with "layered" communication, which relays the same core information in a more accessible and visual way. Research indicates that accessible, visualised and relatable monetary policy communication improves public comprehension and also trust.[37] Applying these findings to the ECB's monetary policy communication, a new visual monetary policy statement was added to explain the ECB's latest decision in a more attractive and simpler format, and in all 24 official EU languages. Using storytelling techniques, relatable visuals and language, the visual monetary policy statement aims to make the ECB's policy decisions more accessible to non-expert audiences across the entire euro area. [38]

As a result of the strategy review the Governing Council also decided to make outreach events a structural feature of its interaction with the wider public.[39] These outreach events build upon the positive experiences of the Eurosystem's "listening" events, involving academics, civil society organisations and the wider public, which took place during the strategy review. Via the "ECB Listens Portal" alone, the ECB received about 4,000 responses.[40] The views, suggestions and concerns received during these events formed a key input into the Governing Council's decision to modernise the ECB's monetary policy communication.

37 Bholat, D., Broughton, N., Ter Meer, J. and Walczak, E., "Enhancing central bank communications using simple and relatable information", *Journal of Monetary Economics*, 2019, pp. 1-15.

38 See, for example, the visual monetary policy statement of the ECB's latest decisions, ECB, September 2021.

39 See "An overview of the ECB's Monetary Policy Strategy", ECB, 8 July 2021.

40 See the ECB Listens Portal.

4 Conclusion

Central bank communication with expert audiences and the wider public plays an important role in influencing expectations and sustaining trust, thereby making monetary policy more effective and helping to ensure the legitimacy of independent monetary institutions. To ensure the effectiveness of the ECB's monetary policy, clear and consistent communication targeted at expert audiences will remain essential. At the same time, greater efforts to "get through" to the wider public will help increase the impact of the ECB's monetary policy communication.

This article has examined the receiving and sending ends of the ECB's communication with the wider public, and the elements that facilitate communication between those two ends. The analysis highlighted the sheer diversity of the ECB's audience and made the case that ECB communication needs to be adjusted accordingly. Research suggests that more accessible, relatable and visual communication can increase the impact of the central bank's messages.

The strategy review's outcome has led to the introduction of more understandable, relatable and visual monetary policy communication. This article has shown that the readability of the ECB's new "monetary policy statement" is noticeably better than the "introductory statement" that preceded it. In turn, the visual monetary policy statement introduces a layer of more accessible communication that allows the ECB to better reach the wider public.

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
2018	3.6	2.9	1.7	0.6	6.7	1.8	2.6	2.1	2.4	2.5	1.0	2.1	1.8
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	-3.3	-3.4	-9.7	-4.5	2.3	-6.4	1.4	1.8	1.2	0.9	0.0	2.5	0.3
2020 Q4	1.9	1.1	1.1	2.3	3.2	-0.4	1.2	1.6	1.2	0.5	-0.8	0.1	-0.3
2021 Q1	0.9	1.5	-1.4	-0.7	0.2	-0.2	1.9	1.7	1.9	0.6	-0.5	0.0	1.1
Q2	0.4	1.6	5.5	0.5	1.2	2.2	3.7	2.8	4.8	2.0	-0.8	1.1	1.8
Q3	1.7	0.5	1.3	-0.9	0.2	2.2	4.4	3.1	5.3	2.8	-0.2	0.8	2.8
2021 June	-	-	-	-	-	-	4.0	3.1	5.4	2.5	-0.5	1.1	1.9
July	-	-	-	-	-	-	4.2	3.1	5.4	2.0	-0.3	1.0	2.2
Aug.	-	-	-	-	-	-	4.3	3.1	5.3	3.2	-0.4	0.8	3.0
Sep.	-	-	-	-	-	-	4.6	3.2	5.4	3.1	0.2	0.7	3.4
Oct.	-	-	-	-	-	-	5.2	3.5	6.2	4.2	0.1	1.5	4.1
Nov. [3]	-	-	-	-	-	-	.	.	6.8	.	.	.	4.9

Sources: Eurostat (col. 6, 13); BIS (col. 9, 10, 11, 12); OECD (col. 1, 2, 3, 4, 5, 7, 8).
1) Quarterly data seasonally adjusted; annual data unadjusted.
2) Data refer to the changing composition of the euro area.
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
2018	53.4	55.0	53.3	52.1	52.3	54.6	53.1	53.8	50.8	4.3	3.2	5.6
2019	51.7	52.5	50.2	50.5	51.8	51.3	50.3	52.2	48.8	-0.4	-0.3	-0.4
2020	47.5	48.8	46.5	42.4	51.4	44.0	48.5	46.3	45.3	-4.2	-4.5	-3.8
2020 Q4	54.2	56.8	50.5	48.2	56.3	48.1	54.6	54.0	50.8	5.3	5.2	5.4
2021 Q1	54.3	59.3	49.1	48.4	52.3	49.9	53.8	54.5	50.3	3.9	1.8	6.2
Q2	57.5	65.3	61.9	49.6	53.0	56.8	53.9	58.8	52.9	1.7	1.4	1.9
Q3	53.0	56.8	56.3	47.4	50.6	58.4	51.8	53.4	50.3	-1.2	-0.5	-1.9
2021 June	56.1	63.7	62.2	48.9	50.6	59.5	52.9	57.2	51.7	1.7	1.4	1.9
July	54.9	59.9	59.2	48.8	53.1	60.2	53.2	55.5	51.4	-0.4	0.4	-1.2
Aug.	51.2	55.4	54.8	45.5	47.2	59.0	50.6	51.5	49.5	-0.8	-0.3	-1.4
Sep.	52.8	55.0	54.9	47.9	51.4	56.2	51.4	53.2	50.1	-1.2	-0.5	-1.9
Oct.	54.7	57.6	57.8	50.7	51.5	54.2	51.2	55.9	49.7	.	.	.
Nov.	54.8	57.2	.	53.3	51.2	55.4	52.4	55.6	50.7	.	.	.

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)	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
2018	-0.45	-0.36	-0.37	-0.32	-0.27	-0.17	2.31	-0.05
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 May	-0.56	-0.48	-0.56	-0.54	-0.51	-0.48	0.15	-0.09
June	-0.56	-0.48	-0.55	-0.54	-0.51	-0.48	0.13	-0.09
July	-0.57	-0.48	-0.56	-0.54	-0.52	-0.49	0.13	-0.08
Aug.	-0.57	-0.48	-0.56	-0.55	-0.53	-0.50	0.12	-0.10
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

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.

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
2018	-0.80	-0.75	-0.66	-0.26	0.32	1.07	0.08	0.51	-0.67	-0.45	0.44	1.17
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 May	-0.63	-0.68	-0.69	-0.54	-0.15	0.53	1.54	0.75	-0.72	-0.67	-0.16	0.57
June	-0.65	-0.69	-0.70	-0.56	-0.20	0.49	1.40	0.68	-0.72	-0.68	-0.22	0.45
July	-0.66	-0.75	-0.80	-0.75	-0.44	0.31	1.16	0.52	-0.83	-0.86	-0.50	0.16
Aug.	-0.68	-0.73	-0.77	-0.68	-0.39	0.34	1.24	0.56	-0.79	-0.79	-0.43	0.16
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

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 May	443.8	4,003.6	959.5	290.0	183.0	94.8	167.8	808.7	811.7	384.1	278.3	870.2	4,169.6	28,517.1
June	455.3	4,105.8	958.5	305.3	188.6	97.4	168.5	831.8	850.4	375.9	287.2	883.4	4,238.5	28,943.2
July	453.8	4,062.6	979.0	300.5	190.2	91.2	162.2	835.4	875.2	372.0	290.2	896.1	4,363.7	28,118.8
Aug.	468.5	4,177.0	1,014.5	303.3	191.9	91.6	169.0	865.0	938.2	380.0	303.6	922.1	4,454.2	27,692.7
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

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
2020 Nov.	0.02	0.35	0.20	0.71	5.11	15.77	5.01	5.25	5.90	2.04	1.37	1.54	1.29	1.35	1.63	1.35
Dec.	0.01	0.35	0.17	0.72	4.99	15.77	4.93	5.08	5.71	1.93	1.35	1.52	1.27	1.33	1.62	1.32
2021 Jan.	0.01	0.35	0.22	0.68	5.00	15.80	4.84	5.32	5.87	1.91	1.35	1.49	1.29	1.35	1.60	1.33
Feb.	0.01	0.35	0.23	0.66	5.01	15.74	5.05	5.25	5.86	1.98	1.30	1.48	1.27	1.32	1.59	1.31
Mar.	0.01	0.35	0.20	0.61	4.98	15.77	4.88	5.12	5.72	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	15.75	5.16	5.17	5.78	1.98	1.32	1.49	1.27	1.31	1.59	1.31
May	0.01	0.34	0.18	0.57	4.88	15.76	5.16	5.31	5.93	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	15.71	5.16	5.15	5.77	1.94	1.31	1.43	1.26	1.30	1.60	1.32
July	0.01	0.34	0.19	0.58	4.77	15.67	5.31	5.24	5.85	1.98	1.34	1.45	1.27	1.30	1.61	1.32
Aug.	0.01	0.34	0.17	0.59	4.83	15.71	5.70	5.30	5.90	2.04	1.33	1.47	1.24	1.28	1.59	1.32
Sep.	0.01	0.34	0.18	0.57	4.89	15.64	5.43	5.24	5.87	1.93	1.32	1.46	1.25	1.29	1.58	1.30
Oct. [(p)]	0.01	0.34	0.19	0.58	4.81	15.62	5.53	5.21	5.83	2.01	1.32	1.47	1.26	1.30	1.60	1.31

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
2020 Nov.	-0.01	-0.20	0.42	1.83	1.97	2.00	1.98	1.57	1.41	1.47	1.22	1.29	1.30	1.51
Dec.	-0.01	-0.18	0.25	1.83	2.01	1.94	1.94	1.61	1.42	1.44	1.34	1.23	1.27	1.51
2021 Jan.	-0.01	-0.14	0.39	1.84	2.14	2.00	1.92	1.61	1.44	1.41	1.17	1.18	1.29	1.50
Feb.	-0.01	-0.21	0.25	1.84	1.96	2.00	1.95	1.58	1.44	1.43	1.15	1.22	1.23	1.48
Mar.	-0.01	-0.11	0.22	1.82	1.91	1.97	2.02	1.56	1.45	1.40	1.09	0.71	1.23	1.39
Apr.	-0.01	-0.18	0.25	1.80	2.04	1.96	1.98	1.57	1.44	1.40	1.32	1.33	1.38	1.56
May	-0.01	-0.23	0.19	1.79	1.87	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	1.84	1.89	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	1.72	1.82	2.14	2.00	1.59	1.43	1.37	1.28	1.32	1.16	1.48
Aug.	-0.03	-0.35	0.17	1.76	1.79	1.94	2.02	1.56	1.45	1.37	1.23	1.11	1.14	1.44
Sep.	-0.03	-0.35	0.15	1.78	1.80	2.00	2.00	1.52	1.43	1.34	1.27	1.25	1.28	1.49
Oct. [(p)]	-0.03	-0.36	0.17	1.73	1.81	2.09	2.00	1.55	1.51	1.33	1.15	1.15	1.24	1.43

