



EUROPEAN CENTRAL BANK

EUROSYSTEM

Annual Report

2021



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The year at a glance



** Please note that these remarks relate to the ECB's activities in 2021 and were finalised before the Russian invasion of Ukraine. The ECB stands ready to take whatever action is needed to safeguard financial stability and fulfil its mandate to ensure price stability. **

2021 was the year in which the euro area moved onto a firmer path of recovery from the pandemic emergency. The economy rebounded strongly, with real GDP growing by 5.3%, although growth slowed at the end of the year as the Omicron wave of the coronavirus (COVID-19) led to new restrictions being introduced. The recovery proved job-rich too, with the unemployment rate falling to a record low by year-end.

But the recovery was marked by frictions as the economy rapidly reopened. Though the euro area began 2021 with very low inflation, pandemic-induced supply constraints, a rebound in global demand and surging energy prices meant that inflation increased sharply. Annual headline inflation was 2.6% on average in 2021, compared with just 0.3% in 2020.

The ECB concluded its monetary policy strategy review in 2021. This updated our strategy to address new challenges and provided us with a playbook for managing this complex situation. The Governing Council adopted an inflation target of 2% over the medium term, which is simple and easily understood. It is symmetric, with deviations from the target on both sides seen as equally undesirable. And it is solid, having been agreed by the entire Governing Council.

The Governing Council also agreed on how the ECB would pursue its commitment to symmetry. In particular, when the economy is close to the effective lower bound on policy rates, this requires especially forceful or persistent monetary policy measures to avoid negative deviations from the inflation target becoming entrenched. This new strategy was reflected in our recalibrated forward guidance on interest rates and oriented our policy response to economic developments in the second half of the year.

While the recovery was fragile and inflation subdued, we provided ample monetary support to bring inflation back closer to our target. As inflation rose, we remained patient and persistent in our policy course to avoid tightening prematurely in response to supply-driven shocks. We adjusted the pace of net asset purchases under the pandemic emergency purchase programme (PEPP) in line with the evolving outlook and our assessment of financing conditions.

By December, the Governing Council judged that the progress on economic recovery and towards our medium-term inflation target permitted a step-by-step reduction in the pace of asset purchases over the following quarters. It announced that net asset purchases under the PEPP would end in March 2022, and that its other asset purchase programmes would be gradually scaled back.

As part of the strategy review, the ECB also published an ambitious action plan on climate change, together with a detailed roadmap on how to incorporate climate change considerations into our monetary policy framework. That includes work on how to better capture the implications of a changing climate in our macroeconomic modelling, in addition to the development of new indicators for climate change risk analyses. The ECB's climate change centre – launched in 2021 – will play an important role in coordinating related activities within the bank. And you can now learn all about the ECB's sustainability-related activities and initiatives in a dedicated chapter of this Annual Report.

The ECB made some important changes to its communication too. In July, the Governing Council introduced its new-style monetary policy statement, which communicates its monetary policy decisions in a more accessible way. And the new statement is complemented with a visual version – “our monetary policy statement at a glance” – aimed at the wider public. It explains the ECB's decisions using simple language and relatable visuals and is available in all official EU languages.

Support for the euro is strong, with 79% of euro area respondents to the Eurobarometer survey conducted in June-July 2021 in favour of the single currency. But the euro must be fit for the digital age. That is why in 2021 the Governing Council launched the 24-month investigation phase of a project for a possible digital euro. At the same time, cash will continue to play an important role in people's lives. In December, the ECB announced plans to redesign future euro banknotes, with the design process drawing on input from citizens and the final designs expected to be selected in 2024.

So, changes are afoot for the euro in the years to come. But one thing will remain unwavering throughout: the ECB's commitment to the single currency and price stability.

Frankfurt am Main, April 2022

Christine Lagarde

President

The year in figures



The economy rebounded

+5.3%

Following the sharp contraction in 2020 as a result of the pandemic, euro area real GDP grew by 5.3% in 2021 as the pandemic situation improved and restrictions were gradually relaxed.



Inflation increased sharply from pandemic lows

2.6%

Inflation in the euro area rose to 2.6% on average in 2021 from 0.3% in 2020. The upswing reflected especially a surge in energy prices, demand outpacing constrained supply in some sectors, and some more technical factors such as the reversal of the VAT reduction in Germany.



Bank lending to firms moderated from pandemic highs

+4.3%

After 7.1% in the first year of the pandemic, the annual growth rate of bank loans to firms fell back in 2021, to 4.3%. The share of firms reporting obstacles when seeking a loan declined to pre-pandemic levels.



The ECB introduced a symmetric 2% inflation target

2%

After reviewing its strategy the ECB reformulated its price stability objective as a symmetric 2% inflation target over the medium term.



Near-term financial stability risks fell, but some vulnerabilities built up ahead, including in property markets

+9%

The recovery in economic conditions supported the balance sheets of companies and financial institutions, as well as preventing risks of market fragmentation. At the same time, some medium-term financial stability vulnerabilities intensified, including in property markets. House price growth reached an annual rate of 9% in September 2021, while lending standards eased and high levels of household indebtedness rose further.



TARGET2 settled more euro payments

+8.25%

In 2021 TARGET2, the leading European system for large-value payments in central bank money, settled on average 373,467 transactions per day with an average daily value of €1.87 trillion. This was an 8.25% increase in the daily volume of payments compared with 2020.



The ECB's digital outreach expanded

+15%

The number of followers on the ECB's social media channels increased by 15% in 2021.



Sustainable and responsible investment strategy in the ECB's non-monetary policy portfolios

7.6%

The share of green securities in the ECB's own funds portfolio doubled in 2021 to 7.6%. In its staff pension fund, the equity and corporate bond benchmarks were replaced with their low-carbon equivalents, significantly reducing the fund's carbon footprint.

1 Strengthening economic outlook still clouded by pandemic development

In 2021 the global economy experienced a strong recovery, owing primarily to the reopening of economies amid rising rates of vaccination against COVID-19, and strong and timely policy support. However, the recovery was to some extent uneven across advanced and emerging market economies. Global inflation increased, reflecting mainly the sharp increase in energy prices and demand outpacing supply in some sectors in the face of headwinds from pandemic-related factors and other supply and transport bottlenecks. In the euro area, real GDP growth rebounded strongly in 2021, following the largest contraction on record in the previous year. This recovery, which brought with it improving labour markets, was supported by timely and determined monetary and fiscal policy measures. Economic uncertainty nonetheless remained elevated during the year and the difference between the two largest sectors, industry and services, was pronounced. Early in the year, growth was affected by lockdown measures and travel restrictions, which had a negative impact on the supply of and demand for services. Later, following the exceptionally strong rebound in global demand, the emergence of supply-side bottlenecks and higher energy costs curtailed production in the industrial sector. Euro area inflation as measured by the Harmonised Index of Consumer Prices (HICP) increased sharply to 2.6% in 2021, from 0.3% in 2020. It remained at subdued levels in the first few months, before picking up in the course of the year and reaching a rate of 5.0% in December. The upswing in prices reflected to a large extent a sharp and broad-based surge in energy prices, the demand and supply imbalances following the reopening of economies and more technical factors such as the reversal of the temporary VAT reduction in Germany. Beyond 2021, inflation was expected to remain elevated in the near term but to ease over the year 2022. However, Russia's invasion of Ukraine significantly increased the uncertainty surrounding the inflation outlook.

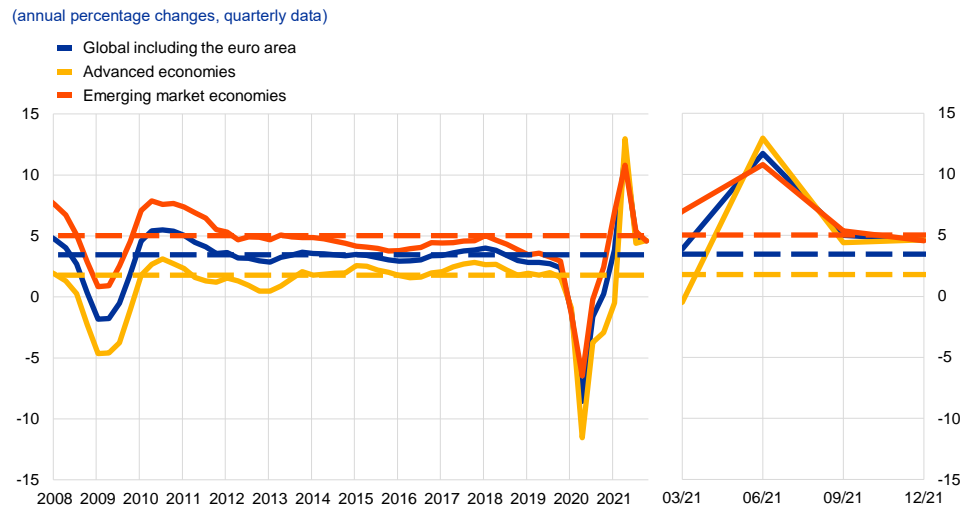
1.1 Strong global recovery from the crisis with uneven progress

With rising vaccination rates and timely policy support, the global economy experienced a strong though uneven recovery

The global economy experienced a strong recovery from the crisis in 2021, but progress was uneven (see Chart 1.1). After contracting by 3.1% in 2020 in annual terms, global real GDP increased by 6.2% in 2021 despite new waves of the pandemic. The reopening of economies, rising rates of vaccination against COVID-19 and timely policy support were the main drivers of the rebound in economic activity, while global supply bottlenecks acted as headwinds to growth. While the recovery was global, it varied across countries. It was more pronounced in advanced economies, and more moderate in most emerging market economies, which had

more limited vaccine supplies and less capacity to take supportive policy measures. In addition, the global economic growth momentum slowed towards the end of the year, mainly owing to a new wave of infections and renewed restrictions as well as persistent supply bottlenecks.

Chart 1.1
Global real GDP growth



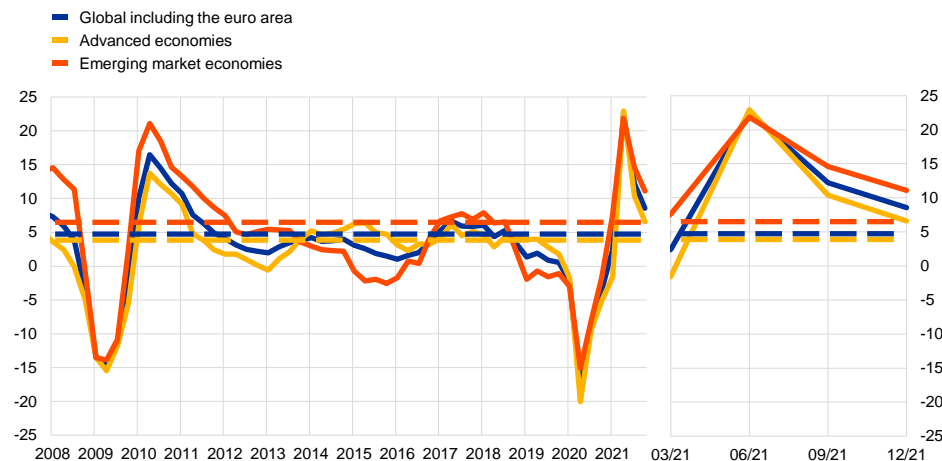
Sources: Haver Analytics, national sources and ECB calculations.
Notes: The aggregates are computed using GDP adjusted with purchasing power parity weights. The solid lines indicate data and go up to the fourth quarter of 2021. The dashed lines indicate the long-term averages (between the first quarter of 1999 and the fourth quarter of 2021). The latest observations are for December 2021 as updated on 28 February 2022.

Global trade also recovered strongly, driven in particular by goods trade

Global trade also recovered strongly, but with weakening momentum in the second half of 2021 (see Chart 1.2). The strong rebound in global demand started above all in consumption, mainly of goods rather than services (e.g. travel and tourism), which faced more restrictions. In the second half of the year, trade in goods exceeded its pre-crisis level, although its expansion slowed amid persistent supply bottlenecks. The more contact-intensive services trade recovered more slowly, in line with the gradual pace of the easing of restrictions, and remained below its pre-pandemic level in 2021.

Chart 1.2
Global trade growth (import volumes)

(annual percentage changes, quarterly data)



Sources: Haver Analytics, national sources and ECB calculations.

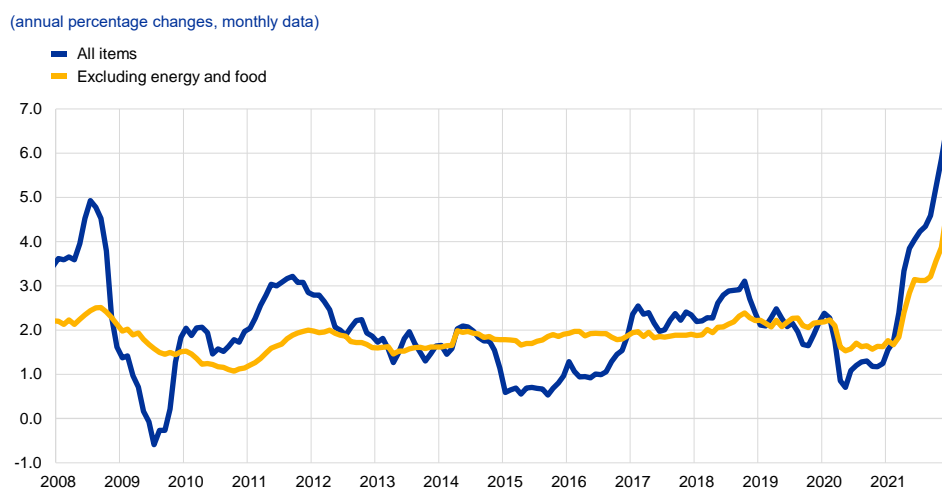
Notes: Global trade growth is defined as growth in global imports including the euro area. The solid lines indicate data and go up to the fourth quarter of 2021. The dashed lines indicate the long-term averages (between the fourth quarter of 1999 and the fourth quarter of 2021). The latest observations are for December 2021 as updated on 28 February 2022.

Global inflation increased significantly as demand recovered amid supply bottlenecks and higher commodity prices

Global inflation increased significantly in 2021, in terms of both headline inflation and inflation measures such as those excluding food and energy (see Chart 1.3). In countries belonging to the Organisation for Economic Co-operation and Development (OECD), headline inflation increased to 6.6%, and inflation excluding energy and food increased to 4.6%. In most countries the increase mainly reflected higher energy and other commodity prices due to pandemic-related mismatches between constrained supply and strongly recovering demand. In the United States, where real GDP reached its pre-crisis level in the second quarter of 2021, inflation pressures intensified particularly strongly and broadened towards the year-end. Inflation pressures became also more broad-based in some emerging market economies.

Chart 1.3

OECD consumer price inflation rates



Source: OECD.

Note: The latest observations are for December 2021 as updated on 28 February 2022.

Oil prices pushed up by recovering demand and supply-side constraints

Oil prices increased in 2021, from the pandemic low of around USD 10 per barrel to a high of USD 86 per barrel, leaving the price of the international benchmark Brent crude at USD 79 per barrel at year-end. With the economic recovery, oil demand rose towards pre-pandemic levels. In the second half of 2021, high gas prices also led to the substitution of gas with other energy sources, including oil. At the same time, oil supply lagged behind demand, partly due to capacity constraints in the US shale industry and the relatively moderate production increases implemented by the OPEC+ cartel.

The euro depreciated against the US dollar as monetary policy diverged between the euro area and the United States

The euro depreciated by 3.6% in nominal effective terms over the course of 2021. In bilateral terms, this was mainly driven by a depreciation of the euro against the US dollar by 7.7%, reflecting primarily the divergent developments in the monetary policy stance in the United States and in the euro area. The euro also depreciated against the pound sterling but strengthened against the Japanese yen.

The risks to global economic activity were tilted to the downside

At the end of 2021, the outlook for global growth remained clouded by the uncertain pandemic development amid uneven progress in global vaccinations. The emergence of the Omicron variant of the coronavirus, the resurgence of infections and the renewed tightening of containment measures all held risks to the pace of global economic recovery, as did the possibility of more persistent supply bottlenecks.

1.2 Swift rebound in the euro area economy¹

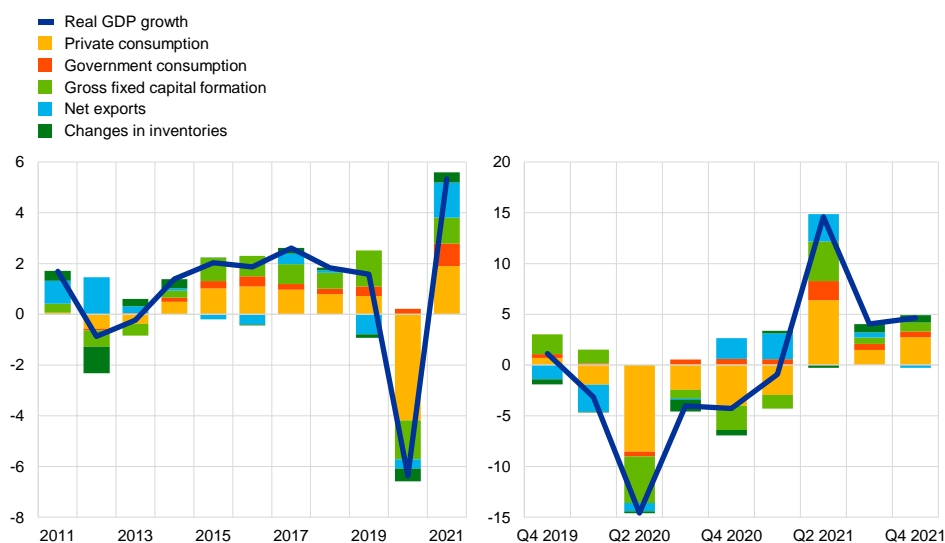


The economy rebounded in 2021 as the pandemic situation improved and restrictions were gradually relaxed

Following a contraction by 6.4% in 2020, the largest on record, euro area real GDP grew by 5.3% in 2021 (see Chart 1.4). Growth dynamics during the year were still very much shaped by the evolving COVID-19 pandemic alongside elevated, but declining, economic uncertainty. In the first quarter, growth was still affected by lockdown measures and travel restrictions, which had a negative impact particularly on the consumption of services. The recovery began in the industrial sector, which recorded strong growth rates overall. As economies started to reopen and restrictions became looser in the second and third quarters, the services sector began to catch up, paving the way for a broader-based recovery. However, the exceptionally strong rebound in global demand during the second half of the year gave rise to supply-demand mismatches in various markets. These led to, among other things, a sharp increase in energy costs, which, together with some renewed intensification of the pandemic, dampened the strength of the recovery and increased inflationary pressures.

Chart 1.4
Euro area real GDP and demand contributions

(annual percentage changes; percentage point contributions)



Source: Eurostat.

Note: The latest observations are for 2021 (left-hand panel) and the fourth quarter of 2021 (right-hand panel).

While these developments were common to all euro area countries, the extent to which countries have been able to recover from the pandemic has been somewhat uneven. This is largely due to the fact that the development of the pandemic has varied from country to country, but it also reflects differences in economic structure such as exposure to global supply chains and the importance of contact-intensive sectors such as tourism. By the end of 2021, output in the euro area was 0.2% above its level in the final quarter of 2019 (see Chart 1.5). However, underlying developments across countries were heterogeneous throughout the year, with,

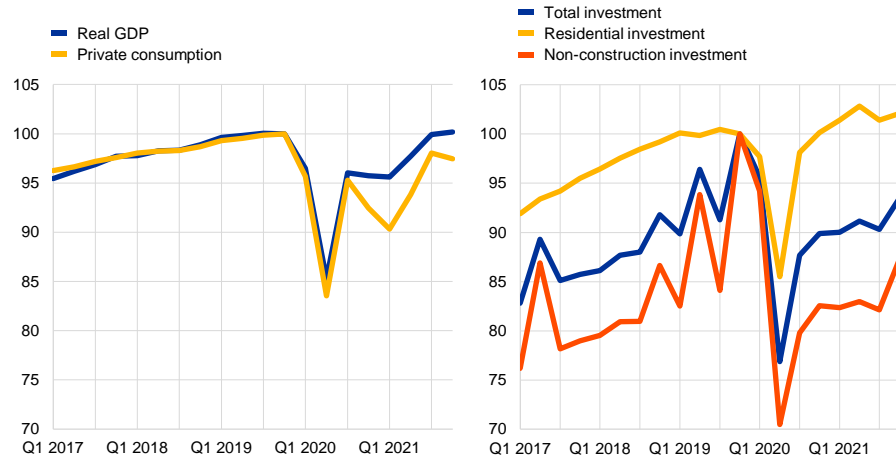
¹ Section 1.2 reflects data from Eurostat's estimate of national accounts released on 8 March 2022.

among the largest euro area economies, only France exceeding its pre-pandemic output level by the end of the year.

Chart 1.5

Euro area real GDP, private consumption and investment

(index: Q4 2019 = 100)



Sources: Eurostat and ECB calculations.

Notes: The latest observations are for the fourth quarter of 2021. In the final quarter of 2021, total investment and non-construction investment stood 6.5% and 12.7% below their pre-pandemic levels (fourth quarter of 2019). However, excluding data for Ireland, the respective end-2021 outcomes were 1.1% and 0.5% above the pre-pandemic levels. These substantial differences can be attributed to large multinational firms using Ireland as their base of operations, which leads to significant swings in investment in intellectual property products.

The recovery in euro area economic growth in 2021 was supported by timely and determined expansionary monetary and fiscal policies. Some measures also helped the economy adjust to structural changes triggered by the pandemic that are still under way. The ECB continued to provide substantial monetary policy support in 2021 to mitigate the impact of the pandemic. Accommodative monetary policy, including ample liquidity conditions, safeguarded the flow of credit to the real economy. As regards fiscal policies, euro area governments continued in 2021 to provide substantial budget support to mitigate the effects of the crisis through short-time work schemes, higher health-related spending, other forms of support to firms and households, and sizeable loan guarantee envelopes. At the EU level, implementation of the Next Generation EU programme began and the “Fit for 55” package was adopted to contribute to a stronger, greener and more even recovery across countries.

Private consumption was the key driver of the recovery in the euro area in 2021

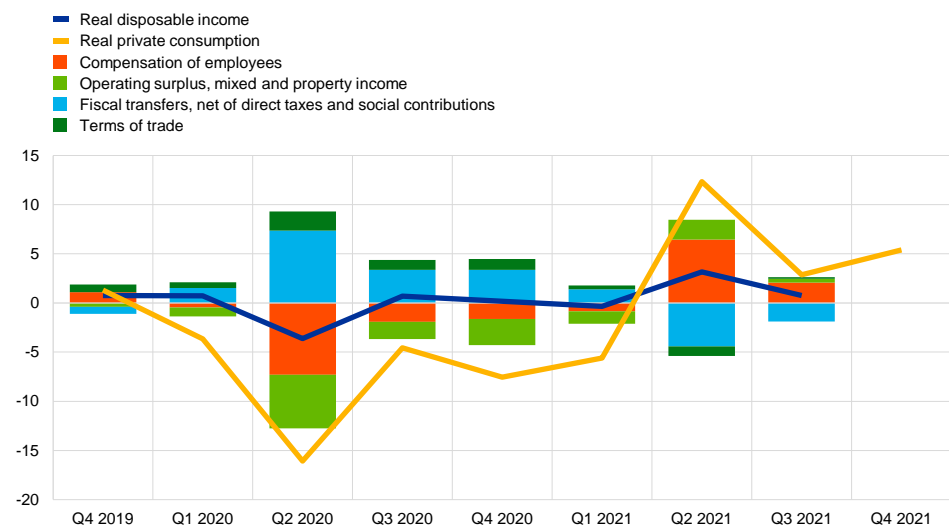
Private consumption increased by 3.5% in 2021, rebounding particularly strongly in the second and third quarters, mainly on account of the easing in COVID-19 restrictions. Consumer confidence strengthened rapidly from spring onwards as vaccination rates increased and the fear of infection declined, while the financial situation of households improved, mainly reflecting positive labour income developments (see Chart 1.6). Government support for household disposable income was gradually withdrawn. The contribution of net fiscal transfers to real disposable income growth turned negative in the course of 2021 as the number of people in job retention schemes and other fiscal support declined. Driven by strong growth in wages and employment, labour income, which typically entails a higher propensity to consume than other sources of income, was the main contributor to

real disposable income growth in 2021. Real disposable income growth was also supported by operating surplus, mixed and property income, whose contribution turned positive in the course of the year, while it was dampened by negative terms-of-trade developments. Following the pandemic-induced jump in 2020, the household saving ratio declined in 2021, although remaining above its pre-pandemic level given the containment measures still in place during the year and the lingering uncertainty. This meant that private consumption remained below its pre-pandemic level at the end of 2021 despite the strong recovery.

Chart 1.6

Euro area private consumption and the breakdown of household disposable income

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



Source: Eurostat.

Note: The latest observations are for the third quarter of 2021 for disposable income and the contributions, and the fourth quarter of 2021 for private consumption.

The incipient recovery in business and housing investment was slowed by supply bottlenecks

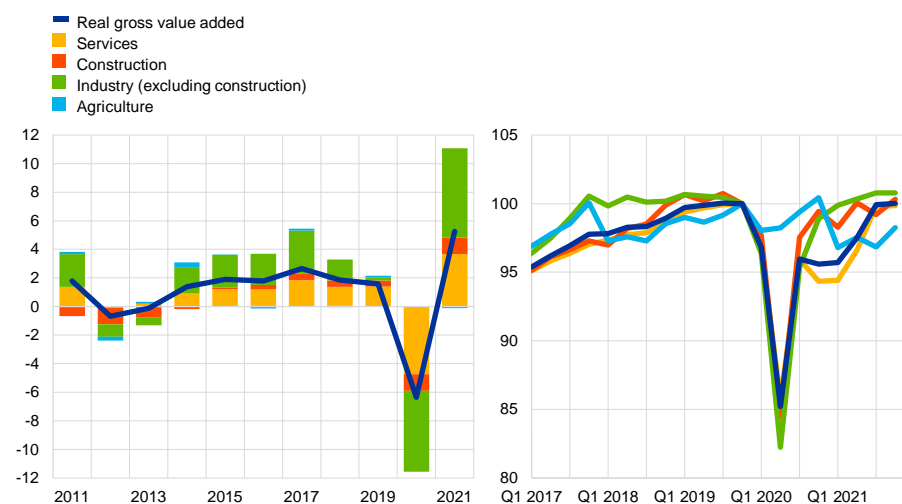
Business investment (approximated by non-construction investment) gained momentum in the first half of 2021, as pandemic containment measures loosened and the economy reopened, in a context of continued favourable financing conditions. However, supply bottlenecks – visible in increasing supplier delivery times and input prices – weighed on the recovery from the middle of the year onwards, thus hampering business investment. Subsequently, soaring energy prices and the resurgence of the pandemic towards the end of the year exerted a further drag on business investment. At the end of 2021, business investment gained momentum again, but remained significantly below the level recorded in the last quarter of 2019 (see Chart 1.5). By contrast, housing (or residential) investment had already exceeded its pre-crisis level by the fourth quarter of 2020. In the following quarters, shortages of materials and workers took a toll on the profitability of construction activity. Nonetheless, favourable financing conditions and income support measures, as well as a large stock of accumulated savings, sustained housing demand. At the end of 2021, housing investment stood well above its pre-crisis level.

Euro area trade reached its pre-pandemic levels at the end of 2021, with net trade contributing positively to GDP growth for the year. On the import side, robust growth driven by the restocking cycle was curbed by strong price dynamics, especially on account of the surge in energy import prices. Exports, which had recorded a strong rebound driven by manufacturing at the end of 2020, were characterised by a two-speed recovery. While on the goods side momentum moderated from the second quarter onwards, as supply and transport bottlenecks hit crucial exporting industries, services exports benefited from the reopening of high-contact activities such as tourism. Both imports and exports stood above their pre-crisis level by the end of the fourth quarter of 2021.

Output growth continued to be uneven across sectors in 2021 (see Chart 1.7). Both industry and services contributed positively to growth; however, industry contributed the most to the rise in real gross value added.

Chart 1.7
Euro area real gross value added by economic activity

(left-hand panel: annual percentage changes, percentage point contributions; right-hand panel: index: Q4 2019 = 100)



Source: Eurostat.

Note: The latest observations are for 2021 (left-hand panel) and the fourth quarter of 2021 (right-hand panel).

The labour market continued to recover but remained weaker than before the pandemic

The labour market showed a marked recovery alongside the rebound in euro area activity, although it remained weaker overall than before the pandemic. The unemployment rate declined gradually, from 8.2% in January 2021 to 7.0% in December, which was below pre-crisis levels (see Chart 1.8).² Also, while job retention schemes continued to play an important role in limiting job lay-offs, thereby helping to preserve human capital, the recourse to such schemes declined.³ However, other labour market indicators remained weaker than their pre-pandemic levels. Hours worked for the fourth quarter of 2021 was 1.8% below its level in the final quarter of 2019, while the labour force participation rate for the third quarter of 2021 was around 0.2 percentage points lower (which represents a decrease of about

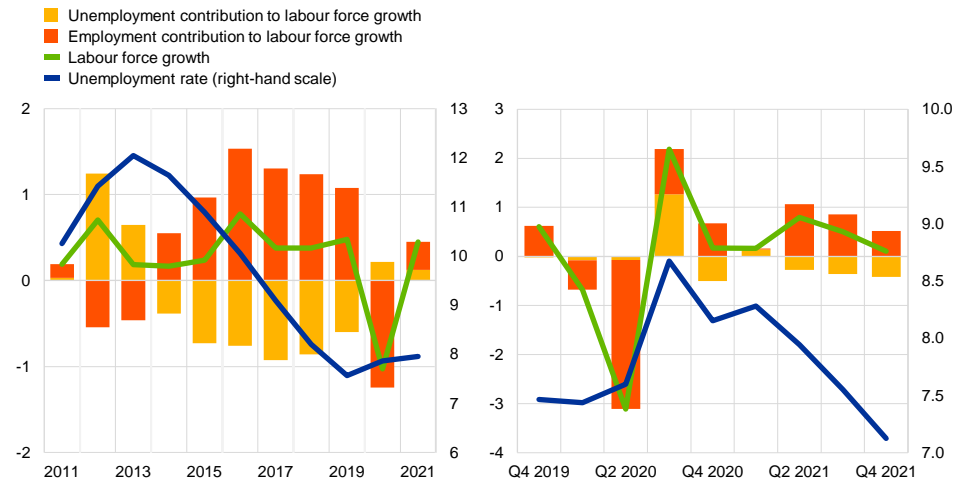
² These data should be interpreted with some caution as they may be subject to larger than usual revisions, owing to the ongoing implementation of [changes in the EU labour force survey](#).

³ The number of people on job retention schemes declined to about 1.4% of the labour force in December 2021, compared with 6.6% in January 2021 and a peak of 19.8% in April 2020.

0.4 million workers) (see Chart 1.9). Weaker growth in the labour force was partly explained by muted net immigration in the euro area. The ongoing labour market adjustment varied across worker groups, partly reflecting the fact that some sectors were more heavily affected by containment measures and voluntary social distancing. In the third quarter of 2021 the labour force was around 4.2% smaller than before the pandemic for people with low skills and 1.7% smaller for those with medium skills, whereas it increased by about 6.8% for those with high skills.⁴

Chart 1.8
Unemployment and the labour force

(left-hand scale: quarterly percentage changes, percentage point contributions; right-hand scale: percentages of the labour force)



Sources: Eurostat and ECB calculations.

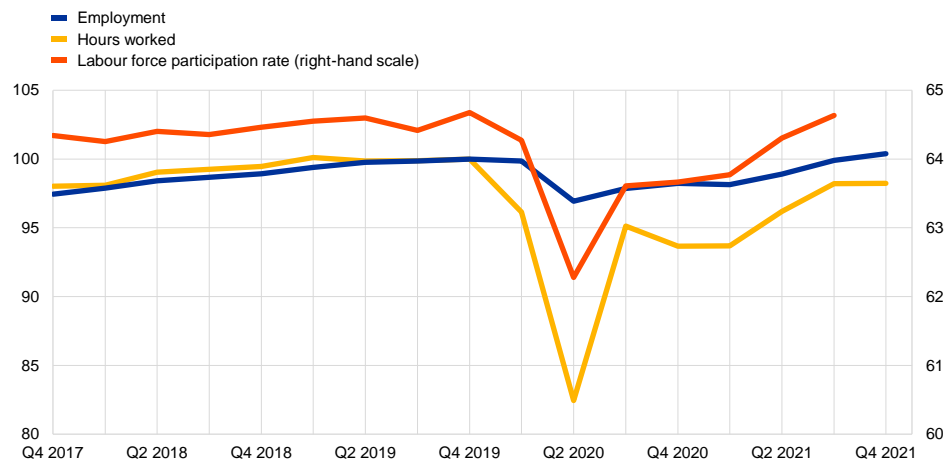
Note: The latest observations are for 2021 (left-hand panel) and the fourth quarter of 2021 (right-hand panel), which is based on implied monthly data.

⁴ As the official data at skill level are only available on a non-seasonally adjusted basis, the third quarter of 2019 is taken here as the pre-pandemic period for comparison purposes.

Chart 1.9

Employment, hours worked and the labour force participation rate

(left-hand scale: index: Q4 2019 = 100; right-hand scale: percentages of working age population)



Sources: Eurostat and ECB calculations.

Note: The latest observations are for the fourth quarter of 2021 for employment and hours worked, and the third quarter of 2021 for the labour force participation rate.

While job vacancy rates picked up, employment growth was also robust

Elevated job vacancy rates, which were initially confined mainly to those sectors reopening after lockdown measures had been lifted, broadened out to other sectors as the recovery in activity progressed. Employment growth strengthened during the second and third quarters of 2021 and, despite some headwinds from supply bottlenecks in the manufacturing sector, remained robust and broad-based in the fourth quarter. This brought employment close to pre-pandemic levels in industry, construction and less contact-intensive services sectors. Employment levels in contact-intensive sectors remained relatively low compared with levels before the pandemic.

1.3 Fiscal policy measures in challenging times

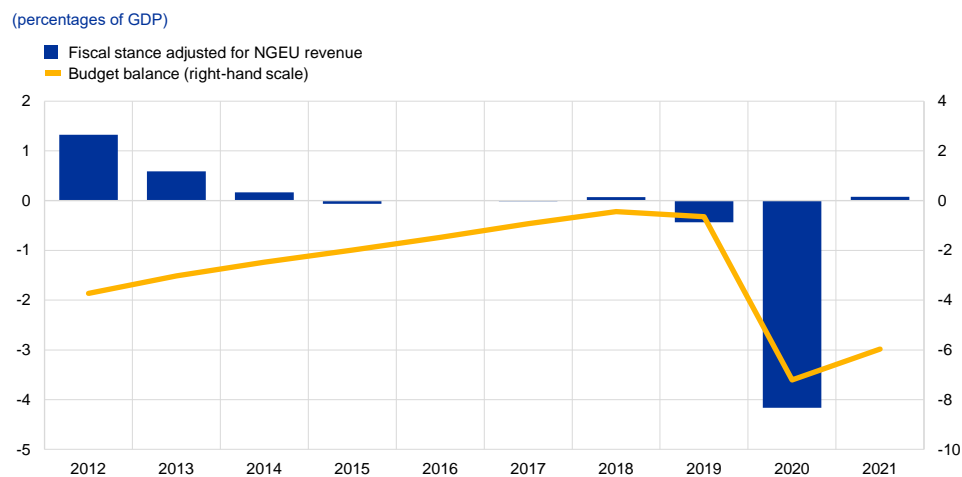
Public finances were again dominated by the effects of the pandemic

In 2021 public finances in the euro area were dominated by the effects of the COVID-19 pandemic for the second year running. Particularly the first half of the year saw governments introducing additional large-scale support in response to renewed waves of the pandemic and the imperative of supporting the economic recovery. Still, according to the December 2021 Eurosystem staff macroeconomic projections, the general government deficit ratio for the euro area is projected to have decreased (see Chart 1.10) to 5.9% of GDP in 2021 from 7.2% in 2020 thanks to a strong improvement in economic activity. The continuation of high levels of fiscal support in 2021 was reflected in the fiscal stance adjusted for Next Generation EU

(NGEU) grants⁵, which was broadly neutral in 2021 following very expansionary policy in 2020.

Chart 1.10

Euro area general government balance and fiscal stance



Sources: Eurosystem staff macroeconomic projections for the euro area, December 2021 and ECB calculations.
 Note: The measure of the fiscal stance takes into account expenditures funded by the NGEU Recovery and Resilience Facility and other EU structural funds (see footnote).

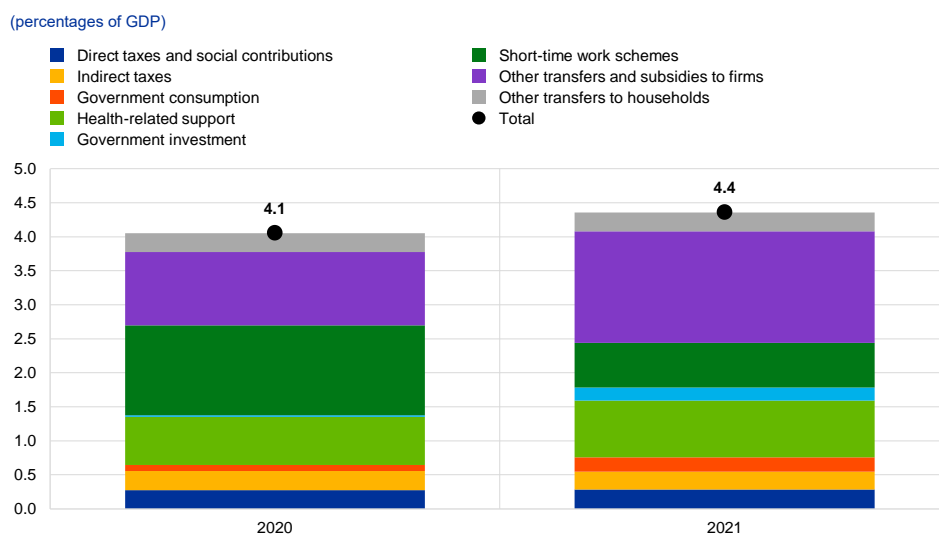
Crisis and stimulus measures increased somewhat, as transfers to companies rose but short-time work schemes were scaled back

As a share of GDP, crisis-related and recovery stimulus measures in the euro area increased to 4.4% in 2021 from 4.1% in the preceding year (see Chart 1.11). This increase was due to a significantly larger amount of government transfers to companies but also due to intensified health-related support as well as government investment. These increases were, however, largely offset by the declining use made of short-time work schemes. While such schemes were the most important instrument of government support in 2020, these were gradually reduced in 2021, as restrictive measures were eased and labour markets started to recover in line with a broad upswing in economic activity. The improvement in output also explains why the debt-to-GDP ratio of the euro area fell marginally to 97% in 2021, following a large increase in the previous year.

⁵ 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.

Chart 1.11

Crisis-related and recovery stimulus measures in the euro area



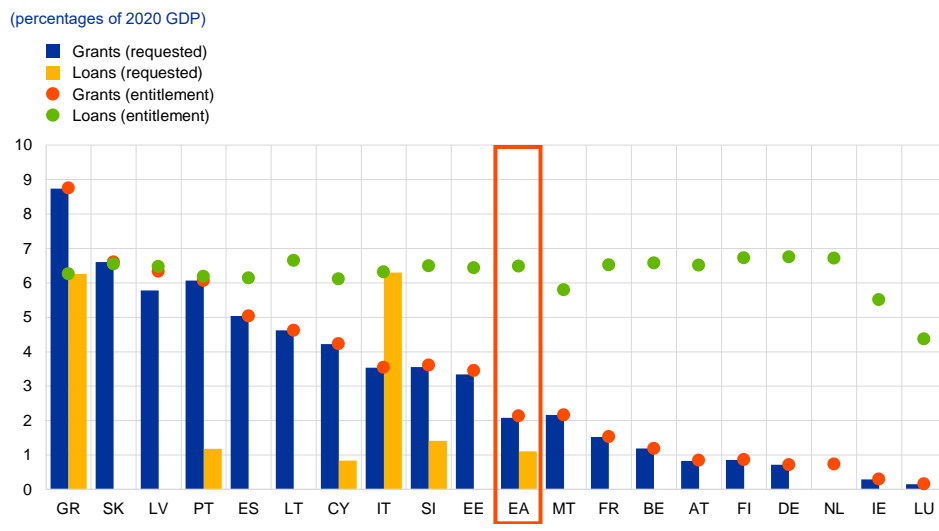
Sources: Eurosystem staff macroeconomic projections for the euro area, December 2021 and ECB calculations.
 Note: The health-related support is netted out of the other components shown, with most of the impact for government consumption.

Next Generation EU is a cornerstone of Europe's response to the economic challenges of the pandemic

Governments' responses to the fiscal needs over the last two years have been in the first place through national policies, but increasingly also through EU-wide initiatives. A cornerstone of Europe's common policy response was put in place in July 2020 when the EU announced Next Generation EU (NGEU), an EU-wide investment and reform programme. NGEU offers financial support to EU Member States, conditional on the implementation of concrete investment and reform projects over the period 2021-26. To this end, it mobilises a funding volume of up to €807 billion in current prices, out of which €401 billion (3.5% of euro area GDP) is targeted at euro area countries and the remaining part at other EU Member States. About half the funds from the Recovery and Resilience Facility, by far the largest NGEU programme, are made available in the form of loans and half in the form of non-repayable grants. In practice, however, the grant component is expected to be predominant, as all euro area countries intend to make full use of their grants, while only a few have requested loans so far. A noteworthy feature of transfers from the Recovery and Resilience Facility is that countries that have been hit hardest by the pandemic or have relatively low GDP per capita are eligible for a larger share (see Chart 1.12 for entitlements per country). Particularly if recovery and resilience plans are well implemented, this feature should contribute to alleviating cross-country divergences in economic growth that the pandemic has further exacerbated in the euro area.


Chart 1.12

Recovery and Resilience Facility entitlements and funding requested for euro area countries by end-2021




Sources: European Commission and ECB calculations.
 Notes: EA: euro area. Grant entitlements for countries are shown according to European Commission data. Loan entitlements for countries are calculated as 6.8% of their 2019 gross national income. No information is available on Recovery and Resilience Facility grant and loan requests for the Netherlands as this country has not yet submitted its recovery and resilience plan.

1.4 Upswing in inflation driven by heterogeneous effects

 Inflation increased sharply from pandemic lows

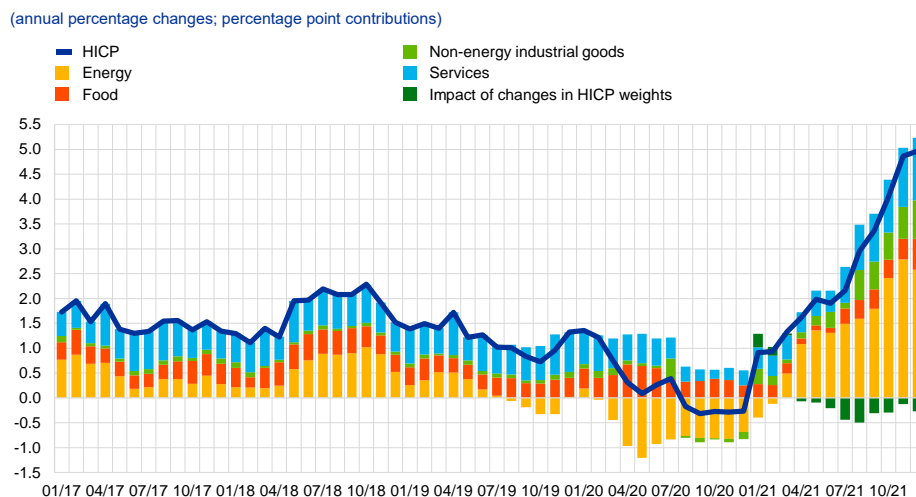
Headline HICP inflation in the euro area was 2.6% on average in 2021, sharply up from an average of 0.3% in 2020 (see Chart 1.13). This upswing reflected to a large extent the marked increase in energy prices. In addition, demand outpacing constrained supply in some sectors added to inflationary pressures, following the easing of pandemic restrictions and the strong rebound of the global and domestic economies. The surge from -0.3% annual inflation in December 2020 to 5.0% in December 2021 was unprecedented in terms of both steepness and the magnitude of the annual growth rates at the end of 2021 (Box 1 provides more details on the factors behind this rise). Moreover, it came with repeated upward surprises in the actual inflation numbers. Looking ahead, the factors behind the increase in inflation in 2021 were largely expected to fade and, after remaining elevated in the near term, inflation was expected to ease in the course of 2022. Following Russia’s invasion of Ukraine in February 2022, however, uncertainty surrounding the inflation outlook increased significantly.

 Energy inflation, the reopening of services and supply bottlenecks were behind the surge in inflation

The main contributor to the pick-up in headline inflation in 2021 was the energy component. However, from the summer onwards, the contributions of other components also became more pronounced. Easing of pandemic lockdowns and other restrictions and expansionary fiscal and monetary policies allowed demand to recover, providing a boost especially to consumer services. At the same time, strong global demand and supply bottlenecks, as well as energy prices, pushed up the cost of imported and domestically produced goods. This was also reflected in higher contributions to inflation from the non-energy industrial goods (NEIG) and services

price components later in the year (see Chart 1.13). Inflation was also sustained to some extent in the second half of the year by the effect of the previous year's temporary VAT reduction in Germany.

Chart 1.13
Headline inflation and its components

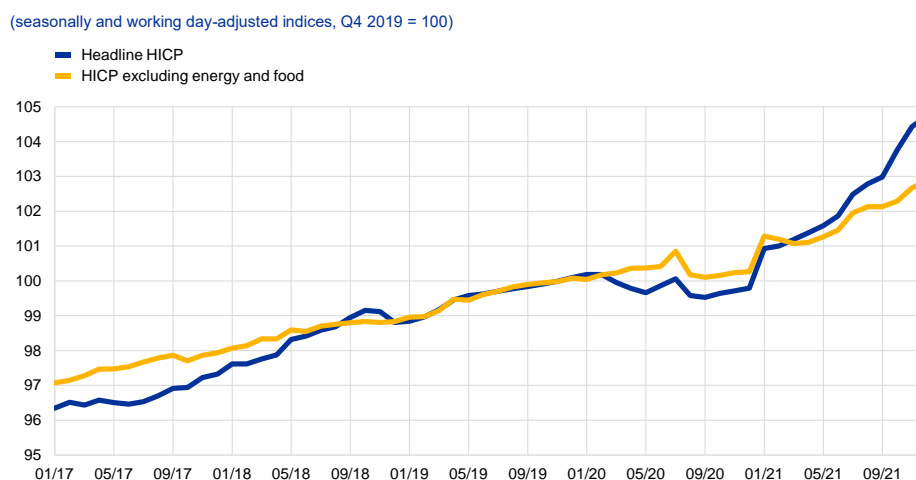


Sources: Eurostat and ECB calculations
Notes: Contributions of HICP components for 2021 are computed using HICP weights for 2020. The impact of the changes in weights is estimated by the ECB. The latest observations are for December 2021.

The price level also increased dynamically in the course of 2021

As the annual rates of change also reflect the low starting point of the previous year, price dynamics in 2021 can also be considered in terms of the development of the indices for headline HICP and HICP excluding energy and food. The rise in the price level in the course of 2021 was steeper than seen over the years prior to the pandemic, when inflation outcomes were below the ECB's inflation aim (see Chart 1.14).

Chart 1.14
Headline HICP and HICP excluding energy and food



Sources: Eurostat and ECB calculations.
Notes: The latest observations are for December 2021.

Measurement-related factors
distorted inflation numbers in 2021

Gauging price dynamics and the factors driving them was particularly challenging in 2021, not just because of the economic impact of the pandemic but also because of certain pandemic-related technical factors that affected the measurement of inflation. The first of these factors was the regular annual adjustment of the consumption weights for the compilation of the HICP.⁶ Usually, these adjustments are small, but in 2020 consumption patterns changed markedly in response to the pandemic and the various restrictions in place. For example, travel-related HICP items received a smaller weight in the 2021 HICP basket on account of the subdued tourism seasons in 2020. Overall, changes in weights had sizeable impacts, more often downward than upward, on the annual inflation rates in individual months of 2021. For the year 2021 as a whole the total estimated impact was a negative effect of 0.2 percentage points (see Chart 1.13). A second technical factor was that in several months of 2020 and 2021 prices for several HICP items (for example restaurants and travel) could not be collected via usual sources owing to COVID-19 restrictions and were replaced with prices which were imputed, i.e. obtained by other methods.⁷ A third technical factor was the fact that seasonal sale periods were moved out of their usual months in 2020 and 2021, which implied substantial volatility for the annual rate of change in non-energy industrial goods prices owing to the clothing and footwear components.

Underlying inflation rose, but more
moderately when the pandemic-
related volatility is filtered out

Given these technical factors, some caution is also warranted when interpreting developments in HICP inflation excluding energy and food. Various indicators of underlying inflation, including exclusion-based measures, statistical measures and econometrically estimated measures, also picked up throughout the year (see Chart 1.15).⁸ At the end of the year inflation rates on the basis of these measures were between 2.4% and 3.9%. In addition, price dynamics in 2020 were generally subdued and therefore imply upward base effects for rates of change in 2021. Considering this aspect, an alternative way to look at inflation developments in 2021 is to refer to the rates of change in prices over the same month two years earlier, divided by two to reflect the average change per year. Looking at this rate effectively minimises distortions stemming from the very low inflation at the beginning of the pandemic period. Calculated on this basis, HICP inflation excluding energy and food was 1.4% in December 2021 and thus roughly half the published annual growth rate of 2.6% (see Chart 1.15). However, this series also increases over the last months of 2021, to a rate last recorded for 2013, in the early years of the low inflation decade before COVID-19.

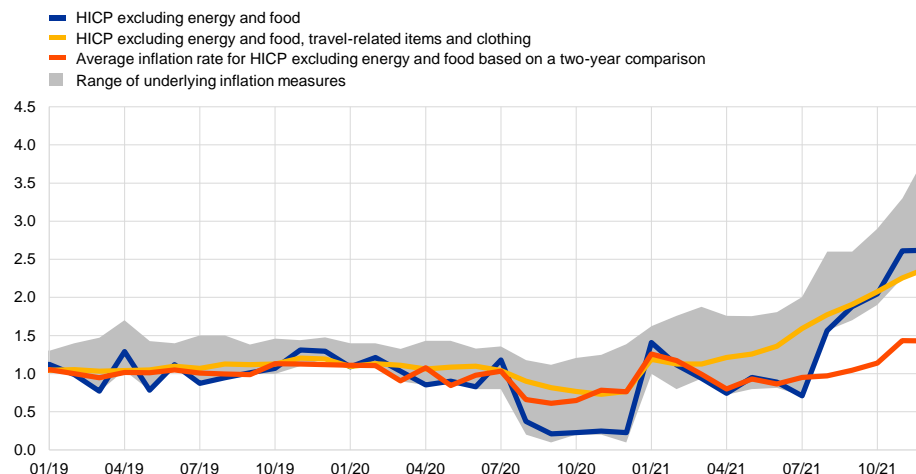
⁶ See also the box entitled “2021 HICP weights and their implications for the measurement of inflation”, *Economic Bulletin*, Issue 2, ECB, 2021.

⁷ See the box entitled “Consumption patterns and inflation measurement issues during the COVID-19 pandemic”, *Economic Bulletin*, Issue 7, ECB, 2020.

⁸ For a description of underlying inflation measures see the article entitled “Measures of underlying inflation for the euro area”, *Economic Bulletin*, Issue 4, ECB, 2018.

Chart 1.15
Indicators of underlying inflation

(annual percentage changes)



Sources: Eurostat and ECB calculations.

Notes: The range includes permanent and temporary exclusion-based measures, statistical measures and econometric measures (Supercore and the Persistent and Common Component of Inflation (PCCI)), see footnote 8 for a description of underlying inflation measures. The latest observations are for December 2021.

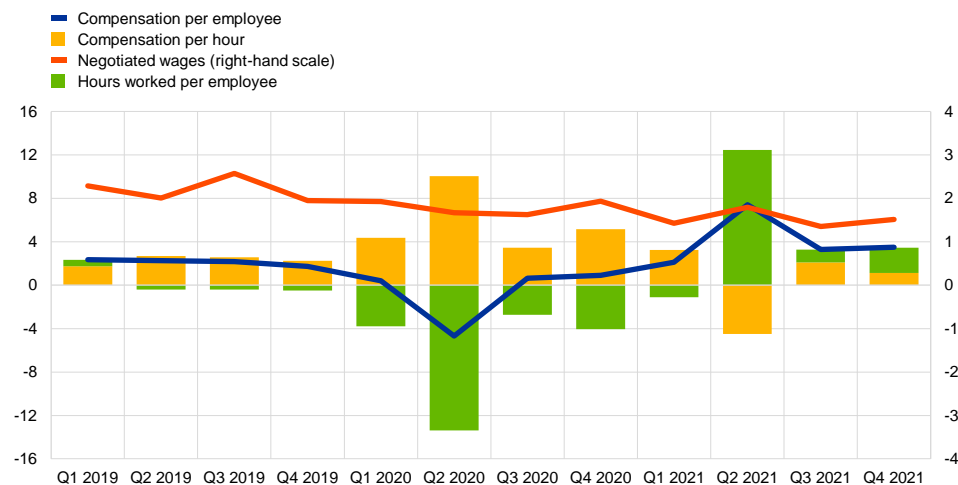
Producer prices for goods rose strongly while labour costs remained moderate

Cost pressures played an important role in shaping developments in consumer price inflation in 2021. Pipeline pressures at all stages of the pricing chain increased significantly, most prominently at the early stages and in prices of intermediate goods, which reflected the effect of supply bottlenecks and, especially in the second half of 2021, to some extent also the increase in energy prices. Price increases for imported products were somewhat higher than in 2020, in part because of a depreciation of the euro. The impact of cost pressures on producer prices for non-food consumer goods – an important indicator for the dynamics of non-energy industrial goods prices – was more moderate than at the earlier stages of the pricing chain, albeit still at a historical high. A broad measure of domestic cost pressures is the growth in the GDP deflator, which was on average 2.0% in 2021, and thus above the average of the previous year. Strong base effects and the impact of government support measures led to some volatility in the cost components related to unit labour costs and unit profits. As the reliance on job retention schemes declined and most employees went back to full salaries, the growth in compensation per employee increased to an average 4.0% in 2021, from -0.6% in 2020. As at the same time productivity per person increased given the additional hours worked, this stark increase was not mirrored in unit labour costs. The impact of government support schemes thus continued to make wage indicators such as compensation per employee and compensation per hour worked (see Chart 1.16) more difficult to interpret. Growth in negotiated wages is less affected by such measures and remained moderate, falling to 1.5% on average in 2021 from 1.8% in 2020.⁹ However, this possibly also reflected pandemic-related delays in wage bargaining rounds.

⁹ See also the box entitled “Assessing wage dynamics during the COVID-19 pandemic: can data on negotiated wages help?”, *Economic Bulletin*, Issue 8, ECB, 2020.

Chart 1.16
Labour cost measures

(annual percentage changes)



Sources: Eurostat, ECB and ECB calculations.

Notes: The latest observations are for the fourth quarter of 2021 for negotiated wages and the third quarter of 2021 for the rest.

Measures of longer-term inflation expectations rose towards the ECB's inflation target

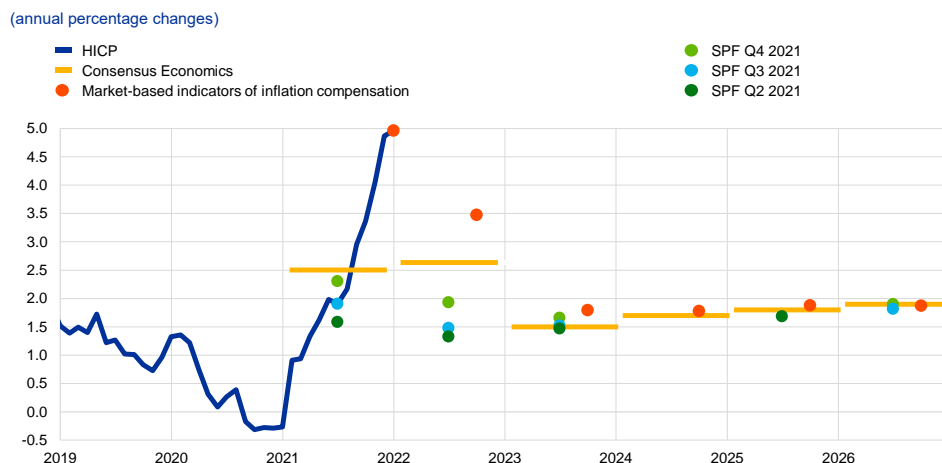
Longer-term inflation expectations of professional forecasters, which had stood at 1.7% at the end of 2020, rose to 1.9% over the course of 2021 (see Chart 1.17). According to the results of a special questionnaire sent to respondents to the ECB's Survey of Professional Forecasters (SPF), the communication of the new monetary policy strategy helped to support this adjustment in expectations.¹⁰ Market-based measures of longer-term inflation compensation, in particular the five-year inflation-linked swap rate five years ahead, followed a similar path and gradually picked up in the course of 2021. Towards the end of the year, this measure hovered just below the level of 2%, briefly surpassing it in October. Estimates of inflation risk premia included in inflation compensation demanded by investors suggest that inflation risk premia turned positive across maturities in 2021 for the first time in several years. Adjusting inflation compensation for this shows that the upturn in genuine longer-term inflation expectations embedded in market-based measures of inflation compensation was more subdued.¹¹

¹⁰ See also the box entitled "[Results of a special survey of professional forecasters on the ECB's new monetary policy strategy](#)", *Economic Bulletin*, Issue 7, ECB, 2021.

¹¹ See also the box entitled "[Decomposing market-based measures of inflation compensation into inflation expectations and risk premia](#)", *Economic Bulletin*, Issue 8, ECB, 2021.

Chart 1.17

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



Sources: Eurostat, Refinitiv, Consensus Economics, ECB (SPF) and ECB calculations.

Notes: The path of market-based indicators of inflation compensation is based on the one-year spot inflation-linked swap (ILS) rate and the one-year forward ILS rates one, two, three and four years ahead. The latest observations for ILS rates are for 30 December 2021. The SPF for the fourth quarter of 2021 was conducted between 1 and 11 October 2021. The Consensus Economics cut-off dates are 8 December 2021 for forecasts for 2021 and 2022, and 14 October 2021 for the longer-term forecasts.

Prices for homeowners increased whereas rent dynamics remained moderate

The review of the monetary policy strategy identified a need to include owner-occupied housing costs in the HICP. Significant progress on developing related indicators was achieved in 2021. However, more needs to be done, for example by better isolating the consumption component from the investment component of the property purchases included in the estimates.¹² An experimental index that combines the HICP basket with the expenditure on owner-occupied housing could already be made available by the European Statistical System in 2023, to be followed by an official index in approximately 2026. As yet, only experimental estimates are available for these costs, which are likely to have increased at an average annual rate of 4.8% in the first three quarters of 2021, up from 2.6% in 2020, and thus were considerably more dynamic than rents, which are included in the HICP. HICP rents of tenants rose by 1.2% in 2021, compared with 1.3% in 2020. The higher increase in housing costs for homeowners partly reflects the nature of the estimate: the index includes a component related to purchases of new dwellings, which has a close alignment with house prices. Looking at house prices, the growth in the ECB’s residential property price indicator increased to an average of 7.5% year on year in the first three quarters of 2021, from 5.4% in 2020. The buoyant housing market was reflected in HICP dynamics in some smaller items. For instance, until the pandemic restrictions eased significantly in late spring 2021, people spent more time at home. This change led to a rise in demand for home renovation, with a related upward dynamic in prices for goods and services related to housing, such as maintenance and repair and the laying of carpets and flooring.

¹² See also the article entitled “Owner-occupied housing and inflation measurement”, *Economic Bulletin*, Issue 1, ECB, 2022.

Box 1

Factors underlying the surge in HICP inflation

The euro area annual headline HICP inflation rate reached 5.0% in December 2021, compared with -0.3% in December 2020, 0.3% for 2020 as a whole and 0.9% on average over the five years before the pandemic. This increase mainly reflected a strong rise in energy inflation, but also a strengthening of HICP inflation excluding energy and food as demand outpaced constrained supply in some sectors amid the global and euro area recovery from the pandemic. Firms may have also raised prices to compensate for the revenue losses incurred during more stringent COVID-19 restrictions.

The low price levels in 2020 are an important factor when assessing the inflation surge in the course of 2021, as these provide the base for the calculation of annual growth rates for 2021. For instance, oil prices, and subsequently consumer energy prices, collapsed with the onset of the pandemic. Around half the energy inflation in the last quarter of 2021 can be attributed to the low 2020 level.¹³ For food prices this effect worked in the opposite direction, as following the pandemic-related spike in spring 2020 developments in food prices were relatively moderate in the first half of 2021. Base effects also stemmed from changes in indirect taxes, especially the temporary cut in the VAT rate implemented in Germany from July to December 2020 in response to the crisis. The reversal of the cut lifted the euro area inflation rate in January 2021, but it also had an upward impact in the second half of 2021 because the comparison with the level a year previously was based on prices reflecting the reduced tax rate.¹⁴ While within-year price dynamics played a larger role, the effects on annual inflation rates related to the low base in 2020, when combined, explain nearly 2 percentage points of the total 5.3 percentage point increase in the headline HICP inflation rate in December 2021 in comparison with December 2020 (see Chart A).

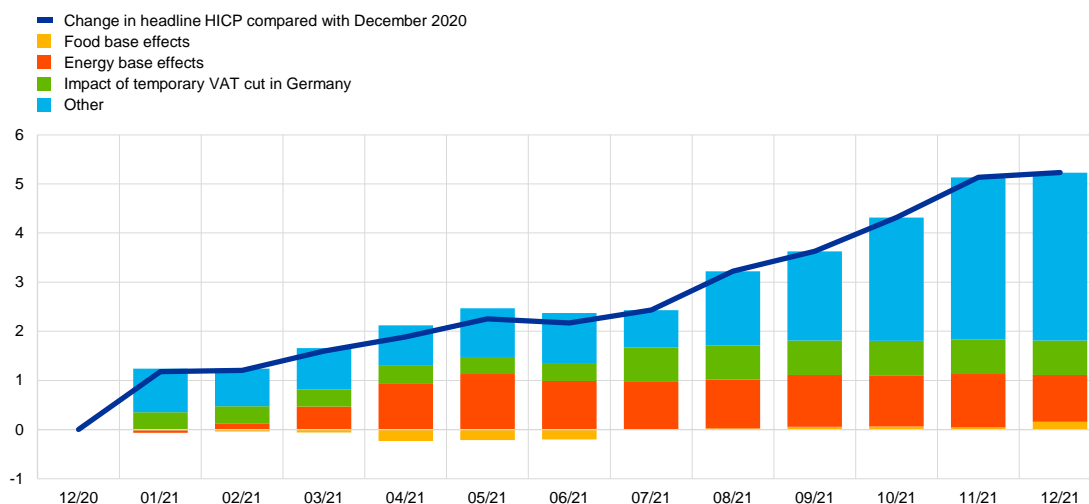
¹³ See also the box entitled “Recent dynamics in energy inflation: the role of base effects and taxes”, *Economic Bulletin*, Issue 3, ECB, 2021.

¹⁴ The impact of the reversal of the VAT rate cut is estimated at around 0.3 percentage points for January 2021, at around 0.3 percentage points for July 2021 and at around -0.3 percentage points for January 2022 (for all months the impact refers to the annual rate compared with the previous month). The estimate is based on the Deutsche Bundesbank’s assessment of the actual pass-through as published in “*Monthly Report*”, Vol. 72, No 11, Deutsche Bundesbank, November 2020.

Chart A

Cumulative change in the headline HICP inflation rate during 2021 compared with December 2020

(percentage points)



Sources: Eurostat and ECB calculations.

Notes: The chart shows, for each month of 2021, the difference between the inflation rate in that month and the inflation rate in December 2020. For example, in August 2021 the inflation rate was around 3 percentage points higher than in December 2020 and around half of this difference can be explained by a base effect, i.e. the low level of the base for comparison in 2020.

A second factor in the inflation surge was the fact that consumer energy prices did not just normalise in 2021 but kept increasing strongly. The additional rise was initially seen mainly in prices for transportation fuels, as global demand for oil strengthened in line with the ongoing recovery while supply remained somewhat restrained. Later in the summer, gas and electricity prices also surged (see Chart B, panel a). This reflected higher demand but also some supply constraints for gas. Demand for gas in Europe was extraordinarily high due to a cold winter 2020/21 and calm winds during the summer of 2021, which led to the substitution of wind-generated energy with gas.¹⁵ Moreover, gas supply from Norway was reduced in the first half of the year owing to maintenance work on pipelines, and in the summer EU imports of gas from Russia were relatively low. The global recovery also raised demand for gas, especially in China. Consumers spend a larger share of their energy expenditure on transportation fuels (around 40%) than on gas (around 30%) and electricity (around 20%), and the developments in prices for fuels are usually the main determinant of energy inflation. However, the rise in gas and electricity prices in autumn 2021 resulted in a historically high contribution of these items to energy inflation in the euro area (see Chart B, panel b).

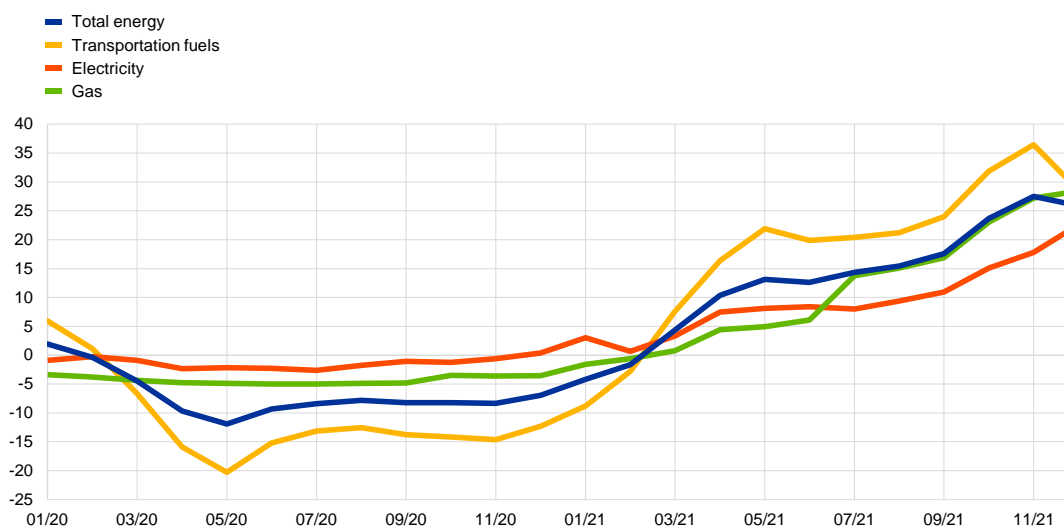
¹⁵ High carbon prices (i.e. prices for emission allowances) induced by green policies mean that gas has become the preferred substitute for wind power in the event of insufficient generation due to weather conditions, as it is less emissive than other fuels, in particular coal.

Chart B

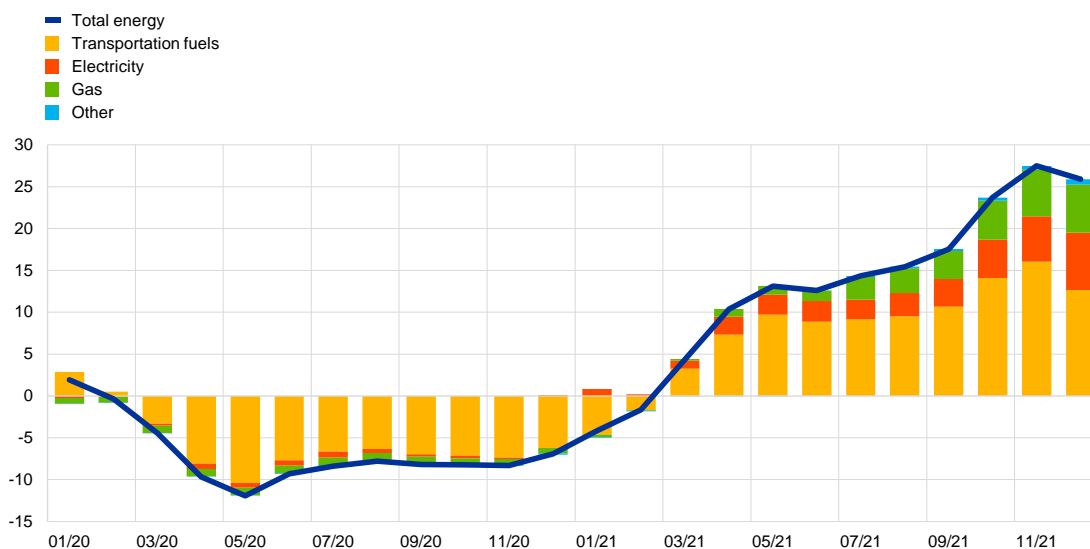
Developments in energy inflation

(annual percentage changes; percentage point contributions)

a) Annual HICP inflation rate for energy and its main components



b) Contribution of the main components to the annual inflation rate for energy



Sources: Eurostat and ECB calculations.

The third main factor in the surge in inflation was the price pressures emerging in the context of the reopening of the economy after a period of pandemic-related restrictions. Demand picked up strongly, both globally and domestically, outpacing constrained supply in some sectors. As a result, supply shortages emerged at the global level and transportation costs rose sharply around the turn of 2020/21.¹⁶ Euro area producer prices rose steadily throughout 2021, not only for intermediate goods but also for consumer goods. There is no immediate and stable link between producer and consumer prices, but the gradual rise in consumer prices for durable goods particularly in the

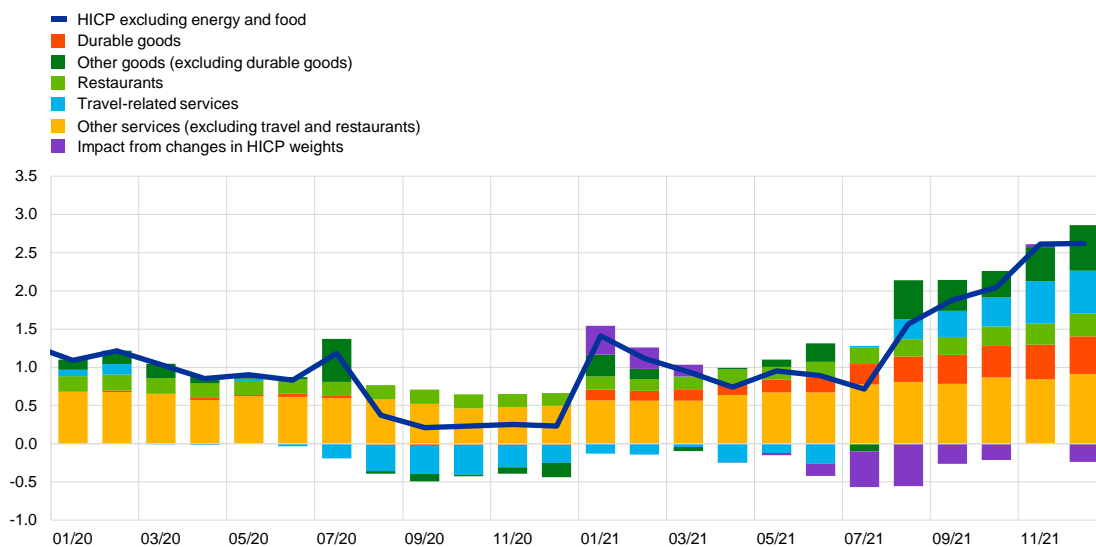
¹⁶ See the boxes entitled “What is driving the recent surge in shipping costs”, *Economic Bulletin*, Issue 3, ECB, 2021; “The semiconductor shortage and its implication for euro area trade, production and prices”, *Economic Bulletin*, Issue 4, ECB, 2021; and “Sources of supply chain disruptions and their impact on euro area manufacturing”, *Economic Bulletin*, Issue 8, ECB, 2021.

second half of 2021 was noticeable (see Chart C).¹⁷ Price dynamics became more pronounced for new and used cars, bicycles and motorcycles, as well as various electronic items such as IT products and televisions, all items that are likely to have been affected by production shortages such as those related to semiconductors or by bottlenecks in global shipping and delivery chains.

Chart C

Decomposition of HICP inflation excluding energy and food

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: Contributions from the components for 2021 are calculated using 2020 HICP weights. The impact of changes in HICP weights is estimated by the ECB.

One of the sectors most heavily affected by the pandemic restrictions was “high-contact” services. Once the restrictions gradually eased, the price dynamics for these items started to strengthen. For instance, the increase in the annual rate of change for travel-related services (such as accommodation, transportation by air and package holidays) was particularly visible at the start of the holiday season in summer 2021 (see Chart C).¹⁸ This increase, like that in energy prices, also partly reflected the comparison with the low prices in the previous year. In addition, price dynamics for restaurant prices also gradually strengthened after the reopening in spring 2021. The higher inflation rates for high-contact services reflected not only the sudden re-emergence of demand but also the higher costs and reduced capacity resulting from pandemic-related requirements as well as labour shortages as some firms found it difficult to rehire staff laid off during closures.

Finally, inflation volatility in 2021 was affected by a number of other specific factors as described in the main text of Section 1.4. For example, price dynamics for clothing and footwear were affected by changes in the timing of seasonal sales, and the change in weights for HICP items was

¹⁷ For a more detailed look at developments in euro area producer prices and their impact on consumer prices, see the box entitled “Recent developments in pipeline pressures for non-energy industrial goods inflation in the euro area”, *Economic Bulletin*, Issue 5, ECB, 2021.

¹⁸ During the lockdowns prices for these items were subject to somewhat higher measurement uncertainty as they could not always be collected and were therefore estimated (i.e. imputed), see also the main text of Section 1.4. For more detailed analysis of consumer prices for travel-related items, see the box entitled “Prices for travel during the COVID-19 pandemic: is there commonality across countries and items?”, *Economic Bulletin*, Issue 1, ECB, 2021.

unusually large for 2021, with a particularly sizeable effect in HICP inflation excluding energy and food (see Chart C).

Overall, the rise in HICP inflation in 2021 was related mainly to special factors emerging in the context of the COVID-19 pandemic and economic recovery. The unprecedented nature of the crisis and the specificity of the factors behind the surge in inflation during the recovery imply particularly high uncertainty and challenges in assessing inflation developments in the period ahead.

1.5 Continued decisive policy measures kept credit and financing conditions supportive

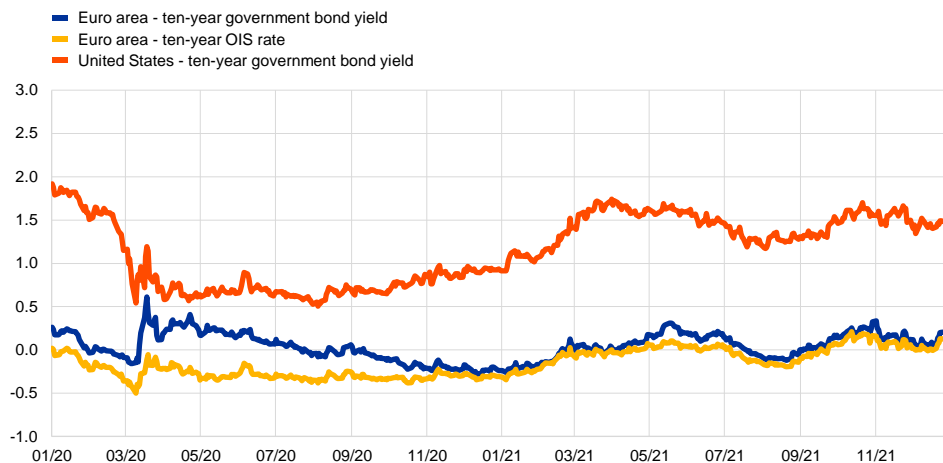
Continued asset purchases and ECB communication dampened upward pressures on long-term yields

Together with improvements in the fight against the pandemic, stimulus from fiscal, monetary and prudential policy lent support to the vigorous rebound of economic activity in 2021 (see Section 1.2). In the second half of the year investors also began to demand higher compensation for exposure to inflation dynamics, revising up their long-term inflation expectations and risk premia, which led to a rise in long-term interest rates (see Chart 1.18). Against this background, the ECB reconfirmed its accommodative policy stance and its commitment to maintaining favourable financing conditions in the euro area. This helped, at least partially, to shield euro area yields from global market developments in which higher than expected inflation led market participants to price in an earlier than previously expected tightening of monetary policy in a number of advanced economies. Furthermore, the ECB's communication on its supportive monetary policy stance and continued large-scale asset purchases helped to prevent sovereign bond yield spreads from rising, i.e. the development in sovereign yields remained close to that of corresponding risk-free rates. As a result, the euro area GDP-weighted average of ten-year government bond yields increased steadily in 2021 and stood at 0.27% on 31 December, 51 basis points higher than its level at the end of 2020 (see Chart 1.18). More generally, financing conditions in the euro area remained supportive.

Chart 1.18

Long-term yields in the euro area and the United States

(percentages per annum, daily data)



Sources: Bloomberg, Refinitiv and ECB calculations.

Notes: The euro area data refer to the GDP-weighted average of ten-year government bond yields and to the ten-year overnight index swap (OIS) rate. The latest observations are for 31 December 2021.

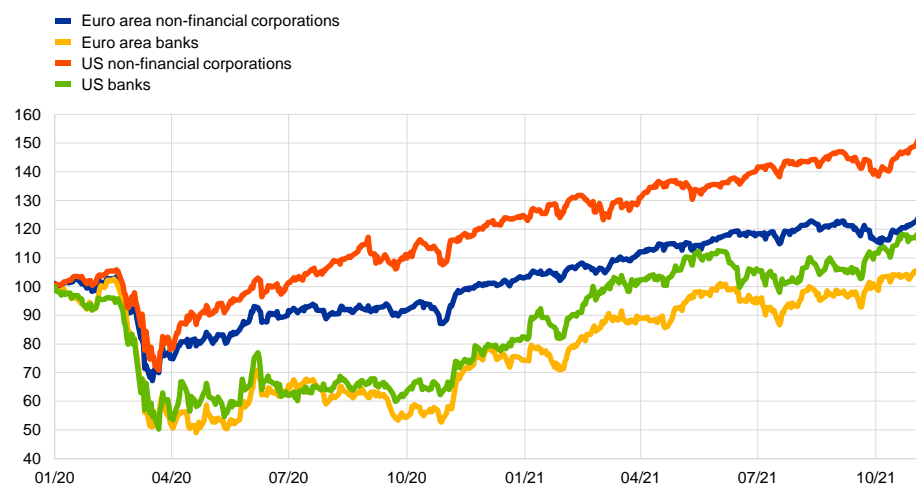
Equity markets supported by long-term earnings expectations

With the ongoing commitment to monetary and fiscal support, the rebound of economic activity in 2021 contributed to a steady increase in equity prices in the euro area, which was driven by very robust and resilient long-term earnings expectations. This trend was temporarily interrupted from mid-September to mid-October, as market expectations of a possible tapering of asset purchases by the Federal Reserve System weighed on the dynamics of stock markets worldwide. At a sectoral level, euro area bank stock prices, which had fallen in 2020, rose significantly faster than non-financial stock prices. The broad index for euro area non-financial corporation equity prices stood on 31 December 2021 at around 19% above end-2020 levels, while the increase in euro area bank equity prices was significantly higher, at more than 30% (see Chart 1.19).

Chart 1.19

Equity market indices in the euro area and the United States

(index: 1 January 2020 = 100)



Sources: Bloomberg, Refinitiv and ECB calculations.

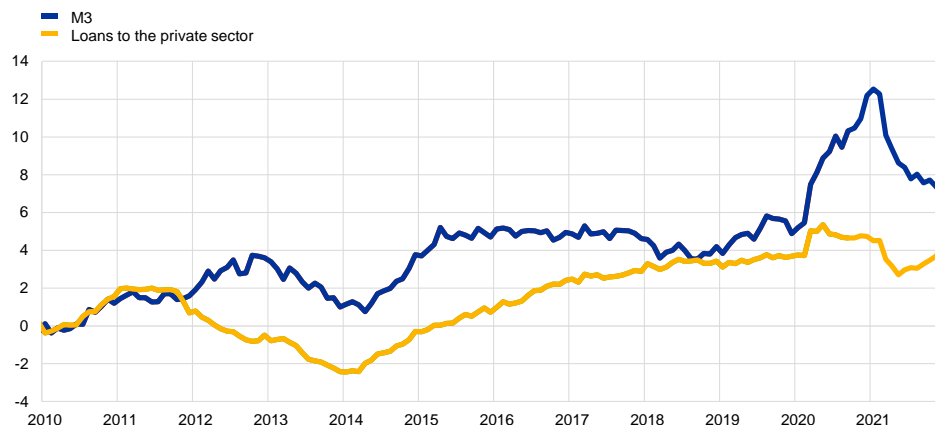
Note: The EURO STOXX banks index and the Refinitiv market index for non-financial corporations are shown for the euro area; the S&P banks index and the Refinitiv market index for non-financial corporations are shown for the United States. The latest observations are for 31 December 2021.

Money and loan growth pointed to a sustained, albeit more moderate, monetary expansion

Broad money growth pointed to a continued robust monetary expansion in 2021. Its pace was closer to the longer-term average than it had been in 2020, i.e. the first year of the pandemic, when it rose sharply (see Chart 1.20). Money creation was driven by the narrow aggregate M1, reflecting a sustained accumulation of overnight bank deposits by firms and households, which was nonetheless more muted than in 2020. In line with the recovery in consumer confidence and spending, household deposit flows returned to their pre-pandemic average. The fact that strong deposit growth in 2020 was not offset by a period of below-average growth suggests a desire to maintain higher savings, as also reflected in the responses to the ECB's [Consumer Expectations Survey](#). Corporate deposit flows also remained strong, pointing to a further strengthening of liquidity buffers by firms. Eurosystem asset purchases were the largest source of money growth, followed by credit to the private sector. The timely and sizeable measures taken by monetary, fiscal and supervisory authorities during the COVID-19 crisis ensured that the flow of credit to the euro area economy remained at favourable terms.

Chart 1.20
M3 and loans to the private sector

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



Source: ECB.
Note: The latest observations are for December 2021.

Monetary policy measures helped to ensure favourable bank lending conditions

Bank lending conditions were supportive overall during the year. The [euro area bank lending survey](#) indicated that banks' credit standards (i.e. internal guidelines or loan approval criteria) for loans to firms and households, which had tightened in the euro area in the previous year, were broadly unchanged starting from the second quarter of 2021. This reflected a reduction in the risks perceived by banks, given the economic recovery and the continued monetary and fiscal policy support, including through loan guarantees. Banks also reported that the ECB's asset purchase programmes, the third series of targeted longer-term refinancing operations and the negative deposit facility rate had provided support for lending. At the same time, the asset purchase programmes and the negative deposit facility rate were reported to have weighed on their profitability.



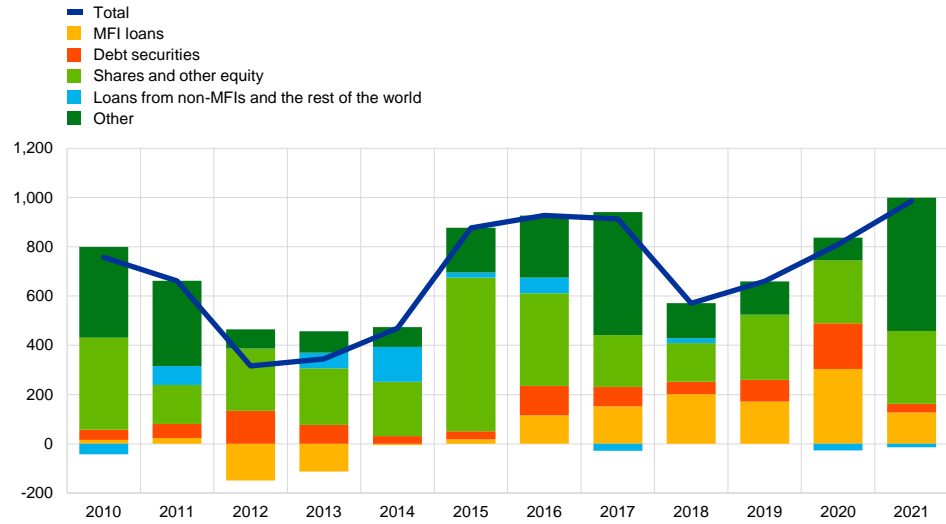
Housing loans remained dynamic but bank lending to firms moderated from pandemic highs as other funding sources were available

By keeping funding costs for euro area banks low, the policy support measures helped to exert downward pressure on lending rates and prevented a broad-based tightening of financing conditions. During 2021, bank lending rates remained broadly stable around their historical lows. While housing loans grew strongly, consumer credit remained weak as the savings accumulated during the pandemic were available for consumption spending. For firms, the abundant cash reserves, the increase in retained earnings supported by the recent recovery, and the availability of other funding sources – especially inter-company loans and trade credit – reduced borrowing needs. Thus, non-financial corporations' borrowing from banks and their net issuance of debt securities moderated, after having grown strongly in 2020, despite the real cost of debt financing reaching a new historical low in the fourth quarter of 2021. After 7.1% in the first year of the pandemic, the annual growth rate of bank loans to firms fell back in 2021, to 4.3%, while according to the [Survey on the access to finance of enterprises](#), the share of firms reporting obstacles when seeking a loan declined to pre-pandemic levels. Non-financial corporations were also able to rely on shares and other equity as a means of financing. In total, the external financing flows of non-financial corporations increased further in 2021 (see Chart 1.21).