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														
2018	1,215	503	170	.	72	424	47	389	171	66	.	41	76	35
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 May	1,536	463	151	.	100	692	130	410	187	48	.	37	105	33
June	1,542	481	152	.	90	694	126	451	216	56	.	34	106	39
July	1,539	478	148	.	101	688	124	470	224	44	.	39	113	50
Aug.	1,538	493	146	.	99	678	121	415	232	40	.	25	93	25
Sep.	1,568	506	139	.	99	697	127	473	220	44	.	39	124	46
Oct.	1,517	478	133	.	103	686	117	418	202	39	.	41	105	32
Long-term														
2018	15,748	3,688	3,162	.	1,249	7,022	627	228	64	68	.	15	75	6
2019	16,315	3,817	3,397	.	1,324	7,152	626	247	69	74	.	20	78	7
2020	17,290	3,892	3,203	.	1,464	8,006	725	296	68	71	.	27	114	16
2021 May	17,908	3,946	3,311	.	1,489	8,393	769	269	46	69	.	21	121	12
June	18,092	3,980	3,361	.	1,498	8,473	780	341	75	87	.	29	136	15
July	18,186	3,992	3,397	.	1,502	8,515	780	302	56	99	.	18	119	10
Aug.	18,222	3,990	3,398	.	1,500	8,554	779	134	27	34	.	4	66	3
Sep.	18,322	4,021	3,433	.	1,521	8,558	788	316	72	92	.	22	114	15
Oct.	18,407	4,038	3,499	.	1,530	8,553	787	293	64	102	.	22	92	13

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											
2018	16,962.7	4,190.4	3,332.4	.	1,320.6	7,445.8	673.5	7,023.4	465.0	1,099.2	5,459.2
2019	17,598.1	4,367.4	3,577.7	.	1,408.5	7,558.1	686.5	8,586.6	538.4	1,410.6	6,637.6
2020	18,819.0	4,346.8	3,347.6	.	1,561.1	8,720.3	843.3	8,448.2	469.3	1,321.5	6,657.4
2021 May	19,444.5	4,409.7	3,462.1	.	1,588.4	9,085.1	899.2	9,646.8	575.7	1,508.7	7,562.4
June	19,633.4	4,461.5	3,512.9	.	1,587.7	9,166.3	905.1	9,773.2	564.9	1,521.5	7,686.9
July	19,724.5	4,469.9	3,544.5	.	1,602.6	9,202.9	904.7	9,895.0	559.2	1,526.8	7,809.0
Aug.	19,759.4	4,483.2	3,544.4	.	1,599.5	9,232.7	899.6	10,166.4	587.9	1,612.9	7,965.7
Sep.	19,890.1	4,527.2	3,572.4	.	1,620.0	9,255.6	914.9	9,899.5	597.2	1,616.9	7,685.4
Oct.	19,924.3	4,516.5	3,631.8	.	1,632.7	9,239.3	904.0	10,296.1	613.8	1,701.4	7,980.9
Growth rate											
2018	1.9	1.7	3.0	.	3.3	1.9	-4.3	0.7	0.3	2.4	0.4
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	.	12.4	10.9	24.3	1.1	0.1	3.1	0.8
2021 May	5.6	0.1	5.1	.	5.4	8.1	12.3	2.1	1.5	6.1	1.3
June	4.5	-0.3	4.4	.	4.1	6.6	9.7	2.3	1.9	6.4	1.5
July	4.6	0.3	5.2	.	3.7	6.1	10.1	2.3	1.9	6.5	1.5
Aug.	4.0	0.8	4.0	.	3.4	5.3	9.2	2.3	1.8	7.7	1.3
Sep.	4.1	1.1	4.6	.	3.7	5.0	8.6	2.4	1.8	8.0	1.4
Oct.	4.3	1.2	5.5	.	4.0	5.3	5.6	2.2	1.7	6.3	1.4

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
2018	99.9	95.5	94.1	90.7	80.5	89.6	117.3	94.9
2019	98.1	93.1	92.9	88.9	77.4	87.2	115.4	92.3
2020	99.6	93.5	94.1	89.3	76.5	87.8	119.4	93.8
2020 Q4	101.2	94.6	95.4	90.3	73.8	88.2	122.3	95.5
2021 Q1	100.7	94.6	95.2	90.0	73.5	87.8	121.7	95.3
Q2	100.5	94.1	94.9	88.8	72.0	85.9	121.9	94.9
Q3	99.5	93.3	94.3	.	.	.	120.5	94.0
2021 June	100.2	93.7	94.7	-	-	-	121.5	94.5
July	99.7	93.5	94.5	-	-	-	120.8	94.2
Aug.	99.3	93.2	94.1	-	-	-	120.4	93.9
Sep.	99.4	93.2	94.2	-	-	-	120.4	93.8
Oct.	98.4	92.4	92.9	-	-	-	119.5	93.1
Nov.	97.6	92.0	91.8	-	-	-	118.8	92.9
Percentage change versus previous month								
2021 Nov.	-0.9	-0.4	-1.2	-	-	-	-0.6	-0.2
Percentage change versus previous year								
2021 Nov.	-3.0	-2.3	-3.1	-	-	-	-2.3	-2.2

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
2018	7.808	7.418	25.647	7.453	318.890	130.396	4.261	0.885	4.6540	10.258	1.155	1.181
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
2020 Q4	7.901	7.559	26.667	7.443	360.472	124.607	4.505	0.903	4.8718	10.268	1.078	1.193
2021 Q1	7.808	7.572	26.070	7.437	361.206	127.806	4.546	0.874	4.8793	10.120	1.091	1.205
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
2021 June	7.739	7.498	25.454	7.436	349.937	132.631	4.501	0.859	4.9238	10.117	1.094	1.205
July	7.654	7.503	25.636	7.437	357.257	130.349	4.562	0.856	4.9255	10.198	1.086	1.182
Aug.	7.624	7.496	25.470	7.437	351.843	129.284	4.569	0.853	4.9232	10.216	1.076	1.177
Sep.	7.601	7.492	25.392	7.436	352.514	129.656	4.568	0.857	4.9471	10.171	1.086	1.177
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
Percentage change versus previous month												
2021 Nov.	-2.1	0.1	-0.4	0.0	1.0	-0.8	1.2	0.1	0.0	-0.1	-1.7	-1.6
Percentage change versus previous year												
2021 Nov.	-6.7	-0.6	-4.1	-0.1	1.3	5.3	3.4	-5.4	1.6	-1.8	-2.4	-3.6