Chart 1.21

Net flows of external financing to non-financial corporations in the euro area

(annual flows, EUR billions)



Sources: Eurostat and ECB.

Notes: MFI: monetary financial institutions. In "loans from non-MFIs and the rest of the world", non-monetary financial institutions consist of other financial intermediaries, pension funds and insurance corporations. "MFI loans" and "loans from non-MFIs and the rest of the world" are corrected for loan sales and securitisation. "Other" is the difference between the total and the instruments included in the chart and consists mostly of inter-company loans and trade credit. The latest observations are for the third quarter of 2021. The annual flow for 2021 is computed as a four-quarter sum of flows from the fourth quarter of 2020 to the third quarter of 2021.

2 Monetary policy: continued support and a new strategy

The comprehensive set of monetary policy measures employed by the ECB in 2021 and their recalibrations prevented a procyclical tightening of financing conditions and reduced the threat of a liquidity and credit crunch by keeping ample liquidity in the banking system and protecting the flow of credit to the economy. The monetary policy response was a crucial stabilising force for markets and provided support to the economy and the inflation outlook. The size of the Eurosystem's balance sheet reached a historical high of €8.6 trillion at the end of 2021, an increase of €1.6 trillion compared with a year earlier. At the end of 2021 monetary policy-related assets accounted for 80% of the total assets on the Eurosystem's balance sheet. Risks related to the large balance sheet continued to be mitigated by the ECB's risk management framework.

2.1 The ECB's monetary policy response continued to provide crucial support to the economy and the inflation outlook

Keeping financing conditions supportive

The pandemic continued to disrupt economic activity at the start of the year and inflation remained very low

At the start of 2021 economic developments in the euro area were still deeply affected by the ongoing COVID-19 pandemic. Although the start of vaccination campaigns was a milestone in the fight against the coronavirus, the renewed surge in infections and the emergence of virus variants meant that measures to reduce the spread of the virus needed to be prolonged or tightened in many euro area countries. This disrupted economic activity and clouded the near-term outlook. Inflation remained very low, in a context of weak demand and significant slack in labour and product markets. Overall, incoming data at the start of the year confirmed the Governing Council's previous baseline assessment that the pandemic would have a pronounced impact on the economy in the near term and that there would be protracted weakness in inflation. In broad terms, financing conditions in the euro area were generally supportive. Although risk-free rates had risen slightly since the Governing Council's December 2020 meeting, sovereign and corporate credit spreads had been resilient, bond market conditions remained favourable – including for corporate bonds – and bank lending rates were close to their historical lows for both households and firms.

In January the Governing Council confirmed the accommodative monetary policy stance of December 2020

Against this background ample monetary policy support remained essential, and the Governing Council decided in January 2021 to confirm the accommodative monetary policy stance of December 2020 in order to preserve favourable financing conditions

over the pandemic period.¹⁹ This was aimed at reducing uncertainty and bolstering confidence, encouraging consumer spending and business investment, underpinning economic activity, and therefore safeguarding medium-term price stability. In particular, the net purchases under the €1,850 billion pandemic emergency purchase programme (PEPP), which had been extended to at least the end of March 2022, contributed to preserving favourable financing conditions for all sectors of the economy, while the third series of targeted longer-term refinancing operations (TLTRO III) remained an attractive source of funding for banks, supporting bank lending to firms and households. The continued reinvestment of principal payments from maturing securities purchased under the PEPP and the continued net monthly asset purchases of €20 billion under the asset purchase programme (APP) also supported financing conditions by signalling a presence of the Eurosystem in the markets over the pandemic period and beyond.

The extension and tightening of containment measures weighed on economic activity in the first quarter but headline inflation rose sharply

While in the early months of the year the spread of virus variants and the associated extension and tightening of containment measures weighed increasingly on economic activity, headline inflation started to rise sharply from negative levels on the back of country-specific and technical factors (including base effects) as well as a marked pick-up in energy prices. Underlying price pressures, however, remained subdued in the context of continued weak demand and significant slack in labour and product markets. Longer-term risk-free interest rates and sovereign bond yields continued the rise seen since the Governing Council's December meeting. As these market interest rates are the key benchmark rates used in the pricing of other capital market instruments – such as corporate and bank bonds – as well as in the pricing of bank loans to households and firms, shocks originating in these rates tend to influence broader financing conditions at a later stage. A sizeable and persistent increase in market interest rates could therefore translate into a premature tightening of financing conditions for all sectors of the economy. This would have challenged the commitment made by the Governing Council in December 2020 and January 2021 to preserve favourable financing conditions over the pandemic period and to

¹⁹ In December 2020 the Governing Council recalibrated its monetary policy instruments as follows: first, the interest rates on the main refinancing operations (0.00%), the marginal lending facility (0.25%) and the deposit facility (-0.50%) remained unchanged. The Governing Council said it expected the key ECB interest rates to remain at their present or lower levels until it had seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2% within its projection horizon, and such convergence had been consistently reflected in underlying inflation dynamics. Second, the envelope of the pandemic emergency purchase programme (PEPP) was increased by €500 billion to a total of €1,850 billion and the horizon for net purchases extended until at least the end of March 2022. The Governing Council said that in any case it would conduct net purchases until it judged that the coronavirus crisis phase was over. Reinvestment of principal payments from maturing securities purchased under the PEPP was extended until at least the end of 2023. Third, the conditions of the third series of targeted longer-term refinancing operations (TLTRO III) were recalibrated. Fourth, the duration of the set of collateral easing measures adopted on 7 and 22 April 2020 was extended to June 2022. Fifth, the Governing Council said that four additional pandemic emergency longer-term refinancing operations (PELTROs) would be offered in 2021. Sixth, it said that net purchases under the asset purchase programme (APP) would continue at a monthly pace of €20 billion, and that it expected them to run for as long as necessary to reinforce the accommodative impact of its policy rates, and to end shortly before it started raising the key ECB interest rates. The Governing Council said it also intended to continue full reinvestment of principal payments from maturing securities purchased under the APP for an extended period of time past the date when the key ECB interest rates were raised, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation. Seventh, the Governing Council said that the Eurosystem repo facility for central banks (EUREP) and all temporary swap and repo lines with non-euro area central banks would be extended until March 2022. Finally, it also said that regular lending operations would continue to be conducted as fixed rate tender procedures with full allotment at the prevailing conditions for as long as necessary.

prevent any tightening that was inconsistent with countering the pandemic's downward impact on the projected inflation path. A tightening of financing conditions would have increased uncertainty and reduced confidence, further curtailing economic activity and endangering medium-term price stability.

The Governing Council increased the pace of PEPP net asset purchases in March after market interest rates rose

In March, as financing conditions had tightened while the inflation outlook had not improved, the Governing Council decided to conduct net purchases under the PEPP in the following quarter at a significantly higher pace than in the first months of the year. The remaining December policy measures were reconfirmed.²⁰ In April, the pace of net purchases as well as the other measures were left unchanged, as incoming information confirmed the joint assessment of financing conditions and the inflation outlook carried out at the March meeting.

Reopening of the economy and a new strategy

The June Eurosystem staff projections saw inflation increasing in 2021 before declining again in 2022

Towards the middle of the year, the evolution of COVID-19 infections and the progress in vaccination campaigns allowed a reopening of the euro area economy. Despite the emergence of new virus variants, pressure on healthcare systems was abating. The June Eurosystem staff macroeconomic projections for the euro area saw inflation continuing to increase in the second half of 2021, before declining again in 2022 as temporary factors were expected to fade out. Underlying inflation pressures were seen gradually increasing throughout the projection horizon, and projections for the Harmonised Index of Consumer Prices (HICP) excluding energy and food were revised upwards. Headline inflation was, however, still projected to stay below the Governing Council's aim throughout the projection horizon, and underlying inflation was also projected to stay below 2%. While financing conditions for firms and households remained stable, market interest rates increased further in the period before the Governing Council meeting on 10 June. This was partly due to the improved economic prospects, but any tightening in wider financing conditions was considered by the Governing Council to be premature and a risk to the ongoing recovery and inflation outlook.

Since the outlook for inflation beyond the near term continued to fall short of the medium-term path that had been projected before the pandemic, and amid the risk of tighter financing conditions, the Governing Council decided in June to continue net asset purchases under the PEPP at a significantly higher pace than during the first months of the year and also confirmed all of its other policy measures.

The ECB concluded its monetary policy strategy review in July 2021 and adopted a symmetric inflation target of 2%

On 8 July the Governing Council concluded its monetary policy strategy review (see Section 2.4). The new strategy incorporated two key factors to be reflected in the formulation of the Governing Council's monetary policy stance: first, the adoption of a new, symmetric 2% inflation target over the medium term; and, second, a conditional commitment to take into account the implications of the effective lower bound when conducting monetary policy in an environment of structurally low nominal interest rates, which would require especially forceful or persistent monetary policy measures when the economy is close to the lower bound. In pursuit of its new

²⁰ See the first footnote in Section 2.1.

target and in line with its monetary policy strategy, the Governing Council therefore revised its forward guidance on the key ECB interest rates at its July monetary policy meeting, tying its policy path to three specific conditions related to the inflation outlook. The Governing Council said that the key ECB interest rates were expected to remain at their present or lower levels until it saw inflation reaching 2% well ahead of the end of the projection horizon, and durably for the rest of the projection horizon, and until it judged that realised progress in underlying inflation was sufficiently advanced to be consistent with inflation stabilising at 2% over the medium term. It said that this may also imply a transitory period in which inflation is moderately above target.

In July the Governing Council confirmed its March assessment, which was consistent with preserving favourable financing conditions

In the run-up to the July meeting market interest rates had declined and financing conditions for most firms and households remained at favourable levels. While inflation had continued to rise, this was largely expected to be temporary, and the outlook for the medium term remained subdued. Economic recovery in the euro area was on track, although the spread of the Delta variant of the coronavirus constituted a growing source of uncertainty. Preserving favourable financing conditions was considered essential to ensure that the economic rebound turned into a lasting expansion and to offset the negative impact of the pandemic on inflation. The Governing Council therefore continued to expect net purchases under the PEPP to be conducted at a significantly higher pace than during the first months of the year. It also confirmed the other policy measures.

Supporting the shift to a solid economic recovery and, ultimately, the return of inflation to the 2% target

The September ECB staff projections included further upward revisions to inflation over the projection horizon

By September the rebound phase in the recovery of the euro area economy was increasingly advanced, with output expected to exceed its pre-pandemic level by the end of the year. The new ECB staff macroeconomic projections for the euro area revised the projections for inflation in 2021 up, owing to the high cost pressures stemming from temporary shortages of materials and equipment, the continued higher than anticipated contribution from energy prices, and the effects of the temporary VAT reduction in Germany between July and December 2020. However, inflation in 2023 was still seen at well below 2%, although it was revised up slightly to reflect the better growth outlook and a faster reduction in the degree of slack in the economy. Market-based measures of inflation expectations continued moving up, and were significantly higher than the pandemic lows, though remaining below the ECB's medium-term target for HICP inflation of 2%. Financing conditions for firms, households and the public sector remained favourable, with bank lending rates at historical lows.

The Governing Council decided on a moderately lower pace of PEPP net asset purchases from September amid favourable financing conditions and a better medium-term inflation outlook

On the basis of the slight improvement in the medium-term inflation outlook and in view of the prevailing level of financing conditions, the Governing Council judged in September that favourable financing conditions could be maintained with a moderately lower pace of net asset purchases under the PEPP than in the previous two quarters. The Governing Council confirmed its other measures.

In October the Governing Council reaffirmed its September stance

As the Governing Council met in October, the euro area economy continued to recover strongly. However, growth momentum had moderated to some extent, particularly as shortages of materials, equipment and labour held back production in some sectors. Inflation continued to rise, primarily because of the surge in energy prices but also as the recovery in demand outpaced constrained supply. Inflation was expected to rise further in the near term, but then decline over the course of the following year. Market interest rates had increased since September. Financing conditions for the economy nevertheless remained favourable, especially as bank lending rates for firms and households remained at historically low levels. The Governing Council therefore reaffirmed its September stance, leaving the net purchase pace of the PEPP and all of its other measures unchanged.

The December Eurosystem staff projections revised up inflation but saw growth slowing in the near term, while over 2022 growth was seen rising and inflation declining

By the end of the year, new pandemic-related restrictions and uncertainty, particularly owing to the emergence of the Omicron variant of the coronavirus, continued shortages of materials, equipment and labour as well as significantly higher energy prices were restraining economic activity. The slowdown in growth in the final quarter of the year and the expectation that this would continue into the first part of 2022 led to the December Eurosystem staff projection for growth in 2022 being revised down. Growth was nonetheless expected to pick up strongly again in the course of 2022. Inflation had continued in November to increase at a higher rate than projected, but was expected to decline over the course of 2022. Market and survey-based measures of longer-term inflation expectations had moved somewhat closer to 2%. This, along with the gradual return of the economy to full capacity and further improvements in the labour market supporting faster wage growth, was expected to help underlying inflation move up and bring headline inflation to the Governing Council's target over the medium term. The December staff projections for both headline and underlying inflation were therefore revised up compared with September, although, at 1.8% in 2024, they remained below the target for HICP inflation. Financing conditions for the economy remained favourable in December, with market interest rates having stayed broadly stable since the October Governing Council meeting and bank lending rates remaining at historically low levels for firms and households.

In December the Governing Council announced a step-by-step reduction in the pace of asset purchases from the first quarter of 2022, discontinuation of PEPP net purchases at the end of March, and flexible PEPP reinvestments until at least end-2024

At its December meeting the Governing Council judged that the progress on economic recovery and towards the medium-term inflation target permitted a step-by-step reduction in the pace of asset purchases over the following quarters. At the same time, monetary accommodation would still be needed for inflation to stabilise at 2% over the medium term, and the environment of uncertainty underscored the need to maintain flexibility and optionality in the conduct of monetary policy. With this in mind, the Governing Council therefore took the following decisions.

First, the Governing Council expected to reduce the pace of net asset purchases under the PEPP in the first quarter of 2022 and would discontinue net purchases at the end of March 2022.

Second, it extended the reinvestment horizon for the PEPP. The Governing Council expressed its intention to reinvest the principal payments from maturing securities

purchased under the programme until at least the end of 2024. In any case, the future roll-off of the PEPP portfolio would be managed to avoid interference with the appropriate monetary policy stance.

Third, the Governing Council emphasised that the pandemic had shown that, under stressed conditions, flexibility in the design and conduct of asset purchases helped to counter the impaired transmission of monetary policy and made efforts to achieve its policy goal more effective. Within the Governing Council's mandate, under stressed conditions, flexibility would therefore remain an element of monetary policy whenever threats to monetary policy transmission jeopardised the attainment of price stability. In particular, in the event of renewed market fragmentation related to the pandemic, PEPP reinvestments could 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 was 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 remained consistent with inflation stabilising at the target over the medium term, the Governing Council decided on a monthly net purchase pace of €40 billion in the second quarter of 2022 and €30 billion in the third quarter under the APP. From October 2022 onwards, net asset purchases under the APP would 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 expected net purchases to end shortly before it started to raise the key ECB interest rates.

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

The level of the key ECB interest rates and the forward guidance on the future path of policy rates were confirmed.

The Governing Council also said it would continue to monitor bank funding conditions and ensure that the maturing of TLTRO III operations did not hamper the smooth transmission of monetary policy. It would also regularly assess how targeted lending operations contributed to the monetary policy stance. The Governing Council said that, as previously announced, it expected the special conditions applicable under TLTRO III to end in June 2022. It would also assess the appropriate calibration of the two-tier system for reserve remuneration so that the negative interest rate policy did not limit banks' intermediation capacity in an environment of ample excess liquidity. Finally, the Governing Council once again confirmed that it stood ready to adjust all its instruments, as appropriate, to ensure that inflation stabilised at its 2% target over the medium term.

Accommodative monetary policy and recalibrated measures provided favourable financing conditions and countered the negative impact of the pandemic on inflation

To sum up, substantial monetary policy accommodation was maintained over the course of 2021 to counter the negative impact of the pandemic on the inflation outlook. Recalibrations of the comprehensive set of measures helped to maintain favourable financing conditions. The measures were effective in containing government bond yields (see Chart 2.1), which are the basis of funding costs for households, firms and banks. They also kept bank funding costs very favourable (see Chart 2.2). In addition, they ensured that households and firms benefited from these supportive financing conditions, with the respective lending rates reaching new historical lows and standing at 1.31% and 1.36% for the year (see Chart 2.3). Inflation rose significantly in the second half of the year, while the economy broadly continued on its recovery path. In view of the progress on economic recovery and towards the medium-term inflation target, the Governing Council decided to start a step-by-step reduction in asset purchases from the beginning of 2022. Overall, the monetary policy response in 2021 ensured favourable financing conditions, supporting the continued economic recovery and the convergence of inflation with the Governing Council's target.

Chart 2.1

Euro area GDP-weighted ten-year government bond yield and ten-year overnight index swap rate

(percentages per annum)



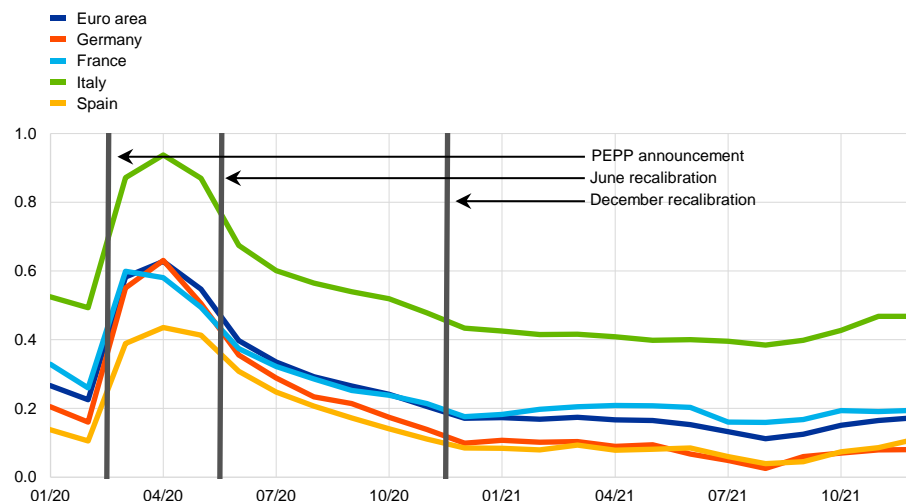
Source: ECB calculations.

Notes: The latest observations are for 31 December 2021.

Chart 2.2

Composite cost of debt financing for banks

(composite cost of deposit and unsecured market-based debt financing, percentages per annum)



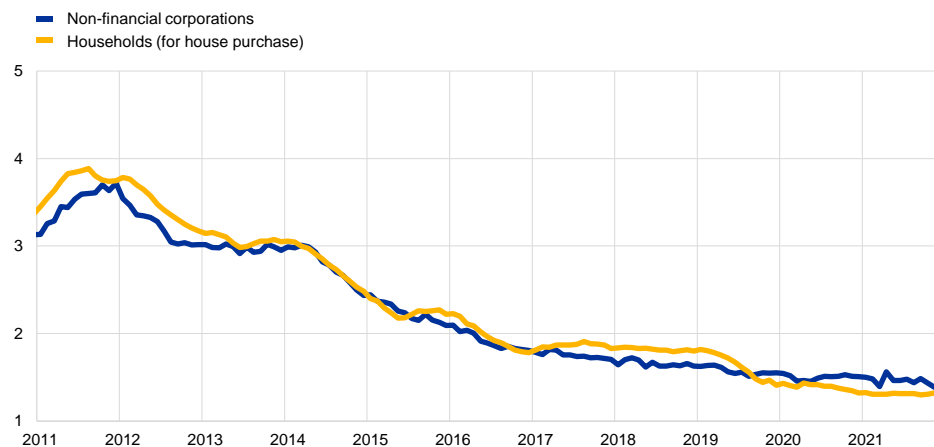
Sources: ECB, Markit iBoxx and ECB calculations.

Notes: 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. The latest observations are for December 2021.

Chart 2.3

Composite bank lending rates for non-financial corporations and households

(percentages per annum)



Source: ECB.

Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The latest observations are for December 2021.

2.2 Continued Eurosystem balance sheet growth as challenges persist

The size of the Eurosystem's balance sheet increased by 23% in 2021

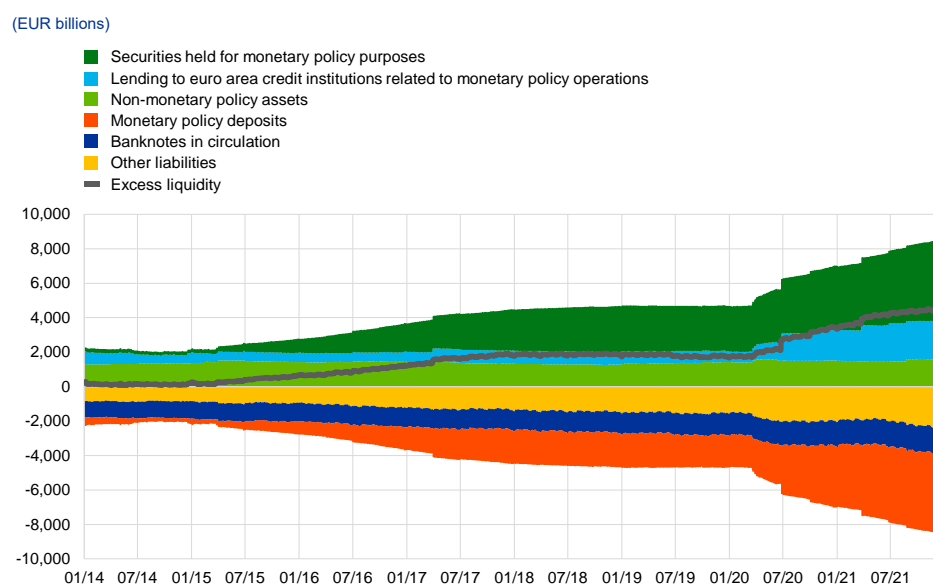
In 2021 the Eurosystem continued to implement the measures introduced in response to the COVID-19 pandemic, namely the PEPP, PELTROs and the recalibrated TLTRO III, as well as conducting asset purchases under the APP. Owing

to these measures, the Eurosystem's balance sheet increased by 23% (€1.6 trillion) in 2021, its size reaching a new historical high of €8.6 trillion by the end of the year.

At the end of 2021 monetary policy-related assets on the Eurosystem balance sheet amounted to €6.9 trillion. These assets included loans to euro area credit institutions, which accounted for 26% of total assets (in line with the percentage at the end of 2020), and assets purchased for monetary policy purposes, which represented 55% of total assets (up from 53% at the end of 2020) (see Chart 2.4). Other financial assets on the balance sheet consisted mainly of foreign currency and gold held by the Eurosystem and euro-denominated non-monetary policy portfolios.

On the liabilities side, the overall amount of credit institutions' reserve holdings and counterparties' recourse to the deposit facility increased to €4.3 trillion (from €3.5 trillion at the end of 2020) and represented 50% of liabilities at the end of 2021 (in line with the percentage at the end of 2020). Banknotes in circulation grew at a rate above the historical growth trend to €1.5 trillion (from €1.4 trillion at the end of 2020) and accounted for 18% of liabilities at the end of 2021 (down from 21% at the end of 2020). Other liabilities, including capital and revaluation accounts, increased to €2.7 trillion (from €2.1 trillion at the end of 2020) and accounted for 32% of total liabilities (up from 29% at the end of 2020) (see Chart 2.4). The increase in other liabilities came mainly from an increase in government deposits from €516 billion to €590 billion, which was 22% of other liabilities (down from 25% at the end of 2020), and the counterpart of International Monetary Fund special drawing rights, which increased to €179 billion (from €55 billion at the end of 2020) and accounted for 7% of other liabilities (up from 3% at the end of 2020).

Chart 2.4
Evolution of the Eurosystem's consolidated balance sheet



Source: ECB.
Notes: Positive figures refer to assets and negative figures to liabilities. The line for excess liquidity is presented as a positive figure, although it refers to the sum of the following liability items: current account holdings in excess of reserve requirements and recourse to the deposit facility.

To make the two-tier system for remuneration of credit institutions' reserves more transparent, the ECB decided in July 2020 to publish related aggregated Eurosystem and national-level data. This also gives a better insight into the development of reserve holdings, which are the largest liability item on the Eurosystem balance sheet. Specifically, the Eurosystem now publishes the reserve maintenance period averages of minimum reserve requirements, current account holdings and excess reserves at national level. Eurosystem and national data on the exemption allowance for the two-tier system, exempted and non-exempted excess reserves and the unused allowance are also published regularly.

APP and PEPP portfolio maturity and distribution across asset classes and jurisdictions

Asset purchases under the APP and PEPP continued in 2021

The APP comprises four asset purchase programmes: the third covered bond purchase programme (CBPP3), the asset-backed securities purchase programme (ABSPP), the public sector purchase programme (PSPP) and the corporate sector purchase programme (CSPP). The PEPP was introduced in 2020 in response to the pandemic. All asset categories that are eligible under the APP are also eligible under the PEPP. The Eurosystem continued to conduct asset purchases under the APP and the PEPP in 2021. Purchases were conducted in a smooth manner, in line with the respective prevailing market conditions.

APP holdings were €3.1 trillion at the end of 2021

At the end of 2021 APP holdings amounted to €3.1 trillion (at amortised cost). The PSPP accounted for the bulk of the APP holdings, with €2.5 trillion or 80% of total APP holdings at the end of 2021, the same share as at the end of 2020. Under the PSPP, the allocation of purchases to jurisdictions was guided by the ECB's capital key on a stock basis. In addition, some national central banks purchased securities issued by EU supranational institutions, including the bonds issued in 2021 to finance the Next Generation EU recovery plan. The weighted average maturity of the PSPP holdings stood at 7.3 years at the end of 2021, the same level as at the end of 2020, with some variation across jurisdictions. The ABSPP accounted for 1% (€28 billion) of total APP holdings at year-end, the CBPP3 for 9.5% (€298 billion) and the CSPP for 10% (€310 billion). Out of the private sector purchase programmes, the CSPP contributed the most to the growth in APP holdings in 2021, with €61 billion of net purchases. CSPP and CBPP3 purchases are guided by a benchmark which reflects the market capitalisation of all eligible outstanding corporate and covered bonds respectively.

PEPP holdings were €1.6 trillion at the end of 2021

At the end of 2021 PEPP holdings amounted to €1.6 trillion (at amortised cost). Covered bond holdings accounted for less than 1% (€6 billion) of the total, corporate sector holdings for 3% (€44 billion) and public sector holdings for 97% (€1,531 billion).

For the purchases of public sector securities under the PEPP, the benchmark allocation, on a stock basis, across jurisdictions is the ECB's capital key. At the same time, purchases were conducted in a flexible manner, which led to fluctuations in the distribution of purchase flows over time, across asset classes and among

jurisdictions. The weighted average maturity of the PEPP public sector securities holdings stood at 7.6 years at the end of 2021, with some differences across jurisdictions.

The Eurosystem reinvested the principal payments from maturing securities held in the APP and PEPP portfolios. Redemptions of private sector securities amounted to €82 billion in 2021, while redemptions of public sector securities under the PSPP and PEPP amounted to €362 billion. The assets purchased under the PSPP, CSPP and CBPP3 continued to be made available for securities lending to support bond and repo market liquidity. PEPP holdings are also available for securities lending, under the same conditions as under the APP. In November 2021 the Governing Council increased the limit for securities lending against cash collateral to €150 billion, reflecting the significant increase in the Eurosystem's securities holdings.

Developments in Eurosystem refinancing operations

The outstanding amount of Eurosystem refinancing operations was €2.2 trillion at the end of 2021, representing an increase of €409 billion since the end of 2020. This increase reflects the net impact of the amount allotted in the TLTRO III series, which was €449 billion in 2021. The voluntary early TLTRO III repayments of €139 billion and the maturing of €15.7 billion of the TLTRO II series and of €23.2 billion of PELTROs (net of the amount allotted in 2021) had a limited impact on the overall outstanding amounts. The weighted average maturity of outstanding Eurosystem refinancing operations decreased from around 2.4 years at the end of 2020 to around 1.74 years at the end of 2021.

The ECB's collateral easing measures

The collateral easing measures adopted by the Governing Council in April 2020 continued to apply in 2021. They included an increase in the types of credit claim that are eligible as collateral (including loans benefiting from the guarantee schemes adopted in euro area countries as a response to the pandemic), a reduction of collateral valuation haircuts by a fixed factor of 20%, the maintenance of eligibility – under some conditions – for assets that fulfilled credit quality requirements at the onset of the pandemic, and a waiver of the minimum rating requirement for marketable debt securities issued by the Hellenic Republic. These temporary measures, extended to June 2022, have continued to be a core element of the ECB's monetary policy response to the pandemic.

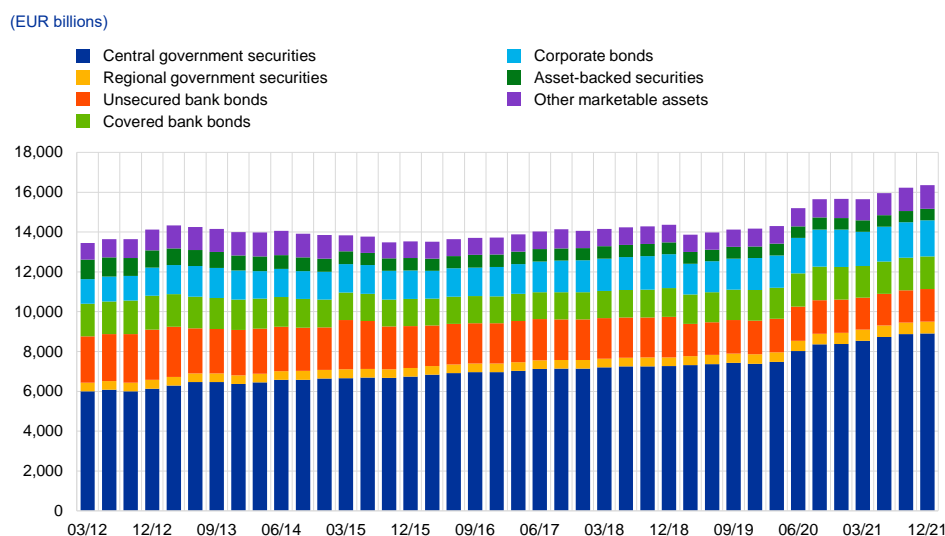
The amount of eligible marketable assets increased by €695 billion and stood at €16.4 trillion at the end of 2021 (see Chart 2.5). The increase can be largely attributed to central government securities, which continued to be the largest asset class (€8.9 trillion). Other asset classes included corporate bonds (€1.8 trillion), covered bank bonds (€1.6 trillion) and unsecured bank bonds (€1.6 trillion). Regional government securities (€598 billion), asset-backed securities (€572 billion) and other marketable assets (€1.2 trillion) accounted for a comparatively small share.

The outstanding amount of Eurosystem refinancing operations was €2.2 trillion at the end of 2021

The amount of eligible marketable assets stood at €16.4 trillion at the end of 2021

Chart 2.5

Developments in eligible marketable collateral



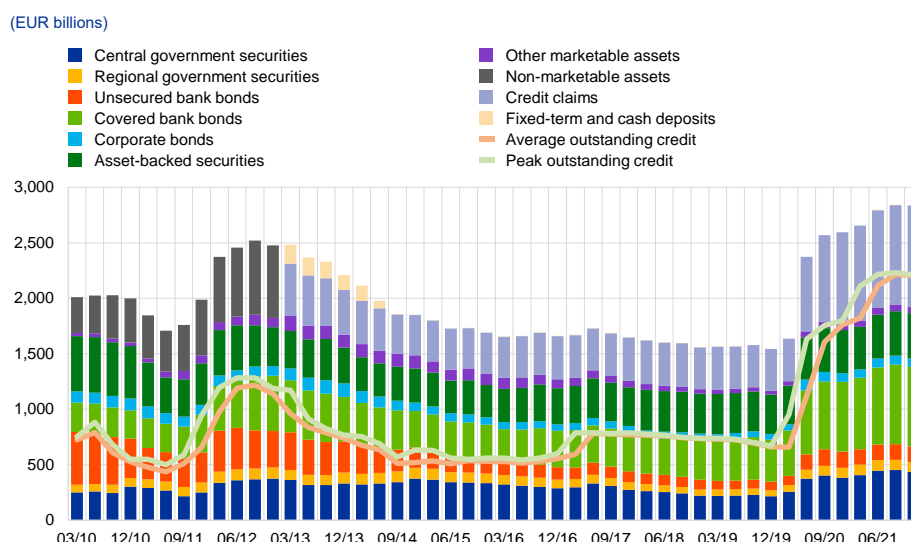
Source: ECB.
Notes: Collateral values are nominal amounts. The chart shows averages of end-of-month data for each period.

The amount of mobilised collateral reached €2.8 trillion at the end of 2021

The amount of mobilised collateral increased by €243 billion in 2021, reaching a level of €2.8 trillion at the end of the year (see Chart 2.6). This development was driven mainly by credit claims (which amounted to €915 billion), covered bank bonds (€718 billion), central government securities (€435 billion) and asset-backed securities (€406 billion). Unsecured bank bonds (€141 billion), regional government securities (€88 billion) and corporate bonds (€77 billion) accounted for a smaller fraction of total mobilised collateral.

Chart 2.6

Developments in mobilised collateral



Source: ECB.
Notes: Since the first quarter of 2013 "non-marketable assets" has been split into "credit claims" and "fixed-term and cash deposits". For collateral, the averages of end-of-month data for each period are shown, and values are after valuation and haircuts. For outstanding credit, daily data are used.

2.3 Financial risks associated with the APP and the PEPP

As explained before, net purchases under the APP were conducted with the objective of reinforcing the accommodative impact of the ECB's policy interest rates. The APP was complemented by the PEPP to counter the serious risks to the monetary policy transmission mechanism and to the outlook for the euro area economy posed by the COVID-19 pandemic.

Risk efficiency is a key principle of the Eurosystem's risk management function

Like other monetary policy instruments, outright asset purchases under the APP and the PEPP inherently involve financial risks, which are managed and controlled by the Eurosystem. When there are several ways to implement policy, the Eurosystem's risk management function endeavours to attain risk efficiency: achieving the policy objectives with the lowest amount of risk for the Eurosystem.²¹

Specific risk control frameworks apply to the APP and the PEPP

Specific financial risk control frameworks were established for the APP and the PEPP. They take into account the policy objectives of the programmes as well as the features and risk profiles of the different asset types purchased. Both of these frameworks consist of eligibility criteria, credit risk assessments and due diligence procedures, pricing frameworks, benchmarks and limits. The frameworks apply to the purchase of assets, the reinvestment of principal payments from maturing holdings, and the holdings for as long as they remain on the Eurosystem's balance sheet.

The risk control frameworks not only mitigate financial risks but also contribute to the achievement of the policy objectives by steering the asset purchases, as much as possible within the given objectives, towards a diversified market-neutral asset allocation. In addition, the design of the risk control frameworks takes into consideration non-financial risks such as legal, operational and reputational risks.

This section describes the current financial risk control frameworks governing the implementation of the APP and PEPP.²² Table 2.1 summarises the key elements of the frameworks.

²¹ See "[The financial risk management of the Eurosystem's monetary policy operations](#)", ECB, July 2015.

²² See also the "[Asset purchase programmes](#)" page on the ECB's website.

Table 2.1
Key elements of the risk control frameworks for the APP and the PEPP

	ABSPP	CBPP3	CSPP	PSPP	PEPP (ABSs, covered bonds and corporate bonds)	PEPP (public sector securities)
Main eligibility criteria	Asset-backed securities eligible as collateral for Eurosystem credit operations; additional location criteria	Covered bonds eligible as own-use collateral for Eurosystem credit operations	Corporate bonds and commercial paper eligible as collateral for Eurosystem credit operations; additional exclusion criteria	Central, regional and local government bonds, and bonds issued by recognised agencies and international or supranational institutions located in the euro area ²⁾ , eligible as collateral for Eurosystem credit operations	Same as ABSPP, CBPP3 and CSPP	Same as PSPP
Minimum credit quality	CQS 3 ¹⁾	CQS 3	CQS 3	CQS 3	CQS 3 ¹⁾	CQS 3 Waiver for debt securities issued by the Hellenic Republic
Minimum remaining maturity	None	None	6 months; 28 days for commercial paper	1 year	Same as ABSPP, CBPP3 and CSPP	70 days
Maximum remaining maturity	None	None	30 years and 364 days for bonds; 365/366 days for commercial paper	30 years and 364 days	Same as ABSPP, CBPP3 and CSPP	Same as PSPP
Issue share limits	70%	70%	70%; for public undertakings 33%/25% (depending on CAC)	50% for supranational bonds, otherwise 33%/25% (depending on CAC)	Purchases as deemed necessary and proportionate	Purchases as deemed necessary and proportionate
Issuer limits	None	Yes	Yes	50% for supranational bonds, otherwise 33%	Purchases as deemed necessary and proportionate	Purchases as deemed necessary and proportionate
Credit risk assessments and due diligence procedures	Yes	Yes	Yes	None	Yes	None
Price review (ex post)	Yes	Yes	Yes	Yes	Yes	Yes

Source: ECB.

Notes: ABS: asset-backed security; CAC: collective action clause; CQS: credit quality step as per the Eurosystem's harmonised rating scale (see the "Eurosystem credit assessment framework" page on the ECB's website).

1) ABSs rated below credit quality step 2 have to satisfy additional requirements, which include: (i) no non-performing loans backing the ABS at issuance or added during the life of the ABS; (ii) the cash-flow-generating assets backing the ABS must not be structured, syndicated or leveraged; and (iii) servicing continuity provisions must be in place.

2) See the "Implementation aspects of the public sector purchase programme (PSPP)" page on the ECB's website.

Eligibility requirements for outright asset purchases

Eligibility criteria apply to all asset classes

In principle, only marketable assets which are accepted as collateral for Eurosystem credit operations are potentially eligible for APP and PEPP purchases. The collateral

eligibility criteria for Eurosystem credit operations are stated in the [general framework](#) for monetary policy instruments.

In order to be eligible for APP and PEPP purchases, assets are required to meet high credit quality standards by having at least one credit rating,²³ provided by an external credit assessment institution accepted within the [Eurosystem credit assessment framework](#), qualifying as credit quality step 3 (CQS 3) of the Eurosystem's harmonised rating scale or better (CQS 1 and CQS 2). For marketable debt securities issued by the Hellenic Republic, this requirement is temporarily waived for purchases under the PEPP.²⁴ Assets must also be euro-denominated and issued and settled in the euro area.

In addition to the eligibility criteria above, specific eligibility criteria apply depending on the purchase programme. For instance, for the PSPP, CSPP and PEPP there are minimum and maximum maturity restrictions. For the CSPP, assets issued by credit institutions, or by issuers for which the parent undertaking is a credit institution, are not eligible for purchase. Moreover, for the CSPP, CBPP3 and ABSPP, assets issued or originated by wind-down entities and asset management vehicles are excluded from purchases. In the CBPP3, the assets must fulfil the conditions for their acceptance as own-use collateral for Eurosystem credit operations, i.e. they can be used as collateral by the issuing credit institution.²⁵ In the case of asset-backed securities, the debtors underlying the respective claims must be predominantly located in the euro area.

Credit risk assessments and due diligence procedures

Credit risk assessments and due diligence procedures are conducted on an ongoing basis

For the purchase of ABSs, covered bonds and corporate sector securities in the APP and PEPP, the Eurosystem conducts appropriate credit risk assessments and due diligence procedures on the purchasable universe on an ongoing basis. Monitoring is carried out using a number of risk indicators. These assessments and procedures follow the principle of proportionality, where riskier assets are subject to more in-depth analysis. If warranted, additional risk management measures may apply, also subject to the principle of proportionality. These measures include, in particular, limitations on or the suspension of purchases and, in extraordinary cases, even sales of assets, which require a case-by-case assessment by the Governing Council. For its purchases of corporate sector assets in the APP and PEPP, the ECB takes into account relevant climate change risks in its due diligence procedures.

²³ Asset-backed securities are required to have at least two credit ratings.

²⁴ As part of its collateral easing measures for Eurosystem credit operations introduced in April 2020 in response to the COVID-19 pandemic, the Governing Council also temporarily waived this requirement for marketable debt securities issued by the Hellenic Republic that are mobilised as collateral. Moreover, it decided that marketable assets and issuers of these assets that met the minimum credit quality requirements for collateral eligibility on 7 April 2020 (BBB- for all assets except asset-backed securities) would continue to be eligible in the event of a rating downgrade as long as their rating remained at or above credit quality step 5 (CQS 5, equivalent to a rating of BB) on the Eurosystem's harmonised rating scale.

²⁵ See Article 138(3)(b) of Guideline (EU) 2015/510 of the European Central Bank of 19 December 2014 on the implementation of the Eurosystem monetary policy framework ([ECB/2014/60](#)) (OJ L 91, 2.4.2015, p. 3).

Pricing frameworks

The pricing frameworks ensure that purchases are made at market prices

The pricing frameworks for the APP and PEPP ensure that purchases are made at market prices in order to minimise market distortions and facilitate the achievement of risk efficiency. These frameworks take into account available market prices, the quality of such prices and fair values. Ex post price checks are also conducted to assess whether the transaction prices reflected market prices at the time of the transactions.

Purchases of eligible debt instruments with a negative yield to maturity are permissible in all asset purchase programmes, including, to the extent necessary, those with a yield below the deposit facility rate.