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)												
2020 Q3	28,047.3	28,661.8	-614.5	11,135.6	9,375.6	9,995.2	12,597.2	-103.7	6,110.7	6,689.0	909.5	15,163.2
Q4	28,366.3	28,991.0	-624.7	11,051.2	9,359.9	10,692.6	12,893.1	-94.2	5,836.9	6,738.0	879.7	14,854.7
2021 Q1	29,644.2	30,313.3	-669.1	11,385.0	9,473.4	11,435.3	13,696.1	-134.1	6,108.5	7,143.7	849.4	15,485.7
Q2	30,098.3	30,694.6	-596.3	11,348.2	9,453.7	11,947.6	14,079.2	-126.2	6,059.7	7,161.7	869.0	15,399.0
Outstanding amounts as a percentage of GDP												
2021 Q2	254.9	260.0	-5.1	96.1	80.1	101.2	119.2	-1.1	51.3	60.7	7.4	130.4
Transactions												
2020 Q4	80.6	-48.2	128.8	-59.1	45.4	348.7	-225.1	-14.5	-196.6	131.5	2.1	-
2021 Q1	523.0	425.0	97.9	100.7	-7.1	266.3	178.8	6.4	152.6	253.4	-3.1	-
Q2	184.3	83.6	100.7	-37.2	-38.0	227.6	67.0	8.5	-22.1	54.6	7.5	-
Q3	335.8	290.2	45.6	30.2	-41.8	126.4	70.1	-7.3	63.4	261.8	123.2	-
2021 Apr.	200.6	193.9	6.7	30.1	12.1	56.4	33.1	4.5	109.0	148.8	0.7	-
May	14.0	-26.3	40.3	-51.3	-58.4	75.2	-2.0	-2.1	-9.1	34.1	1.4	-
June	-30.4	-84.1	53.7	-16.0	8.3	96.0	35.9	6.2	-121.9	-128.2	5.3	-
July	143.3	101.1	42.1	23.6	-10.4	22.6	41.1	8.9	88.5	70.4	-0.3	-
Aug.	184.4	183.4	1.0	5.7	-8.8	44.8	22.6	-6.7	18.5	169.6	122.1	-
Sep.	8.1	5.7	2.5	0.9	-22.6	58.9	6.4	-9.5	-43.6	21.9	1.5	-
12-month cumulated transactions												
2021 Sep.	1,123.6	750.6	373.0	34.6	-41.6	969.0	90.8	-6.9	-2.7	701.4	129.6	-
12-month cumulated transactions as a percentage of GDP												
2021 Sep.	9.4	6.3	3.1	0.3	-0.3	8.1	0.8	-0.1	0.0	5.8	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)											
2018	11,600.2	11,132.8	6,223.1	2,369.5	2,430.6	1,177.5	746.1	500.5	109.6	467.4	5,571.6	5,104.2
2019	11,982.7	11,577.1	6,378.5	2,456.6	2,652.5	1,253.7	770.3	621.7	89.4	405.6	5,765.4	5,359.7
2020	11,400.4	10,976.4	5,902.0	2,573.5	2,494.9	1,216.3	681.9	589.7	6.1	424.0	5,173.4	4,749.5
2020 Q4	2,927.3	2,787.0	1,486.4	660.9	641.9	318.6	183.2	138.4	-2.3	140.3	1,364.7	1,224.4
2021 Q1	2,939.5	2,806.3	1,469.7	662.4	646.6	325.3	185.5	134.0	27.6	133.2	1,401.5	1,268.3
Q2	3,010.8	2,888.2	1,531.1	675.6	661.7	337.5	187.5	134.9	19.7	122.6	1,464.6	1,341.9
Q3	3,110.8	2,981.6	1,606.7	685.1	668.7	343.5	186.7	136.7	21.1	129.1	1,521.4	1,392.2
	as a percentage of GDP											
2020	100.0	96.3	51.8	22.6	21.9	10.7	6.0	5.2	0.1	3.7	-	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2020 Q4	-0.4	-0.4	-3.0	0.8	2.7	1.7	1.9	6.4	-	-	4.3	4.8
2021 Q1	-0.2	-0.3	-2.3	-0.6	0.0	0.5	1.8	-3.7	-	-	1.2	1.0
Q2	2.2	2.4	3.9	2.1	1.3	1.9	0.4	0.8	-	-	2.4	2.9
Q3	2.2	2.0	4.1	0.3	-0.9	-0.9	-1.5	0.1	-	-	1.2	0.7
	annual percentage changes											
2018	1.8	1.8	1.5	1.1	3.1	3.9	3.7	0.4	-	-	3.6	3.8
2019	1.6	2.5	1.3	1.8	6.7	3.3	1.8	22.0	-	-	2.7	4.7
2020	-6.4	-6.2	-7.9	1.3	-7.0	-4.6	-12.0	-5.9	-	-	-9.1	-9.1
2020 Q4	-4.4	-6.5	-7.6	3.2	-10.1	-0.4	-4.7	-30.7	-	-	-4.8	-9.3
2021 Q1	-1.1	-3.8	-5.6	2.8	-6.0	2.7	6.9	-31.5	-	-	-0.1	-5.7
Q2	14.4	12.3	12.2	7.8	18.5	19.7	30.1	3.5	-	-	25.9	21.6
Q3	3.9	3.7	2.5	2.6	3.1	3.2	2.5	3.5	-	-	9.4	9.7
	contributions to quarter-on-quarter percentage changes in GDP; percentage points											
2020 Q4	-0.4	-0.3	-1.6	0.2	0.6	0.2	0.1	0.3	0.5	0.0	-	-
2021 Q1	-0.2	-0.3	-1.2	-0.1	0.0	0.1	0.1	-0.2	1.0	0.1	-	-
Q2	2.2	2.3	1.9	0.5	0.3	0.2	0.0	0.0	-0.4	-0.1	-	-
Q3	2.2	1.9	2.1	0.1	-0.2	-0.1	-0.1	0.0	-0.1	0.3	-	-
	contributions to annual percentage changes in GDP; percentage points											
2018	1.8	1.7	0.8	0.2	0.6	0.4	0.2	0.0	0.1	0.1	-	-
2019	1.6	2.4	0.7	0.4	1.4	0.3	0.1	0.9	-0.1	-0.8	-	-
2020	-6.4	-6.0	-4.2	0.3	-1.5	-0.5	-0.8	-0.3	-0.5	-0.4	-	-
2020 Q4	-4.4	-6.4	-4.0	0.7	-2.4	0.0	-0.3	-2.0	-0.6	2.0	-	-
2021 Q1	-1.1	-3.7	-2.9	0.6	-1.4	0.3	0.4	-2.1	0.0	2.5	-	-
Q2	14.4	11.9	6.3	1.9	3.9	2.1	1.7	0.2	-0.2	2.5	-	-
Q3	3.9	3.5	1.3	0.6	0.7	0.3	0.2	0.2	1.0	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)											
2018	10,395.4	175.4	2,055.6	525.8	1,963.1	499.9	477.2	1,170.0	1,210.2	1,960.3	358.0	1,204.8
2019	10,741.0	178.5	2,100.8	561.2	2,041.4	531.2	478.9	1,204.6	1,249.7	2,025.5	369.2	1,241.7
2020	10,268.7	176.6	1,971.0	552.4	1,799.8	544.9	469.0	1,210.9	1,168.0	2,054.1	321.8	1,131.7
2020 Q4	2,634.0	43.7	521.7	146.7	458.4	139.5	117.2	305.6	301.7	522.0	77.5	293.3
2021 Q1	2,646.9	44.0	532.9	145.9	455.7	141.4	118.5	305.9	302.1	523.2	77.2	292.6
Q2	2,700.4	45.2	535.9	150.3	480.5	144.8	118.2	308.4	305.8	530.6	80.6	310.4
Q3	2,781.8	45.1	545.5	150.5	519.4	146.2	118.9	310.8	315.8	541.3	88.4	329.0
	as a percentage of value added											
2020	100.0	1.7	19.2	5.4	17.5	5.3	4.6	11.8	11.4	20.0	3.1	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2020 Q4	-0.4	0.6	3.5	2.0	-3.6	-1.0	-0.3	-0.4	1.7	-1.4	-11.5	0.0
2021 Q1	0.1	-2.8	1.0	-1.0	-1.0	2.0	1.3	-0.1	0.1	0.0	-0.4	-2.6
Q2	1.9	0.5	0.6	1.9	4.6	1.9	0.6	0.9	1.3	1.7	5.7	4.8
Q3	2.3	-1.0	0.1	-0.6	6.7	1.3	0.2	0.5	2.8	1.5	12.0	1.6
	annual percentage changes											
2018	1.8	-0.7	1.9	2.2	1.5	6.4	0.2	1.4	4.0	0.7	1.3	1.7
2019	1.6	1.7	0.2	2.1	2.5	5.7	0.4	1.5	1.7	1.1	1.7	1.6
2020	-6.3	-0.7	-6.8	-5.3	-13.7	1.2	-1.0	-0.8	-7.9	-2.9	-17.1	-6.5
2020 Q4	-4.5	-0.8	-1.2	-0.7	-12.8	1.2	-0.8	-0.7	-5.7	-1.5	-21.9	-3.6
2021 Q1	-1.3	-1.1	3.1	0.6	-8.1	3.6	1.4	0.1	-2.8	0.8	-16.5	0.4
Q2	14.3	-0.9	21.8	18.6	23.0	11.1	4.3	3.6	15.5	9.9	15.4	15.3
Q3	3.9	-2.7	5.2	2.2	6.5	4.1	1.8	0.9	6.1	1.9	4.2	3.8
	contributions to quarter-on-quarter percentage changes in value added; percentage points											
2020 Q4	-0.4	0.0	0.7	0.1	-0.6	-0.1	0.0	0.0	0.2	-0.3	-0.4	-
2021 Q1	0.1	0.0	0.2	-0.1	-0.2	0.1	0.1	0.0	0.0	0.0	0.0	-
Q2	1.9	0.0	0.1	0.1	0.8	0.1	0.0	0.1	0.1	0.3	0.2	-
Q3	2.3	0.0	0.0	0.0	1.2	0.1	0.0	0.1	0.3	0.3	0.4	-
	contributions to annual percentage changes in value added; percentage points											
2018	1.8	0.0	0.4	0.1	0.3	0.3	0.0	0.2	0.5	0.1	0.0	-
2019	1.6	0.0	0.0	0.1	0.5	0.3	0.0	0.2	0.2	0.2	0.1	-
2020	-6.3	0.0	-1.3	-0.3	-2.6	0.1	0.0	-0.1	-0.9	-0.5	-0.6	-
2020 Q4	-4.5	0.0	-0.2	0.0	-2.4	0.1	0.0	-0.1	-0.7	-0.3	-0.8	-
2021 Q1	-1.3	0.0	0.6	0.0	-1.5	0.2	0.1	0.0	-0.3	0.2	-0.6	-
Q2	14.3	0.0	4.0	1.0	3.8	0.6	0.2	0.5	1.7	2.0	0.5	-
Q3	3.9	0.0	1.0	0.1	1.2	0.2	0.1	0.1	0.7	0.4	0.1	-

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													
2018	100.0	85.9	14.1	3.1	14.6	6.0	25.0	2.9	2.4	1.0	14.0	24.3	6.8
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
annual percentage changes													
2018	1.6	1.9	0.0	-0.4	1.5	2.6	1.6	3.8	-1.0	2.4	2.8	1.4	0.3
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	0.5
2020	-1.5	-1.5	-1.7	-2.4	-1.8	0.7	-3.6	1.4	-0.5	-0.2	-2.4	0.9	-3.4
2020 Q4	-1.8	-1.8	-1.5	-1.5	-2.3	0.8	-4.7	1.6	-0.4	1.7	-2.2	1.2	-4.0
2021 Q1	-1.7	-1.8	-1.4	0.0	-2.2	1.4	-5.4	2.1	-0.5	1.3	-1.6	1.4	-4.8
Q2	2.0	2.4	-0.1	3.4	-0.4	4.8	0.5	4.6	0.7	2.2	4.5	2.7	1.6
Q3	2.0	2.3	0.5	0.9	0.3	3.0	1.5	5.5	0.7	1.4	4.4	2.1	1.0
Hours worked													
as a percentage of total hours worked													
2018	100.0	81.1	18.9	4.3	15.0	6.7	25.9	3.0	2.5	1.0	13.8	21.7	6.1
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	15.0	6.9	24.3	3.3	2.6	1.1	13.8	23.1	5.7
annual percentage changes													
2018	1.8	2.2	0.0	-0.1	1.5	3.2	1.8	3.8	-0.9	3.1	3.1	1.2	0.7
2019	1.0	1.3	-0.2	-3.3	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	-2.6	-7.5	-6.3	-13.7	-1.7	-2.8	-6.6	-8.0	-2.0	-13.4
2020 Q4	-6.3	-5.8	-8.8	-1.2	-5.5	-2.9	-13.5	-0.5	-1.7	-2.6	-5.6	-0.7	-12.4
2021 Q1	-2.8	-3.1	-1.6	2.0	-1.4	4.9	-11.1	1.8	1.0	3.4	-1.8	2.1	-8.5
Q2	16.3	14.9	23.2	7.7	14.7	25.3	23.8	11.7	6.2	20.1	18.5	8.3	25.0
Q3	3.0	3.3	1.8	-0.2	2.2	2.7	3.9	7.5	1.3	4.7	6.3	1.3	1.1
Hours worked per person employed													
annual percentage changes													
2018	0.1	0.3	0.0	0.3	-0.1	0.5	0.2	0.1	0.1	0.7	0.3	-0.2	0.4
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	-6.3	-5.6	-9.7	-0.3	-5.8	-7.0	-10.5	-3.1	-2.3	-6.4	-5.8	-2.9	-10.4
2020 Q4	-4.7	-4.0	-7.4	0.3	-3.3	-3.6	-9.2	-2.1	-1.2	-4.2	-3.5	-1.9	-8.7
2021 Q1	-1.1	-1.3	-0.1	2.0	0.8	3.5	-6.0	-0.4	1.4	2.1	-0.2	0.6	-3.9
Q2	14.0	12.2	23.3	4.2	15.1	19.6	23.1	6.8	5.5	17.5	13.4	5.5	23.0
Q3	1.0	1.0	1.3	-1.1	1.9	-0.2	2.3	1.9	0.5	3.3	1.9	-0.8	0.1

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			80.6		19.4		51.4		48.6		
2018	163.346	3.9	13.399	8.2	3.8	10.926	7.3	2.473	17.2	6.891	7.9	6.507	8.6	2.1
2019	164.125	3.6	12.419	7.6	3.3	10.114	6.8	2.306	16.0	6.363	7.3	6.056	7.9	2.2
2020	162.416	3.6	12.771	7.9	3.0	10.288	6.9	2.482	17.7	6.570	7.6	6.201	8.2	1.8
2020 Q4	163.149	3.6	13.107	8.0	3.2	10.630	7.1	2.478	17.8	6.751	7.8	6.356	8.3	1.9
2021 Q1	162.332	3.7	13.491	8.3	3.2	10.871	7.4	2.620	18.5	6.851	7.9	6.640	8.8	2.1
Q2	163.545	3.5	13.153	8.0	3.3	10.536	7.1	2.618	17.9	6.657	7.6	6.496	8.5	2.3
Q3	.	.	12.306	7.5	.	9.917	6.6	2.389	16.3	6.232	7.1	6.074	7.9	2.6
2021 May	-	-	13.105	8.0	-	10.551	7.1	2.554	17.7	6.613	7.6	6.492	8.5	-
June	-	-	12.787	7.8	-	10.265	6.9	2.522	17.3	6.431	7.4	6.356	8.3	-
July	-	-	12.477	7.6	-	10.063	6.7	2.413	16.5	6.288	7.2	6.189	8.1	-
Aug.	-	-	12.332	7.5	-	9.954	6.7	2.377	16.3	6.256	7.2	6.076	7.9	-
Sep.	-	-	12.109	7.4	-	9.733	6.5	2.376	16.1	6.152	7.0	5.957	7.8	-
Oct.	-	-	12.045	7.3	-	9.679	6.5	2.367	15.9	6.122	7.0	5.923	7.7	-

Sources: Eurostat and ECB calculations.

1) Where annual and quarterly Labour Force Survey data have not yet been published, they are estimated as simple averages of the monthly data. There is a break in series from the first quarter of 2021 due to the implementation of the Integrated European Social Statistics Regulation. Owing to technical issues with the introduction of the new German system of integrated household surveys, including the Labour Force Survey, the figures for the euro area include data from Germany, starting in the first quarter of 2020, which are not direct estimates from Labour Force Survey microdata, but based on a larger sample including data from other integrated household surveys.

2) Not seasonally adjusted.

3) The job vacancy rate is equal to the number of job vacancies divided by the sum of the number of occupied posts and the number of job vacancies, expressed as a percentage. Data are non-seasonally adjusted and cover industry, construction and services (excluding households as employers and extra-territorial organisations and bodies).

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													
2018	0.8	1.0	0.6	1.2	1.5	-1.4	1.7	1.6	1.4	2.0	0.7	4.9	0.9
2019	-1.3	-1.3	-2.4	-1.8	1.4	-2.1	2.1	2.4	1.0	3.7	0.8	3.0	1.8
2020	-8.6	-9.0	-7.4	-13.2	-4.7	-5.2	-5.7	-0.9	3.6	-2.4	-14.4	-8.7	-25.0
2020 Q4	-1.5	-1.6	1.5	-3.2	-2.6	-1.8	-1.2	1.6	4.5	1.3	-13.8	-5.9	-9.2
2021 Q1	3.5	3.6	4.8	5.2	0.5	0.6	2.9	2.4	2.6	3.2	-5.2	0.1	3.4
Q2	22.4	24.1	25.4	29.1	17.4	7.7	17.8	11.9	2.0	18.7	29.7	25.1	53.8
Q3	5.9	6.6	7.6	5.4	7.7	0.5	0.7	2.4	0.2	4.0	3.5	13.1	-23.5
2021 May	20.5	22.2	24.0	27.2	14.2	6.2	12.6	8.8	0.2	14.2	28.6	25.1	49.5
June	10.5	11.3	15.9	6.8	12.8	3.3	4.1	5.7	2.1	7.5	11.9	25.1	5.4
July	7.7	8.4	11.2	6.1	9.2	1.5	2.2	3.3	1.2	4.9	4.2	13.1	-22.0
Aug.	4.9	5.7	6.7	3.2	7.5	-0.5	-2.6	1.3	-1.4	3.3	1.4	13.1	-24.8
Sep.	5.1	5.6	4.9	6.2	6.6	0.5	1.5	2.6	0.8	3.7	4.8	13.1	-24.2
Oct.	3.3	3.9	2.1	5.2	6.3	-1.0	.	1.4	-1.2	2.5	8.5	.	-28.6
month-on-month percentage changes (s.a.)													
2021 May	-1.1	-0.8	-0.1	-2.5	-1.7	-2.5	0.2	4.2	-0.5	8.8	8.0	-	1.8
June	0.3	0.2	0.1	-1.4	3.0	-0.4	-0.9	1.9	-1.2	3.6	2.5	-	-0.4
July	1.2	1.3	0.3	2.7	1.2	-0.4	-0.9	-2.2	-0.5	-3.8	0.9	-	-5.9
Aug.	-1.7	-1.9	-1.4	-3.5	-1.9	0.6	-1.4	0.9	-0.8	2.4	-0.5	-	-3.8
Sep.	-0.2	-0.3	-0.2	-0.4	0.6	0.4	0.9	-0.4	0.8	-1.9	1.0	-	3.4
Oct.	1.1	1.2	-0.6	3.0	0.5	0.1	.	0.2	-0.1	0.4	1.3	-	-3.1

Sources: Eurostat, ECB calculations, ECB experimental statistics (col. 8) 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	99.3	-5.2	80.6	-11.6	-15.4	-8.6	7.3	-	51.2	52.5	53.0	52.8
2018	111.8	6.7	83.7	-4.8	7.2	1.3	15.2	90.4	54.9	54.7	54.5	54.6
2019	103.7	-5.2	82.0	-6.9	6.7	-0.5	10.8	90.5	47.4	47.8	52.7	51.3
2020	88.2	-14.4	74.0	-14.3	-7.4	-12.9	-16.5	86.3	48.6	48.0	42.5	44.0
2020 Q4	91.4	-8.8	76.9	-15.6	-8.3	-10.9	-15.4	85.7	54.6	56.7	45.0	48.1
2021 Q1	95.3	-2.4	80.0	-13.7	-5.9	-16.6	-14.8	85.8	58.4	58.5	46.9	49.9
Q2	114.3	11.7	82.7	-5.5	4.4	0.7	10.5	87.2	63.1	62.7	54.7	56.8
Q3	118.1	14.2	82.5	-4.6	5.7	3.5	16.9	88.5	60.9	58.6	58.4	58.4
2021 June	117.9	12.8	-	-3.3	5.2	4.7	17.9	-	63.4	62.6	58.3	59.5
July	119.0	14.5	83.0	-4.4	4.0	4.4	18.9	88.0	62.8	61.1	59.8	60.2
Aug.	117.6	13.8	-	-5.3	5.5	4.6	16.8	-	61.4	59.0	59.0	59.0
Sep.	117.8	14.1	-	-4.0	7.5	1.4	15.2	-	58.6	55.6	56.4	56.2
Oct.	118.6	14.2	82.1	-4.8	8.6	1.9	18.0	88.9	58.3	53.3	54.6	54.2
Nov.	117.5	14.1	-	-6.8	9.0	3.7	18.4	-	58.4	53.8	55.9	55.4

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	35.5	5.9	75.2	2.0	7.6	1.5
2019	13.1	93.3	1.9	2.7	3.8	6.0	3.9	35.3	6.3	74.9	1.9	7.9	1.8
2020	19.5	96.1	-0.5	4.1	-3.5	5.0	4.7	31.2	4.5	82.0	3.3	-14.7	2.0
2020 Q3	17.8	95.3	0.8	3.7	-1.3	3.7	4.2	31.5	4.4	81.8	2.7	-15.1	2.0
Q4	19.5	96.1	0.2	4.1	1.8	5.0	4.7	31.2	4.5	82.0	3.3	-20.9	2.0
2021 Q1	20.6	96.5	-0.2	4.6	10.6	7.3	4.6	32.3	5.8	83.1	4.0	-10.5	2.2
Q2	19.1	96.6	3.3	4.1	30.0	6.3	4.8	34.2	7.8	80.5	4.5	20.8	2.3

Sources: ECB and Eurostat.
1) Based on four-quarter cumulated sums of saving, debt and gross disposable income (adjusted for the change in pension entitlements).
2) Financial assets (net of financial liabilities) and non-financial assets. Non-financial assets consist mainly of housing wealth (residential structures and land). They also include non-financial assets of unincorporated enterprises classified within the household sector.
3) The profit 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
2020 Q4	1,021.2	930.4	90.8	581.6	479.6	225.5	197.6	183.3	173.9	30.7	79.3	23.8	24.6
2021 Q1	1,050.7	945.3	105.5	602.3	496.9	226.5	203.5	191.2	169.0	30.8	75.8	15.4	12.4
Q2	1,073.4	1,007.8	65.6	617.7	536.1	232.5	212.4	193.8	188.1	29.4	71.2	17.2	11.6
Q3	1,079.2	1,021.1	58.1	620.2	559.7	243.7	227.1	175.4	160.0	39.9	74.2	23.2	11.6
2021 Apr.	354.3	336.7	17.6	203.2	176.6	77.1	71.5	63.4	64.9	10.7	23.7	4.6	3.6
May	360.3	342.1	18.2	208.5	180.6	77.0	72.0	65.7	65.6	9.0	23.9	5.3	3.0
June	358.9	329.0	29.9	206.1	178.9	78.4	68.8	64.7	57.7	9.7	23.6	7.3	4.9
July	357.2	334.9	22.3	208.8	183.3	79.3	72.5	59.1	55.2	10.1	23.8	6.7	4.8
Aug.	362.1	345.0	17.1	204.5	186.0	80.5	81.1	57.8	53.1	19.3	24.9	7.1	2.8
Sep.	359.9	341.2	18.7	206.9	190.4	83.9	73.6	58.5	51.6	10.5	25.5	9.5	4.1
12-month cumulated transactions													
2021 Sep.	4,224.6	3,904.6	320.0	2,421.8	2,072.3	928.3	840.6	743.7	691.1	130.8	300.6	79.7	60.2
12-month cumulated transactions as a percentage of GDP													
2021 Sep.	35.2	32.6	2.7	20.2	17.3	7.7	7.0	6.2	5.8	1.1	2.5	0.7	0.5