Benchmarks

Benchmarks are used to ensure diversification

Benchmarks are used to ensure the build-up of a diversified portfolio and contribute to mitigating risks. For the purchases of covered bonds and corporate sector securities, the benchmarks are guided by the market capitalisation of the purchasable universe, i.e. the nominal outstanding amounts of eligible assets. For purchases of public sector securities under the PSPP and PEPP, the ECB's capital key guides the allocation of purchases per jurisdiction on a stock basis. Purchases under the PEPP are carried out in a flexible manner, allowing fluctuations in the distribution of purchase flows over time, across asset classes and among jurisdictions.

Limits

Issue share and issuer limits are an effective tool to limit risk concentration

Limit frameworks are in place for the APP. The calibration of issue share and issuer limits takes into account policy, operational, legal and risk management considerations. The limits are fine-tuned according to the asset class, with a distinction being made between public sector assets and private sector assets. When the PEPP was announced, the Governing Council said that, to the extent that some self-imposed limits might hamper action that the Eurosystem is required to take in order to fulfil its mandate, the Governing Council would consider revising them to the extent necessary to make its action proportionate to the risks faced.

PSPP issue share and issuer limits are applied to safeguard market functioning and price formation, to ensure proportionality, to limit risk concentration and to ensure that the Eurosystem does not become a dominant creditor of euro area governments. The issue share limit for PSPP-eligible supranational bonds is 50% of the outstanding amount of the asset issued. For all other PSPP-eligible bonds, the issue share limit is set at 33%, subject to a case-by-case verification that it would not lead to the Eurosystem having a blocking minority for the purpose of collective action clauses. Otherwise, the issue share limit is 25%. The issuer limit for supranational issuers is set at 50% of the outstanding amount of eligible assets issued by the respective institution; for other eligible issuers, it is 33%.

For the ABSPP, CBPP3 and CSPP, Eurosystem holdings per issue must not exceed 70%. In the CSPP, lower issue share limits apply in specific cases, for example for assets issued by public undertakings, which are dealt with in a manner consistent with the treatment under the PSPP. In addition to these issue share limits, issuer limits are applied for the CBPP3 and CSPP. For the CSPP, the issuer limits are defined based on a benchmark allocation related to an issuer group's market capitalisation to ensure a diversified allocation of purchases. Moreover, lower limits may apply if warranted based on the outcome of the credit risk assessment and due diligence procedures.

2.4 The ECB's new monetary policy strategy

Following a comprehensive review, the ECB published its new monetary policy strategy on 8 July 2021. The review took into account the profound structural challenges that the euro area and global economies had been undergoing since the last monetary policy strategy review in 2003. Among these challenges, the risk of the key ECB interest rates becoming constrained by the effective lower bound had increased. In pursuit of its price stability mandate, the Governing Council adopted a symmetric 2% inflation target, to be maintained over the medium term, emphasising that negative and positive deviations from the inflation target were equally undesirable. To maintain the symmetry of its inflation target, the Governing Council recognised the importance of taking into account the implications of the effective lower bound. In particular, when interest rates are close to the lower bound, this requires especially forceful or persistent monetary policy measures to avoid negative deviations from the inflation target becoming entrenched. This may also imply a transitory period in which inflation is moderately above target. The Governing Council stated that the primary monetary policy instrument is the set of ECB policy rates. In recognition of the effective lower bound on policy rates, it confirmed that it would also employ in particular forward guidance, asset purchases and longer-term refinancing operations, as appropriate. In addition, it would also consider, as needed, new policy instruments in the pursuit of its price stability objective. It furthermore confirmed that it would continue to use the HICP as a measure of price stability and recommended a roadmap for Eurostat to include owner-occupied housing costs in the index. The Governing Council stated that it would base its monetary policy decisions on an integrated assessment of all relevant factors, building on both economic analysis and monetary and financial analysis and including a proportionality assessment of its decisions and potential side effects. Without prejudice to price stability, the Governing Council is mindful in its monetary policy decisions of other considerations relevant to the conduct of monetary policy. In this context it committed, within the ECB's mandate, to ensuring that the Eurosystem fully takes into account the implications of climate change and the carbon transition. The communication of monetary policy decisions was adapted to reflect the revised monetary policy strategy.²⁶ Finally, the Governing Council affirmed that it intends to

²⁶ The [full strategy statement](#) as well as an [overview of the ECB's monetary policy strategy](#) are available on the ECB's website.


assess periodically the appropriateness of its monetary policy strategy, with the next assessment expected in 2025.

Price stability objective, past and present

Evolution of the ECB's monetary policy strategy since 1998

The Governing Council adopted its first monetary policy strategy in 1998, defining price stability as a “year-on-year increase in the Harmonised Index of Consumer Prices (HICP) of below 2%”. The adoption of a ceiling of 2% on inflation was warranted at the time by the experience of high inflation in the previous decades. The strategy was reviewed in 2003, when the Governing Council added a qualification to the definition of price stability, clarifying that it aimed for an inflation rate of below, but close to, 2%. This clarification was motivated by the ECB's commitment to provide a sufficient safety margin against the risks of deflation through a positive impact on the trend level of nominal interest rates, while also addressing the issue of the possible presence of a measurement bias in the HICP and the implications of inflation differentials within the euro area. The strategy of the early years also specified that prices should be stabilised over the medium term and that analysis of the risks to price stability was to be based on two pillars – the “economic analysis” and the “monetary analysis”.

The comprehensive review of the monetary policy strategy in 2020-21 showed that the persistently low inflation over the past decade was rooted in interconnected factors. Unlike in the euro area's first decade, inflation shocks had been primarily of a disinflationary nature, owing to the global financial crisis and its aftermath. Given the fall in the equilibrium real interest rate – the real rate of interest consistent with inflation at its target and the economy operating at its potential – in the euro area (and globally), these shocks could not easily be offset with interest rate policy. The persistence of low inflation had also contributed to lower inflation expectations, which may have become less well anchored to the ECB's inflation aim.

 The ECB introduced a symmetric 2% inflation target

Following the strategy review in 2020-21 the Governing Council adopted a symmetric 2% inflation target over the medium term. The 2% inflation target provides a clear anchor for inflation expectations, which is essential for maintaining price stability. The review established that a point target tends to perform better than a range in stabilising inflation, partly because of its simplicity.²⁷ In the previous formulation of the strategy, the ceiling of the range was clearly defined at 2% while the numerical value of the floor was not specified. This could have led the public to perceive that the ECB reacts more forcefully to deviations of inflation on the upside as these are clearly outside the range.

The Governing Council confirmed the medium-term orientation of monetary policy. The medium-term orientation takes into account the fact that the transmission of monetary policy to the economy and inflation is subject to long and variable lags. These lags imply that short-term deviations of inflation from the target are inevitable.

²⁷ For more detailed analysis, see Work stream on the price stability objective, “[The ECB's price stability framework: past experience, and current and future challenges](#)”, *Occasional Paper Series*, No 269, ECB, September 2021.

The medium-term orientation provides the necessary flexibility to look through temporary shocks that may dissipate of their own accord, thus avoiding unnecessary volatility in economic activity and employment.

The Governing Council emphasised that negative and positive deviations from the inflation target were equally undesirable, i.e. that the target is symmetric. Yet the presence of the lower bound on interest rates may create asymmetries in the pursuit of price stability as the central bank has less room to respond to downward deviations of inflation from the target than it has to respond to upward deviations. The commitment to the symmetric inflation target therefore requires an especially forceful or persistent monetary policy response to disinflationary shocks when interest rates are near to the lower bound, to avoid negative deviations from the inflation target becoming entrenched. This may also imply a transitory period in which inflation is moderately above target.

Unconventional measures have been effective in easing financing conditions and supporting economic growth, employment and inflation

The primary monetary policy instrument is the set of ECB policy rates. However, as a result of the decline in equilibrium real interest rates over recent decades, central banks around the world have turned to unconventional monetary policy measures to steer inflation towards their targets. Therefore, parts of the strategy review were also devoted to examining the effectiveness of these measures. The review found that each of the unconventional instruments (including negative interest rates, forward guidance, asset purchases and longer-term refinancing operations) had been effective in raising output, employment and inflation. It found the measures to have reinforced each other, as the different measures can have somewhat different effects on the economy and financial markets.²⁸ The review also found the measures to have been proportionate, taking into account potential side effects on the financial system or the real economy.

Measurement of prices to be further improved with the inclusion of owner-occupied housing costs

The Governing Council confirmed that the HICP remains the appropriate measure of prices for assessing the achievement of the price stability objective. While the price stability objective is quantified in terms of headline inflation, which is the broadest measure of the household consumption basket, a wide range of indicators of underlying inflation that exclude volatile components will continue to be monitored. The strategy review identified some scope for further improvement in the measurement of prices.²⁹ In particular, the Governing Council recognised that the inclusion of the costs related to owner-occupied housing would enable the HICP to better represent the inflation rate that is relevant for households. The ECB has therefore recommended a roadmap for Eurostat and the national statistical institutes to incorporate owner-occupied housing costs into the index. Recognising that this is a multi-year project, the Governing Council will, in the meantime, take into account inflation measures that include initial estimates of the cost of owner-occupied housing in its wider set of supplementary inflation indicators.

²⁸ See Work stream on monetary policy instruments, “[Assessing the efficacy, efficiency and potential side effects of the ECB’s monetary policy instruments since 2014](#)”, *Occasional Paper Series*, No 278, ECB, September 2021, revised December 2021.

²⁹ See Work stream on inflation measurement, “[Inflation measurement and its assessment in the ECB’s monetary policy strategy review](#)”, *Occasional Paper Series*, No 265, ECB, September 2021.

Other considerations relevant to the pursuit of price stability

While the primary objective of the Eurosystem is to maintain price stability, the Treaty on the functioning of the European Union requires it, without prejudice to the objective of price stability, to support the general economic policies in the EU with a view to contributing to the achievement of the EU's objectives. These include balanced economic growth, a highly competitive social market economy aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. The Eurosystem shall also contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.

To an extent, full employment and price stability are mutually consistent objectives. When inflation and employment move in the same direction, monetary policy can stabilise inflation without negatively affecting employment. There can, however, be situations in which inflation and employment temporarily move in opposite directions, and where tightening monetary policy to counter higher inflation would lead to a further decrease in employment. A monetary policy with a medium-term orientation sees through such temporary situations and avoids volatility in economic activity and employment. With regard to taking considerations related to output and employment into account, the Governing Council emphasised the importance of considering a variety of variables and the distributive implications of monetary policy.³⁰

Monetary policy deliberations are enhanced by taking into account financial stability risks

Financial stability is a precondition for price stability and vice versa. Under stressed financial market conditions, monetary policy measures aimed at maintaining price stability typically help to restore financial stability by addressing impairments to the monetary policy transmission mechanism and averting negative macro-financial feedback effects and debt-deflation phenomena. In relation to the build-up of financial stability risks, macroprudential and microprudential policies are the first line of defence. In many instances, macroprudential policies and monetary policy are complementary. For instance, macroprudential policies that avoid a build-up of imbalances reduce the likelihood of future financial crises with negative effects on price stability. Monetary policy may also affect financial stability risks. In one direction, accommodative monetary policy can reduce credit risk by boosting activity levels and inflation dynamics; in the other direction, accommodative monetary policy may encourage the build-up of leverage or raise the sensitivity of asset prices. Symmetric arguments apply during phases of monetary policy tightening.

In view of the price stability risks generated by financial crises, there is a clear conceptual case for the ECB to consider financial stability in its monetary policy deliberations. This reflects existing limitations of macroprudential policy in the different phases of the financial cycle, the interactions between macroprudential policy and monetary policy, and possible side effects of monetary policy on financial stability. At the same time, it is important to avoid the misperception that monetary

³⁰ The strategy review showed that monetary policy affects different groups in society differently. Adverse events lower the consumption of poorer households more than that of richer households, and it takes longer for the employment prospects of poorer households to recover following such events. Keeping interest rates lower for longer in such situations helps to counter long-term unemployment among less well-off households. See Work stream on employment, "[Employment and the conduct of monetary policy in the euro area](#)", *Occasional Paper Series*, No 275, ECB, September 2021.

policy is responsible for guaranteeing financial stability. The Governing Council does not conduct systematic policies of either “leaning against the wind” (whereby monetary policy is systematically tightened when systemic risk builds up) or of “cleaning” (whereby monetary policy is systematically loosened when systemic risk materialises). Rather, it follows a flexible approach in taking account of financial stability considerations. Any monetary policy reaction to financial stability concerns will depend on prevailing circumstances and will be guided by the implications for medium-term price stability. To this end, the preparation of monetary policy deliberations is enhanced with additional information on financial stability considerations.³¹

Action plan to include climate change considerations in monetary policy operations

The new monetary policy strategy takes climate change into account. Climate change can affect the conduct of monetary policy through its impact on the structure and cyclical dynamics of the economy and the financial system.³² Within its mandate, the Governing Council is committed to ensuring that the Eurosystem fully takes into account, in line with the EU’s climate goals and objectives, the implications of climate change and the carbon transition for monetary policy and central banking. It has therefore committed to an ambitious climate-related action plan. The action plan entails expanding analytical capacities and developing new statistical indicators to improve the understanding of the macroeconomic impact of climate change. The Governing Council will furthermore adapt the design of its monetary policy operational framework in relation to disclosures, risk assessment, corporate sector asset purchases and the collateral framework.

Redesigning the analytical framework and communication

Integration of economic and monetary and financial analysis

In the past the ECB based its analysis of the risks to price stability on two distinct “pillars”: the “economic analysis” and the “monetary analysis”. These were cross-checked against each other to form an overall assessment. The new strategy acknowledges the advantages of having two specialised areas of analysis but also recognises the value of integrating the analysis, in view of the multiple feedback channels from the monetary and financial spheres to the broader economy, and vice versa. The economic analysis covers short-term developments in economic growth, employment and inflation; the Eurosystem and ECB staff projections of key macroeconomic variables over the medium term; and a broad-ranging evaluation of the risks to economic growth and price stability. The monetary and financial analysis – given that it evolved through challenges that arose during and after the global financial crisis – assigns an important role to examining monetary and financial indicators, with a focus on the monetary policy transmission mechanism, in particular via the credit, bank lending, risk-taking and asset pricing channels. The Governing Council bases its monetary policy decisions, including the evaluation of the

³¹ Work stream on macroprudential policy, monetary policy and financial stability, “The role of financial stability considerations in monetary policy and the interaction with macroprudential policy in the euro area”, *Occasional Paper Series*, No 272, ECB, September 2021.

³² Work stream on climate change, “Climate change and monetary policy in the euro area”, *Occasional Paper Series*, No 271, ECB, September 2021.

proportionality of its decisions and potential side effects, on this integrated assessment.

Communication is being geared more towards the wider public

Finally, the Governing Council decided that the communication of monetary policy decisions through the monetary policy statement, the press conference, the Economic Bulletin and the monetary policy accounts would be adapted to reflect the revised monetary policy strategy. These products would be complemented by layered and visualised versions of monetary policy communication geared towards the wider public, which is essential for ensuring public understanding of and trust in the actions of the ECB. The Governing Council also said that, drawing on the successful experience with the listening events³³ held during the strategy review, it intended to make outreach events a structural feature of the Eurosystem's interaction with the public.³⁴

Box 2

The ECB's climate change action plan

Addressing climate change is a global challenge and an urgent policy priority for the European Union. While governments and parliaments have the primary responsibility and more powerful tools to combat climate change, the ECB fully recognises the need to further incorporate climate change considerations into its monetary policy framework, within its mandate and field of competence. The Eurosystem has to take the impact of climate change and the transition towards a more sustainable economy into account in order to fulfil its primary objective of maintaining price stability. Moreover, climate-related risks do not only affect the outlook for price stability, through their impact on macroeconomic indicators and the transmission of monetary policy; they may also have an impact on the value and risk profile of the assets held on the Eurosystem's balance sheet. Furthermore, in line with its secondary objective, the Eurosystem is required to support the general economic policies in the European Union, without prejudice to the price stability objective. In the light of its importance for monetary policy, climate change featured prominently in the ECB's [monetary policy strategy review](#) of 2020-21.

Following the conclusion of the strategy review the ECB published a [comprehensive action plan on climate change](#) together with a [detailed roadmap](#) to incorporate climate change considerations into its monetary policy framework. The Governing Council committed to activities in the following six fields: (i) macroeconomic modelling and assessment of implications for monetary policy transmission, (ii) statistical data for climate change risk analyses, (iii) disclosure requirements, (iv) enhancement of risk assessment capabilities, (v) collateral framework, and (vi) corporate sector asset purchases. The implementation of the action plan will be closely aligned with progress on EU policies and initiatives in the field of environmental sustainability disclosure and reporting and other relevant EU legislation.

As regards **macroeconomic modelling and assessment of implications for monetary policy transmission**, the ECB will further expand its analytical capacity in the area of macroeconomic models to take into account the implications of climate change and related policies for the economy,

³³ See the overview of [listening events](#) held across the euro area by the ECB and national central banks.

³⁴ Work stream on monetary policy communications, "[Clear, consistent and engaging: ECB monetary policy communication in a changing world](#)", *Occasional Paper Series*, No 274, ECB, September 2021, revised December 2021.

the financial system and monetary policy transmission. It will also integrate climate-related risks into the ECB/Eurosystem staff macroeconomic projections for the euro area to evaluate their impact on the economy.

In the field of statistics, the ECB will develop new **indicators for climate change risk analyses** across three main categories: green financial instruments, exposures of financial institutions to climate-related physical risks, and the carbon footprint of the portfolios of financial institutions. These experimental indicators will be made available by end-2022. Thereafter they will be enhanced on the basis of a step-by-step approach driven by improvements in data availability and harmonisation (see Section 7.2 for further details).

With respect to monetary policy operations, the ECB will announce a detailed plan in 2022 to introduce environmental sustainability **disclosure requirements** for private sector assets as a new eligibility criterion, or a basis for a differentiated treatment, for collateral and asset purchases. Such requirements, which will be aligned with EU regulations, will promote more consistent disclosure practices in the market and maintain proportionality through adjustments for small and medium-sized enterprises.

The ECB will also enhance its **capabilities for assessing climate change-related risks**. Climate stress tests of the Eurosystem balance sheet will assess its exposure to climate change risks, starting with a first pilot stress test in 2022 and leveraging on the methodology of the ECB's [economy-wide climate stress test](#). The ECB will also assess whether the credit rating agencies accepted by the Eurosystem Credit Assessment Framework disclose the information necessary to show how they incorporate climate change risks into credit ratings. In addition, the ECB will consider developing minimum standards for incorporating climate change risks into its internal ratings.

For the **collateral framework**, the ECB takes into account climate change considerations when reviewing the valuation and risk control frameworks for assets usable as collateral by counterparties in Eurosystem credit operations. The ECB will also continue to monitor structural developments in markets for sustainability products with the aim of supporting innovation in sustainable finance within the scope of its mandate. Since the beginning of 2021 the ECB has, for example, accepted [sustainability-linked bonds as collateral](#).

For **corporate sector asset purchases**, the ECB already takes climate change risks into account when conducting due diligence for its corporate sector asset purchases. The ECB will also adjust the framework guiding the allocation of corporate bond purchases to incorporate climate change criteria, in line with its mandate. These criteria will include the alignment of issuers with, at a minimum, EU legislation implementing the Paris Agreement through climate change-related metrics or commitments of the issuers to such goals. Furthermore, the ECB will start disclosing climate-related information in relation to the CSPP by the first quarter of 2023.

The ECB will closely monitor progress on these activities and communicate major milestones to the public. The recently established ECB climate change centre will play an important role in coordinating the activities within the ECB (see Box 13).

Box 3

Innovation in monetary policy communication

2021 opened a new chapter in the ECB's monetary policy communication. As a result of its strategy review, the ECB modernised the way it presents and explains monetary policy to both expert audiences and the wider public. With its innovations – achieved through a joint Eurosystem effort, with input from experts across the national central banks – the ECB has responded to growing demand for information about its policies and tools that is more accessible, especially to non-expert audiences. Input received during “ECB listens” events and listening events held by national central banks, which were part of the strategy review, clearly showed that people want the ECB to use more understandable language and explain better why its policy matters to their everyday lives. Evidence also suggests that even expert audiences find concise and jargon-free text more compelling.

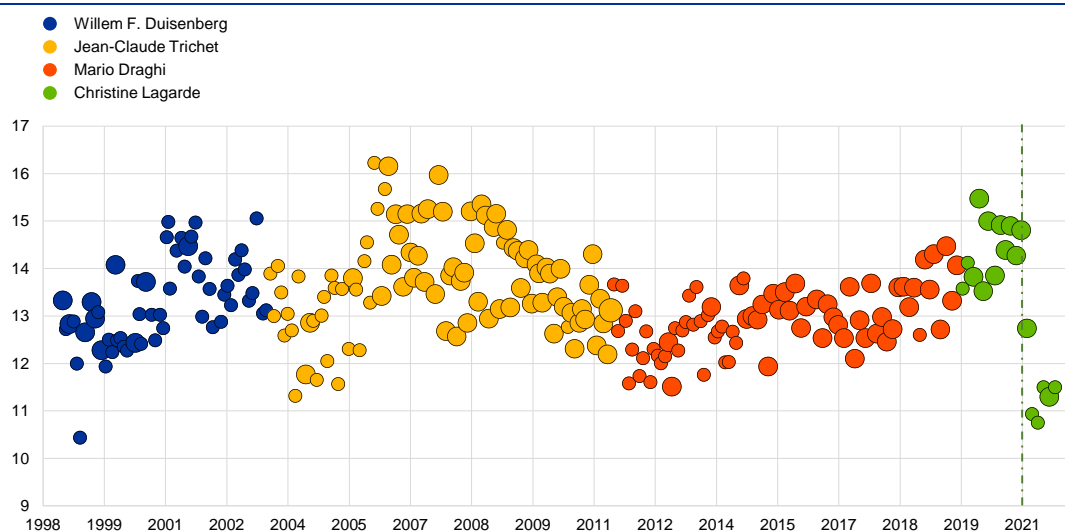
A new-style monetary policy statement

Since July 2021 a new “monetary policy statement” has replaced the “introductory statement” as the core tool for communicating monetary policy decisions. The new statement is shorter, uses more accessible language and follows a clearer narrative. It outlines how the Governing Council's assessment of the economy motivates the ECB's policy choices and explains what they seek to achieve.

As Chart A shows, the new monetary policy statement marks a step change in the ECB's efforts to make its policy more understandable. Standard measures of readability show that the new statement is much less complex and suggest that the text no longer requires around 14 years of formal education, i.e. a university degree, to be understood.

Chart A

Complexity of ECB monetary policy statements



Source: Updated data (February 2022) from analysis in Coenen, G. et al., “Communication of monetary policy in unconventional times”, *Working Paper Series*, No 2080, ECB, June 2017.

Notes: The chart shows the length and the complexity of the ECB's introductory/monetary policy statements. 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 education are required to understand a text, on the basis of the length of its sentences and words. The vertical dotted line indicates the conclusion of the ECB's 2020-21 strategy review.

“Our monetary policy statement at a glance”

A particular innovation in the communication of monetary policy decisions is the visualisation of the monetary policy statement, “our monetary policy statement at a glance”. Aimed at the wider public, this novel product – available in all official EU languages – transmits the central messages of the monetary policy statement in a simplified way. Using storytelling techniques, relatable visuals and plain language, it explains the ECB’s latest decisions in an attractive, easy-to-understand format.



Inflation is likely to remain high for longer than previously expected...

Energy prices are the main reason for this. But prices for food and a wider range of goods and services are also going up.

The ECB is using these new ways of communicating to improve knowledge and understanding of its policy and, ultimately, to foster public trust. This is essential not just for the acceptance and legitimacy of the ECB as an independent institution, but also to make monetary policy more effective and better anchor inflation expectations. Recent research on the basis of the ECB’s Consumer Expectations Survey suggests that the definition and communication of the new symmetric 2% inflation target has had a positive impact on the ECB’s credibility. In particular, euro area households that are informed about the new target and its implications are more likely to expect the ECB to deliver price stability over the medium term.³⁵

³⁵ Ehrmann, M., Georganakos, D. and Kenny, G., “Credibility gains from communicating with the public: evidence from the ECB’s new monetary policy strategy”, *Working Paper Series*, ECB, forthcoming.

3 European financial sector: recovery in 2021 lessens near-term risks but vulnerabilities build up ahead

Improved economic conditions during 2021 reduced near-term pandemic-related risks to euro area financial stability, with the corporate sector, sovereign borrowers and banks avoiding extreme downside events. However, global supply chain disruptions and rising energy prices posed new challenges to the strength of the recovery and the inflation outlook, which, looking ahead, could also affect financial stability. In parallel, a number of other vulnerabilities continued to build up, with increasingly stretched valuations in housing and financial markets, continued risk-taking by non-bank financial institutions and higher debt levels in the corporate and public sectors as a legacy of the pandemic. As the recovery progressed, macroprudential policy discussions shifted focus from providing short-term support to mitigating financial stability vulnerabilities, in particular emerging cyclical and real estate market risks. In addition, work continued on strengthening the regulatory framework for banks and the macroprudential approach for non-bank financial institutions to further enhance the long-term resilience of the financial system.

3.1 The financial stability environment in 2021

Over the course of 2021 the economic recovery strengthened and broadened across euro area countries and economic sectors, translating into a generally improved near-term financial stability outlook, but some near-term risks for financial stability remained. They related to bottlenecks in global supply chains and rising energy prices, which started to affect the outlook for both inflation and the economic recovery, and to uncertainties surrounding the future course of the pandemic. Corporate earnings showed broad-based improvements during 2021, but non-financial firms more exposed to pandemic-related restrictions and with higher pre-existing indebtedness remained fragile, while elevated sovereign debt levels increased medium-term debt sustainability concerns. Signs of stretched valuations in some financial asset classes and the buoyancy of euro area residential property markets also led to a build-up of vulnerabilities. Finally, despite the improvements in profitability and asset quality, euro area banks remained hampered by structural challenges, while non-bank financial institutions continued to face elevated credit and liquidity risk. (See Figure 3.1.)



High corporate and sovereign debt and buoyant housing markets may hold risks

The pandemic led to an increase in sovereign and corporate indebtedness during 2021. However, concerns surrounding the sustainability of sovereign debt were alleviated by the ongoing recovery and favourable financing conditions, which helped to reduce rollover risks. In the corporate sector, near-term insolvency risks fell amid improved profitability prospects and continued, albeit more targeted, government support measures. Some firms remained vulnerable, notably those which had high

debt levels before the pandemic and in sectors more affected by the pandemic. Looking ahead, corporate insolvencies could still increase, owing to a backlog of unresolved bankruptcy cases and a gradual phasing-out of policy support measures, although this increase should be less than feared in the initial phases of the pandemic. Against the backdrop of rapid expansion in housing markets, house price growth reached an annual rate of 9% in September 2021, contributing to a further increase in estimates of overvaluation in some countries. The acceleration of house prices stemmed from price growth across both urban and non-urban areas. Signs of easing lending standards in some countries and high and rising levels of household indebtedness also contributed to heightened medium-term vulnerabilities in those countries. While low interest rates allow borrowers to lock in cheaper funding for longer maturities, thereby reducing rollover risk and alleviating debt servicing concerns, higher debt poses a vulnerability going forward in all sectors, in particular if financing costs were to rise and economic growth were to fall short of expectations.

Stretched valuations made some markets susceptible to corrections

Financial markets were characterised by generally positive risk sentiment in 2021, but valuations in some segments were driven up further as investors sought higher returns in an environment of low real yields. Equity markets continued to advance on the back of a surge in earnings expectations and continued favourable financing conditions. Record high issuance of high-yielding corporate securities was coupled with compressed credit spreads, pointing to strong investor appetite for risky assets. That said, valuations of certain asset classes seemed stretched, since the ongoing rally in equity markets gained further momentum with the news of the successful development of vaccines and might have been driven by the use of leverage, which could have precipitated large concentrated losses if volatility had increased.

Bank profitability improved but structural challenges remained

In 2021 bank profits in the euro area rose back toward pre-pandemic levels amid lower costs relating to loan losses and strong investment banking revenues. Asset quality held up better than initially feared at the onset of the pandemic, reflecting the public support measures provided to firms and the economic rebound. The non-performing loan ratio fell to levels last seen before the global financial crisis, on account of banks making further progress in selling off non-performing loans. On the liability side, banks intensified the pass-through of negative rates to depositors, while regulatory capital ratios declined marginally on aggregate during the first half of 2021. Market sentiment towards euro area banks remained favourable on the back of the results of the July 2021 European Banking Authority stress test and the lifting of the ECB's recommendation that all banks refrain from or limit dividend payments.³⁶ Looking ahead, profitability will depend on the path of economic recovery and the pandemic, and some asset quality concerns may resurface as government support measures continue to be gradually withdrawn. In addition, banks continued in 2021 to be challenged in various ways by pre-pandemic structural problems such as low cost-efficiency, limited revenue diversification, overcapacity and compressed margins in a low interest rate environment.

The non-bank financial sector increased credit risk-taking on the back of low liquid asset holdings

In 2021 non-bank financial institutions such as investment funds, insurance companies and pension funds, which are an important source of financing for the

³⁶ See “[ECB decides not to extend dividend recommendation beyond September 2021](#)”, press release, ECB Banking Supervision, 23 July 2021.

real economy, continued to increase their holdings of lower quality bonds. While the credit risks arising from these securities were alleviated in the short run as vulnerabilities in the corporate sector declined, non-banks remained exposed to the risk of substantial credit losses should conditions in the corporate sector deteriorate. For investment funds, growing credit risks were exacerbated by high liquidity risk on account of low cash buffers and low liquid asset holdings, leaving the sector vulnerable in the event of large-scale investor outflows. The duration of funds' exposures increased further, making their portfolios more vulnerable to valuation losses in the event of a substantial increase in global yields. Should valuation losses prompt large redemptions, funds, given their low liquidity buffers, might be forced to sell assets, which could lead to a negative feedback loop between asset valuations and redemptions. The outlook for insurers' profitability and credit ratings improved in 2021, supported by favourable trends in demand, pricing and cost-cutting.

Beyond the risks for individual sectors, climate change posed multiple, sizeable and increasingly urgent risks to financial stability in the euro area in 2021. Analysis conducted at the ECB over the year³⁷ made it clear that climate-related risks to euro area banks, funds and insurers could be material, particularly if climate change is not mitigated in an orderly fashion. All need to manage their exposure to a transition to a low-carbon economy and their exposure to physical risks associated with extreme weather and climate-related events. ECB analyses to date suggest that such risks appear to be particularly concentrated in certain sectors, geographical regions and among individual banks, exacerbating the implications for financial stability. At the same time, data and methodological gaps still need to be addressed to evaluate climate-related risks more comprehensively.

³⁷ See Special Feature B entitled "[Climate-related risks to financial stability](#)", *Financial Stability Review*, ECB, May 2021.

Figure 3.1
Key financial stability vulnerabilities in the euro area



Source: ECB.
Notes: Financial stability assessment as at 17 November 2021.

3.2 Macroprudential policy: ensuring a smooth credit supply and containing the build-up of vulnerabilities

Macroprudential policies are a key instrument to address financial stability vulnerabilities

Macroprudential policies can help to contain growing vulnerabilities and bolster the resilience of the financial sector, thereby contributing to a smooth supply of credit to the economy even in periods of distress such as during the pandemic. In this connection, the ECB has the task of assessing macroprudential capital measures for banks planned by national authorities in countries participating in European banking supervision. Importantly, the ECB has the power to apply more stringent capital measures in case of need.³⁸

³⁸ Article 5 of the [SSM Regulation](#) assigns an important role and specific powers to the ECB in this area.

In its new monetary policy strategy, the ECB gives more prominence to financial stability considerations in its monetary policy deliberations, which in turn increases the importance of the macroprudential policy area.³⁹ Financial stability is a precondition for price stability, as financial crises result in impairments of the monetary transmission mechanism and excessive deleveraging by banks, with negative repercussions for economic growth and the inflation outlook. By the same token, while monetary accommodation can support financial stability via a number of channels,⁴⁰ it might also lead to the build-up of systemic risks, which warrants monitoring and consideration from a macroprudential perspective. By addressing financial stability risks, including those stemming from the unintended effects of monetary accommodation, macroprudential action enables monetary policy to focus on its primary objective, namely price stability. In line with the new strategy, an in-depth assessment of the interaction between monetary policy and financial stability is conducted at regular intervals as part of monetary and financial analysis and considered at monetary policy meetings of the Governing Council.

At the current juncture, financial stability risks relate to vulnerabilities from increasingly stretched valuations in property and financial markets, continued risk taking by non-banks and elevated debt levels in both the public and private sectors.⁴¹ A tightening of macroprudential policies could address some of these vulnerabilities, notably in property markets in some countries, and increase overall bank resilience more generally. In addition, strengthening the regulatory framework for banks and non-banks and managing climate risks will help to further enhance the overall long-term resilience of the financial system.

Macroprudential policy during the pandemic

A number of financial sector policies have helped preserve financial stability during the pandemic

At the onset of the pandemic, to facilitate banks' absorption of possible losses and to enable them to meet credit demand, macroprudential authorities freed up more than €20 billion of capital, mainly by releasing the countercyclical capital buffer and the systemic risk buffer.⁴² These measures complemented those taken by ECB Banking Supervision to provide temporary capital and operational relief to banks and restrict

³⁹ See the [ECB's monetary policy strategy statement](#) and [overview](#), as well as Work stream on macroprudential policy, monetary policy and financial stability, "[The role of financial stability considerations in monetary policy and the interaction with macroprudential policy in the euro area](#)", *Occasional Paper Series*, No 272, ECB, September 2021. See also the box entitled "[The role of financial stability in the ECB's new monetary policy strategy](#)", *Financial Stability Review*, ECB, November 2021.

⁴⁰ During recessions, monetary policy can stabilise both the economy (thereby reducing the losses for the financial sector) and inflation, which mitigates the risk of a debt-deflation spiral. Crucially, it can also contain episodes of bank runs and fire sales in periods of outright financial stress.

⁴¹ See the ECB's November 2021 [Financial Stability Review](#).

⁴² In Cyprus, Lithuania and Portugal these measures were supported by simultaneously postponing the phase-in of buffers for other systemically important institutions (O-SIIs). Macroprudential authorities also fine-tuned residential real estate policy measures in order to avoid unintended amplification of the economic cycle and preserve the resilience of banks and borrowers. See Box 3 of the article entitled "[The euro area housing market during the COVID-19 pandemic](#)", *Economic Bulletin*, Issue 7, ECB, November 2021.

dividend distributions.⁴³ The ECB continued in 2021 to monitor the effectiveness of prudential measures and the capital framework in ensuring a smooth credit supply during the pandemic. Research by ECB staff suggests that capital releases were indeed effective in boosting credit supply (see Box 4).

In the second half of 2021, the overall macroprudential policy stance started to shift to a gradual and targeted tightening, as the economic recovery continued and medium-term vulnerabilities rose further, especially in residential real estate markets. In line with the ECB's assessment, macroprudential measures were introduced or tightened in certain jurisdictions where vulnerabilities were more intense and the economic recovery more advanced. In Bulgaria and Estonia, the countercyclical capital buffer was increased.⁴⁴ In Lithuania, a sectoral systemic risk buffer of 2% was introduced to address residential real estate risks.⁴⁵ In Belgium, Estonia and France, the period of application of the macroprudential measures under Article 458 of the [Capital Requirements Regulation](#) was extended. Furthermore, the Netherlands decided to apply a risk-weight floor⁴⁶ to the mortgage loan portfolios of banks using the internal ratings-based approach for calculating regulatory capital requirements, starting from 1 January 2022.⁴⁷

The ECB assessed the notifications of macroprudential measures in 2021 and did not object to these decisions, which were considered to be consistent with the ECB's own assessment. A further tightening of macroprudential policies to address growing medium-term vulnerabilities appears warranted, unless downside risks to economic growth materialise.⁴⁸ In this context, the ECB stands ready to apply more stringent macroprudential measures than those decided by national authorities should the latter measures be deemed insufficient or vulnerabilities be expected to escalate further.

⁴³ In March 2020, the ECB recommended that banks refrain from dividend distributions and share buy-backs at least until 1 October 2020 (in July 2020 it extended this recommendation until 1 January 2021, and in December 2020 asked banks to consider limiting or refraining altogether from cash dividends until the end of September 2021) and allowed banks to operate temporarily below the level of capital defined by Pillar 2 guidance and the capital conservation buffer until the end of 2022 at the earliest, making the timeline for banks to return to Pillar 2 guidance levels conditional on economic conditions. This timeline was confirmed by the findings of the European Banking Authority 2021 stress test. See "[ECB Banking Supervision provides temporary capital and operational relief in reaction to coronavirus](#)", *press release*, 12 March 2020; "[ECB asks banks not to pay dividends until at least October 2020](#)", *press release*, 27 March 2020; "[ECB ask banks to refrain from or limit dividends until September 2021](#)", *press release*, 15 December 2020; and the [FAQs on ECB supervisory measures in reaction to the coronavirus](#). The ECB [lifted the restrictions on dividend distributions and share buy-backs](#) as of 30 September 2021.

⁴⁴ In Bulgaria the two consecutive increases of the current positive rate will come into effect in October 2022 and January 2023 respectively, while in Estonia the increase will be effective in December 2022.

⁴⁵ The sectoral systemic risk buffer will cover all retail exposures to natural persons that are secured by residential property and will be effective in July 2022.

⁴⁶ This measure was decided in 2020 but its implementation was postponed at the onset of the COVID-19 crisis.

⁴⁷ In addition to the above measures, some authorities adjusted buffers for O-SIIs and reset or abolished systemic risk buffers to align buffers with the amendments in the [Capital Requirements Directive](#). The ECB publishes on its website an [overview](#) of the macroprudential measures of which it has been notified and that have been implemented or publicly announced in countries subject to ECB Banking Supervision.

⁴⁸ See [Section 5](#) of the ECB's November 2021 Financial Stability Review.

Finally, the ECB is engaged in initiatives to strengthen macroprudential oversight. It will contribute to the review of the EU's macroprudential framework for banks in 2022 by responding to the European Commission's call for advice, coordinating its stance with the European Systemic Risk Board and the European Banking Authority.⁴⁹ In addition, the ECB continues to promote initiatives to progress towards a macroprudential approach for non-banks in the relevant fora (see Box 5).

Cooperation with the European Systemic Risk Board

In 2021 the ECB continued to provide analytical, statistical, logistical and administrative support to the European Systemic Risk Board (ESRB) Secretariat.⁵⁰ The ECB provided general support to the work undertaken by the ESRB on, notably: (i) financial stability implications of fiscal support measures during the pandemic;⁵¹ (ii) macroprudential policy challenges in the low interest rate environment;⁵² (iii) developing risk metrics for non-bank financial institutions (see Box 5 on the macroprudential approach for the non-bank financial sector);⁵³ and (iv) financial stability risks from climate change drivers.⁵⁴ The ECB also chaired the ESRB Task Force on Stress Testing,⁵⁵ and actively participated in several other ESRB working groups such as: a drafting team to respond to the European Commission's call for advice on the 2022 review of the EU macroprudential framework; an expert group on the operationalisation of a macroprudential stance framework;⁵⁶ a task force analysing the effects of overlapping capital requirements;⁵⁷ and the European Systemic Cyber Group, which is developing a macroprudential strategy for assessing systemic cyber risks.

More detailed information on the ESRB can be found on its [website](#) and in its [Annual Reports](#).

⁴⁹ In July 2021, the European Commission addressed a call for advice to the European Systemic Risk Board, the European Banking Authority and the ECB in view of the legislative review of the EU macroprudential framework. The advice provided is to cover: (i) the design and functioning of the buffer framework, (ii) missing or obsolete instruments, (iii) internal market considerations, and (iv) global risks.

⁵⁰ The ESRB is responsible for the macroprudential oversight of the EU financial system and the prevention and mitigation of systemic risk.

⁵¹ The ESRB working group published a report on [Financial stability implications of support measures to protect the real economy from the COVID-19 pandemic](#) in February 2021, and a [monitoring update](#) in September 2021.

⁵² The report [Lower for longer – macroprudential policy issues arising from the low interest rate environment](#) was published in June 2021.

⁵³ This work included the sixth issue of the [EU Non-bank Financial Intermediation Risk Monitor](#) and, in July 2021, an [Issues note on systemic vulnerabilities of and preliminary policy considerations to reform money market funds](#), focusing on the context of the EU's regulatory framework.

⁵⁴ The report on [Climate-related risk and financial stability](#) was published in July 2021.

⁵⁵ This entailed the preparation of the adverse [scenarios](#) for the European Insurance and Occupational Pensions Authority (EIOPA) 2021 EU-wide insurance sector stress test, the European Securities and Markets Authority (ESMA) 2021 EU-wide central counterparty stress test and 2021 EU-wide banking sector stress test coordinated by the European Banking Authority.

⁵⁶ The report on [macroprudential stance](#) was published in December 2021.

⁵⁷ The report on [overlapping capital requirements](#) was published in December 2021.

Box 4

Bank capital buffers and lending to non-financial corporations during the pandemic

A core goal of the Basel III capital buffer framework is to reduce the likelihood of the banking system curtailing the supply of credit during crises. For this purpose, Basel III and its European implementation introduced the combined buffer requirement (CBR)⁵⁸, an extra level of capital that banks have to meet in good times, thereby providing capital which they can then use during downturns to absorb losses and meet credit demand. However, drawing on the CBR comes with some limitations, notably the maximum distributable amount, which caps banks' pay-outs on dividends, share buybacks and bonuses.⁵⁹

Some factors could make banks unwilling to use capital buffers. Potential factors include the limits on the dividends they can pay and market stigma associated with reducing capital ratios, as a lower capital ratio implies lower solvency. Ultimately, should banks be unwilling to dip into the CBR, they might react to an actual or expected capital loss by reducing their lending instead of accepting a lower capital ratio, thereby rationing credit in a time of crisis, which is contrary to the intention of the capital buffer framework. For these reasons, prudential authorities can decide to reduce the CBR by lowering some of its components, such as the countercyclical capital buffer⁶⁰ or the systemic risk buffer⁶¹.

The COVID-19 pandemic and the capital measures taken as a result provide an opportunity to see how banks react and how willing they are to use released buffers. Banks in the euro area entered the pandemic with relatively strong capital ratios, which were further supported by extraordinary policy measures. As a result, the euro area banking system as a whole was able to meet the surge in corporate credit demand. Nevertheless, looking at the reactions of individual banks to the measures taken allows the effectiveness of two key features of the macroprudential framework to be investigated, even though several support measures have prevented large-scale losses in the banking sector to date. First, banks' reactions to reductions in buffers and other capital relief shed light on the effectiveness of relaxing such obligations in times of stress. Second, the behaviour of banks with little capital headroom above the CBR provides information on the propensity of banks to make use of the buffers.