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	Consump-tion goods	Manu-facturing		Intermediate goods	Capital goods	Consump-tion goods	Manu-facturing	Oil
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2020 Q4	-2.6	-5.5	569.3	265.7	114.6	178.5	480.2	494.0	262.2	87.0	135.7	381.4	35.3
2021 Q1	0.6	0.2	582.1	280.6	115.0	174.6	487.8	512.9	285.1	91.5	129.8	383.4	47.1
Q2	34.2	33.9	595.3	290.8	116.9	176.3	492.5	558.0	322.5	92.2	135.4	404.3	53.5
Q3	13.4	22.5	604.8	.	.	.	498.5	575.8	.	.	.	412.1	.
2021 Apr.	46.7	38.3	198.1	95.2	39.7	60.0	164.4	185.2	106.4	30.7	45.9	133.7	17.1
May	34.8	35.0	199.3	97.5	39.0	58.8	164.5	186.1	107.7	30.8	44.7	135.4	18.3
June	23.7	28.9	197.9	98.1	38.3	57.4	163.5	186.8	108.4	30.7	44.8	135.2	18.2
July	11.9	17.9	201.1	99.1	40.5	57.1	166.6	187.9	111.4	30.4	43.5	134.2	19.6
Aug.	19.2	28.5	202.2	102.7	39.1	56.2	166.2	192.5	113.5	31.4	44.8	139.9	19.3
Sep.	10.0	21.6	201.4	.	.	.	165.6	195.3	.	.	.	138.0	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2020 Q4	-1.4	-0.8	104.4	105.9	99.9	106.6	103.8	105.7	102.8	107.8	111.4	109.6	84.7
2021 Q1	0.8	0.1	104.5	108.5	100.8	101.8	104.0	105.0	103.5	112.6	105.5	108.3	85.8
Q2	29.1	20.3	104.5	108.9	101.7	101.1	103.2	109.6	109.9	113.8	108.0	111.9	84.9
Q3	.	.	.	.	.	.	.	.	.	.	.	.	.
2021 Mar.	11.4	15.0	105.7	110.5	100.3	102.5	103.1	108.5	107.8	118.6	108.9	111.5	84.5
Apr.	41.9	25.2	104.6	107.7	104.0	102.9	103.5	110.0	110.8	113.0	109.4	111.2	84.0
May	29.3	20.4	104.8	109.4	101.1	101.4	103.3	109.9	110.4	113.9	107.2	112.6	87.4
June	18.9	15.9	104.1	109.8	100.0	99.1	102.8	109.1	108.7	114.4	107.2	111.8	83.4
July	4.8	3.1	104.0	108.7	104.1	96.8	102.8	106.4	107.7	109.2	102.6	108.2	85.8
Aug.	9.0	10.9	103.0	110.4	99.8	94.5	101.0	108.0	108.3	114.0	104.3	112.2	84.4

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
2018	103.6	1.8	1.0	2.0	1.5	-	-	-	-	-	-	1.7	2.1
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
2020 Q4	105.0	-0.3	0.2	-0.9	0.5	0.0	0.1	0.9	-0.8	0.5	0.2	-0.4	0.5
2021 Q1	105.8	1.1	1.2	0.8	1.3	1.4	0.6	-0.5	1.6	6.5	0.6	1.0	1.4
Q2	107.4	1.8	0.9	2.5	0.9	0.6	0.4	1.5	-0.2	3.7	0.2	1.8	2.4
Q3	108.0	2.8	1.4	4.1	1.2	1.1	0.6	0.6	1.2	4.3	0.5	2.7	3.5
2021 June	107.7	1.9	0.9	2.8	0.7	0.3	0.2	-0.2	0.3	1.3	0.1	1.8	2.5
July	107.6	2.2	0.7	3.3	0.9	0.6	0.3	0.3	1.1	2.0	0.1	2.0	3.5
Aug.	108.0	3.0	1.6	4.5	1.1	0.3	0.2	0.6	0.1	1.0	0.2	2.9	3.5
Sep.	108.5	3.4	1.9	4.6	1.7	0.2	0.2	0.2	-0.6	1.4	0.4	3.3	3.6
Oct.	109.4	4.1	2.0	5.5	2.1	0.7	0.3	-0.1	-0.1	5.6	0.3	4.0	4.6
Nov. [3)]	109.9	4.9	2.6	.	2.7	0.7	0.3	0.8	0.2	2.9	0.5	.	.

	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
2018	2.2	2.1	2.3	1.9	0.3	6.4	1.2	1.2	1.5	-0.1	2.0	1.4
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
2020 Q4	1.7	1.2	3.5	-2.4	-0.3	-7.8	1.2	1.2	-0.6	-1.5	0.6	1.3
2021 Q1	1.3	1.2	1.7	0.5	0.9	-0.6	1.3	1.2	1.1	-0.4	1.4	1.5
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
2021 June	0.5	0.8	-0.3	4.1	1.2	12.6	1.4	1.3	0.7	-0.1	0.1	1.7
July	1.6	1.5	1.9	4.3	0.7	14.3	1.4	1.1	1.7	0.7	0.3	1.7
Aug.	2.0	1.7	3.0	6.0	2.6	15.4	1.4	1.1	2.3	0.7	1.0	1.6
Sep.	2.0	1.9	2.6	6.1	2.1	17.6	1.5	1.2	3.3	0.6	1.9	1.5
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. [3)]	2.2	2.3	1.9	.	2.4	27.4	.	.	.	.	.	.

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			
2018	104.1	3.3	2.4	1.5	2.7	1.0	0.4	0.1	0.6	8.4	2.5	4.9	4.1
2019	104.7	0.6	0.6	0.8	0.1	1.5	1.0	1.1	0.9	-0.1	1.9	4.2	4.5
2020	102.0	-2.6	-1.7	-0.1	-1.6	0.9	1.0	1.1	0.6	-9.7	1.3	5.4	1.7
2020 Q4	102.6	-1.7	-1.7	0.0	-0.6	0.8	0.0	-0.5	0.7	-6.7	1.6	6.0	-0.9
2021 Q1	105.9	2.1	1.3	1.4	2.7	1.0	0.0	-0.7	0.7	3.8	2.6	6.1	-1.3
Q2	109.4	9.2	6.8	4.7	9.0	1.7	1.8	1.8	1.2	23.7	4.5	7.2	-2.8
Q3	115.6	14.0	9.3	7.4	14.1	3.0	2.8	2.9	2.1	34.3	.	.	.
2021 May	109.3	9.6	7.2	4.9	9.3	1.8	2.0	1.9	1.3	25.1	-	-	-
June	110.9	10.3	7.4	5.6	10.7	2.0	2.4	2.6	1.4	25.5	-	-	-
July	113.7	12.4	8.4	6.8	12.8	2.5	2.7	2.8	1.9	30.1	-	-	-
Aug.	114.9	13.4	9.2	7.4	14.3	3.1	2.8	2.8	2.2	31.9	-	-	-
Sep.	118.1	16.1	10.3	8.1	15.2	3.6	3.0	3.1	2.3	40.8	-	-	-
Oct.	124.5	21.9	11.8	8.9	16.8	3.9	3.4	3.2	2.8	62.5	-	-	-

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
2018	103.6	1.5	1.8	1.5	1.9	1.9	1.5	2.2	60.4	-0.9	-6.3	4.3	-0.6	-6.2	5.7
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	8.3	-2.3
2020	107.1	1.6	1.1	0.5	3.5	1.2	-1.3	-2.6	37.0	1.5	3.4	-0.3	-0.9	-0.1	-1.8
2020 Q4	107.4	1.2	0.9	0.0	2.8	0.5	-1.4	-2.6	37.4	4.1	0.1	7.9	-0.5	-6.1	6.2
2021 Q1	108.1	1.5	1.6	1.0	2.4	1.1	0.8	0.8	50.4	18.3	9.1	27.3	14.0	5.1	24.6
Q2	108.3	0.5	1.5	1.5	-1.3	2.4	4.3	7.0	57.0	38.3	20.1	56.4	35.6	20.2	54.4
Q3	109.5	2.7	3.5	2.6	2.9	4.3	7.0	9.5	61.9	31.1	26.2	35.4	32.3	28.2	36.7
2021 June	-	-	-	-	-	-	-	-	60.7	38.2	22.2	53.4	35.9	21.9	52.1
July	-	-	-	-	-	-	-	-	62.9	36.9	26.8	46.0	36.1	27.4	45.5
Aug.	-	-	-	-	-	-	-	-	59.5	29.8	28.7	30.7	31.6	31.4	31.8
Sep.	-	-	-	-	-	-	-	-	63.4	26.7	23.1	29.9	29.4	26.0	33.0
Oct.	-	-	-	-	-	-	-	-	72.1	33.7	27.3	39.7	35.2	28.5	42.7
Nov.	-	-	-	-	-	-	-	-	70.8	29.8	30.9	28.7	33.0	35.1	30.8

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
2018	11.5	7.5	9.6	12.6	20.6	65.4	57.9	56.1	52.7
2019	4.2	7.3	9.1	7.5	18.2	48.8	57.1	50.4	52.4
2020	-1.3	1.6	-0.8	-5.8	10.9	49.0	52.1	48.7	47.2
2020 Q4	1.6	2.6	-2.7	-7.8	7.0	56.7	52.6	51.6	48.3
2021 Q1	10.7	5.0	-1.8	-3.8	8.1	74.0	54.0	56.5	48.6
Q2	30.0	18.2	8.5	15.7	20.4	85.9	60.1	68.2	53.1
Q3	37.0	28.0	12.3	26.1	35.0	87.7	63.8	70.3	55.1
2021 June	36.0	23.1	10.9	21.9	24.7	88.5	63.2	71.1	55.6
July	35.5	26.1	12.2	25.7	31.2	89.2	63.1	71.9	55.4
Aug.	37.2	27.3	11.7	27.8	34.4	87.0	63.3	68.6	54.7
Sep.	38.3	30.6	13.1	24.8	39.3	86.9	65.2	70.4	55.1
Oct.	42.3	36.9	16.6	32.7	46.3	89.5	67.5	72.6	55.8
Nov.	49.0	44.5	19.8	37.8	52.5	88.9	71.4	73.7	57.8

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	
2018	104.4	2.5	2.3	3.2	2.6	2.3	2.0
2019	106.9	2.4	2.6	2.1	2.4	2.5	2.2
2020	110.2	3.1	3.7	1.2	2.7	3.8	1.8
2020 Q4	116.6	2.9	3.4	0.7	2.2	4.2	2.0
2021 Q1	104.6	1.3	2.0	-1.0	1.2	1.9	1.4
Q2	115.8	-0.2	-0.4	0.8	-0.9	1.6	1.8
Q3	.	.	.	.	.	.	1.3

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						
2018	103.4	1.9	1.2	1.5	2.6	2.1	0.1	1.1	3.9	1.5	2.6	2.0
2019	105.3	1.9	-1.0	2.3	1.8	0.7	0.9	1.8	2.5	2.4	2.6	2.0
2020	110.1	4.5	-1.2	2.8	4.7	6.5	0.7	0.3	1.6	5.6	6.3	13.6
2020 Q4	109.8	3.7	-0.5	-1.1	3.0	5.4	1.8	1.0	4.9	4.9	6.1	22.4
2021 Q1	110.3	1.5	3.2	-3.2	5.1	2.0	0.6	1.1	4.3	3.1	2.8	15.4
Q2	108.9	-4.4	7.1	-10.7	-3.1	-7.7	1.1	-2.4	8.7	-2.3	-4.6	-2.1
Q3	109.8	1.2	6.0	-1.3	2.1	-0.6	5.0	0.7	4.3	1.0	2.3	0.0
						Compensation per employee						
2018	105.2	2.1	0.9	1.8	2.2	2.0	2.6	2.3	2.9	2.7	1.9	2.9
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	-0.6	0.5	-2.3	-1.6	-4.6	0.4	-0.3	0.9	-0.3	2.4	-2.6
2020 Q4	109.0	0.9	0.2	0.0	1.5	-3.5	1.4	0.7	2.4	1.1	3.3	-0.4
2021 Q1	109.4	2.1	2.0	2.0	4.3	-0.8	2.0	3.1	3.1	1.9	2.2	1.2
Q2	109.5	7.2	2.7	9.2	9.6	12.9	7.5	1.1	10.2	8.0	2.2	11.1
Q3	111.8	3.0	2.2	3.5	1.3	4.4	3.6	1.8	3.9	2.7	2.1	3.1
						Labour productivity per person employed						
2018	101.7	0.2	-0.3	0.3	-0.4	-0.2	2.5	1.2	-1.0	1.1	-0.7	1.0
2019	102.0	0.3	4.2	-0.9	-0.4	0.9	2.4	0.3	-0.2	0.3	-0.3	1.2
2020	97.0	-4.9	1.7	-5.0	-6.0	-10.5	-0.2	-0.5	-0.7	-5.6	-3.7	-14.3
2020 Q4	99.3	-2.7	0.7	1.1	-1.4	-8.4	-0.4	-0.4	-2.4	-3.6	-2.6	-18.7
2021 Q1	99.2	0.6	-1.2	5.5	-0.8	-2.8	1.4	1.9	-1.2	-1.2	-0.6	-12.3
Q2	100.6	12.1	-4.1	22.2	13.2	22.3	6.3	3.5	1.4	10.5	7.0	13.6
Q3	101.8	1.8	-3.6	4.9	-0.7	5.0	-1.3	1.1	-0.4	1.6	-0.2	3.2
						Compensation per hour worked						
2018	104.9	1.9	1.3	1.8	1.5	1.4	2.4	2.3	2.0	2.2	2.2	2.4
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	3.2	4.0	5.9	2.8	1.3	5.6	4.6	4.9	6.8
2020 Q4	113.6	5.2	1.9	3.0	3.9	6.1	2.5	1.3	6.1	3.8	4.9	7.1
2021 Q1	114.4	3.4	0.8	1.1	1.3	6.2	2.6	1.6	3.3	2.5	1.8	4.6
Q2	112.6	-4.5	-2.2	-4.2	-7.2	-6.6	1.6	-3.5	-0.4	-3.0	-2.4	-5.6
Q3	113.5	2.0	2.7	1.6	1.5	1.7	2.1	1.5	0.7	0.9	3.1	2.5
						Hourly labour productivity						
2018	101.9	0.1	-0.5	0.4	-0.9	-0.4	2.4	1.1	-1.7	0.8	-0.5	0.6
2019	102.5	0.6	5.2	-0.3	-0.2	1.3	2.3	0.1	-0.5	0.4	-0.2	1.5
2020	104.1	1.5	2.0	0.8	1.0	0.0	3.0	1.8	6.2	0.2	-0.8	-4.3
2020 Q4	104.7	2.1	0.4	4.5	2.2	0.9	1.7	0.9	1.9	-0.1	-0.8	-10.9
2021 Q1	104.8	1.7	-3.1	4.6	-4.1	3.4	1.8	0.5	-3.2	-1.0	-1.2	-8.7
Q2	104.3	-1.7	-7.9	6.2	-5.3	-0.6	-0.5	-1.8	-13.7	-2.5	1.5	-7.7
Q3	104.3	0.8	-2.5	2.9	-0.5	2.6	-3.2	0.6	-3.6	-0.2	0.6	3.1

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												
2018	1,164.6	7,112.2	8,276.8	1,126.8	2,299.7	3,426.6	11,703.4	74.9	523.7	63.1	661.7	12,365.1
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
2020 Q4	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 Q1	1,392.9	9,137.6	10,530.4	991.5	2,477.0	3,468.5	13,998.9	109.3	617.9	15.7	743.0	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	753.1	14,949.2
Q3	1,444.4	9,617.8	11,062.2	903.2	2,493.4	3,396.6	14,458.7	120.4	597.7	37.3	755.4	15,214.2
2021 May	1,411.3	9,254.2	10,665.5	961.1	2,485.8	3,446.9	14,112.4	107.6	614.1	30.8	752.5	14,864.9
June	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	753.1	14,949.2
July	1,427.4	9,428.9	10,856.3	931.1	2,490.4	3,421.5	14,277.8	115.7	614.2	34.2	764.2	15,042.0
Aug.	1,435.8	9,519.2	10,955.1	914.2	2,487.1	3,401.3	14,356.4	112.7	615.0	35.8	763.5	15,119.9
Sep.	1,444.4	9,617.8	11,062.2	903.2	2,493.4	3,396.6	14,458.7	120.4	597.7	37.3	755.4	15,214.2
Oct. [p]	1,451.7	9,663.2	11,114.9	929.6	2,495.8	3,425.3	14,540.2	132.6	618.6	40.3	791.5	15,331.7
Transactions												
2018	51.3	467.7	519.1	-74.5	45.4	-29.1	489.9	-0.8	12.6	-4.8	7.0	496.9
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
2020 Q4	29.5	279.0	308.5	-29.9	24.6	-5.3	303.3	-2.2	41.3	-6.3	32.9	336.1
2021 Q1	32.1	238.9	271.0	-47.1	28.5	-18.6	252.4	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	25.0	254.4	279.3	-34.4	11.7	-22.6	256.7	5.5	-16.0	8.6	-1.9	254.8
2021 May	8.9	70.2	79.1	-7.9	2.2	-5.7	73.4	-1.1	0.4	7.5	6.8	80.1
June	8.4	89.2	97.6	-26.7	3.7	-23.0	74.6	3.7	-0.3	-3.8	-0.4	74.3
July	8.0	77.6	85.6	-5.0	0.9	-4.1	81.5	3.8	0.5	6.8	11.1	92.5
Aug.	8.4	81.0	89.4	-17.2	4.7	-12.5	76.8	-3.1	0.8	1.2	-1.1	75.8
Sep.	8.6	95.8	104.4	-12.1	6.2	-6.0	98.4	4.8	-17.3	0.6	-11.9	86.5
Oct. [p]	8.3	46.5	54.7	26.8	2.4	29.1	83.9	12.3	20.9	3.4	36.6	120.4
Growth rates												
2018	4.6	7.0	6.7	-6.2	2.0	-0.8	4.4	-1.1	2.5	-	1.1	4.2
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
2020 Q4	11.3	16.2	15.6	-2.7	3.7	1.7	11.7	24.4	21.6	-	22.0	12.2
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	12.6	0.5	-	6.8	7.5
2021 May	9.2	12.1	11.7	-11.5	4.1	-0.8	8.4	9.0	13.2	-	13.3	8.6
June	9.0	12.2	11.8	-12.9	3.8	-1.4	8.3	13.5	8.5	-	10.6	8.4
July	8.9	11.3	11.0	-13.7	3.5	-1.8	7.6	5.0	6.2	-	9.8	7.7
Aug.	8.6	11.4	11.0	-12.7	3.3	-1.5	7.8	15.3	7.2	-	12.1	8.0
Sep.	8.5	11.5	11.1	-15.5	3.2	-2.5	7.6	12.6	0.5	-	6.8	7.5
Oct. [p]	8.5	11.1	10.7	-12.0	2.9	-1.6	7.5	27.9	3.9	202.5	11.1	7.7