Reducing buffers and other capital relief had positive effects on corporate lending in 2020, especially for banks whose capital was closer to the CBR.⁶² During the pandemic prudential

⁵⁸ The total Common Equity Tier 1 (CET1) capital required to meet the requirement for the capital conservation buffer extended by an institution-specific countercyclical capital buffer, a G-SII buffer (a buffer for global systemically important institutions), an O-SII buffer (a buffer for other systemically important institutions) and a systemic risk buffer, as applicable. It is defined in Article 128 of the Capital Requirements Directive.

⁵⁹ When a bank's CET1 ratio falls below the sum of the Pillar 1 and Pillar 2 capital requirements and the combined buffer requirement – a level referred to as the "MDA trigger" – the bank must compute its minimum distributable amount, which caps its possible capital pay-outs in the form of dividends, share buybacks and bonuses. The larger the gap between the bank's CET1 ratio and the MDA trigger, the smaller the amount it is allowed to pay out.

⁶⁰ A capital buffer intended to ensure that credit institutions accumulate sufficient capital during periods of excessive credit growth to be able to absorb losses during periods of stress. It must be met with CET1 capital. The buffer is institution-specific and is calculated as a weighted average of the countercyclical buffer rates that apply in the countries where an institution's credit exposures are located.

⁶¹ A capital buffer applied to the financial sector, or to one or more subsets of the sector, in order to prevent and mitigate macroprudential or systemic risks. It must be met with CET1 capital and can be applied to all exposures or to a subset of exposures.

⁶² See Special Feature A entitled "[Bank capital buffers and lending in the euro area during the pandemic](#)", *Financial Stability Review*, ECB, November 2021.

authorities reduced the CBR (by lowering countercyclical and systemic risk buffers) and brought forward a change in the composition of the Pillar 2 requirement, lowering the proportion of Common Equity Tier 1 (CET1) capital, i.e. the highest-quality capital, that banks need to meet it. Credit volumes were 3.1% higher in 2020 for banks benefiting from these measures than for other banks, while interest rates on loans to firms were 7 basis points lower. Importantly, the effect was larger for banks close to the CBR, suggesting that banks are willing to use the capital above the CBR but not the CBR itself (see Chart A).

Having capital close to the CBR reduced banks' lending to firms, further suggesting that banks are reluctant to use the CBR. An econometric analysis shows that, in 2020, proximity to the CBR reduced lending growth by a substantial 2.7 percentage points compared with other banks. This suggests that banks are reluctant to dip into buffers.

Lower lending by banks closer to the CBR resulted in greater credit constraints for non-financial firms reliant on these banks. Firms exposed to banks in the proximity of the CBR (i.e. more than 75% of their pre-COVID credit) borrowed 5.3% less during the pandemic than other firms. The impact increased to 7% for firms that had only one lender (close to the CBR) at the outbreak of the pandemic. This suggests that in times of crisis it may be difficult for firms to find another lender, highlighting the importance of banks' capital positions for their customers' access to finance.

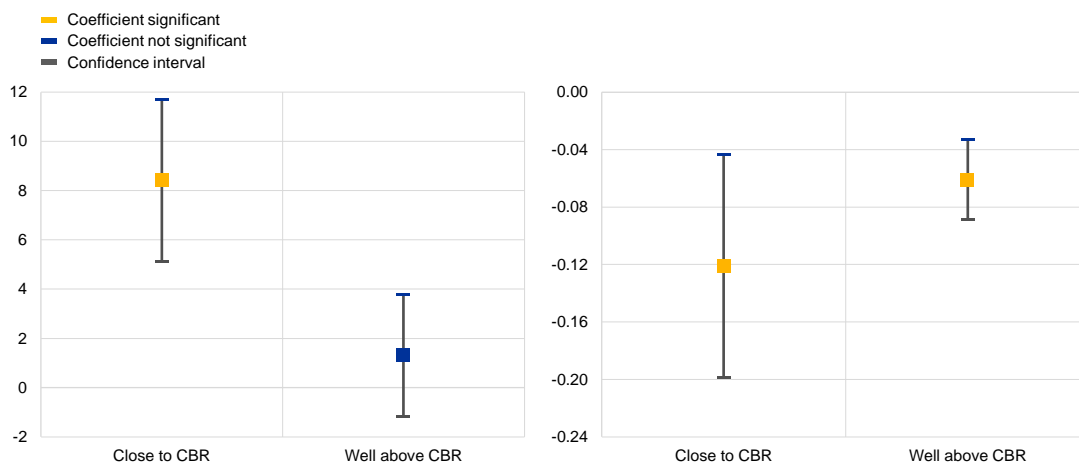
The behaviour of individual banks during the pandemic suggests banks react positively to the release of buffers and other capital relief but are reluctant to draw on the buffers. The reduction in the capital requirements and buffers supported the supply of credit to firms by increasing the amount of capital above the CBR. This shows that reducing capital buffers can help mitigate potentially procyclical behaviour of the banking system in periods of economic distress. However, the behaviour of banks with limited capital above the CBR could indicate impediments to the smooth functioning of the capital framework in periods of economic distress. More research is needed, also on the macroeconomic impact, to further test and substantiate the results presented in this box and allow more far-reaching conclusions to be drawn.

Chart A

Capital relief measures support credit supply

Estimated effects of the capital relief measures for banks with capital at different distances from the CBR

(left-hand side: percentage changes in credit volume; right-hand side: percentage point changes in lending rates)



Sources: ECB AnaCredit data, ECB supervisory data and ECB calculations.

Box 5

A macroprudential approach for the non-bank financial sector

The non-bank financial sector has grown faster than the banking sector over much of the past decade. In the euro area, financial assets of insurance corporations, pension funds, investment funds and money market funds have together more than doubled since the global financial crisis in 2008, reaching around €32 trillion by the end of 2021.⁶³ Over the same period, non-bank finance has become an important source of funding for the real economy, with its share in overall credit to non-financial corporations also doubling, from about 15% to 30%.⁶⁴ Given the increasing role played by non-banks in financing the real economy and their interconnections with the wider financial system, it is crucial for the risks in this sector to be addressed as part of a system-wide approach.

The policy framework for non-banks needs to be enhanced from a macroprudential perspective

At present the macroprudential policy framework focuses primarily on the banking sector, whereas the framework for the non-bank financial sector is to a large extent lacking a macroprudential perspective. This means that there are fewer safeguards against systemic risks originating in this often opaque and interconnected sector. These risks can grow during an economic upswing owing to the structure of this sector and the lighter regulatory requirements compared with the banking sector. With the occurrence of an unexpected economic shock, or a worsening of the economic outlook, there is a risk of non-bank financial institutions responding in a procyclical manner by selling assets into an already falling market and scaling back their activities, leading to a tightening of funding conditions and the amplification of stress in the system.

During the financial market turmoil in March 2020 it became clear that parts of the non-bank financial sector were not sufficiently resilient to absorb the economic shock without creating the risk of contagion to other financial intermediaries and the wider economy. Underlying vulnerabilities were revealed, such as liquidity mismatches in money market funds and corporate bond funds, as well as liquidity risk related to procyclical margining practices. Existing liquidity management tools could not adequately mitigate the stress, and these liquidity strains only started to ease after extraordinary monetary policy action was taken in the euro area and globally.

This episode underlined the need for authorities to take a holistic and system-wide approach, consider the role of different players, and assess and design policies to address the structural vulnerabilities in the non-bank financial sector, as also outlined by the Financial Stability Board.⁶⁵ The events in March 2020 also underscored the importance of developing a stronger role for EU-wide supervision of capital markets, which would enhance cross-border risk monitoring and coordinated actions across Europe.

The development of a comprehensive macroprudential framework is needed to increase the resilience of the non-bank financial sector, ensuring that it provides a stable source of funding to the real economy in both normal and stressed market conditions. It would also support the effective transmission of monetary policy. Such regulatory reforms should also reduce the need for

⁶³ ECB primary statistics for monetary financial institutions, insurance corporations and pension funds, and investment funds.

⁶⁴ Based on the euro area accounts and ECB primary statistics; see also the ECB's November 2020 [Financial Stability Review](#), Chart 4.1.

⁶⁵ See "[Holistic Review of the March Market Turmoil](#)", Financial Stability Board, 17 November 2020.

extraordinary central bank interventions in the future, thus helping to alleviate concerns which may be associated with such action, such as risks to public funds and the creation of incentives for market participants to take on excessive risk.

A macroprudential framework should be structured around several key principles. In view of the interconnectedness of the sector, it should adopt a system-wide perspective. It should primarily seek to enhance the ex-ante resilience of the sector by improving its shock-absorbing capacity. It should also be sufficiently flexible to adapt to evolving risks over time and should be tailored to a diverse set of entities and activities given the sector's heterogeneity.

Reforms should be embedded in international policy coordination

With respect to the international policy agenda, there has been considerable progress during the past year on reforming money market funds, which came under severe stress during March 2020. The Financial Stability Board has issued policy proposals to tackle vulnerabilities in money market funds internationally, to which the ECB has contributed.⁶⁶ These proposals aim to increase the resilience of money market funds by reducing liquidity mismatches and “cliff effects” arising from possible breaches of regulatory thresholds. The ECB has also been involved in preparing an [ESRB recommendation on money market fund reforms](#), which will help inform the European Commission's review of the EU's [Money Market Fund Regulation](#) in 2022, and has published further analysis of the reform proposals.⁶⁷ The next step should focus on enhancing policies for open-ended investment funds and margining practices and tackle risks arising from non-bank leverage.

Policies for the broader investment fund sector should address liquidity mismatches as a key priority. An important objective is to ensure that asset liquidity is better aligned with redemption terms, by either limiting redemption frequencies or ensuring that funds hold sufficient liquid assets. Liquidity management tools, such as swing pricing or anti-dilution levies, may complement these reforms, but are less effective in addressing the liquidity mismatch.

Furthermore, it is vital to understand and tackle the risks associated with leverage in the non-bank financial sector. To monitor and address vulnerabilities arising from the use of leverage, it is necessary to have globally consistent leverage metrics. Further work should be undertaken internationally to assess the extent and distribution of non-bank leverage, including that arising from the use of derivatives to generate synthetic exposure. This will help inform the policy discussion on mitigating the systemic risk arising from the use of leverage outside the banking sector.

International work on margining practices should aim to increase transparency, reduce excessive margin procyclicality and ensure that non-banks are better prepared to cope with margin calls.⁶⁸ The transparency and predictability of initial margin models used by both central counterparties and clearing members should be improved so that both banks and non-banks are better prepared to cope with margin calls. In addition, all types of non-bank should have adequate liquidity management frameworks in place to ensure that they are sufficiently prepared to meet margin calls. This will mitigate liquidity risk across the system, including among money market funds, which are used by

⁶⁶ See [“Policy Proposals to Enhance Money Market Fund Resilience – Final report”](#), Financial Stability Board, 11 October 2021.

⁶⁷ See [“Mind the liquidity gap: a discussion of money market fund reform proposals”](#) and [“Assessing the impact of a mandatory public debt quota for private debt money market funds”](#), *Macroprudential Bulletin*, Issue 16, ECB, 21 January 2022.

⁶⁸ See BCBS, CPMI and IOSCO, [“Consultative report: Review of margining practices”](#), Bank for International Settlements and International Organization of Securities Commissions, October 2021.

market participants for storing liquidity, as well as among investment funds, insurers and pension funds, which use derivatives and are therefore subject to margin calls.

3.3 Microprudential activities to ensure the soundness of individual banks

The ECB rolled back some of the extraordinary supervisory measures put in place in 2020 to alleviate the impact of the COVID-19 shock

With the improvement of the economic outlook in the course of 2021, the ECB announced the gradual roll-back of some of the supervisory measures put in place to allow banks to continue to supply credit to the economy throughout the pandemic. In July, the ECB **decided** not to prolong beyond 30 September 2021 its recommendation that all banks refrain from or limit dividends and share buy-backs, but warned that banks must remain prudent and not underestimate the risk that additional losses may later have an impact on their capital trajectory as support measures expire. In this context, the ECB focused particular attention in the course of 2021 on credit risk, particularly on the adequate classification and measurement of risks in banks' balance sheets and on banks' preparedness for dealing with distressed debtors in a timely manner. In June, the ECB **extended** its leverage ratio relief for banks until March 2022, also in light of the exceptional monetary circumstances. All the decisions on the ECB's supervisory relief, as well as decisions relating to the additional focus on credit risk, were communicated to banks and the public via public FAQs, press releases, blog posts and speeches.

The ECB performed a stress test on some of Europe's largest banks, continued its post-Brexit work and completed TRIM

The ECB carried out a stress test of some of the large and medium-sized banks it supervises directly. The **results**, published in July 2021, showed that the euro area banking system would be able to withstand a potential further deterioration in economic conditions. The ECB published for the first time individual information for banks which are not part of the sample for the EU-wide stress tests coordinated by the European Banking Authority but are directly supervised by the ECB. In addition, the ECB completed its comprehensive assessments of two Italian banks, one Estonian bank and one Lithuanian bank, after these banks were classified as significant institutions. All banks that become or are likely to become subject to direct ECB supervision are required to undergo a comprehensive assessment, consisting of a stress test and an asset quality review (AQR). The results of the comprehensive assessment show that none of the four banks face capital shortfalls. However, the banks will be expected to follow up on the outcome of the exercise and undertake actions to address the findings of the AQR.

The ECB also continued its post-Brexit work. Following the end of the transition period (during which the United Kingdom was still bound by EU law) on 31 December 2020, the ECB continued to monitor, as part of its ongoing supervision, the implementation of the post-Brexit target operating models of the banks affected by Brexit to ensure they progressed in line with the time frames previously agreed. In parallel, a desk mapping review was launched to assess the booking models of the newly established EU subsidiaries of international banking groups in a consistent way.

The ECB completed its targeted review of significant institutions' internal models ([TRIM](#)). Under TRIM, which started in 2016, the ECB carried out 200 on-site model investigations at 65 significant banks, covering internal models for credit risk, market risk and counterparty credit risk. Overall, this review confirmed that banks can continue to use their internal models to calculate own funds requirements, in some cases subject to supervisory measures. TRIM improved the reliability and cross-bank comparability of internal model outcomes and contributed to reducing non-risk-based variability of risk-weighted assets.

From 26 June 2021 the ECB took over supervision of systemic investment firms in countries participating in European banking supervision. In 2021 investment firms became subject to a new European regulatory regime to better reflect the actual risks taken by the different types of investment firm and to make the supervision of such firms more effective. The largest and most systemic investment firms are obliged to apply for a banking licence and, once the licence is granted, come under the supervision of the ECB. The investment firms that are subject to European banking supervision are those that provide key market and investment banking services and are thus exposed, in a similar way to banks, to credit and market risk.

Public consultations were launched on various supervisory frameworks

In its continued effort to enhance transparency and accountability, the ECB launched a series of public consultations. The first consultation related to fit and proper assessments, for which the ECB subsequently published a revised and more comprehensive [guide](#). The revised guide explains the policies applied by the ECB when assessing the suitability of individual members of the management bodies of directly supervised banks and lays out the enhanced supervisory expectations regarding the collective suitability of bank boards and the individual accountability of their members. It also outlines the process for reassessing board members in cases where new facts emerge that may affect their suitability. A revised fit and proper questionnaire aimed at fostering further convergence of fit and proper supervision across countries participating in European banking supervision was also published.

The second consultation related to the [review of the harmonised framework for exercising the options and discretions](#) that the ECB is allowed to exercise under European Union law when supervising banks. The ECB proposed revisions to its policies primarily to account for legislative changes adopted since they were first published in 2016. Most of the revisions pertain to options and discretions in the application of liquidity requirements. The consultation related to many aspects of supervision, including permissions for banks seeking to reduce their capital, the treatment of certain exposures in the calculation of the leverage ratio as well as some exemptions from the large exposures limit.

The third consultation related to a draft [Guide on the notification of securitisation transactions](#), which clarifies the information that the ECB expects directly supervised banks acting as originators or sponsors of securitisation transactions to provide. In May 2021 the ECB had announced its [decision](#) to ensure that directly supervised banks comply with the requirements for risk retention, transparency and resecuritisation for all securitisations, which are set out under Articles 6, 7 and 8 of the [EU Securitisation Regulation](#). This followed clarifications made to the Regulation, which are part of the EU's Capital Market Recovery Package and explicitly state that

these requirements are of a prudential nature and therefore should be supervised by the competent prudential supervision authorities.

The ECB also published the supervisory Memoranda of Understanding it signed in 2021, for which it received the consent of the other authority in each case.

More detailed information on ECB Banking Supervision can be found on its [website](#) and in the [2021 ECB Annual Report on supervisory activities](#).

3.4 The ECB's contribution to European policy initiatives

Efforts continued to put in place needed regulatory reforms

Significant regulatory reforms were completed or initiated in 2021 to ensure that the financial system was able to withstand the shocks caused by the pandemic. Nonetheless, there are still important legal and institutional challenges that need to be overcome before European banks can operate within a truly integrated framework. In particular, further efforts are needed to complete the banking union and implement the final Basel III reforms; to further develop the European capital markets, while strengthening the regulatory framework for non-bank financial institutions; to develop regulations for crypto-assets and stablecoins; and to address climate-related risks.

Completing the banking union

Banks have been resilient during the pandemic, but further work is needed to complete the banking union

Banks in the banking union benefited from strong policy support for the real economy, as well as an improved regulatory and supervisory framework, which strengthened their capital position. However, the banking union needs to be further strengthened. The ECB continued to actively develop and improve crucial banking union features in 2021. It contributed to the policy discussions on establishing a European deposit insurance scheme; improving banks' ability to operate across borders within the banking union; mitigating remaining risks and enhancing the crisis management toolbox; and the availability of funding options in crisis situations. As in previous years, the ECB continued to contribute to the monitoring reports on risk reduction indicators prepared jointly with the European Commission and the Single Resolution Board. The reports are used to inform political decisions on completing the banking union.

Improving the crisis management framework was a particular focus of the work on banking union throughout 2021. The ECB provided input into the debate through its [contribution to the European Commission's targeted consultation on the review of the crisis management and deposit insurance framework](#). The contribution makes proposals for improving the handling of a bank in crisis both before and after its point of failure. In the course of 2021 the ECB also followed and contributed to the technical work in the relevant European fora on the operationalisation of the common backstop to the Single Resolution Fund. The common backstop will further strengthen the bank resolution framework by effectively doubling the resources available for bank resolution via the Single Resolution Fund.

Implementing the final Basel III reforms

The ECB welcomes the European Commission's proposals for amending the CRR and CRD to implement the final Basel III reforms

Implementing the final Basel III reforms is essential to address the shortcomings of the existing regulatory capital framework and to further enhance the long-term resilience of the financial system. The international regulatory initiatives introduced after the global financial crisis made the financial system better able to withstand a large unexpected shock such as the pandemic. The final package of Basel III reforms aims to address shortcomings in the existing framework among other things through the introduction of an output floor.

The ECB has consistently affirmed the importance of upholding international financial standards. To that end, in September 2021, the ECB and the European Banking Authority wrote an [open letter](#) to the European Commission voicing their support for the full, timely and consistent implementation of the final set of Basel III reforms.⁶⁹ The letter highlighted their previous advice to the Commission and reiterated their view that implementing the Basel III reforms as internationally agreed could be expected to have modest transitional costs, which would be greatly outweighed by long-run economic benefits.⁷⁰

Against this background, the ECB welcomed the European Commission's proposals for amending the Capital Requirements Regulation (CRR) and the Capital Requirements Directive (CRD) to implement the final Basel III reforms, published on 27 October 2021. The Commission opted for a faithful implementation of the output floor in the EU, by following a single stack approach, but the proposal also contained certain implementation choices, deviations from the Basel agreement and long transition periods that may leave some risks insufficiently covered, and which therefore raise concerns from a prudential perspective.⁷¹ The ECB intends to give more detailed views in its forthcoming opinions on the legislative proposals.

Advancing the capital markets union

The ECB called for progress on capital markets union, focusing on green capital markets to further the EU's climate aims

In 2021 the ECB continued to highlight the importance of advancing the capital markets union (CMU), in particular to support the recovery of the economy from the pandemic, to adapt to Brexit and to contribute to the financing of climate-related investments and the digital transition. To that end the ECB reiterated the need to implement the European Commission's 2020 CMU action plan in full and without delay, welcoming the legislative proposals adopted in November 2021, while also urging further progress. Specifically, addressing structural impediments, such as

⁶⁹ See the [letter from the ECB and the European Banking Authority](#) and also the [joint letter to the European Commission from several national authorities in the EU](#) calling for the full implementation of Basel III reforms, both 7 September 2021, and "[Basel III implementation: the last mile is always the hardest](#)", speech by Andrea Enria, Chair of the Supervisory Board of the ECB, at the Marco Fanno Alumni online conference, 3 May 2021.

⁷⁰ See "[Basel III reforms: impact study and key recommendations](#)", European Banking Authority, December 2019, "[Macroeconomic impact of Basel III finalisation on the euro area](#)", *Macroeconomic Bulletin*, No 14, ECB, July 2021; and "[Basel III Reforms: Updated Impact Study](#)", European Banking Authority, 2020.

⁷¹ See "[Strengthening banks' resilience in the banking union](#)", speech by Kerstin af Jochnick, Member of the Supervisory Board of the ECB, at the Financial Stability Conference 2021, Berlin, 19 November 2021.

national differences in insolvency rules, investor protection and taxation, and strengthening cross-border supervision, are important to advance CMU. The ECB placed a specific focus on green capital markets. Capital markets play a key role in meeting the EU's climate ambitions, as underlined in the ECB's [October 2021 Macprudential Bulletin](#) and [November 2021 Financial Stability Review](#). The ECB highlighted the fact that the further development of sizeable and integrated green capital markets in the EU will require decisive action to enhance market structures and standards in order to decrease fragmentation and the risk of greenwashing and to ensure companies' overall commitment to the green transition. Further, green capital markets will be helped if CMU is advanced by focusing on areas relevant to them or on measures aimed at increasing equity finance to spur innovation.

Developing the regulation of crypto-assets and stablecoins

The ECB proposed strengthening certain requirements in the Markets in Crypto-assets Regulation

In response to the European Commission's proposed Regulation on Markets in Crypto-assets (the "MiCA" regulation), the ECB published an [opinion](#) in February 2021 proposing the clarification and strengthening of certain prudential requirements and the role of the ECB and other relevant members of the European System of Central Banks. The ECB's opinion cautioned against some types of stablecoin being used for payment purposes. It argued for strengthening the prudential requirements for issuers of stablecoins by subjecting them to a stress testing obligation and liquidity requirements at least as stringent as the Money Market Fund Regulation. The ECB also called for EU-level supervision to ensure a comprehensive risk assessment and avoid fragmentation, given the cross-border nature of crypto-assets and stablecoins. In November, the ECB published its [opinion](#) on the proposed regulation to extend traceability requirements to transfers of crypto-assets. The ECB continued its active contribution to the discussions in international fora on crypto-assets and stablecoins.

Strengthening the regulatory framework for non-banks

The ECB continued in 2021 to contribute to European and international discussions on the policy response to the lessons of the pandemic-related turmoil in relation to the non-bank financial sector. In April, the ECB published a [Macprudential Bulletin](#) dedicated to the non-bank financial sector,⁷² analysing vulnerabilities that emerged during the COVID-19 turmoil and advocating a macroprudential approach to adequately address systemic risks originating from this sector. In July 2021 the Eurosystem published its [response to the consultation launched by the European Securities and Markets Authority on policy reforms for EU money market funds](#), arguing for reforms to strengthen the resilience of money market funds by significantly reducing their liquidity mismatch.

⁷² [Macprudential Bulletin](#), Issue 12, ECB, April 2021.

Contributions to EU policy discussions and financial regulation on climate change

The ECB monitored climate-related financial risks while laying the foundations for evidence-based policy action

The ECB has continued to assess and monitor the financial risks related to climate change and contributed to the European and international policy discussions. Jointly with the European Systemic Risk Board, it published a report providing important analytical insights and foundations for evidence-based targeted policy action.⁷³ Furthermore, in October 2021 it published a Macroprudential Bulletin dedicated to climate-related risks and opportunities.⁷⁴ The articles discussed the challenge of capturing climate risks in the banking regulatory framework and whether there is a need for a macroprudential response. The Bulletin also included a proposal for a macroprudential stress test approach to recognise the systemic nature of climate risks.

The ECB has continued to contribute to the development of the regulatory framework in the EU. It provided impetus to the EU policy agenda by publishing an [opinion](#) on the proposal for a regulation on European green bonds, calling for a commitment to making the green bond standard the prime standard within the EU, in order to create a green bond market consistent with the EU's taxonomy and to mitigate greenwashing concerns. The ECB also published an [opinion](#) on the proposal for a Corporate Sustainability Reporting Directive (CSRD). It welcomed the proposed directive as a necessary step to increase the availability, quality and consistency of sustainability information in the EU and address the data gap hindering the development of appropriate sustainability policy, risk assessment and risk monitoring frameworks for the financial sector.

⁷³ ECB/ESRB Project Team on climate risk monitoring, "[Climate-related risk and financial stability](#)", ECB, July 2021.

⁷⁴ [Macroprudential Bulletin](#), Issue 15, ECB, October 2021.

4 Smooth functioning of market infrastructure and payments

The Eurosystem plays a central role in developing, operating and overseeing market infrastructures and arrangements that facilitate the safe and efficient flow of payments, securities and collateral across the euro area. It also acts as a catalyst for integration and innovation in the payments and securities market. In response to digital transformation, new regulatory requirements and changing user demands, the Eurosystem has been reviewing and renewing existing market infrastructures, policies and strategies, as well as exploring new technologies, digital currencies and developments in crypto-assets.

4.1 TARGET Services

The Eurosystem's TARGET Services consist of three settlement services: TARGET2, a real-time gross settlement system (RTGS) for euro payment transactions supporting the Eurosystem's monetary policy operations, bank-to-bank transactions and commercial transactions; TARGET2-Securities (T2S), a single platform for Europe-wide securities settlement; and TARGET Instant Payment Settlement (TIPS), which allows payment service providers to offer their customers the instant transfer of funds, around the clock, every day of the year.



TARGET2 settled more euro payments

Approximately 1,000 banks use TARGET2 to initiate transactions in euro, either on their own behalf or on behalf of their customers. Taking into account branches and subsidiaries, more than 43,000 banks worldwide can be reached via TARGET2. In 2021 TARGET2 processed on average 373,467 payments per day with an average daily value of €1.87 trillion. This was an 8.25% increase in the daily volume of payments compared with 2020.⁷⁵

In 2022 the Eurosystem will replace TARGET2 with T2, consisting of a new RTGS component and a central liquidity management component that will optimise liquidity management across all TARGET Services. T2 will use the messaging standard ISO 20022 and will be able to facilitate payments in multiple currencies.

The T2 implementation project entered the user testing phase at the end of 2021 and is on track to go live in November 2022. A vital part of the project is the development of the Eurosystem Single Market Infrastructure Gateway (ESMIG). This will provide a single access point for external inbound and outbound communication to all TARGET Services. In 2021 preparations continued for the migration of the TARGET Services to ESMIG.

⁷⁵ 2020 TARGET2 traffic showed very low growth compared with 2019 (+1.0%), as the strong decrease observed following the outbreak of the COVID-19 pandemic (-5.9% in the second quarter of 2020 compared with the same quarter in 2019) was offset by growth in the first and last quarter of the year.

The T2S platform connects 20 central securities depositories (CSDs) from 20 European markets, allowing securities settlement in euro and Danish kroner. In 2021 T2S processed an average of 726,271 transactions per day with an average daily value of €691.10 billion. Work commenced on onboarding new CSDs to T2S, in particular Euroclear Bank.

In 2020 a penalty mechanism feature was introduced within T2S to support the CSDs in complying with their obligations under the settlement discipline regime set out in the [Central Securities Depositories Regulation](#). Testing of this new, complex functionality has continued throughout 2021 in preparation for the entry into force of the relevant provisions of the Regulation in February 2022.

Pan-European reachability in TIPS

Throughout 2021 the ECB has been taking steps to [ensure the pan-European reach of instant payments](#) via TARGET Instant Payments Settlement (TIPS). In accordance with the measures towards pan-European reachability approved by the ECB's Governing Council in mid-2020, 2,235 Payment Service Providers (PSPs) that have adhered to the SCT Inst scheme and are reachable in TARGET2 will also become reachable in a TIPS account, either as a participant or as reachable party by the end of the first quarter of 2022. At around the same time, all 11 automated clearing houses offering instant payment services will have to migrate their technical accounts from TARGET2 to TIPS. The migration of the automated clearing houses will be performed in three waves. The multi-currency design of TIPS has been attracting interest from non-euro central banks. As a result, from May 2022 Sveriges Riksbank will be offering instant payment settlement in Swedish kronor through TIPS and, by November 2025 at the latest, Danmarks Nationalbank will offer settlement in Danish kroner on TIPS. Following the decisions taken by Sveriges Riksbank and Danmarks Nationalbank to join the platform and make use of the service's multi-currency capability, [Norges Bank has expressed interest in joining TIPS](#) and settling instant payments in Norwegian kroner.

In 2020 work began on exploring a potential cross-currency feature in TIPS. In June 2021 the ECB and Sveriges Riksbank announced that both institutions are continuing to investigate how TIPS could support the [settlement of instant payments between the euro and the Swedish krona](#).

In addition to the three settlement services, the Eurosystem is developing a new TARGET Service, the Eurosystem Collateral Management System (ECMS), which will be a unified system for managing the assets used as collateral in Eurosystem credit operations for all euro area jurisdictions. The project is on track to go live in November 2023. In 2021 system development concluded and Eurosystem Acceptance Testing and preparations for the User Testing started. Ensuring that ECMS stakeholders have the necessary documentation for their internal adaptations was a priority in 2021. To facilitate common understanding and effective preparation, the Eurosystem held regular workshops with CSDs and triparty agents, and published information on messages and readiness milestones on the ECB website.

Box 6

Measures taken in response to TARGET Services incidents

In December 2020 the ECB appointed Deloitte GmbH to conduct an independent review of five major information technology (not cyber) related incidents which occurred in 2020, affecting payment transactions and securities processing of TARGET Services. The review aimed to identify the root causes of the incidents, draw more general lessons and propose recommendations in the following six key areas: i) change and release management, ii) business continuity management, iii) fail-over and recovery tests, iv) communication protocols, v) governance, and vi) data centre and IT operations.

On 28 July 2021 the ECB published [Deloitte's independent review](#). The report included a detailed description of the relevant incidents, the impact each had on TARGET Services' participants and the respective root causes. Moreover, Deloitte performed a thorough review of the procedures followed during the incidents, highlighting the weaknesses identified and issuing recommendations to address them.

In its [response](#), the Eurosystem accepted Deloitte's general conclusions and recommendations, and committed to decisively address them.

In the second half of 2021 the Eurosystem prepared an action plan to address in a timely manner the issues and recommendations raised by Deloitte. The action plan was further broadened to include recommendations issued by the Eurosystem oversight function and the Internal Audit Committee in relation to the TARGET Services incidents that took place in 2020. In addition, for the recommendations related to a specific TARGET Service, the Eurosystem sought to design response actions that would apply holistically across the different TARGET Services and the T2-T2S consolidated system due to go live in November 2022.

Measures addressing several recommendations were already agreed or implemented in the course of 2021, while most of the remaining measures will be implemented in 2022. For some recommendations, market participants were also involved to ensure that their views were taken into account. For that purpose, dedicated sessions with the Advisory Group on Market Infrastructures for Payments (AMI-Pay), the Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo) and the T2S CSD Steering Group (CSG) were organised. These groups will also be regularly updated on the implementation of the action plan until completion.

On 17 December 2021 the ECB published a summary of the [action plan](#), which also indicates the respective deadlines for implementation of the envisaged measures.

4.2 Oversight and the role of central bank of issue

The Eurosystem sets out oversight objectives for financial market infrastructures (FMIs) and payments in the euro area by adopting specific regulations, standards, guidelines and recommendations, monitoring implementation and promoting change where necessary. In addition, as central bank of issue for the euro, the Eurosystem

is involved in cooperative oversight and crisis management arrangements for FMIs with significant euro-denominated activities.

One particular area of focus in 2021 was the assessment of Eurosystem-operated infrastructures – TARGET2 and T2S – against the Eurosystem’s [Cyber Resilience Oversight Expectations](#). The assessment is aimed at further improving the cyber resilience of both infrastructures. The Eurosystem also took action to further foster FMI cyber resilience through the Euro Cyber Resilience Board by way of operationalising the Cyber Information and Intelligence Sharing Initiative and to promote the adoption and implementation of the [TIBER-EU](#) framework.

In the field of TARGET2 and T2S oversight, the Eurosystem continued to follow up on recommendations from previous oversight assessments. In this context, the Eurosystem focused particularly on measures to address factors that had played a role in major operational incidents in 2020. To promote effective cooperation with other authorities interested in the smooth operation of T2S, the Eurosystem also provided input to the work of the [T2S Cooperative Arrangement](#).

With regard to the general framework for the oversight of systemically important payment systems (SIPS), the Eurosystem concluded its review of the SIPS Regulation based on the public consultation and issued a revised version of the Regulation in April 2021. Following the identification of the MasterCard Clearing Management System as a SIPS, the Eurosystem launched a comprehensive assessment of MasterCard against the SIPS Regulation. Finally, the Eurosystem assessed and monitored the go-live of a continuous gross settlement model for STEP2-T and (through cooperative oversight led by the Federal Reserve System) the migration of CLS Settlement to a new technology platform.

A new oversight framework for electronic payment instruments, schemes and arrangements (PISA) was finalised

As regards payment instruments and payment schemes, the Eurosystem published its [Seventh report on card fraud](#). On 15 November 2021 the ECB’s Governing Council approved the final [Eurosystem oversight framework for electronic payment instruments, schemes and arrangements](#) (PISA framework). The Eurosystem will use the PISA framework (replacing the “Harmonised oversight approach and oversight standards for payment instruments” and all related oversight frameworks for cards, direct debits, credit transfers and the security objectives for e-money) to oversee market players enabling or supporting the use of cards, credit transfers, direct debits, e-money transfers and digital payment tokens. Besides traditional payment schemes, this includes digital payment token schemes, as well as payment arrangements that support end-users in the execution of transfers of value, such as digital wallets.

As part of its role as central bank of issue in supervisory colleges for EU central counterparties (CCPs) under the European Market Infrastructure Regulation (EMIR), the Eurosystem assessed various proposals for the extension of services or major changes to the risk management procedures of EU CCPs. The Eurosystem also contributed to the work by the European Securities Markets Authority (ESMA) on supervising third-country CCPs of systemic importance for the EU (Tier 2 CCPs) and, in accordance with Article 25(2c) of EMIR, on assessing whether some of the clearing services of Tier 2 CCPs are of such substantial systemic importance that

CCPs should not be recognised to provide these clearing services to clearing members and trading venues established in the EU. On 17 December 2021 ESMA published a statement⁷⁶ concluding that the costs and risks of derecognising the services of Tier 2 CCPs established in the United Kingdom would outweigh the benefits to the EU at this stage and proposed a set of policy measures in response to identified risks and vulnerabilities.

Following the adoption of the new [EU Regulation on CCP Recovery and Resolution \(CCPRR\)](#), the Eurosystem contributed to the development of the related regulatory standards and guidelines by ESMA. The Eurosystem also participated in the establishment and ongoing work of cross-border crisis management groups for both euro area and third country CCPs. The purpose of these groups is to ensure adequate preparedness for a potential entry of a CCP into resolution. A key aspect of this work is to assess whether a CCP's financial resources are expected to be adequate for resolution purposes. This is important from a central bank of issue perspective, considering the significant liquidity risks that would arise from insufficient resource coverage.

In 2021 global standard-setting bodies continued to focus on lessons learned from the pandemic-related period of stress for financial market infrastructures. As follow-up to the Financial Stability Board's [Holistic Review of the March Market Turmoil](#), the ECB contributed to the work of the Joint Working Group on Margin by the International Organization of Securities Commissions, the Committee on Payments and Market Infrastructures and the Basel Committee on Banking Supervision. With regard to centrally cleared derivatives markets in the EU, the ECB conducted its own analyses to investigate the main drivers of initial margin increases during the pandemic and the CCP approaches to mitigate procyclicality.

With regard to securities settlement, the Eurosystem contributed as central bank of issue to the ongoing review and evaluation of EU CSDs under the [EU Central Securities Depositories Regulation \(CSDR\)](#). As the only authority directly involved in the assessment of all euro area and also some non-euro area EU CSDs, the Eurosystem plays an important role in promoting safe and consistent approaches and a level playing field across CSDs. The Eurosystem also contributed to the review of the CSDR, and the ECB issued its [opinion](#) on the distributed ledger technology pilot regime, one of the three components of the Digital Finance Package initiated by the European Commission aimed at facilitating access to innovative financial products, while ensuring consumer protection and financial stability.

⁷⁶ See "[ESMA concludes Tier 2 CCP assessment under Article 25\(2c\) of EMIR](#)", public statement, ESMA, 17 December 2021.

4.3 Innovation and integration in market infrastructure and payments

To deploy the innovative potential of digitalisation and meet the rising challenges to European sovereignty in the payments market, the Eurosystem has put in place a comprehensive [retail payments strategy](#).

One major aim of the retail payments strategy is to support the creation of a pan-European solution for retail payments at the point-of-interaction (POI), i.e. at the physical point of sale and in the mobile and e-commerce space. The Eurosystem welcomes initiatives for payment solutions that fulfil the Eurosystem's objectives and it engages in continuous dialogue with representatives of established and potential new initiatives.

Another central aim is to make instant payments available to all citizens and businesses throughout Europe and foster their implementation as the new norm in payments. By the end of 2021, 60% of payment service providers offering SEPA credit transfers also offered SEPA instant credit transfers, and 10.4% of all credit transfer transactions were instant payments. To accelerate the uptake of instant payments, further steps might be necessary. Measures to ensure pan-European reach for instant payments took effect in 2021 (see Section 4.1). Work on enabling instant payments at the POI is under way by means of development of a QR-code standard, with other communication technologies to be added later.

To improve cross-border payments beyond the euro area and the EU, the Eurosystem is contributing to the work of the [G20](#) and exploring cross-currency settlement of instant payments in TARGET services (see Section 4.1).

Furthermore, the Eurosystem's retail payments strategy encompasses work on electronic identity (eID) and electronic signature (eSignature) services to enable acceptance of eID/eSignature solutions for payment services. To achieve reachability and neutral access, a number of non-bank payment service providers are being given access as clients of a Eurosystem national central bank to specific SEPA payment systems.

In parallel to the pursuit of the Eurosystem retail payments strategy, the ECB promotes the work on the development of innovative payment services through open banking, i.e. enabling third-party providers to offer services around the account servicing institution via open application programming interfaces (APIs). Chaired by the ECB, the Euro Retail Payments Board, a high-level strategic body tasked with fostering the integration, innovation and competitiveness of euro retail payments in the EU, has been pushing for standardisation of APIs and for a mutually beneficial agreement on a wider set of services. In 2021 the ERPB invited the European Payments Council to develop a SEPA API Access scheme. The scheme will define "baseline" services according to the legal and regulatory requirements of the revised Payments Services Directive (PSD2) and may also encompass value-added ("premium") services that may be provided in the context of open banking as a natural evolution of PSD2.

Full deployment of instant payments supported by different measures

Pursuant to its goal of furthering European financial market integration, the ECB's Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo) continued to make progress on harmonising post-trade services. In the field of collateral management, 2021 saw advancements across European markets in the definition and implementation of the Single Collateral Management Rulebook for Europe (SCoRE) standards. Particular headway has been made in the field of Corporate Actions, where the AMI-SeCo agreed further updates to relevant standards with market stakeholders. The Eurosystem also undertook a thorough monitoring of the SCoRE standards via the agreed monitoring framework, covering a wide range of markets and stakeholders.

To identify potential efficiency improvements in European debt issuance processes, the ECB created the Debt Issuance Market Contact Group (DIMCG). In 2021 this group published an [advisory report](#) which addresses the core issues in European debt issuance. The report found that there exist some risks, inefficiencies and undue costs in the European debt issuance process. To mitigate these inefficiencies, the DIMCG set out a list of areas in which further harmonisation would lead to improvement of the overall efficiency of debt issuance in Europe (for example, know your customer, ISIN allocation and investor identification).

The AMI-SeCo also provided the European Commission with input on the securities post-trade aspects of the Commission's Capital Markets Union Action Plan, in particular on withholding tax processing and the review of the Central Securities Depositories Regulation.

Box 7

Investigating a possible digital euro

The Governing Council of the ECB decided to launch the investigation phase of a digital euro project in July 2021.⁷⁷ Several developments may require the issuance of a digital euro, for example, people are increasingly shopping online, and the role of cash as a means of payment is declining. A digital euro would ensure that citizens maintain access to a safe and generally accepted means of payment, including in the digital economy. It would be an electronic form of money issued by the Eurosystem, risk-free and accessible to all citizens for their daily payments. It would complement cash, but not replace it. The launch of the investigation phase means that the Eurosystem is getting ready for a possible issuance of a digital euro, but a decision will only be made at a later stage.

During the project's investigation phase, the Eurosystem will focus on a possible functional design that is based on user needs, while helping to prevent illicit activities and avoiding any negative impacts on financial stability and monetary policy. The investigation phase will last 24 months and aims to address key issues regarding the design and distribution of a digital euro. It will examine the use cases that a digital euro should serve to meet its objectives. It will also examine the possible features and functionalities of a digital euro and the related design choices, and will involve prototyping and conceptual work. Moreover, the investigation will assess the possible impact of a digital euro on the market and define a business model for supervised intermediaries in the digital

⁷⁷ See "[Eurosystem launches digital euro project](#)", *press release*, ECB, 14 July 2021.

euro ecosystem. Finally, it will explore legal questions around the possible introduction of a digital euro and look at the technical solutions that could best handle these issues.

The Eurosystem will actively engage with stakeholders during its investigation. On the user side, the ECB is engaging with citizens and merchants through dedicated surveys and focus groups to understand their needs and preferences. On the market side, the Digital Euro Market Advisory Group will provide input on how a digital euro could add value for the diverse range of actors in the euro area's payments ecosystem.⁷⁸ The Euro Retail Payments Board will also be regularly updated on digital euro matters. In addition, the ECB will consult experts on technology to explore options for the design of a digital euro.⁷⁹ The ECB and the European Commission services are jointly reviewing at technical level a broad range of policy, legal and technical questions emerging from a possible introduction of a digital euro.⁸⁰ Regular exchanges of views also take place with the European Parliament and euro area finance ministers in the Eurogroup.⁸¹ At the international level, the ECB has contributed to a working group of G7 finance ministries and central banks⁸² and participates in an international group of seven central banks⁸³ that is working with the Bank for International Settlements to explore central bank digital currencies for the public.⁸⁴

⁷⁸ See [“ECB announces members of Digital Euro Market Advisory Group”](#), *press release*, ECB, 25 October 2021.