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													
2018	2,335.4	1,902.7	277.2	148.1	7.3	6,646.9	4,036.6	517.5	2,091.3	1.5	992.0	204.6	434.7
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	2,988.5	2,531.8	310.0	143.5	3.2	7,651.2	4,956.1	437.2	2,257.1	0.9	1,097.1	234.6	501.2
2020 Q4	2,988.5	2,531.8	310.0	143.5	3.2	7,651.2	4,956.1	437.2	2,257.1	0.9	1,097.1	234.6	501.2
2021 Q1	3,060.5	2,609.4	300.2	143.5	7.5	7,813.5	5,104.5	422.0	2,286.1	0.9	1,133.3	217.0	491.1
Q2	3,100.2	2,660.9	290.8	140.0	8.5	7,906.0	5,197.8	407.0	2,300.5	0.7	1,164.8	222.5	494.6
Q3	3,160.4	2,736.2	283.8	130.9	9.6	8,020.8	5,314.2	388.9	2,317.1	0.7	1,210.6	227.4	515.6
2021 May	3,066.3	2,623.0	294.7	141.6	6.9	7,870.1	5,161.5	411.6	2,296.2	0.8	1,152.1	228.1	492.1
June	3,100.2	2,660.9	290.8	140.0	8.5	7,906.0	5,197.8	407.0	2,300.5	0.7	1,164.8	222.5	494.6
July	3,108.6	2,679.9	284.9	135.9	7.8	7,944.3	5,236.6	399.2	2,307.7	0.8	1,186.6	227.3	499.3
Aug.	3,128.9	2,707.2	282.4	130.7	8.7	7,988.4	5,282.3	394.6	2,310.8	0.7	1,186.9	227.1	501.9
Sep.	3,160.4	2,736.2	283.8	130.9	9.6	8,020.8	5,314.2	388.9	2,317.1	0.7	1,210.6	227.4	515.6
Oct. [p]	3,188.0	2,758.2	292.8	128.9	8.2	8,040.2	5,332.4	383.5	2,323.3	1.0	1,244.8	239.8	508.4
Transactions													
2018	96.7	108.7	-9.7	-1.0	-1.3	327.6	325.8	-45.0	46.1	0.6	-1.6	-3.1	18.2
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	515.7	469.6	55.8	-6.8	-2.9	612.0	560.6	-53.8	105.3	0.0	142.6	20.4	36.7
2020 Q4	40.1	59.0	-11.9	-3.3	-3.7	159.1	140.4	-9.5	28.1	-0.1	50.9	-6.0	27.5
2021 Q1	67.0	72.8	-9.9	0.0	4.2	160.8	146.1	-15.8	30.5	0.0	27.5	-18.2	-10.0
Q2	42.0	53.6	-9.2	-3.4	1.1	93.3	93.9	-14.9	14.4	-0.1	34.2	5.6	3.6
Q3	60.9	69.2	-8.0	-1.2	0.9	108.3	111.2	-18.3	15.4	-0.1	44.2	1.9	21.9
2021 May	14.0	15.3	0.3	-1.2	-0.4	32.3	35.0	-5.6	3.0	-0.1	14.9	3.6	-1.4
June	30.5	35.3	-4.8	-1.5	1.5	34.7	35.4	-4.8	4.2	-0.1	8.2	-6.0	2.5
July	16.0	23.3	-5.9	-0.8	-0.7	30.0	33.8	-7.8	4.1	0.0	21.9	4.7	4.7
Aug.	18.8	21.0	-2.6	-0.5	0.8	44.8	44.4	-4.6	5.0	0.0	-0.7	-0.2	2.6
Sep.	26.1	24.8	0.5	0.1	0.8	33.4	33.0	-5.9	6.4	-0.1	23.0	-2.6	14.7
Oct. [p]	28.1	22.4	9.0	-2.0	-1.4	19.5	18.3	-5.3	6.2	0.4	35.0	12.5	-7.2
Growth rates													
2018	4.3	6.0	-3.4	-0.6	-15.9	5.2	8.8	-8.0	2.3	70.4	-0.2	-1.5	4.4
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	20.7	22.7	21.6	-4.5	-47.0	8.7	12.7	-10.9	4.9	-5.2	14.3	9.4	7.9
2020 Q4	20.7	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 Q1	17.9	19.6	15.2	-2.7	9.2	9.1	12.6	-10.4	6.0	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	14.9	-6.8	9.1
2021 May	9.0	11.7	-5.8	-3.9	48.1	7.9	11.3	-11.3	4.9	-13.4	11.7	-0.1	6.5
June	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
July	6.8	10.4	-14.2	-5.4	47.1	7.3	10.6	-12.6	4.3	-28.6	14.7	-4.1	4.4
Aug.	6.9	10.1	-13.0	-5.6	97.0	7.3	10.7	-12.6	4.1	-27.9	16.6	-1.8	6.1
Sep.	7.1	10.3	-12.1	-5.4	38.0	7.0	10.2	-13.1	4.0	-31.8	14.9	-6.8	9.1
Oct. [p]	7.4	10.5	-10.0	-6.8	44.7	6.5	9.6	-13.7	3.9	6.7	18.2	-0.1	6.0

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								
					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		
	Total	Loans	Debt securities	Total		Adjusted loans [2)]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2018	4,678.9	1,010.8	3,656.7	13,410.4	11,119.2	11,480.7	4,404.0	5,741.0	847.9	126.3	1,518.3	772.9
2019	4,654.5	989.2	3,653.5	13,856.8	11,446.4	11,835.1	4,474.3	5,930.1	891.0	151.0	1,560.6	849.9
2020	5,914.6	998.8	4,903.9	14,333.2	11,919.8	12,295.3	4,721.5	6,118.8	911.7	167.8	1,548.1	865.3
2020 Q4	5,914.6	998.8	4,903.9	14,333.2	11,919.8	12,295.3	4,721.5	6,118.8	911.7	167.8	1,548.1	865.3
2021 Q1	6,069.4	994.5	5,073.2	14,457.5	12,058.9	12,410.0	4,777.1	6,176.5	953.7	151.6	1,518.4	880.2
Q2	6,217.4	1,004.1	5,211.7	14,488.0	12,077.6	12,440.5	4,746.7	6,239.8	942.0	149.1	1,523.1	887.2
Q3	6,364.7	999.2	5,363.9	14,611.5	12,182.5	12,536.2	4,774.6	6,311.0	952.2	144.7	1,532.3	896.7
2021 May	6,148.8	1,002.3	5,144.7	14,463.2	12,067.9	12,417.4	4,747.0	6,215.4	949.0	156.4	1,510.7	884.7
June	6,217.4	1,004.1	5,211.7	14,488.0	12,077.6	12,440.5	4,746.7	6,239.8	942.0	149.1	1,523.1	887.2
July	6,305.8	1,006.9	5,297.2	14,530.9	12,114.7	12,474.0	4,747.8	6,273.3	945.7	147.9	1,527.9	888.3
Aug.	6,347.9	1,004.0	5,342.2	14,556.8	12,137.3	12,492.9	4,759.2	6,292.7	939.4	146.0	1,524.0	895.5
Sep.	6,364.7	999.2	5,363.9	14,611.5	12,182.5	12,536.2	4,774.6	6,311.0	952.2	144.7	1,532.3	896.7
Oct. [p)]	6,393.6	987.4	5,404.6	14,677.4	12,228.9	12,590.0	4,794.2	6,334.3	945.9	154.5	1,553.0	895.5
Transactions												
2018	91.7	-27.8	119.5	373.3	305.8	381.1	123.7	165.9	-1.4	17.5	88.4	-20.9
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	1,042.0	13.5	1,028.4	737.1	538.1	559.4	288.3	209.1	23.8	16.9	170.7	28.2
2020 Q4	165.1	-0.3	165.3	145.2	75.0	112.3	-0.6	59.7	5.7	10.1	28.4	41.8
2021 Q1	150.1	-3.8	164.3	150.6	139.6	111.2	55.9	60.8	39.2	-16.4	2.7	8.3
Q2	164.2	9.5	154.1	53.3	43.6	51.8	-18.8	75.3	-10.6	-2.4	4.8	5.0
Q3	150.2	-5.1	155.2	131.9	117.5	120.4	39.5	65.8	19.1	-7.0	9.6	4.9
2021 May	57.2	1.8	55.2	40.3	34.4	26.0	4.2	24.3	1.5	4.4	-1.6	7.5
June	63.5	1.9	61.7	22.0	10.2	26.3	1.0	26.0	-9.5	-7.3	9.4	2.4
July	62.7	2.8	59.9	44.4	42.6	42.4	14.4	25.3	4.2	-1.2	4.1	-2.3
Aug.	51.1	-3.1	54.1	32.6	30.6	29.0	10.3	19.9	2.4	-1.9	-3.1	5.1
Sep.	36.4	-4.8	41.2	54.9	44.2	49.0	14.9	20.7	12.5	-3.9	8.5	2.1
Oct. [p)]	33.9	-12.0	45.9	74.7	46.2	58.5	18.9	23.7	-6.1	9.8	32.0	-3.5
Growth rates												
2018	2.0	-2.7	3.4	2.9	2.8	3.4	2.9	3.0	-0.2	16.2	6.1	-2.6
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
2020 Q4	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 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	7.6
Q3	11.0	0.0	13.5	3.4	3.2	3.2	1.6	4.3	5.9	-10.1	3.0	7.3
2021 May	15.4	-0.2	19.3	3.5	2.8	2.7	1.5	4.3	0.5	1.7	5.2	9.6
June	13.1	0.5	16.2	3.6	3.1	3.0	1.4	4.5	3.4	-3.5	5.3	7.6
July	12.4	1.0	15.1	3.4	3.1	3.0	1.3	4.5	4.2	-4.9	4.5	6.9
Aug.	12.1	1.0	14.8	3.2	3.0	3.0	1.0	4.5	5.2	-6.0	2.7	7.1
Sep.	11.0	0.0	13.5	3.4	3.2	3.2	1.6	4.3	5.9	-10.1	3.0	7.3
Oct. [p)]	10.5	-1.2	13.2	3.7	3.3	3.4	1.9	4.3	5.7	-5.7	4.4	7.7

Source: ECB.

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

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

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

4) Including non-profit institutions serving households.

5 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										
2018	4,404.0	4,488.4	990.5	842.3	2,571.1	5,741.0	6,023.6	682.6	4,355.4	703.0
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	4,721.5	4,839.5	898.1	1,011.3	2,812.1	6,118.8	6,386.6	700.2	4,723.8	694.8
2020 Q4	4,721.5	4,839.5	898.1	1,011.3	2,812.1	6,118.8	6,386.6	700.2	4,723.8	694.8
2021 Q1	4,777.1	4,897.7	894.4	1,017.8	2,864.9	6,176.5	6,439.5	696.3	4,786.6	693.7
Q2	4,746.7	4,866.6	833.0	971.6	2,942.2	6,239.8	6,498.5	693.7	4,851.8	694.3
Q3	4,774.6	4,889.7	835.1	972.1	2,967.5	6,311.0	6,569.3	696.6	4,914.4	699.9
2021 May	4,747.0	4,861.8	872.6	973.7	2,900.7	6,215.4	6,475.0	692.1	4,830.8	692.5
June	4,746.7	4,866.6	833.0	971.6	2,942.2	6,239.8	6,498.5	693.7	4,851.8	694.3
July	4,747.8	4,860.7	828.2	968.1	2,951.4	6,273.3	6,531.3	695.6	4,874.6	703.1
Aug.	4,759.2	4,873.8	828.1	969.4	2,961.7	6,292.7	6,552.2	695.4	4,894.9	702.4
Sep.	4,774.6	4,889.7	835.1	972.1	2,967.5	6,311.0	6,569.3	696.6	4,914.4	699.9
Oct. [p)]	4,794.2	4,912.3	859.1	971.0	2,964.1	6,334.3	6,590.2	698.8	4,935.0	700.5
Transactions										
2018	123.7	175.9	17.3	31.3	75.1	165.9	187.6	41.1	134.1	-9.4
2019	115.0	142.5	-13.1	44.8	83.2	200.3	216.2	41.0	168.5	-9.2
2020	288.3	324.8	-54.1	138.7	203.6	209.1	193.9	-11.8	210.6	10.4
2020 Q4	-0.6	20.3	-21.6	-1.8	22.8	59.7	64.9	-1.0	59.5	1.2
2021 Q1	55.9	58.1	-3.8	6.8	52.9	60.8	58.1	-2.2	63.3	-0.3
Q2	-18.8	-22.4	-57.6	-43.2	82.0	75.3	70.6	2.4	72.1	0.9
Q3	39.5	43.9	4.0	1.8	33.7	65.8	67.6	4.1	63.9	-2.2
2021 May	4.2	-5.2	-0.4	-22.5	27.0	24.3	23.4	1.1	22.9	0.3
June	1.0	9.6	-39.9	-1.5	42.3	26.0	24.5	2.1	23.6	0.3
July	14.4	10.3	-3.0	-1.2	18.6	25.3	25.0	1.7	23.8	-0.2
Aug.	10.3	14.1	0.0	0.8	9.5	19.9	21.3	0.3	20.3	-0.7
Sep.	14.9	19.4	7.0	2.3	5.6	20.7	21.4	2.1	19.9	-1.3
Oct. [p)]	18.9	25.2	24.1	-1.6	-3.6	23.7	23.5	2.7	20.2	0.9
Growth rates										
2018	2.9	4.1	1.8	3.8	3.0	3.0	3.2	6.3	3.2	-1.3
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
2020 Q4	6.4	7.1	-5.7	15.9	7.8	3.5	3.1	-1.6	4.7	1.5
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	0.6
Q3	1.6	2.1	-8.6	-3.6	6.9	4.3	4.1	0.5	5.6	-0.1
2021 May	1.5	1.9	-7.8	-2.6	6.2	4.3	3.9	0.7	5.4	0.7
June	1.4	1.9	-11.8	-2.2	7.3	4.5	4.0	0.6	5.7	0.6
July	1.3	1.7	-11.4	-3.1	7.2	4.5	4.1	0.4	5.7	0.4
Aug.	1.0	1.5	-11.0	-3.8	6.8	4.5	4.2	0.1	5.8	0.2
Sep.	1.6	2.1	-8.6	-3.6	6.9	4.3	4.1	0.5	5.6	-0.1
Oct. [p)]	1.9	2.5	-5.0	-3.6	6.1	4.3	4.1	0.6	5.5	-0.1