⁷⁹ See [“Experts invited to join technical talks on digital euro”](#), *MIP NEWS*, ECB, 15 October 2021.

⁸⁰ See [“ECB intensifies technical work on digital euro with the European Commission”](#), ECB, *MIP NEWS*, 19 January 2021.

⁸¹ See Box 11 on the ECB's interactions with European legislators on a digital euro project.

⁸² See [G7 Public Policy Principles for Retail Central Bank Digital Currencies](#), 14 October 2021.

⁸³ Bank of Canada, Bank of England, Bank of Japan, ECB, Federal Reserve System, Sveriges Riksbank and Swiss National Bank.

⁸⁴ See Bank for International Settlements, *Central bank digital currencies: financial stability implications*, September 2021, in particular the [Executive summary](#) and reports on [system design and interoperability](#); [user needs and adoption](#); and [financial stability implications](#).

5 Efforts to support market functioning, and financial services provided to other institutions

The ECB continued to offer US dollar operations to euro area counterparties, thereby providing a backstop to market-based funding. Euro liquidity lines to other central banks established or activated in 2020 remained in place in 2021 and no new lines were established.

The ECB did not intervene in the foreign exchange market, as also reported in the quarterly data on the ECB's foreign exchange interventions, which are published on the ECB's website.

The financial industry successfully completed the transition from the euro overnight index average (EONIA) to the ECB's euro short-term rate (€STR) on 3 January 2022 and continued work on improving the robustness of market practices on pricing, including by promoting wider use of the €STR.

In 2021 the ECB continued to be responsible for the administration of various financial operations on behalf of the EU and to play a coordinating role in relation to the Eurosystem reserve management services framework.

5.1 Developments in market operations

Euro and foreign currency liquidity lines

Liquidity lines help the ECB to fulfil its price stability objective, prevent euro liquidity shortages and avoid spillovers

Liquidity lines are one of the ECB's monetary policy tools, allowing it to address market shortages in the availability of euro funding outside the euro area and in foreign currency experienced by euro area counterparties. Liquidity lines contribute to the smooth transmission of monetary policy by helping to prevent a possible tightening of credit provision caused by lack of foreign currency funding for euro area banks and the escalation of euro liquidity shortages into abrupt sales of euro-denominated assets that affect financial conditions in the euro area.⁸⁵

By providing euro liquidity to foreign central banks, the ECB helps prevent spillovers from foreign demand for euro funding into an undue tightening of financial conditions in the euro area. Euro liquidity lines that were established or activated in 2020 continued to exist, and no new liquidity lines were established in 2021. The Eurosystem repo facility (EUREP) remained available to a broad set of non-euro area central banks. On 4 February 2021 the ECB decided to extend temporary euro

⁸⁵ See also Panetta, F. and Schnabel, I., "The provision of euro liquidity through the ECB's swap and repo operations", *The ECB Blog*, ECB, 19 August 2020.

liquidity lines with non-euro area central banks until March 2022. Table 5.1 sets out the euro liquidity lines in operation as of 31 December 2021, whereby the ECB could provide euro liquidity to foreign central banks.

The provision of foreign currency to euro area counterparties eases pressure in global funding markets. It helps to mitigate the effects of such strains on the supply of credit to households and businesses, both in the euro area and abroad. In 2021 the ECB provided US dollar liquidity in coordination with the Federal Reserve System, the Bank of Canada, the Bank of England, the Bank of Japan and the Swiss National Bank. The two maturities offered were of seven days and 84 days. The operations with a maturity of 84 days were suspended from 1 July 2021 as market conditions normalised. The seven-day operations continued to act as a backstop to private funding markets.

Table 5.1
Overview of operational liquidity lines

Non-euro area counterpart	Type of arrangement	Reciprocal	Maximum borrowable amount (in EUR millions)
Българска народна банка (Bulgarian National Bank)	Swap line	No	2,000
Danmarks Nationalbank	Swap line	No	24,000
Hrvatska narodna banka	Swap line	No	2,000
Sveriges Riksbank	Swap line	No	10,000
Bank of Canada	Swap line	Yes	Unlimited
People's Bank of China	Swap line	Yes	45,000
Bank of Japan	Swap line	Yes	Unlimited
Swiss National Bank	Swap line	Yes	Unlimited
Bank of England	Swap line	Yes	Unlimited
Federal Reserve System	Swap line	Yes	Unlimited
Magyar Nemzeti Bank	Repo line	No	4,000
Banca Națională a României	Repo line	No	4,500
Bank of Albania	Repo line	No	400
National Bank of North Macedonia	Repo line	No	400
Central Bank of the Republic of San Marino	Repo line	No	100
National Bank of Serbia	Repo line	No	1,000

Source: [ECB Website](#).

Note: The table does not include repo lines established with non-euro area central banks under EUREP, for which the ECB does not disclose its counterparties.

The ECB's contribution to benchmark interest rate reform

The ECB remained engaged in the euro area benchmark interest rate reform in two ways: first, by providing a robust and reliable reference rate, the [euro short-term rate \(€STR\)](#), and, second, by catalysing market initiative by providing the secretariat of a private sector [working group on euro risk-free rates](#) until completion of the group's initial mandate in May 2021.

Transition from EONIA to the €STR completed successfully

Following several years of preparation, the transition from EONIA to the €STR was successfully completed, and EONIA was published for the last time on 3 January 2022. Several milestones in the past year marked this smooth transition. In October 2021 the central clearers in the derivatives market, i.e. the market that made by far the greatest use of EONIA, organised a one-off conversion of all outstanding EONIA positions into €STR positions and thereafter stopped clearing EONIA products. This event helped to move liquidity in the derivatives market towards the use of the €STR and prevented possible issues with those EONIA derivatives contracts that were due to mature after the last publication of EONIA on 3 January 2022. Furthermore, in October 2021 the European Commission designated the €STR as the statutory replacement rate for EONIA in contracts that do not have workable fallback provisions.⁸⁶ This provided additional certainty to EONIA users and reduced legal risks ahead of the discontinuation of the benchmark.

Given the robustness and representativeness of the €STR, as confirmed in the ECB's second [€STR Annual Methodology Review](#), market participants are encouraged to use the rate in both cash and derivatives products in line with the [guidance](#) of the Financial Stability Board. To encourage and support the wider use of the €STR, including in fallback provisions in contracts based on the euro interbank offered rate (EURIBOR), the ECB started publishing [compounded €STR average rates and a compounded index](#) in April 2021 (see Box 8).

Implementation of EURIBOR fallbacks remains priority

In May 2021 the working group on euro risk-free rates released [recommendations for fallback provisions in Euribor contracts](#) and thus contributed to the contingency planning for a possible cessation of EURIBOR. With this major milestone crossed, the European Securities and Markets Authority (ESMA) took over from the ECB the secretariat function to the working group, and the [terms of reference](#) of the group were updated. Priorities are now to work on implementing the EURIBOR fallback recommendations and mitigating the impact on euro area users of the discontinuation of the London interbank offered rate (LIBOR) settings as of 3 January 2022.⁸⁷ Market participants are encouraged to follow the discussions of the working group, take note of its recommendations and analysis, and consider implementing them in their fallback planning.

The revised FX Code of Conduct and the ESCB's renewal of the Statement of Commitment

Release of updated FX Code of Conduct and ESCB Statement of Commitment

The FX Global Code (the "Code"), a set of principles of good practice in the foreign exchange (FX) market, was launched in 2017. It was a direct and important response to the lack of trust in the FX industry following a number of instances of misconduct in the market and the associated multi-billion US dollar fines. To ensure that the Code remains relevant and keeps pace with developments in the foreign

⁸⁶ Commission Implementing Regulation (EU) 2021/1848 of 21 October 2021 on the designation of a replacement for the benchmark Euro overnight index average ([C/2021/7487](#)) (OJ L 374, 22.10.2021, p. 6).

⁸⁷ The CHF and EUR settings stopped on 3 January 2022, along with the cessation of certain tenors of the USD LIBOR. Moreover, the JPY and GBP settings lost representativeness on the same day, thereby limiting their usage.

exchange market, the [Global Foreign Exchange Committee](#) reviewed and updated the principles in several key areas. The main driver for many of the updates was the need for greater disclosure and transparency on practices followed for FX transactions in an increasingly complex market. The [updated Code](#) was released on 15 July 2021. The ECB and its [Foreign Exchange Contact Group](#) were heavily involved in the review process. Several members of that Contact Group participated in the Global Foreign Exchange Committee's working groups and were instrumental in developing the updated Code. Going forward it is important that all foreign exchange market participants review the updated Code, assess the implications of the updated principles for their own activities and align those activities accordingly. The members of the European System of Central Banks, which comprises the ECB and the national central banks of all EU Member States, undertook an internal review of their respective activities. On completion of the review process, the updated [Statement of Commitment](#) was published on 15 February 2022.⁸⁸

Reporting on foreign exchange interventions

No ECB intervention in the foreign exchange market

The ECB did not intervene in the foreign exchange market in 2021. Since the inception of the euro, the ECB has intervened in the foreign exchange market twice – in 2000 and 2011. Data on foreign exchange interventions are published on a quarterly basis with a delay of one quarter on the ECB's website and in the Statistical Data Warehouse. The information published in the quarterly table is also recapped on an annual basis in the ECB's Annual Report (see Table 5.2). If there were no foreign exchange interventions in the relevant quarter, this is explicitly stated.

⁸⁸ A standardised "Statement of Commitment" allows market participants to demonstrate their recognition of and commitment to adopting the good practices set out in the FX Global Code.

Table 5.2
ECB foreign exchange interventions

Period	Date	Intervention type	Currency pair	Currency bought	Gross amount (EUR millions)	Net amount (EUR millions)
Q3 2000	22 September 2000	Coordinated	EUR/USD	EUR	1,640	1,640
	22 September 2000	Coordinated	EUR/JPY	EUR	1,500	1,500
Q4 2000	3 November 2000	Unilateral	EUR/USD	EUR	2,890	2,890
		Unilateral	EUR/JPY	EUR	680	680
	3 November 2000	Unilateral	EUR/USD	EUR	1,000	1,000
		Unilateral	EUR/USD	EUR	1,700	1,700
	6 November 2000	Unilateral	EUR/JPY	EUR	800	800
	9 November 2000					
Q1 2011	18 March 2011	Coordinated	EUR/JPY	EUR	700	700
Q1 to Q4 2020	-	-	-	-	-	-
Q1 to Q4 2021	-	-	-	-	-	-

Source: ECB.

The reporting framework covers foreign exchange interventions carried out by the ECB unilaterally and in coordination with other authorities, as well as interventions “at the margins” within the exchange rate mechanism (ERM II).

5.2 Administration of EU borrowing and lending operations

The ECB is responsible for the administration of the borrowing and lending operations of the EU under the medium-term financial assistance (MTFA) facility,⁸⁹ the European financial stabilisation mechanism (EFSM),⁹⁰ the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE)⁹¹ and the Next Generation EU (NGEU) programme.⁹²

In 2021 the ECB processed interest payments in relation to the loans under the MTFA. As at 31 December 2021 the total outstanding amount under this facility was €200 million. In 2021 the ECB also processed various payments and interest payments in relation to the loans under the EFSM. As at 31 December 2021 the total

The ECB processes payments for various EU loan programmes

⁸⁹ In accordance with Article 141(2) of the Treaty on the Functioning of the European Union, Articles 17, 21.2, 43.1 and 46.1 of the Statute of the ESCB and Article 9 of Council Regulation (EC) No 332/2002 of 18 February 2002.

⁹⁰ In accordance with Articles 122(2) and 132(1) of the Treaty on the Functioning of the European Union, Articles 17 and 21 of the Statute of the ESCB and Article 8 of Council Regulation (EU) No 407/2010 of 11 May 2010.

⁹¹ In accordance with Articles 17 and 21 of the Statute of the ESCB (in conjunction with Article 10 of Council Regulation (EU) 2020/672 of 19 May 2020 on the establishment of a European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) following the COVID-19 outbreak).

⁹² In accordance with Articles 17 and 21 of the Statute of the ESCB (in conjunction with Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility).

outstanding amount under this mechanism was €46.8 billion. In 2021 the ECB processed disbursements of SURE loans to various Member States and related interest payments. As at 31 December 2021 the total outstanding amount under this mechanism was €89.6 billion. Finally, in 2021 the ECB processed the disbursements of NGEU loans and grants to various Member States.

Similarly, the ECB is responsible for the administration of payments arising in connection with operations under the [European Financial Stability Facility \(EFSF\)](#)⁹³ and the [European Stability Mechanism \(ESM\)](#).⁹⁴ In 2021 the ECB processed various interest and fee payments in relation to two loans under the EFSF.

Finally, the ECB is responsible for processing all payments in relation to the loan facility agreement for Greece.⁹⁵ As at 31 December 2021 the total outstanding amount under this agreement was €50.1 billion.

5.3 Eurosystem reserve management services

A number of Eurosystem national central banks provide services under the ERMS framework

In 2021 a comprehensive set of financial services continued to be offered within the Eurosystem reserve management services (ERMS) framework established in 2005 for the management of customers' euro-denominated reserve assets. Some of the Eurosystem national central banks provide financial services within this framework under harmonised terms and conditions and in line with market standards to central banks, monetary authorities and government agencies located outside the euro area, and to international organisations. The ECB performs an overall coordinating role, monitors the smooth functioning of the services, promotes changes to improve the framework and prepares related reports for the ECB's Governing Council.

The number of reported customer accounts in the ERMS was 265 at the end of 2021, compared with 260 at the end of 2020. The total aggregated holdings (including cash assets and securities holdings) managed within the ERMS framework increased by approximately 18% in 2021 compared with 2020.

In the interest of clarity, the [ERMS legal framework](#) was recast in 2021, including updates to strengthen incentives for transparency in reporting and for information-sharing within the Eurosystem in the context of the provision of ERMS services.

⁹³ In accordance with Articles 17 and 21 of the Statute of the ESCB (in conjunction with Article 3(5) of the EFSF Framework Agreement).

⁹⁴ In accordance with Articles 17 and 21 of the Statute of the ESCB (in conjunction with Article 5.12.1 of the ESM General Terms for Financial Assistance Facility Agreements).

⁹⁵ In the context of the loan facility agreement between the Member States whose currency is the euro (other than Germany and Greece) and *Kreditanstalt für Wiederaufbau* (acting in the public interest, subject to the instructions of and with the benefit of the guarantee of the Federal Republic of Germany) as lenders and the Hellenic Republic as borrower and the Bank of Greece as agent to the borrower, and pursuant to Articles 17 and 21.2 of the Statute of the ESCB and Article 2 of Decision of the European Central Bank of 10 May 2010 concerning the management of pooled bilateral loans for the benefit of the Hellenic Republic and amending Decision ECB/2007/7 ([ECB/2010/4](#)) (OJ L 119, 13.5.2010, p. 24).

6 High cash demand with continued low level of counterfeiting

The ECB and euro area national central banks (NCBs) are responsible for issuing euro banknotes in the desired volumes and denominational structure, guaranteeing the availability of cash and maintaining confidence in the common currency. The COVID-19 pandemic has had two effects on payment behaviour. First it has underscored the role of cash as a store of value, and second it has reduced some of the transactional demand for cash. This notwithstanding, in 2021 the number of euro banknotes in circulation continued to grow, while the number of counterfeit banknotes removed from circulation remained at a historically low level. As cash continues to be the payment method of choice for many consumers, the Eurosystem is aiming to ensure adequate access to and acceptance of cash in the years to come, as described in the [Eurosystem Cash Strategy](#).

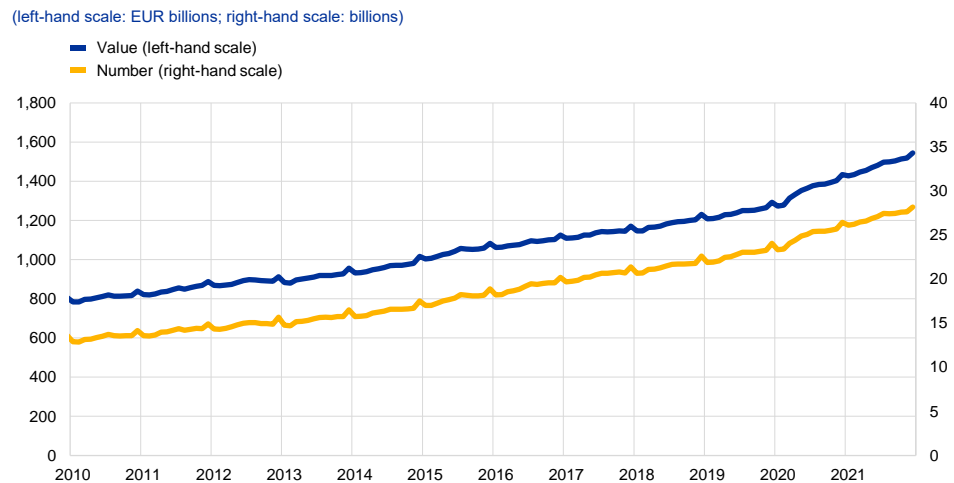
Following the completion of the introduction of the Europa series of banknotes in 2019, the Eurosystem has already started its preparations for the development of future banknotes.

6.1 Circulation of euro banknotes

The number and value of euro banknotes in circulation rose, with the €50 banknote having the highest share

In 2021 the number and value of euro banknotes in circulation grew by 6.5% and 7.7% respectively. At the end of the year there were 28.2 billion euro banknotes in circulation, with a total value of €1.54 trillion (see Chart 6.1). The €50 banknote had the highest share in circulation at 44.3% in value terms, which roughly accounted for the value of the €100, €200 and €500 banknotes combined (see Chart 6.2).

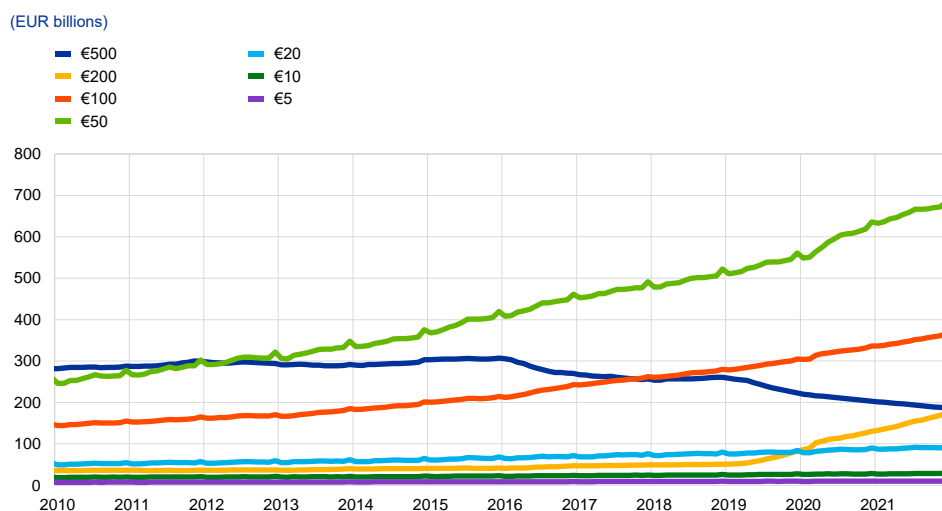
Chart 6.1
Number and value of euro banknotes in circulation



Source: ECB.

Chart 6.2

Value of euro banknotes in circulation by denomination



Source: ECB.

The changes in euro banknote circulation by denomination in 2021 continued to be influenced by the ongoing COVID-19 pandemic and the different functions of cash. The demand for €200 and €100 banknotes remained high, showing annual growth of 33.6% and 9.0% respectively, as they are also used as a store of value. The annual growth in the value of €50 banknotes in circulation stood at 7.5%, and the combined annual growth in the value of €5-€20 banknotes in circulation reached 3.0%.

The ECB and national central banks continue to maintain the high quality of euro banknotes in circulation

The Eurosystem NCBs checked the genuineness and quality of 23.5 billion banknotes worth €759.3 billion, which is only slightly less than the outstanding euro banknote circulation in terms of pieces. Of the checked banknotes, 2.9 billion had been worn out in the cash cycle and needed to be replaced in order to maintain only high quality banknotes in the cash cycle.

Increase in euro coin circulation

At the end of 2021 the total number of euro coins in circulation stood at 141.2 billion with a value of €31.2 billion. Compared with the end of 2020, the value of euro coins in circulation rose by 2.7%.

6.2 Convenience of everyday euro banknote handling

In view of the role of cash in European society, the ECB aims to ensure that euro banknotes remain fit for purpose, easy to use and hard to counterfeit.

As part of this ongoing effort to maintain euro banknotes that are deemed fit for purpose, the regular collection of feedback from euro banknote stakeholders is a central activity to support the development of future euro banknotes and security features. In line with this objective, a “Cash Handler Survey” was launched in 2021 to better understand what cash handlers think about the current design, authentication processes and handling of euro banknotes.

High level of satisfaction with the current euro banknote design and denominations among cash handlers

The cash handler population surveyed consisted of persons aged over 16 from all 19 euro area countries who handle cash regularly as part of their professional activity. In total, more than 22,000 interviews were conducted.

The survey showed high levels of satisfaction among cash handlers regarding the current euro banknote design and denominations. Cash handlers in the euro area only rarely experienced difficulties in telling banknotes apart.

Authenticity checks are very common (six in every ten cash handlers check banknotes), with respondents having recently received training on how to check banknotes almost universally doing so. The use of machines/devices to authenticate banknotes is widespread (56%) among those who check banknotes. Cash handlers manually checking banknotes usually perform quick checks on one (23%) or more (39%) security features.

Speed and ease of checking are important for cash handlers

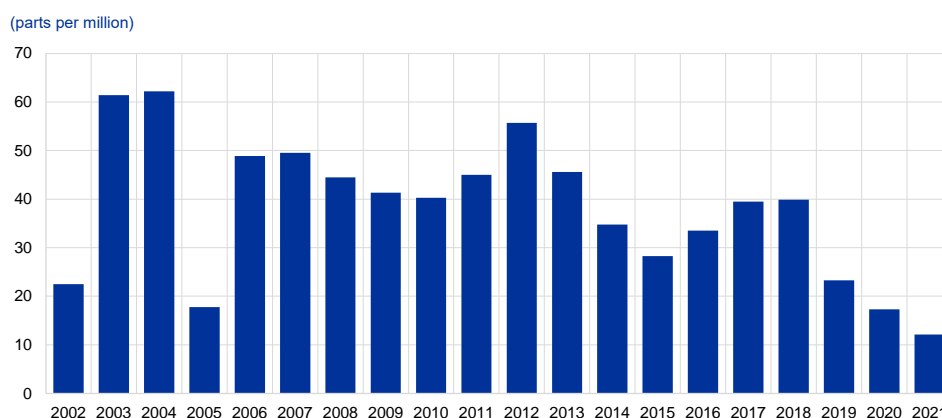
The main reason driving the choice of which security feature to check is speed. Ease of checking the feature is also important. This finding is consistent across all security features and banknote denominations.

6.3 Euro banknote counterfeiting at historically low level

The ECB advises the public to remain vigilant when receiving banknotes and to remember the “feel-look-tilt” test

The decreasing trend in euro banknote counterfeiting continued into 2021, which saw another historical low in the proportion of counterfeits to genuine banknotes in circulation (see Chart 6.3). The total number of counterfeit banknotes withdrawn from circulation was 347,000, which means only 12 counterfeits were detected in one year per 1 million genuine banknotes in circulation. The quality of the counterfeits continues to be low. Consequently, they can be detected very quickly and easily by applying the “feel-look-tilt” test.

Chart 6.3
Number of counterfeit banknotes detected per year per million genuine euro banknotes in circulation



Source: ECB.

Cash will remain important in the future

Development of future euro banknotes has started

The ECB expects that euro cash will still be widely used up to 2030 and beyond. Therefore, and in order to stay ahead of counterfeiters, it is necessary to prepare for and be ready to launch improved and up-to-date euro banknotes in order to preserve public confidence in them and ensure that they are safe and convenient to use. Given the length and complexity of the development process for future banknotes, preparations have already started, including research and development work, regular consultation of stakeholders and the general public, and the production of test banknotes with new security features.

The ECB plans to [redesign the future euro banknotes](#). The design process will include several rounds of input from European citizens. The ECB expects to select the final designs for new euro banknotes in 2024.

7 Statistics

The ECB – assisted by the national central banks (NCBs) – develops, collects, compiles and disseminates a wide range of statistics and data needed to support the ECB’s monetary policy, as well as financial stability-related and other tasks of the European System of Central Banks (ESCB) and the European Systemic Risk Board (ESRB). These statistics are also used by public authorities, international organisations, financial market participants, the media and the general public, and help the ECB to increase the transparency of its work.

This chapter focuses on new euro area statistics, namely the development of experimental indicators to support climate change policy and owner-occupied housing price indices. The two boxes focus on the recent publication of the compounded €STR average rates and index, and the promotion of global data standardisation.

7.1 New and enhanced euro area statistics

Macro statistics are evolving to remain fit for purpose

The ECB’s Governing Council adopted a new Guideline in the field of quarterly financial accounts in April 2021.⁹⁶ It defines new data requirements and the implementation timeframe for reporting quarterly financial accounts with new breakdowns, which address economic developments and user requirements.

An ECB Guideline was adopted to provide new quarterly financial accounts data

The new Guideline introduces requirements for detailed data reporting by the other financial institutions sub-sectors in order to improve the statistics underpinning the monitoring of the non-bank financial sector in monetary and financial stability analyses. It also introduces a new financial instrument split by balance of payments functional categories to allow the identification of cross-border transactions vis-a-vis foreign direct investment corporations and new instrument splits for pension entitlements and life insurance. These new statistics will gradually become available to users from the second half of 2022.

A new Regulation requires data to strengthen the analysis of monetary and credit developments

Following a review of the statistical reporting requirements on balance sheet items of monetary financial institutions, including a public consultation that was carried out in early 2020, the ECB published a new [Regulation](#).⁹⁷ Its purpose is to address high priority data needs for the analysis of monetary and credit developments. The Regulation also introduces modifications to some existing requirements, definitions and reporting derogations, where this would support better integration with other statistical datasets.

⁹⁶ Guideline (EU) 2021/827 of the European Central Bank of 29 April 2021 amending Guideline ECB/2013/24 on the statistical reporting requirements of the European Central Bank in the field of quarterly financial accounts ([ECB/2021/20](#)) (OJ L 184, 25.5.2021, p. 4).

⁹⁷ Regulation (EU) 2021/379 of the European Central Bank of 22 January 2021 on the balance sheet items of credit institutions and of the monetary financial institutions sector (recast) ([ECB/2021/2](#)) (OJ L 73, 3.3.2021, p. 16).

Eurosystem statistical reporting is evolving to ease banks' reporting burden

Following an industry-wide consultation, in December 2021 the ECB's Governing Council approved launching the design phase of the Integrated Reporting Framework (IReF).⁹⁸ The IReF is intended to consolidate the statistical reporting of euro area banks, thus reducing their reporting burden by leveraging digitalisation and state-of-the-art production organisation. The project is being developed in close cooperation with other European authorities in relation to the long-term objective to achieve further standardisation and integration in the area of statistical, prudential and resolution reporting. The new reporting framework is expected to go live in 2027.

7.2 Development of experimental indicators to support climate change policy

As climate change will increasingly affect the economy and the financial system, in July 2021 the Governing Council agreed on a comprehensive action plan⁹⁹ to further incorporate climate change considerations into its policy framework.

Data and indicators are required to analyse the impact of climate change on the economy and the financial system

To enhance the analysis, granular data and internationally comparable indicators are required. The roadmap works towards the development of a set of new experimental indicators on financial institutions' climate-related risks and sustainable finance – for example, on the issuance of green bonds or carbon footprints – followed by step-by-step enhancements driven by data availability and harmonisation.

The ESCB Statistics Committee¹⁰⁰ has undertaken to elaborate methodological best practices and develop experimental indicators on financial institutions' exposures to climate-related physical risks, portfolios' carbon footprints and sustainable finance. Data input for these indicators will come from a combination of public and private data sources in addition to the existing ESCB datasets. A first set of indicators is planned for release by the end of 2022.

There are many data challenges, and the market is currently composed of a variety of products that are not perfectly harmonised. Following a step-by-step approach, the ECB is working on the basis of information from several non-harmonised data providers. The ensuing steps will benefit from ongoing EU policies and initiatives in the field of environmental sustainability taxonomies, disclosure and reporting, including the green bond standard.

⁹⁸ See “[ECB moves towards harmonising statistical reporting to ease burden for banks and improve analysis](#)”, *press release*, 17 December 2021.

⁹⁹ See “[ECB presents action plan to include climate change considerations in its monetary policy strategy](#)”, *press release*, ECB, 8 July 2021.

¹⁰⁰ Building on the work by the ESCB Statistics Committee Expert Group on Climate Change and Statistics concluded in late 2020.

7.3 Owner-occupied housing price indices

The incorporation of owner-occupied housing costs in the HICP is expected to improve inflation measurement...

Following its monetary policy strategy review, the Governing Council announced that the headline HICP remains the appropriate index for quantifying the price stability objective for the euro area and will be retained as the price index used to measure euro area inflation for monetary policy purposes. The ECB considers that price stability is best maintained by aiming for 2% HICP inflation in the euro area over the medium term, with a symmetric commitment to this target considering inflation that is too low to be just as undesirable as inflation that is too high. Moreover, the cost of housing matters significantly in terms of the need to have a broad representation of the cost of goods and services consumed in an economy.¹⁰¹ Since the ECB wants the HICP to appropriately represent the consumption patterns of euro area households, the Governing Council has proposed steps to better reflect housing costs in the HICP for the euro area.

There are two main options when it comes to housing: renting a dwelling or occupying it as an owner. While rents have always been included in the HICP, the costs associated with owner-occupied housing (OOH) are not. So, the Governing Council called for the inclusion of OOH costs in the HICP. However, incorporating these poses various technical and conceptual challenges, and the roles to be played by different EU institutions also need to be addressed as part of this process.

...but it comes with methodological and technical challenges

One challenge is that housing has a dual nature: at first glance, buying a house could be considered as an investment in an asset. However, buyers may have different intentions: they can use the house for investment purposes only (by renting it out) or they can use it primarily for consumption (by occupying it as an owner). As the owner-occupier will also benefit from any increase in the value of the dwelling over time, the dwelling will be used for both investment and consumption. In accordance with its legal basis, the HICP should focus on consumption expenditure that excludes investment. However, isolating the consumption part is difficult from a technical point of view, as shown by the considerable variation in how the matter is dealt with across countries.

Another challenge relates to the method used to measure OOH. The ECB supports the use of the so-called net acquisition approach for measuring OOH. Only this method matches the conceptual framework of the HICP as a measure of purchasing power, as it treats an owner-occupied dwelling like any other durable good. For instance, prices for new cars are included at the time of purchase even though the car will be used over the next few years. The net acquisition approach is already used for the quarterly owner-occupied housing price indices (OOHPs) published by Eurostat. OOH price indices are only based on transactions to the household sector, which is the same rule that applies to the HICP. Sales of residential dwellings between households are excluded, which means that OOHPs mainly focus on newly built houses and flats. These are often located on the outskirts of cities, in locations where prices may evolve differently to overall house price developments. Transaction-related expenditures (for example, notary fees) and expenditures related

¹⁰¹ This was reflected in the ECB Listens Portal and in the European Parliament resolution of 10 February 2021 on the European Central Bank – Annual Report 2020.

to the ownership (for example, housing-related insurance, maintenance and major repair) are also included in OOHPIs. The focus on purchases of new dwellings results in a relatively small number of transactions being applicable per month. This may make it challenging to calculate a monthly price index, in particular for smaller countries. In addition, as OOHPIs are quarterly and have a time lag of three months (while HICP is published at the end of the reporting month), in their current format they do not meet the requirements for integration in the HICP.

In conducting the strategy review, the Governing Council looked at all of these technical issues and how to solve them and decided to recommend a roadmap towards including OOH in the HICP using the net acquisition approach.¹⁰²

The ECB roadmap identifies the next steps for developing owner-occupied housing price indices and using them in combination with the HICP

The ECB roadmap proposed first introducing an ECB-internal analytical index that combines HICP with OOHPIs. Eurostat was also invited to publish an experimental quarterly HICP including OOH costs by 2023. In parallel, the necessary legal work will be started so that an official quarterly index can be made available, possibly in 2026. The ultimate aim is to be able to include OOH in the HICP at a monthly frequency and in a timely manner, thus making it fully usable for monetary policy purposes.

The Governing Council also decided that, during the transition period, the main reference index for monetary policy will remain the current HICP.¹⁰³ Nevertheless, the quarterly standalone OOH price index and, once available, the quarterly indices combining HICP and OOH will play an important supplementary role in informing monetary policy decisions.

Box 8

New publication of compounded €STR average rates and index

The ECB has been publishing daily compounded €STR average rates of different tenors and a compounded €STR index since 15 April 2021. The compounded rates are suitable for use as reference rates in financial contracts and as fallback rates for other reference rates. They provide a robust alternative to other available benchmarks in many contracts in which the use of a compounded term reference rate is deemed appropriate.

The rates are calculated using only historical values of the euro short-term rate (€STR), the overnight reference interest rate published and administered by the ECB since October 2019. The compounded €STR average rates are calculated in arrears over standardised tenors of 1 week, 1 month, 3 months, 6 months and 12 months, using the sequences of realised €STR rates over each respective tenor. In turn, the compounded €STR index allows the calculation of a compounded €STR average rate for any period other than the standard tenors. The precise rules for calculating the average rates and index were established taking into account feedback from a public

¹⁰² Its reliance on transaction prices rather than imputed rents is likely to enhance the information content of the HICP and may better address the concerns of euro area citizens, the majority of whom would like to see a stronger and more realistic representation of housing costs.

¹⁰³ The current owner-occupied housing price index does not meet the requirements with regard to timeliness, frequency and the issue of separating the consumption from the investment component. Therefore, the ECB supports further research projects on optimal measurement methods. These should also be aimed at better isolating the consumption component from the investment component, with the former being the relevant one for monetary policy.

consultation and are mostly aligned with those used by other central banks publishing equivalent rates.¹⁰⁴

Being solely based on realised values of the €STR, the compounded rates and index inherit its robustness, which is derived from the depth and liquidity of the euro overnight money market. The fact that they are calculated and published by the ECB under the same governance as the €STR means they are also provided through a trusted and reliable source. The ECB Guideline on €STR was amended explicitly to recognise this new ECB task and to extend the framework governing the €STR to the calculation and publication of the compounded €STR average rates and index, where applicable.¹⁰⁵

The compounded €STR average rates and the compounded €STR index are published every TARGET2 business day at 9:15 CET via the ECB's Market Information Dissemination (MID) platform and in the ECB's Statistical Data Warehouse (SDW). In addition to the daily values of the five rates and the index, the ECB publishes the start date and the end date of each of the standardised tenors to facilitate the replicability of the calculations.

Box 9

Promoting global data standardisation

Standardisation is an essential basis for statistical reporting and compiling accurate and comparable official statistics. Relying on internationally recognised data standards is key for trust in and transparency of official statistics, with standard identifiers acting as connectors and bridges between various datasets and ensuring a common taxonomy across different domains.

Consequently, the ECB is strongly involved in global standardisation efforts, from the creation of new standards to the evolution of existing ones, notably contributing to the work of the ISO Technical Committee 68, which is responsible for creating global standards for the financial services industry. In recent years ECB staff members have participated in numerous advisory and working groups involved in the creation or revision of several international standards that are essential for statistical reporting.

The ECB, jointly with several NCBs, also plays a key role in the ongoing governance of existing standards, in particular by actively participating in the Regulatory Oversight Committee (ROC) and its substructures. The ROC is the international body charged with the oversight of:

- the Legal Entity Identifier (LEI);
- the Unique Transactions Identifier (UTI);
- the Unique Product Identifier (UPI);

¹⁰⁴ [Compounded €STR average rates and index, Calculation and publication rules](#), ECB, 2021.

¹⁰⁵ Guideline (EU) 2021/565 of the European Central Bank of 17 March 2021 amending Guideline (EU) 2019/1265 on the euro short-term rate (€STR) ([ECB/2021/10](#)) (OJ L 119, 7.4.2021, p. 128).

- Critical Data Elements (CDE).

The LEI has become standard across the ECB and other international and national authorities for uniquely identifying legal entities.¹⁰⁶ It is an essential source of information on legal entities, used to enrich other data collections and support various types of analyses carried out within the ESCB. The benefits of the LEI are not limited to its use for statistical purposes and by public authorities, as the identifier is also used by the financial and non-financial industries for a variety of use cases.

As in the case of other standards, it is crucial that the identifiers and data elements mentioned above are widely adopted across jurisdictions in order to fully realise their advantages, reduce costs and achieve global harmonisation.

The ECB is also heavily involved in the maintenance and development of messaging standards used in the financial industry and among international institutions. In particular, the ECB is a sponsor of the Statistical Data and Metadata Exchange (SDMX) standard, which is an international initiative aimed at standardising the exchange of statistical data. The ECB chairs the SDMX Technical Working Group Task Force on the Information Model, and has been actively contributing to the development of the new version of the SDMX Information Model - SDMX 3.0, which was officially launched at the 2021 [SDMX Global Conference](#).¹⁰⁷ One of the key improvements to the Information Model in SDMX 3.0 is the support for Microdata Exchange including multiple measures and attributes.

The ECB also participates in the Registration Management Group and in the Standards Evaluation Groups of the ISO 20022, the standard used to define messages for communication and data transmission between financial institutions supporting processes related to payments, securities trading and settlement, among other things.¹⁰⁸ ISO 20022 supports the financial industry by providing a common methodology for the definition of new financial communication messages. It also provides a common repository, the Data Dictionary, in which the common components of messages are stored and made available for further re-use.

The ECB is committed to continuing to promote the adoption of international data standards with the aim of further improving the transparency of the financial markets and mitigating systemic risks.

¹⁰⁶ For a full list, see [Regulatory uses of the LEI](#); see also ESRB, “[The benefits of the Legal Entity Identifier for monitoring systemic risk](#)”, *Occasional Paper Series*, No 18, September 2021.

¹⁰⁷ The 8th SDMX Global Conference took place on 27-30 September 2021. The ECB was actively involved in the preparation and organisation of the event. The conference was an opportunity to showcase the successful implementation of the SDMX standard by national and international organisations in different steps of the data lifecycle. The ECB chaired a dedicated session on the use of SDMX to modernise statistical processes and IT infrastructure.

¹⁰⁸ The standard was originally used mainly for payment messages, but now covers multiple domains related to various business processes in the financial industry, including reporting to public authorities.

8 ECB research activities

The economic consequences of the COVID-19 pandemic continued to shape research activities in 2021. The new Consumer Expectations Survey proved highly useful for assessing the situation of private households. At the same time, regular research networks continued with their agendas. A new research cluster on climate change was set up, while significant progress was made by a network dedicated to analysing price-setting based on microdata (PRISMA). Interaction with the academic world revived during 2021, but conference activities remained somewhat restrained by the pandemic although virtual conferences partly substituted for in-person events.

8.1 New research cluster on climate change

Research on climate change intensified with a focus on its implications for monetary policy implementation and the relationship between climate change and financial markets

In 2021 research on climate change intensified in line with the ECB's stated desire to better understand the implications of climate change for monetary policy and its increased commitment to contribute to policies in the area of climate change mitigation and adaptation, taking into account the risks and effects associated with climate change and climate policies, in order to achieve the ECB's mandate. In particular, the ESCB (European System of Central Banks) research cluster on climate change went into operation during the second half of 2021. This new research cluster aims to facilitate coordination among researchers from EU central banks and the ECB through monthly research webinars, exchange of information and expertise, and a planned annual workshop. In 2021 the research cluster co-organised a session on climate change as part of an annual workshop for the ESCB research clusters. Although research initially took a broad perspective on the economics of climate change, the focus will be narrowed down to topics more closely related to monetary policy.¹⁰⁹

One strand of research at the ECB focuses on the implications of climate change for the implementation of monetary policy. For example, one study analyses the environmental implications of the ECB's corporate sector purchase programme (CSPP).¹¹⁰ It finds that the ECB's corporate bond portfolio is tilted towards carbon-intensive sectors relative to a market portfolio of sectoral capital stocks. While the ECB's portfolio largely reflects the sectoral structure of bond markets, carbon-intensive sectors such as utilities and high-carbon manufacturing rely more heavily on bond financing than low-carbon sectors (see Chart 8.1). The study contributes to the ongoing debate on whether the ECB should move away from a "market neutrality" principle, whereby the composition of assets in its corporate portfolio

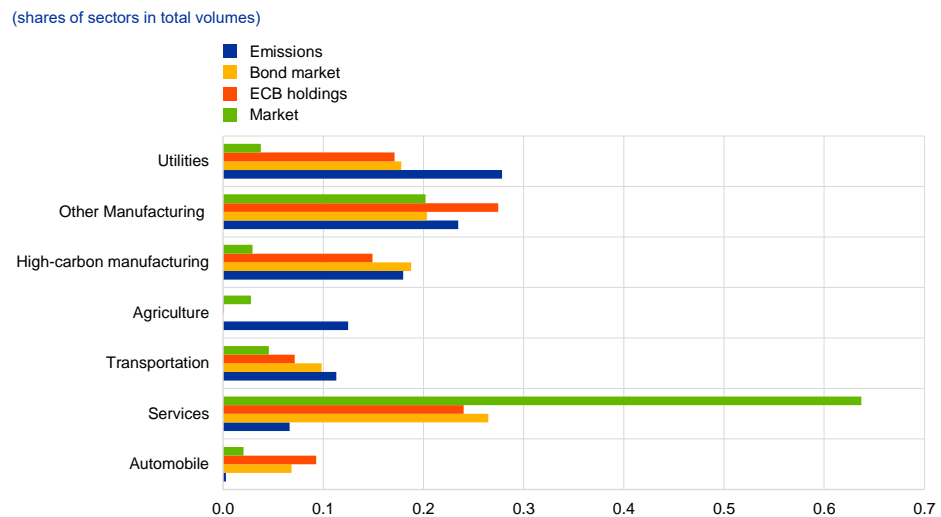
¹⁰⁹ A number of papers by national central bank researchers have already been presented in these webinars, including Faiella, I., Lavecchia, L., Michelangeli, V. and Mistretta, A., "A micro-founded climate stress test on the financial vulnerability of Italian households and firms", *Occasional Papers*, No 639, Banca d'Italia, October 2021; Bernard, R., Tzamourani, P. and Weber, M., "Climate Change and Individual Behavior", *Discussion Papers*, No 01, Deutsche Bundesbank, 2022; and von Kalckreuth, U. "Carbon costs: Towards a system of indicators for the carbon impact of products, enterprises and industries", Deutsche Bundesbank, 2021.

¹¹⁰ Papoutsis, M., Piazzesi, M. and Schneider, M., "How unconventional is green monetary policy?", *Working Paper Series*, ECB, forthcoming.

mirrors the bond market, towards an approach aimed at mirroring the real economy, thus rebalancing its purchases towards firms in greener sectors.

Another area of research addresses the relationship between financial markets and climate change. One study showed that patented innovation of low-carbon technologies is lower in the EU than in selected peers and is very heterogeneous across Member States.¹¹¹ A large share of this variation is explained by R&D investment and by early-stage investment in general. These findings point to the challenges faced by the EU in supporting the development of climate-mitigating technologies, given that overall R&D spending falls short of the recommendations embedded in the Lisbon Agenda. The study argues for fiscal and monetary policies that support venture capital markets and R&D investment in green technologies.

Chart 8.1
Shares of economic sectors in the ECB’s CSPP



Source: Papoutsi, M., Piazzesi, M. and Schneider, M., “How unconventional is green monetary policy?”, *Working Paper Series*, ECB, forthcoming.
Notes: The chart shows the shares of economic sectors in the total economy and the bond market, together with the sectoral shares of CSPP-eligible bonds and the sectoral shares of bonds purchased by the ECB via the CSPP. Market shares are measured as capital income by sector, i.e. value-added net of labour costs. The bond market shares reflect the total amount of bonds outstanding. CSPP-eligible shares reflect the bonds that meet the criteria for inclusion in the CSPP. By construction, all sector shares add up to one.

8.2 Other research networks

The Research Task Force on monetary policy, macroprudential policy and financial stability was concluded

In 2021 the Research Task Force on monetary policy, macroprudential policy and financial stability was concluded. The research resulted in a number of analytical findings and policy implications on the relationship between monetary and macroprudential policies. For instance, the task force analysed the trade-offs between supporting the supply of credit to the economy and financial stability risks. While macroprudential policies that limit systemic risk cushion against severe financial recessions, they may have a negative impact by restricting credit availability for productive economic activities during periods of economic expansion. Monetary

¹¹¹ Aghion, P., Boneva, L., Breckenfelder, J., Laeven, L., Olovsson, C., Popov, A. and Rancoita E., “Financial markets and “green” innovation”, *Discussion Paper Series*, ECB, forthcoming.

policy instruments, while key to supporting the intermediation capacity of banks, may also have unintended consequences of increasing banks' risk-taking incentives.

A correct calibration of instruments to strengthen the resilience of the financial sector would need to take these trade-offs into account since the financial soundness of the banking system affects the transmission of monetary policy.

PRISMA examined inflation heterogeneity across household income groups

The price-setting microdata analysis network (PRISMA) studies the price-setting behaviour of individual firms and retail traders using microdata on prices. In 2021 the network analysed the heterogeneity of inflation across households that arises from regional settings and differences in households' consumption baskets.

One of their studies examined the role of inflation heterogeneity across household income groups. It found pronounced differences in the inflation rates faced by individual households largely due to idiosyncratic product choice within product categories. Low-income group households have faced, on average, somewhat higher inflation over the past decade. However, the differences are small, and vary across countries and over time. Another study concluded that inflation rates faced by high-income households are more sensitive to monetary policy.

The Household Finance and Consumption Network started data collection for the 2021 wave of its regular survey

The Household Finance and Consumption Network started data collection for the 2021 wave of its regular survey. Research based on the survey concluded that the ECB's asset purchase programme has substantially reduced the unemployment rate in the lower part of the income distribution. Other research has studied the implications of household heterogeneity for the transmission of monetary policy, the accumulation of housing and mortgage debt, and homeowners' borrowing behaviour.

Regular research networks continued coordinating research efforts within the ESCB

Regular research networks continued coordinating research efforts within the ESCB and maintaining relations with academic researchers. In particular, the three ESCB research clusters on "Monetary economics", "International macroeconomics, fiscal policy, labour economics, competitiveness, and EMU governance" and "Financial stability, macroprudential regulation and microprudential supervision" organised workshops on the most pressing issues in those fields, partly related to the pandemic. Research showed, for instance, that the release of macroprudential buffers has supported credit-granting to households. Another cluster workshop discussed the medium-term consequences of the COVID-19 pandemic on reallocation effects in trade and in labour markets.

8.3 Conferences and publications

Interaction with the academic world remained somewhat constrained by the pandemic...

Interaction with the academic world remained somewhat constrained by the pandemic. While the majority of regular conferences and consultations took place as online events, many of them were smaller in scale than in previous years, including the ECB Forum on Central Banking, the ECB Annual Research Conference and the ECB Conference on Monetary Policy. These conferences discussed the longer-term consequences of COVID-19 and options for policy responses, but also featured innovative research related to monetary policy transmission and financial market structures. Among other conferences, the first CEPR/EBRD/ECB Symposium on

“Climate change, finance, and green growth” was organised at the ECB, bringing together policymakers and academics from the fields of economics and climate science, while the 11th ECB Conference on Forecasting Techniques discussed methods for forecasting in abnormal times.

...while publication output remained strong

In 2021 ECB staff published 126 papers in the ECB's Working Paper Series. In addition, more policy-oriented or methodological studies were published in the ECB's Occasional Paper Series, Statistics Paper Series and Discussion Paper Series. In particular, the Occasional Papers published in 2021 include a series of studies produced by the workstreams of the ECB's strategy review. Many of the ECB's research activities also resulted in publications in renowned academic journals, while 14 articles were released in the ECB's Research Bulletin, which targets a more general audience.

Box 10

Fiscal support during the pandemic – insights from the new ECB Consumer Expectations Survey

The coronavirus pandemic has had a very diverse economic and financial impact on private households and consumers depending on their personal and economic situation.¹¹² It is widely recognised that households' need for financial support has varied across countries, economic sectors, type of employment and demographic characteristics, such as family and parental status.

The diverse nature of the impact of the pandemic posed a dramatic challenge to the channelling of fiscal support in a targeted and efficient manner. National governments in the euro area provided large-scale financial support to households in a variety of forms. Measures ranged from traditional social security provisions, such as automatic stabilisers and existing social welfare programmes, to time-specific pandemic income support, including in-kind support (for example, extended childcare). In addition, governments supported households indirectly through subsidies to firms, such as direct employment subsidies, loan guarantees and moratoria.

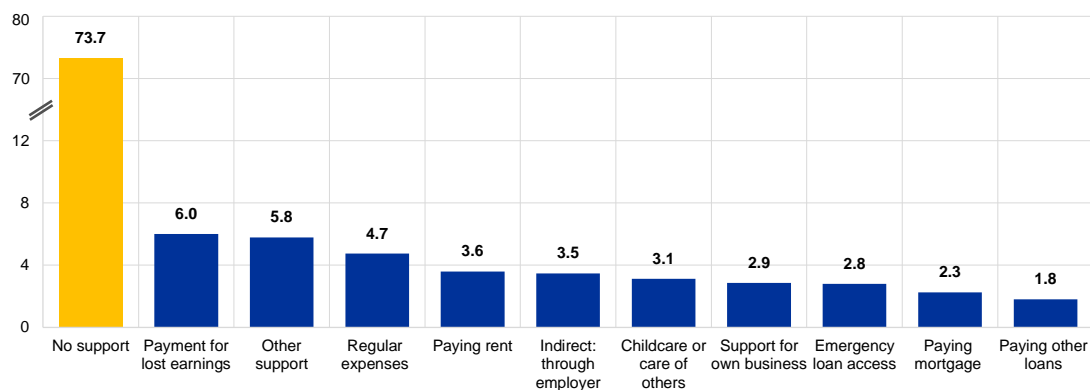
Over the course of 2021 the new ECB Consumer Expectations Survey (CES) proved to be a valuable source of information for monitoring the economic effects of these policy interventions. The CES interviews, based on representative samples of private households across the six largest euro area economies (Belgium, Germany, Spain, France, Italy and the Netherlands), were conducted via the Internet and at a monthly frequency, thus offering internationally comparable data in a timely manner. The survey was launched in its pilot stage in January 2020 and entered a further development phase in the second half of 2021, with work continuing into 2022. During this phase, a larger sample and broader country coverage spanning five additional euro area countries will be introduced.

¹¹² See Christelis, D., Georgarakos, D., Jappelli, T. and Kenny, G., “How has the COVID-19 crisis affected different households' consumption in the euro area?”, *Research Bulletin*, No 84, ECB, 31 May 2021.

Chart A

Types of pandemic-related government support in 2020

(percentages of respondents indicating they received support, by type)



Source: CES data collected in December 2020.

Notes: Weighted aggregates. Respondents were asked to reply to the question "In response to the coronavirus (COVID-19) outbreak, governments are introducing policies to support households, workers and businesses. Please indicate whether your household has received such support in any of the following forms since January 2020." They were able to select multiple answers from a list of direct and indirect support measures, as shown on the horizontal axis in the chart.

The CES enabled assessment of how government support was distributed across individual households, the types of support available and household perceptions about these fiscal interventions. It underscored, for instance, that interventions were highly targeted and supported households most in need. As shown in Chart A, just under 30% of euro area households indicated that they received some form of government support, while the remaining households indicated that they received no support. Furthermore, households from the two lowest income quintiles had a significantly higher share of respondents who received support.¹¹³ The most significant type of support was payment for lost earnings from employment, received by about 6% of CES respondents.

Moreover, the CES asked households to indicate their perceptions about the adequacy of fiscal support measures with reference to their own financial situation, irrespective of whether they had received such support in any form. The results suggest a positive link between such perceptions and household consumption, for example as depicted in Chart B for spending on holiday purchases and non-durable goods. Indeed, research based on this CES data also indicates that such perceptions may be an important factor in stabilising consumption. Households that view government interventions as adequate tend to spend more, especially on large items such as holiday packages and cars, reflecting their more optimistic views on income prospects, future access to credit and financial well-being.¹¹⁴ However, this pattern was also established for households that did not receive any government support, suggesting that fiscal interventions can have broader consequences in that they influence behaviour of all households and not just the targeted or actual recipients.

¹¹³ See also Lane, P., "Expectations surveys: a tool for research and monetary policy", Introductory remarks at the Second joint European Central Bank-Federal Reserve Bank of New York conference, 11 November 2021.

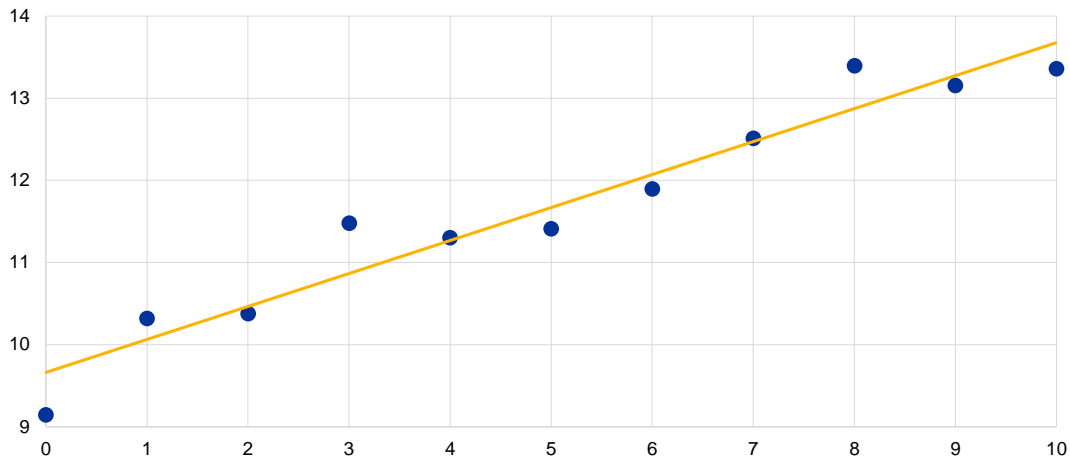
¹¹⁴ See Georgarakos, D. and Kenny, G., "Household spending and fiscal support during the COVID-19 pandemic: Insights from a new consumer survey", paper presented at the Second joint European Central Bank-Federal Reserve Bank of New York conference on "Expectations surveys: a tool for research and monetary policy", 11 November 2021.

Chart B

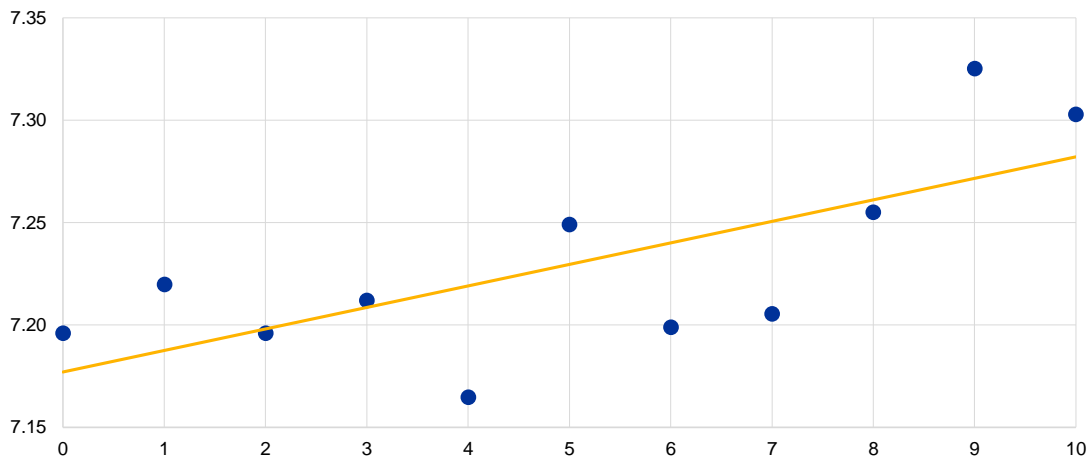
Perceived adequacy of pandemic-related government support and consumption

(x-axis: average perceived adequacy with range from 0 – “very poor” to 10 – “very good”; y-axis: panel a) percentages of respondents that purchased a holiday in the past month; panel b) log non-durable consumption in the past month)

a) Holiday purchases and perceived adequacy



b) Non-durable consumption and perceived adequacy



Source: CES.

Notes: Respondents were asked to reply to the question “Governments are taking financial support measures in response to the coronavirus (COVID-19) outbreak. How do you rate the adequacy of these measures for your household’s financial situation?” They were asked to provide an answer ranging from 0 (very poor) to 10 (very good). Total non-durable consumption is obtained from the following question repeated each quarter on the household’s consumption over the past month: “During <last month>, how much did your household spend on goods and services on each of the individual components listed below?” Respondents are also asked every month a similar question about purchases of big-ticket items (for example, holidays) in the past 30 days: “Which of the following have you purchased in the past 30 days? Please select all that apply.” The latest observation is for October 2021.

9 Legal activities and duties

This chapter deals with the jurisdiction of the Court of Justice of the European Union concerning the ECB, provides information on ECB opinions and cases of non-compliance with the obligation to consult the ECB on draft legislation falling within its fields of competence and reports on the ECB's monitoring of compliance with the prohibition of monetary financing and privileged access.

9.1 Jurisdiction of the Court of Justice of the European Union concerning the ECB

The Court of Justice strengthened the position of NCB governors under the Protocol on the Privileges and Immunities of the European Union

On 30 November 2021 the Court of Justice, sitting in Grand Chamber, interpreted the Protocol (No 7) on the Privileges and Immunities of the European Union for the first time in relation to the governors of the national central banks (NCBs) of the Member States. The reference for a preliminary ruling was made in the context of criminal proceedings brought against the former Governor of Latvijas Banka for the offences of corruption and money laundering (Case C-3/20). This judgment is important from several perspectives. First, the Court of Justice clarified that the governors of the NCBs enjoy immunity from legal proceedings for acts performed in their official capacity as a member of an organ of the ECB, similar to officials and other servants of the Union. The Court restated that the position of governor of an NCB is characterised by a dual professional role resulting in a hybrid status – as both a national authority and member of an organ of the ECB (see also Joined cases C 202/18 and C 238/18, Rimšēvičs and ECB v Republic of Latvia). Second, immunity from legal proceedings is not limited to court proceedings, but may include criminal investigations. Third, where the national authority finds, at any stage of criminal investigations, that the conduct in question could have been carried out by the governor of an NCB in their official capacity as a member of an organ of the ECB, it must consult the ECB. If the ECB considers that the acts were indeed carried out in such capacity, the national authority must request from the ECB the waiver of the immunity of the NCB governor. It is then for the ECB alone to assess whether such a waiver is contrary to the interests of the Union. Fourth, acts of fraud, corruption and money laundering fall outside of the bounds of the duties of a member of an organ of the ECB. Fifth, evidence obtained in criminal investigations against an NCB governor who is covered by immunity may be used in criminal proceedings against the same governor in relation to acts not covered by immunity or against other persons. Lastly, abusive criminal investigations or proceedings for acts not covered by immunity are contrary to the principle of sincere cooperation.

The Court of Justice agreed with the ECB that the failing or likely to fail assessment of the ECB is a preparatory act in the resolution procedure and as such is not subject to separate judicial review

On 6 May 2021 the Court of Justice delivered on appeal a judgment related to the admissibility of an action for annulment against a determination that a credit institution is failing or likely to fail (FOLTF) under Article 18(1)(a) of Regulation No 806/2014 (Joined Cases C-551/19 P and C-552/19 P, ABLV Bank AS and Others v ECB). A FOLTF assessment is a step in the resolution procedure envisaged by

Article 18 of this Regulation, pursuant to which the adoption of a resolution scheme is subject to three cumulative conditions, namely that (i) a credit institution is FOLTF, (ii) there is no reasonable prospect that any alternative measures would prevent its failure within a reasonable timeframe, and (iii) a resolution action is necessary in the public interest. An assessment of the first condition can be made by the ECB or by the Single Resolution Board (SRB), the assessment of the second and the third condition is made by the SRB.

The Court of Justice confirmed the conclusion reached by the General Court in its orders in cases T-281/18 and T-283/18 that actions for annulment against the ECB's assessment that a credit institution is FOLTF are inadmissible. The Court of Justice upheld the arguments of the ECB and noted that FOLTF assessments are preparatory measures in the resolution procedure. They do not have a binding legal effect capable of bringing about a distinct change in a credit institution's legal position. According to the Court, the resolution procedure must be regarded as "a complex administrative procedure involving a number of authorities, only the outcome of which, resulting from the SRB's exercise of its power, may be subject to judicial review" before Union Courts. The ECB's FOLTF assessment is therefore not subject to separate judicial review, but may be subject to incidental review in the context of judicial proceedings against the SRB's decision concluding the procedure under Article 18 of Regulation No 806/2014.

9.2 ECB opinions and cases of non-compliance

Articles 127(4) and 282(5) of the Treaty on the Functioning of the European Union require that the ECB be consulted on any proposed EU or draft national legislation falling within its fields of competence. All ECB opinions are published on [EUR-Lex](#). ECB opinions on proposed EU legislation are also published in the Official Journal of the European Union. In 2021 the ECB adopted eight opinions on proposed Union acts and 32 opinions on draft national legislation falling within its fields of competence.

Clear and important cases of non-consultation

Three cases of non-compliance with the obligation to consult the ECB on draft legislation¹¹⁵ were recorded in respect of national laws. The first case concerned an amendment to the Labour Code of Lithuania to require remuneration and other employment-related payments to be paid into a bank account specified by an employee. In line with past ECB opinions, where the fulfilment of the proportionality requirement was requested, this case was considered to be clear and important owing to its potential restrictive impact, among other things, on means of payment in Lithuania. The second case concerned an amendment to the Polish law on personal income tax, which introduced, among other things, certain limitations on cash payments for consumers and businesses. In line with past ECB opinions, this case was considered to be clear and important owing to its potential restrictive impact,

¹¹⁵ Cases of non-compliance include: (i) cases where a national authority has failed to submit to the ECB draft legislative provisions within the ECB's fields of competence for consultation; and (ii) cases where a national authority has formally consulted the ECB, but not afforded it sufficient time to examine the draft legislative provisions and to adopt its opinion prior to adoption of these provisions.

inter alia, on means of payment in Poland. The third case concerned a Spanish law on measures for the prevention of and fight against fiscal fraud, which introduced a limit of €1,000 on cash payments from natural persons not acting in a professional or business capacity who are tax residents in Spain to parties acting in a professional or business capacity. In line with past ECB opinions, this case was considered to be clear and important owing to its potentially adverse impact on the cash payment system in Spain.

The ECB adopted opinions on proposed EU legislation

The ECB adopted seven opinions on EU proposals concerning innovations in the fields of digital finance, green finance and artificial intelligence (AI). These concerned: the regulation of crypto-assets; cyber security and digital operational resilience for the financial sector; a pilot regime for market infrastructures based on distributed ledger technology; corporate sustainability reporting and green bonds; and the provision and use of AI systems by credit institutions. These opinions made wide-ranging observations regarding the implications of these innovations for monetary policy, market infrastructures and payments, the prudential supervision of credit institutions and financial stability. The ECB also adopted an opinion cautioning against an EU proposal requiring the use of euro foreign exchange reference rates issued by the ECB in currency conversion services.

The ECB adopted opinions on draft national legislation

The ECB adopted several opinions concerning currency matters and means of payment, including the issue and circulation of euro banknotes and coins in Latvia; the obligation to accept cash payments in Denmark and Poland; the protection of euro banknotes and coins against counterfeiting in Ireland; and rounding rules for payments in euro cent in Slovakia.

The ECB adopted several opinions on draft national legislation concerning the regulation and oversight of payment and/or securities settlement systems in Italy, Latvia, Lithuania and Hungary.

The ECB adopted many opinions on draft national legislation concerning national central banks (NCBs), including: the new tasks of the Banco de España regarding supervising covered bond issuances by credit institutions and the compliance of payment service users with Single Euro Payments Area (SEPA) requirements; the compliance of Българска народна банка (Bulgarian National Bank) statutes with central bank independence requirements; a substantial reform of Latvijas Banka, updating its governance structure and foreseeing the incorporation of supervision and resolution functions into the central bank; the liability of Eesti Pank for the Estonian Financial Supervisory Authority (Finantsinspektsioon); the need for NCBs to be remunerated in line with the prohibition of monetary financing for performing government tasks, such as the new task of the Central Bank of Cyprus related to national defence preparedness, the Central Bank of Ireland's coin-related tasks and the tasks of the Oesterreichische Nationalbank in relation to the Austrian Fiscal Advisory Council (Fiskalrat); the specification of the environmental sustainability mandate for Magyar Nemzeti Bank; encouragement of the Hungarian authorities not to allocate Magyar Nemzeti Bank the task of providing energy efficiency loans directly to consumers; the compliance with the monetary financing prohibition of lending by Narodowy Bank Polski to the Polish Bank Guarantee Fund; enhancing the legal security of the lending operations of Narodowy Bank Polski; the compliance

with Treaty requirements of the Central Bank of Cyprus' new emergency civil planning tasks; the compliance with the monetary financing prohibition of contributions from the Banca d'Italia and the Oesterreichische Nationalbank to the participation of Italy and Austria in IMF-related programmes; the proposed task for Banka Slovenije to supervise credit institutions' compliance with the restructuring of loans in Swiss francs; participation of the Central Bank of Cyprus in the monitoring of the Cypriot government's guarantee scheme for credit institutions during the COVID-19 pandemic; the impact of freedom of information requirements on the Oesterreichische Nationalbank; and the minimum reserve requirements of Narodowy Bank Polski.

The ECB adopted several opinions on draft national legislation concerning statistical matters, including data from multinational enterprise groups in Germany; the establishment of a national business identification number for enterprises and a register on basic enterprise data in Germany; the collection of statistical data regarding cross-border services in Austria; the collection of statistics in Latvia; and the reporting of credit-related data in Belgium.

The ECB adopted several opinions on draft national legislation concerning the prudential supervision of credit institutions, including: the impact of freedom of information requirements in Austria; the impact of a transparency framework for contracts involving the use of public funds in Portugal for the protection of confidential supervisory information; the deferred tax assets of Greek credit institutions; the establishment of Estonian credit institutions with an initial capital of €1-5 million; the compliance of a State audit of the Estonian Financial Supervisory Authority with the independence specific to banking supervision; the authorisation of the issuance of covered bonds by Finnish and Spanish credit institutions; the deadlines for the Estonian Financial Supervisory Authority or the ECB to carry out assessments of the suitability of members of the management body and key function holders of Estonian credit institutions; the supervision of outsourcing arrangements entered into by German credit institutions; introduction of new grounds for initiating the process for the withdrawal of the banking licence of Slovenian credit institutions; and the recognition of close-out netting as risk-reducing for credit institutions based on Latvian legislation.

The ECB adopted several opinions on draft national legislation concerning financial stability, including the participation of the Hellenic Financial Stability Fund in capital increases of Greek credit institutions other than precautionary recapitalisation or resolutions; the macroprudential mandate and toolkit of Latvijas Banka; the restructuring of loans in Swiss francs in Slovenia; regulation of maturity mismatches of Hungarian credit; and the enforceability of close-out netting agreements in Latvia.

9.3 Compliance with the prohibition of monetary financing and privileged access

Pursuant to Article 271(d) of the Treaty on the Functioning of the European Union, the ECB is entrusted with the task of monitoring the compliance of the EU national

central banks (NCBs) with the prohibitions implied by Articles 123 and 124 of the Treaty and Council Regulations (EC) Nos 3603/93 and 3604/93. Article 123 prohibits the ECB and the NCBs from providing overdraft facilities or any other type of credit facility to governments and EU institutions or bodies, as well as from purchasing in the primary market debt instruments issued by these institutions. Article 124 prohibits any measure, not based on prudential considerations, which establishes privileged access by governments and EU institutions or bodies to financial institutions. In parallel with the Governing Council of the ECB, the European Commission monitors Member States' compliance with the above provisions.

The ECB also monitors the EU central banks' secondary market purchases of debt instruments issued by the domestic public sector, the public sector of other Member States and EU institutions and bodies. According to the recitals of Council Regulation (EC) No 3603/93, the acquisition of public sector debt instruments in the secondary market must not be used to circumvent the objective of Article 123 of the Treaty. Such purchases should not become a form of indirect monetary financing of the public sector.

The prohibitions laid down in Articles 123 and 124 of the Treaty were in general respected

The ECB's monitoring exercise conducted for 2021 confirmed that Articles 123 and 124 of the Treaty were in general respected.

The ECB will continue monitoring the involvement of the Magyar Nemzeti Bank in the Budapest Stock Exchange as the purchase of the majority ownership of the Budapest Stock Exchange by the Magyar Nemzeti Bank in 2015 may still be seen as giving rise to monetary financing concerns.

The Central Bank of Ireland's reduction of assets related to the Irish Bank Resolution Corporation during 2021 through sales of long-duration floating rate notes is a step in the direction of the necessary full disposal of these assets. Continued sales at an appropriate pace would further mitigate the persisting serious monetary financing concerns.

The financing by NCBs of obligations falling upon the public sector vis-à-vis the IMF is not considered as monetary financing provided it results in foreign claims that have all characteristics of reserve assets. However, financial donations as provided by several NCBs via the IMF for debt relief for heavily indebted poor countries do not result in any foreign claims. This form of financial contributions by NCBs to IMF initiatives is therefore not compatible with the prohibition of monetary financing and warrants corrective measures.

10 The ECB in an EU and international context

The ECB continued to engage in close dialogue with its European and international partners in 2021. The ECB's relationship with the European Parliament is a cornerstone in the ECB's accountability framework. The ECB interacted closely with the Committee on Economic and Monetary Affairs of the European Parliament (ECON) throughout the year via regular hearings, exchanges of letters and additional meetings in the context of the strategy review and the digital euro. Beyond Europe, the ECB also engaged constructively in dialogue with G20 Finance ministries and central banks and in central bank-relevant discussions at the International Monetary Fund (IMF), focused in particular on policy responses to foster a global recovery from the COVID-19 pandemic. The ECB also contributed its expertise and perspectives to common positions taken in international fora by European Union or euro area countries. A new general allocation of special drawing rights by the IMF was a landmark event to support the global economy, and the Eurosystem played its part in ensuring that the voluntary market for exchanges of special drawing rights functioned well.

10.1 The ECB's accountability

Independence must be accompanied by a commensurate level of accountability

The independence granted to the ECB in the Treaty on the Functioning of the European Union (TFEU) allows it to pursue its mandate of price stability without political interference. Independence must be accompanied by a commensurate level of accountability, and the Treaty provides that the ECB is primarily accountable to the European Parliament as the body composed of the elected representatives of the EU's citizens. An effective discharge of the ECB's accountability obligations to the European Parliament has been, and continues to be, an imperative for the ECB. The two-way dialogue established with the European Parliament allows the ECB to explain its actions to the representatives of EU citizens and listen to their concerns. The ECB's accountability practices have evolved in a flexible manner beyond the requirements set out in Article 284(3) of the TFEU. They are complemented by judicial review by the Court of Justice of the European Union.

Interactions with the European Parliament

In 2021 the President of the ECB attended four regular hearings of the ECON Committee and participated in the [plenary debate](#) on the ECB's 2019 Annual Report in February. The Vice-President presented the [ECB's 2020 Annual Report](#) to the ECON in April 2021. The ECB published its [feedback](#) on the input provided by the European Parliament as part of the latter's resolution on the 2019 Annual Report. The ECB also replied to 46 written questions from Members of the European Parliament in 2021.

Beyond these regular interactions, the ECB also interacted closely with the ECON Committee in the context of the strategy review and on the digital euro (see Box 11).

A delegation of Members of the ECON Committee participated in the annual visit to the ECB in February, which took place in virtual format in 2021. In addition, in May the ECB organised another virtual visit on the strategy review, as part of its listening exercise, and on a digital euro with the President of the ECB and Executive Board Members, Mr Lane and Mr Panetta. Following the announcement of the outcome of the strategy review on 8 July, the ECB also organised a meeting with the ECON Committee to explain the new monetary policy strategy and answer questions from Members of the ECON Committee.

The latest [Eurobarometer survey](#) indicated that 79% of euro area respondents support the euro and 47% tend to trust the ECB.¹¹⁶ This represents an increase for both indicators on pre-pandemic levels (autumn 2019) and compares favourably to previous crisis episodes. These improvements indicate that citizens recognise the work done by the ECB in responding to the pandemic crisis and improving its communication practices to citizens. The ECB will continue its efforts to engage in constructive dialogue with the European Parliament and citizens to explain its decisions and listen to their concerns.

10.2 International relations

G20

G20 finance ministers and central bank governors reiterated on several occasions that they would continue to use all available tools for as long as needed to respond to the COVID-19 pandemic. Looking ahead the G20 highlighted the need for increasingly targeted support aimed at an inclusive, digital, green and sustainable recovery, and endorsed a multi-year voluntary roadmap for sustainable finance. With respect to other financial sector issues, the G20 started to implement the roadmap to enhance cross-border payments and held discussions on central bank digital currencies and global stablecoins. The G20 also noted the need to strengthen the resilience of the non-bank financial intermediation sector, including money market funds, and endorsed the respective work programmes of the Financial Stability Board. Moreover, the G20 endorsed the landmark agreement at the Organisation for Economic Co-operation and Development on international taxation reform. With regard to support for vulnerable countries, the G20 worked towards addressing debt vulnerabilities with the Common Framework for Debt Treatment beyond the temporary Debt Service Suspension Initiative.

The ECB engaged constructively with G20 initiatives to address the COVID-19 crisis, climate change and financial sector issues

¹¹⁶ See European Commission, [Standard Eurobarometer 95 – Spring 2021](#), September 2021.

Policy issues related to the IMF and the international financial architecture

New initiatives by the IMF to support its membership in dealing with the consequences of the pandemic

The IMF continued to be a central element of the international community's response to the pandemic, with total lending support since March 2020 extended to almost half of its membership, particularly to low-income countries (LICs). Despite the breadth of lending, IMF resources continued to be adequate, but remained under constant monitoring. A landmark event for the global economy in summer 2021 was the general allocation of special drawing rights (SDRs) of historic magnitude by the IMF (see Box 12). At the Annual Meetings in 2021 a broad agreement was also reached to pursue the voluntary channelling of SDRs from members with strong external positions to the benefit of LICs and vulnerable middle-income countries, including through a new IMF-administered Resilience and Sustainability Trust (RST) to be developed and established in the near future. For ESCB central banks to lend SDRs to the RST, the reserve asset character of these SDRs will need to be assured, which implies sufficient liquidity and low credit risk of central bank claims.

In view of the impact of the pandemic on the debt situation in many countries, the IMF continued its debt-related work agenda. A set of recommendations included in the [report](#) on the IMF's role in sovereign debt restructurings by a Task Force of the International Relations Committee of the ESCB provided a valuable contribution to the review of IMF debt-related policies, in particular the lending-into-arrears policies.

As countries recover from the crisis, the importance of IMF surveillance will rise as countries look for advice on moving towards a green, inclusive and digital recovery. To this end, the IMF completed the Comprehensive Surveillance Review and Financial Sector Assessment Program Review in May 2021. It also developed a strategy for work on climate change-related policy challenges. In 2022 the IMF will conclude the review of its 2012 Institutional View on the Liberalization and Management of Capital Flows (which allows for the use of capital flow management measures in defined circumstances).

Box 11

Interactions with European policymakers on a digital euro project

The alignment of European authorities and institutions, mindful of their respective mandates and independence, will be one of the key factors for the success of a digital euro. The European Parliament and other EU institutions have welcomed the Eurosystem's work on a digital euro,¹¹⁷ while the ECB has sought close engagement with EU policymakers, which has intensified since the launch of the investigation phase of a digital euro project.¹¹⁸ Regular exchanges on major design issues and policy-relevant aspects of a digital euro will continue to ensure that the views of the European Parliament and other European policymakers can inform the Eurosystem's

¹¹⁷ See the [Statement](#) by the Members of the Euro Summit of 25 March 2021, the [summing-up letter](#) of the Eurogroup meeting of 21 May 2021, the EU Council [conclusions](#) on the Commission Communication on a "Retail Payments Strategy for the European Union" of 8 March 2021, the European Parliament [resolution](#) of 10 February 2021 on the ECB Annual Report 2020 and the European Commission's [communication](#) of 19 January 2021 on "The European economic and financial system: fostering openness, strength and resilience".

¹¹⁸ See "[Eurosystem launches digital euro project](#)", *press release*, ECB, 14 July 2021.

discussions.¹¹⁹ Any necessary changes to the EU legal framework will be decided by the Union co-legislators upon a proposal by the European Commission.

Technical work with the European Commission is ongoing. Since January 2021 the ECB and European Commission services have been jointly reviewing at technical level a broad range of policy, legal and technical questions emerging from a possible introduction of a digital euro, taking into account their respective mandates and independence provided for in the Treaties.¹²⁰ This joint group has proven a valuable forum for exchanging and aligning views on digital euro aspects.

The ECB exchanged views on a digital euro with the European Parliament throughout 2021. Executive Board Member Fabio Panetta discussed the ECB's work on a digital euro with the Committee on Economic and Monetary Affairs (ECON) in April and November.¹²¹ The regular hearings of the ECB President, the plenary debate on the European Parliament resolution on the ECB Annual Report 2020 and the virtual visit by ECON members to the ECB provided additional opportunities for MEPs to enquire about the digital euro project. Moreover, the ECB President shared the ECB's views on a digital euro in replies to several written questions by MEPs.¹²²

Euro area finance ministers discussed the euro as a digital currency on several occasions. The Eurogroup took stock of the digital euro in April and July 2021, when it was agreed to have regular Eurogroup discussions on the implications of a digital euro.¹²³ The first of these ministerial discussions took place in November 2021, focusing on the policy objectives and uses of the digital euro in the global context prepared by a technical seminar with Member States.¹²⁴

Box 12

The new special drawing rights allocation from the Eurosystem's perspective

To address the long-term global need for reserves, enhance global liquidity and help countries to better cope with the pandemic crisis, a new general special drawing rights (SDR)¹²⁵ allocation by the International Monetary Fund (IMF), equivalent to about USD 650 billion, became effective on 23 August 2021. It broadly tripled the amount of existing SDRs. All IMF member countries, including all

¹¹⁹ See the [Letter](#) from Fabio Panetta to Irene Tinagli, MEP, on the decision by the ECB's Governing Council to launch the investigation phase of a digital euro project.

¹²⁰ See "[ECB intensifies technical work on digital euro with the European Commission](#)", *MIP NEWS*, ECB, 19 January 2021.

¹²¹ See Panetta, F., "[A digital euro to meet the expectations of Europeans](#)", Introductory remarks at the ECON Committee of the European Parliament, Frankfurt am Main, 14 April 2021; and "[Designing a digital euro for the retail payments landscape of tomorrow](#)", Introductory remarks at the ECON Committee of the European Parliament, Brussels, 18 November 2021.

¹²² See the [Letter](#) from the ECB President to Mr Marco Zanni, Ms Francesca Donato, Mr Valentino Grant and Mr Antonio Maria Rinaldi, MEPs of 22 December 2020; the [Letter](#) from the ECB President to Mr Chris MacManus, MEP of 21 January 2021; the [Letter](#) from the ECB President to Ms Julie Lechanteux, MEP of 5 February 2021; and the [Letter](#) from the ECB President to Mr Gunnar Beck, MEP of 29 October 2021.

¹²³ See remarks and summing up letters by the President of the Eurogroup following the Eurogroup meetings of 16 April 2021 ([remarks](#), [summing up letter](#)) and 12 July 2021 ([remarks](#), [summing up letter](#)).

¹²⁴ See [remarks](#) and [summing up letter](#) by the President of the Eurogroup following the Eurogroup meeting of 8 November 2021.

¹²⁵ The SDR is an international reserve asset created by the IMF in 1969. It is a potential claim on the freely usable currencies of IMF members, and its value is based on a basket of five currencies (US dollar, euro, Chinese yuan, Japanese yen, pound sterling).

EU countries, received SDRs in proportion to their paid-in IMF quotas. The ECB did not receive SDRs as it is not an IMF member. However, since it is a prescribed SDR holder, it can execute transactions in SDRs.

Countries can hold SDRs as part of their reserve assets or convert them into freely usable currencies. Such conversion occurs predominantly in the SDR market, which is provided by those IMF members that have agreed to buy and sell SDRs and have signed voluntary trading arrangements (VTAs). The IMF acts as an intermediary in matching sellers and buyers of SDRs. A well-functioning SDR market supports the goal of the new allocation. In advance of the actual allocation, Eurosystem central banks therefore agreed to revise their VTAs, with the aim of proportionally increasing the overall absorption capacity and adjusting a number of operational features towards greater harmonisation within the Eurosystem. Smooth functioning VTAs would also be key for the effectiveness of the IMF-administered Resilience and Sustainability Trust to be developed and established in the near future.

At the end of 2021, 35 IMF member countries (including 17 euro area countries, with new VTAs recently signed by Lithuania and Estonia) and one prescribed holder (the ECB) had VTAs in place, providing a total purchasing capacity¹²⁶ of SDR 240 billion and a selling capacity of SDR 123 billion. The Eurosystem is thereby playing a cohesive part in the global effort to shore up liquidity and support the post-pandemic recovery.

¹²⁶ Capacity to accommodate SDR sales and acquisitions, respectively, from the initiating parties' perspective.

11 Good governance and greater social and environmental sustainability at the ECB

In 2021 the ECB committed to start reporting in a more holistic manner on environmental, social and governance (ESG) sustainability topics of relevance to internal and external stakeholders. Work therefore started on expanding the ECB's existing environmental reporting framework to include governance and social and employee matters, taking into account the requirements of the Non-Financial Reporting Directive.¹²⁷ This chapter summarises the ECB's approach to these topics, which were identified through a materiality assessment exercise. This exercise was key to both defining the reporting content and informing the upcoming revision of the ECB's business strategy, with the aim of further integrating sustainability into the organisation's governance.

11.1 Managing sustainability and related impacts and risks

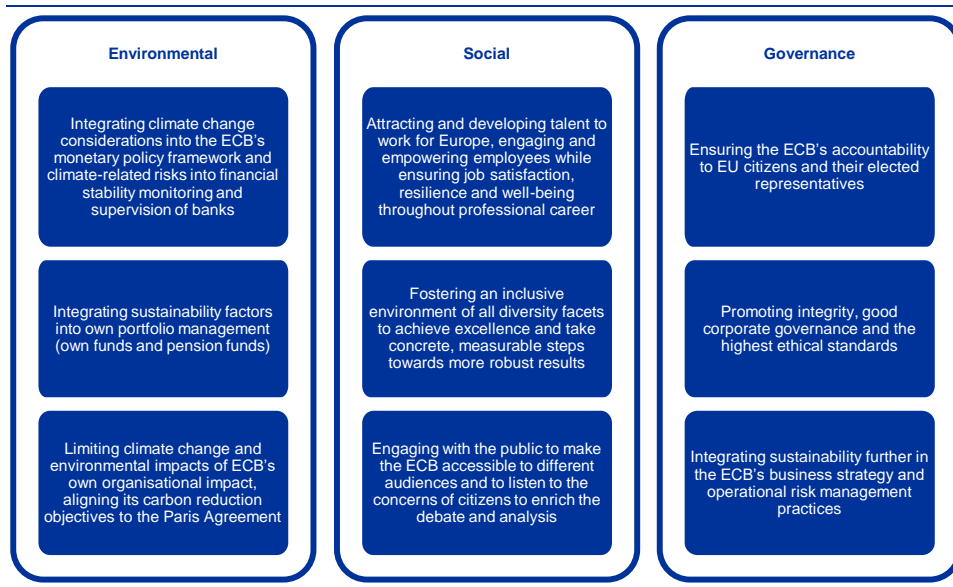
In 2021 the ECB identified its key sustainability topics through a materiality assessment exercise coordinated by an internal working group bringing together relevant areas from across the organisation. The first part of the assessment involved selecting sustainability topics based on existing sustainability guidelines, standards and benchmarks and on an analysis of the ECB's context and the expectations of relevant stakeholders. The second part entailed active engagement with internal and external counterparts, including representatives of the national central banks (NCBs), European institutions and some of the ECB's key external service providers.