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) 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										
2018	389.1	6,813.8	1,938.6	56.1	2,097.7	2,721.4	1,046.1	432.7	187.0	194.9
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	6,961.3	1,914.8	42.1	1,991.8	3,012.5	1,437.6	489.7	130.1	139.2
2020 Q4	744.6	6,961.3	1,914.8	42.1	1,991.8	3,012.5	1,437.6	489.7	130.1	139.2
2021 Q1	704.0	6,891.1	1,897.4	41.2	1,985.5	2,967.0	1,409.5	400.7	127.2	130.2
Q2	680.1	6,847.0	1,868.8	40.2	1,956.0	2,982.1	1,411.2	359.8	123.7	134.5
Q3	690.9	6,856.9	1,850.7	38.7	1,976.4	2,991.1	1,375.2	410.5	139.0	146.0
2021 May	698.1	6,839.0	1,869.6	40.7	1,947.2	2,981.6	1,463.6	326.4	133.4	130.8
June	680.1	6,847.0	1,868.8	40.2	1,956.0	2,982.1	1,411.2	359.8	123.7	134.5
July	686.8	6,889.7	1,860.9	39.4	1,962.6	3,026.7	1,436.9	344.9	133.4	133.2
Aug.	708.7	6,873.4	1,851.2	39.0	1,960.7	3,022.5	1,445.8	351.6	125.3	128.4
Sep.	690.9	6,856.9	1,850.7	38.7	1,976.4	2,991.1	1,375.2	410.5	139.0	146.0
Oct. [p]	739.6	6,866.9	1,835.3	38.1	2,005.7	2,987.7	1,396.4	470.7	139.2	146.9
Transactions										
2018	44.9	49.0	-38.0	-4.9	15.1	76.8	91.8	34.0	16.2	23.6
2019	-25.0	107.9	-5.5	-2.9	28.0	88.3	312.6	14.2	-2.7	-2.5
2020	316.3	-34.9	-14.9	-8.0	-101.2	89.1	-60.2	142.3	-48.8	-48.0
2020 Q4	-48.7	-3.0	-6.9	-0.8	-43.1	47.9	-85.4	59.5	-9.8	-8.1
2021 Q1	-40.5	-27.4	-20.9	-0.9	-29.6	24.0	10.9	-120.7	-2.9	-8.9
Q2	-24.0	-19.4	-21.9	-1.0	-24.5	28.1	-17.1	-30.0	-3.6	4.3
Q3	10.8	0.5	-18.5	-1.5	8.8	11.8	-44.9	29.0	15.3	11.5
2021 May	-21.8	-24.2	-1.0	-0.3	-17.6	-5.3	-10.9	-52.4	0.6	-0.5
June	-18.0	21.0	-2.3	-0.5	-2.9	26.7	-40.6	32.4	-9.7	3.7
July	6.7	-0.6	-7.6	-0.7	8.1	-0.4	3.5	-12.0	9.7	-1.3
Aug.	22.0	-9.4	-10.0	-0.4	-3.9	4.9	4.9	-0.3	-8.0	-4.8
Sep.	-17.9	10.5	-1.0	-0.4	4.6	7.3	-53.3	41.2	13.7	17.6
Oct. [p]	48.7	11.3	-15.1	-0.5	26.4	0.5	8.4	63.4	0.2	0.9
Growth rates										
2018	12.9	0.7	-1.9	-8.0	0.7	2.9	-	-	8.1	7.7
2019	-6.4	1.6	-0.3	-5.3	1.3	3.2	-	-	-1.5	-1.5
2020	87.4	-0.5	-0.8	-15.9	-4.7	3.0	-	-	-27.3	-25.7
2020 Q4	87.4	-0.5	-0.8	-15.9	-4.7	3.0	-	-	-27.3	-25.7
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	-3.6	-9.9	-4.3	3.8	-	-	-0.6	-0.9
2021 May	5.3	-0.9	-2.7	-9.6	-4.9	3.2	-	-	-32.1	-38.1
June	-10.3	-0.6	-2.7	-8.2	-4.8	3.9	-	-	-22.3	-22.9
July	-9.5	-0.5	-3.0	-9.4	-4.0	3.7	-	-	-17.9	-23.5
Aug.	-12.0	-0.8	-3.9	-9.4	-3.8	3.5	-	-	-26.5	-27.7
Sep.	-12.9	-0.7	-3.6	-9.9	-4.3	3.8	-	-	-0.6	-0.9
Oct. [p]	-11.3	-0.4	-4.3	-10.5	-1.9	3.4	-	-	-6.4	-4.8

Source: ECB.

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

2) Comprises central government holdings of deposits with the MFI sector and of securities issued by the MFI sector.

3) Not adjusted for seasonal effects.

6 Fiscal developments

6.1 Deficit/surplus

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

	Deficit (-)/surplus (+)					Memo item: Primary deficit (-)/ surplus (+)
	Total	Central government	State government	Local government	Social security funds	
	1	2	3	4	5	6
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 Q3	-5.2	.	.	.	.	-3.7
Q4	-7.2	.	.	.	.	-5.7
2021 Q1	-8.4	.	.	.	.	-6.8
Q2	-7.0	.	.	.	.	-5.6

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 Q3	46.6	46.1	13.0	12.8	15.5	0.4	51.8	47.6	10.5	5.8	1.6	24.8	4.2
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	46.5	46.1	13.0	12.7	15.7	0.5	54.9	50.2	10.8	6.1	1.5	25.8	4.6
Q2	46.3	45.8	12.8	12.8	15.5	0.5	53.3	48.7	10.5	5.9	1.5	25.0	4.6

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

6.3 Government debt-to-GDP ratio

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

	Total	Financial instrument			Holder			Original maturity		Residual maturity			Currency	
		Currency and deposits	Loans	Debt securities	Resident creditors	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 Q3	96.6	3.1	13.9	79.6	.	.	.	.	.	.	.	.	.	.
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	81.4	.	.	.	.	.	.	.	.	.	.

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 Q3	11.3	3.7	3.0	3.2	2.9	0.3	-0.1	0.1	-0.3	0.0	4.6	8.5
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	14.3	6.8	1.9	2.2	1.6	0.5	0.0	0.2	-0.1	-0.3	5.5	10.3
Q2	3.9	5.6	-1.3	-0.4	-1.0	0.4	0.0	0.2	0.0	-0.9	-0.3	5.8

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
2018	12.5	11.0	3.7	1.5	0.4	7.3	2.3	1.1	-0.1	2.7	2.5	0.4	0.9
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
2020 Q3	15.8	14.4	4.7	1.4	0.3	7.5	1.9	1.1	-0.2	2.3	2.2	0.1	0.8
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	15.7	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
2021 May	15.7	14.3	4.7	1.4	0.3	7.9	1.7	0.5	-0.3	2.1	2.1	-0.1	0.6
June	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
July	15.4	14.1	5.2	1.3	0.3	7.9	1.6	0.5	-0.3	2.0	1.9	-0.1	0.5
Aug.	15.4	14.0	5.4	1.4	0.3	7.9	1.7	1.1	-0.3	2.0	1.9	-0.1	0.5
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.	14.6	13.3	4.0	1.4	0.3	8.0	1.7	1.1	-0.3	2.0	1.8	-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 Q3	-7.1	-2.8	-4.0	-3.4	-5.5	-8.2	-7.2	-7.4	-4.2
Q4	-9.1	-4.3	-5.6	-4.9	-10.1	-11.0	-9.1	-9.6	-5.7
2021 Q1	-8.8	-5.8	-5.6	-5.6	-12.6	-11.6	-10.5	-10.2	-7.4
Q2	-6.4	-5.2	-4.3	-4.4	-11.2	-8.7	-9.2	-8.9	-6.2
	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 Q3	112.0	69.1	19.1	61.2	199.8	114.1	115.4	154.2	116.0
Q4	112.8	68.7	19.0	58.4	205.7	120.0	115.0	155.6	115.3
2021 Q1	116.9	69.9	19.6	60.4	209.0	125.3	117.9	159.6	121.4
Q2	113.7	69.7	19.6	59.1	207.2	122.8	114.6	156.3	112.0

	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 Q3	-3.5	-4.1	-2.6	-7.0	-2.5	-4.5	-4.2	-4.9	-4.0	-4.1
Q4	-4.5	-7.2	-3.5	-9.7	-4.2	-8.3	-5.8	-7.7	-5.5	-5.5
2021 Q1	-6.6	-7.2	-2.5	-10.0	-5.8	-10.6	-7.0	-8.2	-6.4	-6.0
Q2	-7.0	-5.4	-0.6	-8.6	-4.2	-8.5	-5.8	-6.4	-6.2	-4.4
	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 Q3	44.4	45.4	26.2	51.5	55.1	78.5	131.6	77.8	60.2	67.2
Q4	43.2	46.6	24.8	53.4	54.3	83.2	135.2	79.8	60.1	69.5
2021 Q1	45.4	45.1	28.0	57.5	54.9	87.0	139.1	84.9	60.1	70.4
Q2	43.3	44.6	26.2	59.5	54.2	86.2	135.4	80.0	61.4	69.4

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