The relevance (i.e. materiality) of the topics was assessed taking into consideration both internal and external perspectives on how sustainability issues affect the organisation, and the impact of the organisation on society and the environment. The material topics identified were then presented to the Executive Board and used to define the key reporting topics for the Annual Report (see Figure 11.1).

In 2021 the ECB conducted its first materiality assessment exercise to identify the key environmental, social and governance-related topics for the organisation

¹²⁷ Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups (OJ L 330, 15.11.2014, p 1).

Figure 11.1
 ECB's material sustainability topics



Source: ECB.

The ECB also tackles sustainability risks as part of the governance of its management of operational risks. As further described in the Risk management chapter of the Annual Accounts, operational risk management is an integral part of the ECB's governance structure.¹²⁸ The ECB has put in place management processes that facilitate an effective handling of all operational risks, including any ESG risks and opportunities.

In practice, ESG risks and opportunities are considered, among other things, in the context of the annual risk and resilience update exercises. They are reflected within the environmental scanning of emerging trends that serves as an input for discussions with senior management. They are also considered when identifying, assessing, responding to, reporting and monitoring operational risks, incidents and controls by business areas, either as part of the annual exercises or on an ad hoc basis throughout the year as part of day-to-day management.

11.2 Strengthening ethics and integrity

The ECB actively promoted ethical awareness among its staff

The ECB developed new initiatives, such as the Ethics Awareness Week, Open Ethics Days for newcomers and specialised training sessions, to introduce staff more effectively and sustainably to the rules on ethics, with all newly recruited staff members completing a mandatory "Being ethical" e-learning course. These initiatives further strengthen the existing Ethics Framework for all staff, which forms the foundation of the ECB's commitment to promoting integrity, good corporate governance and the **highest ethical standards**. ECB staff members are aware of and make use of the existing Framework: in 2021 the Compliance and Governance

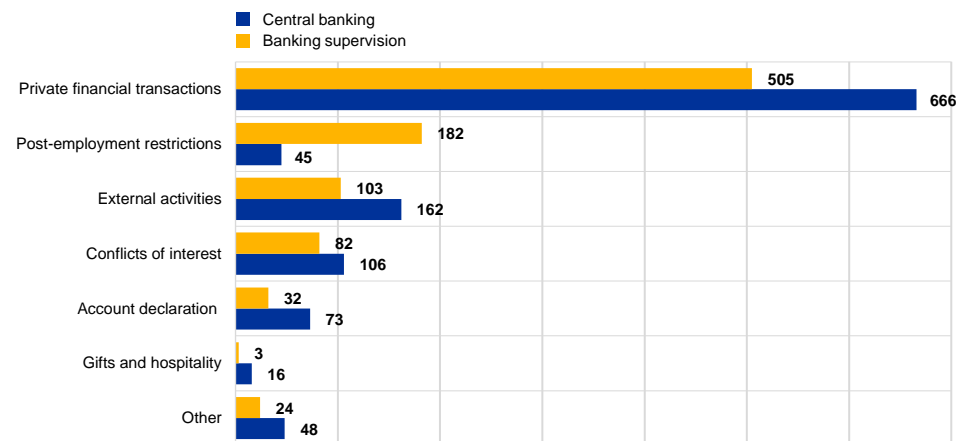
¹²⁸ Further information about the ECB's governance structure can be found on the [ECB website](#).

Office, the body responsible for monitoring the ECB's compliance with the ethics and governance rules, responded to over 2,000 requests on a wide range of topics, with requests almost equally split between central banking and banking supervision staff. Almost 60% of the requests concerned staff members' private financial transactions, followed by requests related to external activities and post-employment restrictions (see Chart 11.1). The compliance checks, which were conducted with the support of an external audit firm, confirmed the overall adherence of ECB staff members and the ECB members of the high-level bodies to the rules on private financial transactions.

Chart 11.1

Overview of requests for advice from ECB staff received in 2021

(number of requests)



Source: ECB.

2021 was the first full year of operation of the Whistleblowing tool, which is an online digital reporting tool in operation since October 2020 that allows staff to report alleged breaches of professional duties. During the year a mixture of anonymous and named reports were submitted (both via the Whistleblowing tool and other channels), covering a large variety of topics, ranging from breaches of dignity at work to fraud or misappropriation. All reports are subject to a preliminary assessment upon which further action may be taken. For high-level ECB officials, the ECB's Ethics Committee continued to provide advice on the implementation of the single [Code of Conduct](#) and reviewed the Executive Board, Governing Council and Supervisory Board members' declarations of interests prior to publication on the ECB websites. Furthermore, in 2021 the Ethics Committee issued an increased number of opinions, the majority of which related to activities undertaken in a personal capacity and to post-employment activities.¹²⁹

¹²⁹ The opinions of the Ethics Committee on post-mandate gainful employment and conflicts of interest are published on the ECB website.

The revised Ethics Guidelines will further enhance and harmonise the ethics regimes of the Eurosystem NCBs and of the NCAs

At the level of the Eurosystem and the Single Supervisory Mechanism (SSM), as a result of the regular review, the Governing Council adopted new Ethics Guidelines¹³⁰, which establish enhanced integrity standards for all euro area central banks and national competent authorities. With a view to addressing conflicts of interest more effectively, the Guidelines strengthen pre- and post-employment provisions and the rules on private financial transactions. The Eurosystem central banks and the national competent authorities (NCAs) have to implement the new requirements within 18 months.

This review was undertaken by the Ethics and Compliance Officers Task Force – a forum that was transformed into an Ethics and Compliance Conference in 2021. The Governing Council considered that this would better reflect the permanence of the Group, its coverage of the entire Eurosystem and SSM, and the increasing relevance of ethics and compliance matters in general.

At the international level, the ECB had the privilege of hosting the 13th Annual Meeting of the Ethics Network of Multilateral Organisations (ENMO), which was opened by the ECB's President and brought together senior ethics officers from more than 40 multilateral intergovernmental institutions to discuss best practices, topical ethical matters and challenges faced.

11.3 Enhancing transparency and engaging with the public

"We are constantly working on making ourselves better understood by people living in the euro area whose everyday lives are affected by our measures", ECB President Christine Lagarde, 2021

In 2021 the ECB took major steps towards making itself better understood by the wider public, notably through its innovations in monetary policy communication (see Box 3). At the same time, the ECB continued to turn the challenges posed by the pandemic into opportunities, devising new ways of reaching out to different audiences. It continued to uphold its commitment to the accessibility of documents, an essential component of its transparency and accountability, and invested in engaging with citizens to foster better understanding of the ECB's role and the rationale behind its decisions.

Connecting during the pandemic: strengthening online communication with the wider public



In response to the pandemic the ECB expanded its digital outreach and reinforced its online communication

With a view to enhancing its online presence and making itself better understood by wider audiences, in 2021 the ECB undertook a major redesign of its websites. Both the [ECB website](#) and the [Banking Supervision website](#) now have a fresh design with a modernised layout and enhanced navigation, including for mobile devices. This new design follows modern digital design approaches, with a focus on telling visuals, enhanced readability and an appealing way of presenting the work of the ECB and

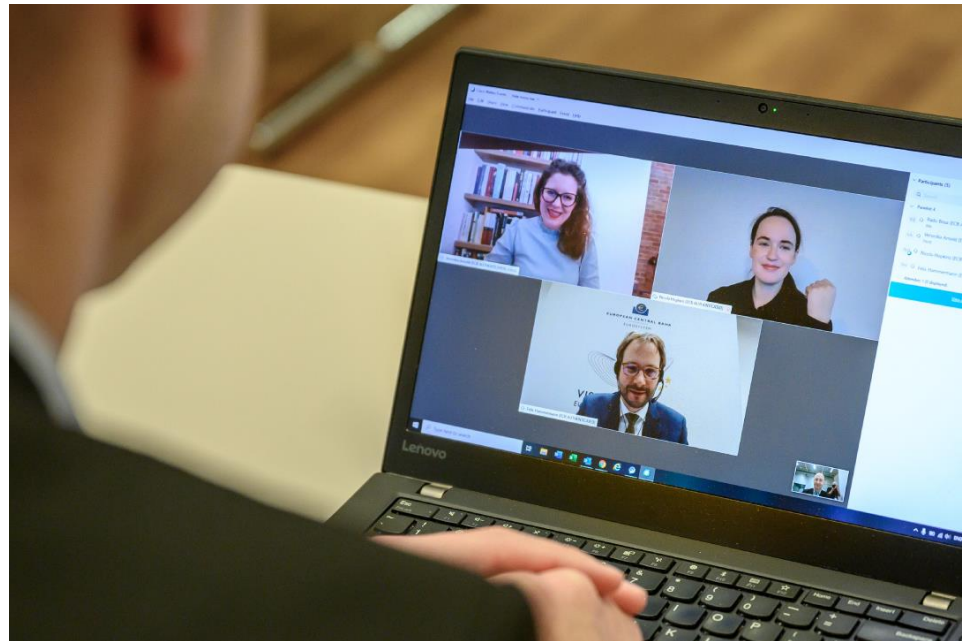
¹³⁰ Guideline (EU) 2021/2253 of the European Central Bank of 2 November 2021 laying down the principles of the Eurosystem Ethics Framework ([ECB/2021/49](#)) (OJ L 454, 17.12.2021, p. 7) and Guideline (EU) 2021/2256 of the European Central Bank of 2 November 2021 laying down the principles of the Ethics Framework for the Single Supervisory Mechanism ([ECB/2021/50](#)) (OJ L 454, 17.12.2021, p. 21).

ECB Banking Supervision. Large parts of the websites, in particular the hub pages for different themes, are available in the 24 official EU languages. The traffic to those hub pages in particular more than doubled following the launch of the new look-and-feel on the ECB's websites.

Modern communications formats such as the ECB Blog and the ECB Podcast continued to be attractive and successful means of sharing insights into policymakers' perspectives on key topics, such as the ECB's latest decisions, a digital euro or the role of central banks in tackling climate change. The number of people following the ECB Podcast increased, in particular attracting a younger audience. Episodes covered a wide range of themes, including inflation, the use of animal metaphors in central banking discourse, female leadership and gender equality. For example, the episode featuring a discussion between ECB President Christine Lagarde, EU Commission President Ursula von der Leyen and US Secretary of the Treasury Janet Yellen on female empowerment, inclusive economic recovery from the COVID-19 pandemic and transatlantic cooperation was listened to 22,909 times.

In the midst of the pandemic, the ECB's social media channels provided a further medium to engage and directly interact with the public. In 2021 the number of followers on the ECB's social media channels increased by 15% overall. The Twitter Q&A conducted in April 2021 with Executive Board member Isabel Schnabel set a new record for such events, with Ms Schnabel's tweet replies viewed up to two million times. The social media event allowed her to answer citizens' questions on a host of topics, ranging from negative interest rates to advice for women interested in pursuing a career at the ECB.

To further enhance the efforts to engage with citizens and explain ECB policy even under pandemic-related restrictions on physical interaction, the ECB Visitor Centre extended access to its virtual lectures to the general public and complemented this with new engagement activities, such as virtual presentations by the Centre and pre-recorded lectures.



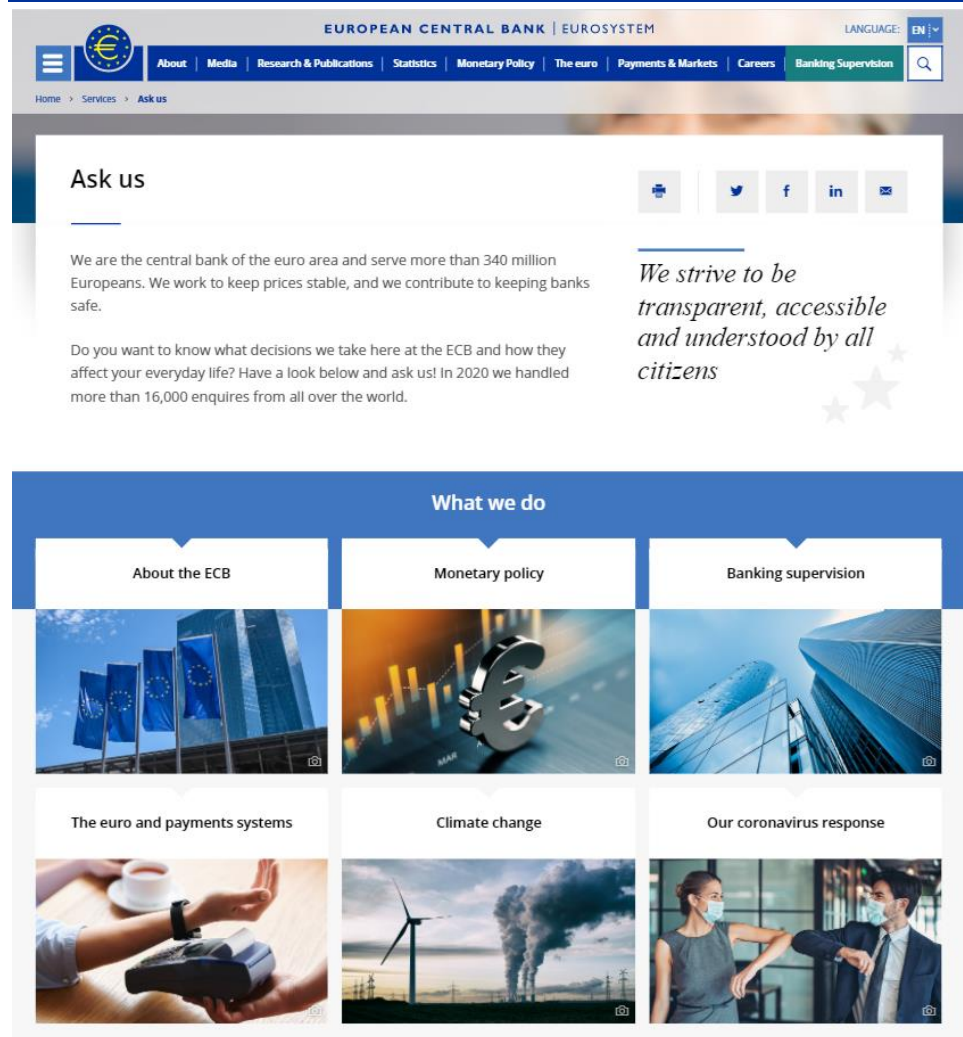
Upholding transparency and engaging with citizens

The ECB delivered on its commitment to ensure transparency and invested in new ways to connect with EU citizens

The ECB's [public access regime](#) is an important means of supporting its transparency policy. It is designed to enhance the transparency and democratic legitimacy of the ECB by granting the general public wide access to ECB documents, while ensuring adequate protection of the ECB's independence and functioning. Own-initiative publication of documents, ranging from historical documents predating the establishment of the ECB to documents of interest to the general public, was actively promoted and implemented. Finally, the publication of documents disclosed in the context of public access requests was increasingly used as a means of furthering the ECB's commitment to and practice of transparency. No findings of maladministration were raised by the European Ombudsman regarding the ECB's handling of public access requests.

In September 2021 the ECB launched [Ask us](#), a new webpage for public enquiries. This new tool facilitates the ECB's interaction with citizens by making it easier for people to get in touch with the ECB, directly and proactively offering information on commonly asked questions. In 2021 the ECB's public enquiries team handled 25,189 enquiries, giving the citizens it serves a voice, hearing their concerns and expectations, and explaining in clear language the ECB's mandate, tasks and decisions.

Ask us webpage



The ECB civil society seminar series was also held regularly in 2021, with three events attended by representatives of European-level civil society organisations. These representatives had the opportunity to exchange views with ECB experts on different topics, ranging from macroeconomic developments in the euro area, through the ECB's retail payments strategy, to the outcome of the ECB's strategy review.

11.4 Fostering resilience, empowerment and diversity among our colleagues

People are at the heart of how the ECB performs, which is why it seeks to attract and develop diverse talent to work for Europe. To achieve this, the ECB has set up policies and frameworks to engage and empower employees, while ensuring job satisfaction, resilience and well-being throughout their professional career. These policies also evolve in response to the changing external environment. They go

hand-in-hand with the ECB's efforts to foster an inclusive workplace, which enables employees to achieve excellence and supports the ECB in fulfilling its mandate.

Well-being and development

Focus on mental health, connectedness and work-life balance

The ECB's employees spent 2021 working mostly remotely as a result of the pandemic. ECB employees' physical and mental health, team connectedness and working conditions took centre stage in many organisational activities.

Three pulse checks with an average participation rate of 60% focused on colleagues' mental health and team connectedness, and elicited feedback about the ECB's support measures. The February 2021 survey showed a trough in employee sentiment regarding their well-being and work-life balance. The following two surveys (in June and November) showed improvements thanks to the measures adopted by the ECB in response and the general change in the dynamic of the pandemic.

The ECB launched several initiatives to address the concerns expressed by employees in the surveys. The Virtual Centre for Well-being offered increased social counselling services, training and twice-weekly webinars on health and well-being issues that were open to all staff, complemented by five topical podcasts produced internally. Staff satisfaction with the ECB's decisions related to employees' health and safety hovered at around 80% in all three surveys.

COVID-19 vaccination

The ECB arranged for onsite and cost-free COVID-19 vaccinations via the German Red Cross for its employees, family members and critical onsite consultants. Overall, around 2,000 people were fully vaccinated over the summer, and a further 400 vaccinations took place in December 2021 (including booster doses). According to an internal survey, based on a 65% response rate, 91% of respondents had full vaccination protection.

New measures introduced to integrate newcomers

In 2021 the ECB successfully onboarded around 850 newcomers. The pandemic disproportionately hit younger employees and newcomers worldwide. The staff surveys also highlighted the particular vulnerability of this group in the teleworking environment. To mitigate this, the ECB realigned its onboarding programme and created specific well-being packages for this group.

Managers were trained to help integrate colleagues remotely and dedicated follow-up meetings were organised with newcomers. In addition, the ECB together with other institutions of the European System of Central Banks (ESCB) and Single Supervisory Mechanism (SSM) launched a collaborative online game for new recruits. The game was designed to introduce new staff across the European continent and connected around 2,000 people from 30 different institutions.

Learning and development initiatives transformed

Since the start of the pandemic, the ECB has transformed its learning and development initiatives from mainly classroom-based to fully remote. Throughout 2021 this approach allowed ECB staff members to continue their professional development by attending 1,421 remote sessions on a variety of topics, from technical to behavioural skills. A dedicated programme on leading in a remote and

hybrid environment was rolled out, and leaders could also benefit from individual or group coaching support.

2021 was the second year of implementation of the ECB's new career framework and the first opportunity to assess its performance. An extensive check-in exercise was carried out, which confirmed the positive impact of the framework. Our approach to prioritise internal talent led to a higher promotion ratio, and the horizontal mobility rate reached an all-time high. Moreover, the check-in helped identify ways in which we could make our framework more efficient.

Diversity and inclusion

The ECB's gender strategy for 2020-26 set ambitious gender targets, accompanied by support measures linked to recruitment and promotion, culture and accountability, leadership development and flexible working. In 2021 the ECB designed a new mentoring scheme and introduced general guidance for managers about the allocation of career-critical tasks. It also agreed to double the number of days of special leave entitlement for childbirth and adoption for second caregivers to support all families and promote a more balanced share of family responsibilities.

Fostering an inclusive working environment

Beyond gender diversity, the ECB also worked – in cooperation with [six diversity networks](#) – to foster an inclusive working environment by raising awareness and promoting the inclusion of different groups, such as colleagues with disabilities, colleagues from culturally diverse communities and the LGBT+ community. In 2021 the ECB launched an inclusive leadership programme for its leaders, as well as several e-learning modules for all staff to move individual behaviours towards a more inclusive culture at the ECB. These initiatives tackled diversity and inclusion from different angles and included topics such as diversity facets, unconscious bias and dignity at work.

Publication of nationality figures

The ECB is a major European institution, and its employees come from all 27 EU countries.¹³¹ To enhance transparency on one of its main areas of diversity, the ECB decided to publish nationality figures¹³² for all staff and separately for management (see Table 11.1). Up-to-date figures will be provided annually in this report.

¹³¹ Although the United Kingdom is no longer an EU Member State, British nationality is also included for continuity.

¹³² The figures are based on employee self-declaration of nationality. The ECB requires staff members to report at least one EU nationality, with it being compulsory to declare German nationality for the purposes of determining allowances.

Table 11.1
Shares of ECB staff and management by nationality

Nationality	All staff	Management
Austrian	2.2%	2.1%
Belgian	2.3%	2.7%
British	4.6%	3.8%
Bulgarian	2.1%	0.7%
Croatian	1.0%	0.3%
Cypriot	0.5%	0.5%
Czech	0.8%	0.2%
Danish	0.6%	0.9%
Dutch	3.0%	5.7%
Estonian	0.6%	0.5%
Finnish	1.4%	0.9%
French	7.2%	10.8%
German	27.7%	31.3%
Greek	5.0%	3.6%
Hungarian	1.5%	0.9%
Irish	3.2%	3.4%
Italian	14.0%	13.0%
Latvian	0.7%	0.5%
Lithuanian	0.8%	0.3%
Luxembourgish	0.2%	0.3%
Maltese	0.3%	-
Polish	3.0%	1.2%
Portuguese	3.0%	3.1%
Romanian	3.7%	0.2%
Slovakian	0.7%	-
Slovenian	1.1%	0.9%
Spanish	8.0%	11.8%
Swedish	0.8%	0.5%

Source: ECB.

Notes: Table 11.1 shows shares of ECB staff and management by nationality, i.e. staff members holding multiple nationalities are counted for each nationality they declare. "All staff" refers to employees, including management, on permanent, fixed-term convertible and fixed-term non-convertible contracts as at 31 December 2021. "Management" refers to salary bands I to M. Totals may exceed 100% due to rounding.

New channel for conflict resolution

Internal mediation function established

In 2021 the ECB also decided to create a dedicated internal mediation function (with ombuds-type activities). This new function will be independent. The mediator will help parties resolve work-related conflicts in strictest confidence and impartiality. Mediation services will be made available to all staff and may be contacted at any time and without any formal procedure. Use of mediation services will be voluntary. This new informal channel will complement the existing formal and informal channels for conflict resolution.

11.5 Tackling climate change and environmental impacts

Work on climate change is a key priority for the ECB and will continue to be so in the coming years. As such, the ECB has taken concrete steps to scale up its initiatives in this field within the scope of its mandate and areas of competence. This section provides an overview of the ECB's main achievements and activities in this area, and presents the work ahead: first, it sets out the work conducted on the climate change centre's (CCC) main strategic thematic areas (see Box 13); second, it describes the ECB's contribution to the European and international policy debate; lastly, it reviews the work ongoing in other ECB business areas.

Updates on climate change work at the ECB

Addressing climate-related risks for financial stability, banking supervision and the prudential framework

In the field of financial stability and prudential policy, the ECB has focused on how to address and potentially incorporate climate risks into the prudential framework, to develop a risk monitoring framework, including climate risk metrics and financial system exposures, and to strengthen forward-looking impact assessments of climate risks on financial intermediaries (for example, via dedicated climate stress tests). This thematic area also studies the impact of mitigation and adaptation policies on financial institutions and markets to understand how they can best support a green transition and mitigate the macroeconomic costs of climate change. The ECB regularly monitors and assesses climate-related risks for financial institutions and firms in its Financial Stability Review¹³³ and ECB/ESRB reports.¹³⁴ In September 2021 it published the methodology and results of the economy-wide climate stress test.¹³⁵ The exercise will also be used to inform the 2022 supervisory climate stress test that will be conducted by ECB Banking Supervision to test banks' preparedness to assess climate risks.¹³⁶ In the area of banking supervision, the ECB published a Guide on climate-related and environmental risks in November 2020. In 2021 it asked banks to conduct self-assessments in the light of the Guide and to draw up action plans. In 2022 ECB Banking Supervision will conduct a full supervisory review of banks' risk management and disclosure practices.

Integration of climate-related risks into macroeconomic models and monetary policy considerations

In the area of macroeconomic analysis and monetary policy, the ECB assesses macroeconomic risks stemming from climate change and policies, and their implications for the macroeconomic staff projections and risk assessment, including for the transmission of monetary policy.¹³⁷ In this context, ECB staff closely monitors macroeconomic developments related to the EU Emissions Trading System¹³⁸ and analyses the macroeconomic and structural implications of transition policies

¹³³ See the ECB's May 2019 [Financial Stability Review](#) and May 2021 [Financial Stability Review](#).

¹³⁴ See ECB/ESRB Project Team on climate risk monitoring, "[Climate-related risk and financial stability](#)", ECB, July 2021.

¹³⁵ See "[ECB economy-wide climate stress test – methodology and results](#)", *Occasional Paper Series*, No 281, ECB, September 2021.

¹³⁶ See "[Climate risk stress test – SSM stress test 2022](#)", ECB Banking Supervision Report, October 2021.

¹³⁷ See Work stream on climate change, "[Climate change and monetary policy in the euro area](#)", *Occasional Paper Series*, No 271, ECB, September 2021.

¹³⁸ See the box entitled "[EU emissions allowance prices in the context of the ECB's climate change action plan](#)" *Economic Bulletin*, Issue 6, ECB, 2021.

adopted at national and European level. In line with the [action plan](#) (see Box 2), this thematic area aims to integrate climate risks into the ECB's "workhorse" macroeconomic models and envisages the development of new models for studying specific climate-related questions that are relevant for macroeconomic developments and monetary policy. Analysis is also ongoing to obtain a better understanding of how climate change affects monetary policy transmission. Conceptual work on how to account for climate change in the ECB's monetary policy operations also falls under this workstream, including the assessment of potential biases in the market allocation amid market inefficiencies and the advantages and disadvantages of alternative allocations.

Inclusion of climate change considerations in the monetary policy implementation framework

Under the Eurosystem's financial market operations and risk management framework, the ECB is working to implement the agreed climate [action plan](#) to include climate change considerations in the monetary policy implementation framework (see Box 2). It analyses financial risks to the Eurosystem from its monetary policy exposures, including through a Eurosystem balance sheet climate stress test. In 2021 this area focused on developing the action plan that was later approved by the Governing Council. Since then, work has started on preparing the concrete implementation of the agreed roadmap for the action plan. In addition, the ECB began accepting certain bonds with coupon payments linked to sustainability targets as collateral and in its asset purchases.¹³⁹ The Eurosystem also announced a common stance for climate change-related sustainable and responsible investment (SRI) principles for euro-denominated non-monetary policy portfolios and started a Eurosystem-wide data procurement exercise to choose appropriate data service providers. It will start disclosing climate-related information on these portfolios and on the ECB corporate sector purchase programme in the first quarter of 2023.

ECB contributions to EU initiatives related to climate change

In the area of EU and international policy and financial regulation, the ECB contributes to EU initiatives such as the European Green Deal, EU sustainable finance legislation and initiatives in international fora. In this context, in 2021 the ECB provided input to the EU policy agenda by publishing two legal opinions on the legislative proposals related to a Corporate Sustainability Reporting Directive¹⁴⁰ and on a Regulation on European Green Bonds.¹⁴¹ As a member of the Platform on sustainable finance, the ECB helped develop the EU Taxonomy framework and improve its usability for the banking sector. Furthermore, the ECB contributed to the development of the EU sustainability reporting standards in the context of the European Financial Reporting Advisory Group (EFRAG) Project Task Force. The ECB also gave strong support to the relaunch of the sustainable finance agenda in international fora (notably in the G7, G20 and the re-established G20 Sustainable

¹³⁹ See "[ECB to accept sustainability-linked bonds as collateral](#)", *press release*, ECB, 22 September 2020.

¹⁴⁰ See Opinion of the European Central Bank of 7 September 2021 on a proposal for a directive amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting ([CON/2021/27](#)) (OJ C 446, 3.11.2021, p. 2).

¹⁴¹ See Opinion of the European Central Bank of 5 November 2021 on a proposal for a regulation on European green bonds ([CON/2021/30](#)) (OJ C 27, 19.1.2022, p. 4).

Finance Working Group). It also stressed the need for credible and internationally consistent regulatory frameworks for sustainable finance and supported the establishment of an International Sustainability Standards Board by the International Financial Reporting Standards (IFRS) Foundation.

Development of climate-related indicators

The work on climate change data is aimed at delivering climate-related indicators on physical risk, carbon footprint and sustainable finance instruments, as set out in the climate [action plan](#). Exploratory work to develop such indicators is underway and involves close cooperation within the ESCB and with other European and international organisations. Climate data-related work also looks at various ways of assessing and sharing climate data (currently provided largely by external market data vendors) used across the ECB to ensure full alignment and collaboration with end-users. This workstream also follows external developments on climate data in European and international fora.

Publication of the ECB's pledge on climate change action

Beyond the strategic thematic areas described above, the ECB, under the coordination of the CCC, develops overarching topics of relevance to the ECB itself and more broadly in Eurosystem, European and international fora. On the occasion of the 2021 United Nations Climate Change Conference (COP26), the ECB published its [pledge on climate change action](#) to contribute, within its field of competence, to decisive action by policymakers to implement the Paris Agreement and mitigate the consequences of climate change.

Active ECB participation in international fora on climate-related issues

In 2021 the ECB was actively involved in the work of the Network of Central Banks and Supervisors for Greening the Financial System (NGFS).¹⁴² It made a significant contribution to all five of the dedicated work streams (microprudential and supervision; macro-financial; scaling up green finance; bridging data gaps; and research) and the Legal Task Force. The ECB also contributed to the Basel Committee on Banking Supervision's high-level Task Force on Climate-related Financial Risks,¹⁴³ which is working on better understanding and possibly amending the three pillars of the Basel Framework.¹⁴⁴ At the international level, the ECB actively joined the three workstreams of the Financial Stability Board dealing with climate-related issues (namely the Standing Committee on Supervisory and Regulatory Cooperation, the Working Group on Climate Risk and the Standing Committee on Assessment of Vulnerabilities), the Irving Fisher Committee on Central Bank Statistics (which operates under the auspices of the Bank for International Settlements) and the G20 Data Gaps Initiative, which supports the worldwide harmonisation and availability of climate-related data. At the European level, the ECB contributed to the Sustainable Finance Network of the European Banking Authority (EBA), and the EBA subgroups on transparency and reporting.

¹⁴² Chaired by Frank Elderson, member of the ECB's Executive Board; the ECB is also a member of the NGFS Steering Committee.

¹⁴³ Co-chaired by Frank Elderson, member of the ECB's Executive Board.

¹⁴⁴ The Basel Framework consists of three pillars, whereby Pillar 1 is the part of the framework which sets out the rules to calculate regulatory capital requirements for credit, market and operational risk, adding a macroprudential overlay that includes capital buffers. Pillar 2 is the part of the framework that sets risk management and supervision rules, while Pillar 3 establishes banks' disclosure requirements to enhance market discipline. See [Basel Committee on Banking Supervision reforms – Basel III Summary Table](#) for an overview of the three pillars.

ECB staff members are increasingly pursuing research projects in the field of climate change. A number of research papers were published in 2021 in the ECB's Working Paper Series.¹⁴⁵

In relation to financial market infrastructures (FMIs) and payments, the ECB, in collaboration with other euro area national central banks and the European Securities and Markets Authority, continued to work on the potential impact of environmental risks on FMIs, with an initial focus on central counterparties (CCPs). Furthermore, in the [Third Annual Joint Conference on CCP risk management](#) organised by the Deutsche Bundesbank, Federal Reserve Bank of Chicago and the ECB, climate change risks in financial markets featured as an important cross-cutting theme with respect to financial markets.

The ECB is conducting a lifecycle assessment study on cash payments in the euro area to evaluate the potential environmental impacts of the second series of euro banknotes. In addition, it implemented policies and research activities to minimise the environmental impact of the production of euro banknotes. These policies included the sustainable cotton programme, whereby the ECB is committed to increasing the amount of sustainable cotton in euro banknote paper to 100%. The ECB conducted its annual environmental monitoring on banknote production and identified waste improvements.

Finally, with regard to its own corporate sustainability, the ECB aims to further expand its work on sustainability and related reporting processes. This area of work also encompasses the development of the ECB's environmental management system and monitoring of the ECB's organisational carbon footprint, as described in the last section of this chapter.

Box 13

The ECB's climate change centre – organisation and governance

Given the scaling up of the ECB's climate initiatives, in 2021 the ECB established a climate change centre (CCC), to promote a structured approach to the coordination and strategic planning of ECB activities on climate change. In view of the prominence of climate issues in the broader policy debate, enhanced governance and dedicated resources were also deemed necessary to ensure a substantial contribution by the ECB in this domain – within Europe, as well as internationally. The CCC also aims to intensify the coordination and cooperation of the ECB with the Eurosystem national central banks.

¹⁴⁵ Bijnens, G., Hutchinson, J., Konings, J. and Saint-Guilhem, A., "The interplay between green policy, electricity prices, financial constraints and jobs: Firm-level evidence", *Working Paper Series*, No 2537, ECB, 2021; Ciccarelli, M. and Marotta, F., "Demand or supply? An empirical exploration of the effects of climate change on the macroeconomy", *Working Paper Series*, No 2608, ECB, 2021; Pagliari, M., "LSIs' exposures to climate change related risks: An approach to assess physical risks", *Working Paper Series*, No 2517, ECB, 2021; Pagliari, M. and Ferrari, M., "No country is an island: International cooperation and climate change", *Working Paper Series*, No 2568, ECB, 2021; Reghezza, A., Altunbas, Y., Marques, D., d'Acri, C. and Spaggiari, M., "Do banks fuel climate change?", *Working Paper Series*, No 2550, ECB, 2021; Carbone, S., Giuzio, M., Kapadia, S., Krämer, J., Nyholm, K. and Vozian, K., "The low-carbon transition, climate commitments and firm credit risk", *Working Paper Series*, No 2631, ECB, 2021.

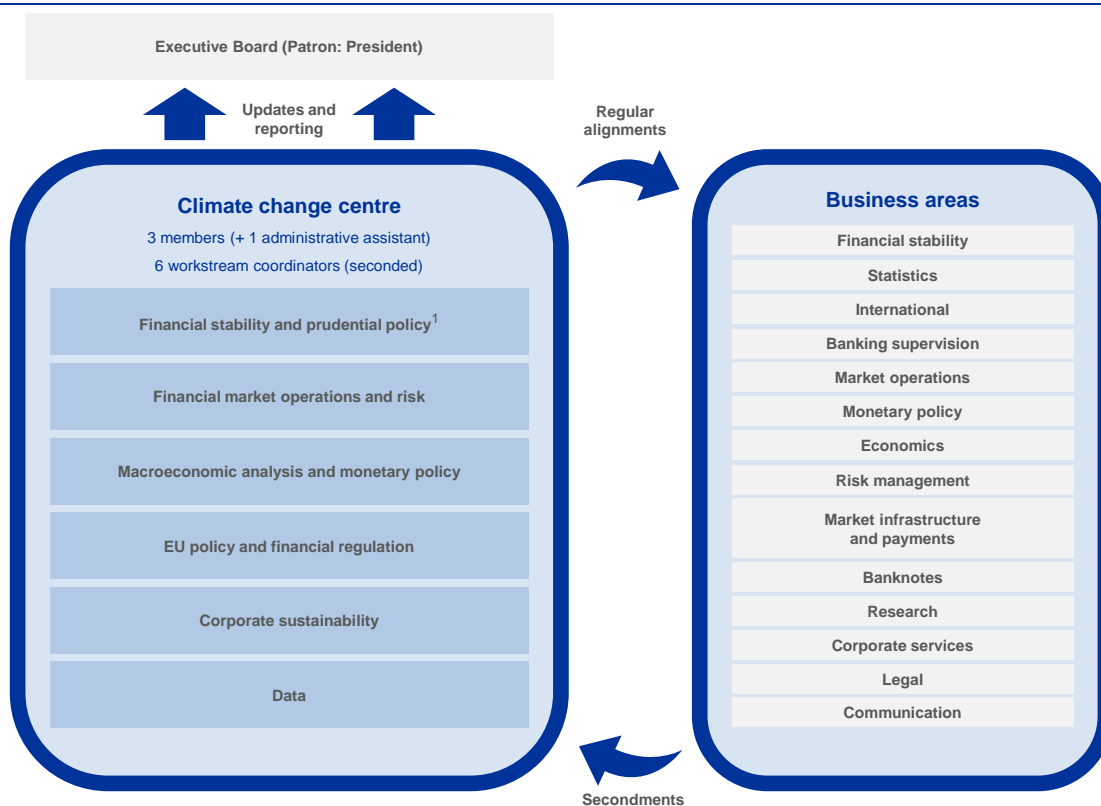
The overarching objective of the CCC is to design and steer the ECB's strategy on climate, identify priorities and create a vision for the ECB's climate agenda. To do so, the CCC will rely on the wealth of knowledge and expertise within the ECB's individual business areas, while ensuring coherence and coordination across the ECB as a whole. To reach these targets, the CCC has been tasked with four key responsibilities:

- supporting the work across ECB business areas and key stakeholders in implementing the climate change strategy;
- coordinating external and internal activities on climate issues, ensuring overall alignment of messages and identifying synergies;
- improving information-sharing and communication to increase awareness of the ECB's work on climate change within the institution and beyond;
- connecting business areas and external stakeholders to promote collaboration in the area of climate change.

The CCC has been established as a new, separate business unit within the Counsel to the Executive Board and it reports directly to the ECB President. The CCC's work is organised around six strategic thematic areas that encompass ongoing climate change-related activities across the ECB: financial stability and prudential policy; macroeconomic analysis and monetary policy; financial market operations and risk management; EU and international policy and financial regulation; data; and corporate sustainability. Furthermore, the CCC connects and shares information about other cross-cutting work on climate change in the areas of research, market infrastructure and payments, law, and banknotes.

An overview of the governance and organisation of the six thematic areas of the CCC is shown in Figure A.

Figure A
 Organisation and governance of the ECB's climate change centre



1) Some initiatives on prudential policy will be subject to Supervisory Board input and decision-making.

Addressing the ECB's organisational footprint

The ECB wants to play its part in reducing its impacts as an organisation and has committed to align its carbon reduction objectives with the Paris Agreement's goal to limit the global temperature increase to 1.5°C above pre-industrial levels. Taking pathways to achieve science-based emission reduction targets as a reference, this commitment requires a reduction of the ECB's organisational carbon emissions by 46% by 2030 from a 2019 baseline.¹⁴⁶ A new set of ambitious objectives and measures for 2022-24 will be published in the ECB's 2022 Environmental Statement.

Reduction in the ECB's carbon footprint

In order to manage its environmental impacts, the ECB implemented an environmental policy in 2007 and established an environmental management system in accordance with the EU Eco-Management and Audit Scheme (EMAS) and ISO 14001 in 2010. This systematic approach helped achieve a 37% reduction in the ECB's reported carbon footprint between 2008 and 2019, despite a significant increase in workplaces. This reduction was even stronger in 2020, mostly owing to the halt in travel-related activities as a result of the COVID-19 pandemic.

¹⁴⁶ The results of the ECB's carbon footprint extension and the finalised carbon reduction targets will be published in the ECB's Environmental Statement for 2022.

The environmental management system is implemented by the Green ECB team under the lead of the Environmental Coordinator and Environmental Officer, who report regularly to the Executive Board via the Chief Services Officer. Coordination with other business areas is supported by a group of around 60 Environmental Representatives and the Green ECB team's participation in the corporate sustainability workstream of the CCC.

Every year, the ECB reports on its environmental performance and objectives in its Environmental Statement.¹⁴⁷ The publication includes information on environmental impacts in accordance with EMAS and the [Greenhouse Gas Protocol](#). As a result of the most recent assessment of its carbon footprint, from 2022 the ECB will start reporting on further indirect impacts along its value chain, such as purchased goods and services, IT assets, building construction, teleworking emissions, upstream energy and conference visitor travel. The reporting on these additional elements will entail even closer collaboration with service providers through the application of the ECB's Sustainable Procurement Guideline.

Despite the COVID-19 pandemic, various environmental improvement measures were implemented in 2021. For example, the ECB introduced a sustainable events guideline, and limitations on the number of physical meetings to 50% of the planned meetings in one year were put in place for relevant meeting groups to limit emissions from travelling beyond the pandemic. As in the two preceding years, the ECB also offset its residual emissions for the previous year that could not be reduced through avoidance measures by supporting Gold Standard-certified carbon offsetting projects.

Furthermore, the ECB continued to expand SRI strategies in its non-monetary policy portfolios in line with the Eurosystem's common stance.¹⁴⁸

In its staff pension fund, which is passively managed by two external asset managers, the ECB applies an SRI policy based on limited exclusions and proxy voting guidelines that incorporate environmental, social and governance standards. The proxy voting is delegated to the two external asset managers, which apply their own policies independently when instructing on corporate actions' votes on behalf of the ECB pension fund's equity holdings. In 2020 all conventional equity benchmark indices tracked by the staff pension fund were replaced with low-carbon equivalents, which reduced the carbon footprint of the equity portfolios by over 60%. In early 2022 the ECB also replaced the conventional benchmark index tracked by its corporate bond funds by a Paris-aligned benchmark, being among the early adopters of what is considered best market practice for EU regulation climate benchmarks. This Paris-aligned benchmark led to an initial 50% reduction in the carbon emissions of corporate funds and this will be followed by a further steady reduction of at least 7% per annum in coming years. The ECB will continue to explore a possible expansion of low-carbon indices to other fixed income asset classes within its pension fund to further contribute to reducing its carbon footprint. The governance and management



The ECB applied a sustainable and responsible investment strategy in its non-monetary policy portfolios

¹⁴⁷ See the [2021 update of the ECB's Environmental Statement](#) for a detailed overview.

¹⁴⁸ See "[Eurosystem agrees on common stance for climate change-related sustainable investments in non-monetary policy portfolios](#)", *press release*, ECB, 4 February 2021.

of pension-related matters at the ECB is approved by the Executive Board, which is advised by the Investment Committee in its Pension Fund composition.

In its own funds portfolio, the ECB applies a thematic SRI strategy that targets an increase in the share of green securities. In 2021 this share increased to 7.6% by means of bilateral purchases of green securities and via the investment in the euro-denominated green bond investment pool for central banks launched in January 2021 by the Bank for International Settlements (BISIP G2).¹⁴⁹ At end-September 2021 the BISIP G2 invested in green bonds, the proceeds of which are used to fund projects in the following main categories: 30% in clean transportation, 21% in water and wastewater management and 20% in renewable energy.

The environmental impact attributable to the ECB's share in the fund is estimated at carbon dioxide equivalent emissions avoided equal to 49,401 passenger cars driven during a year, and energy saved and renewable energy generated equal to 23,392 houses.

¹⁴⁹ See [“ECB to invest in Bank for International Settlements' green bond fund”](#), *press release*, ECB, 25 January 2021.

12 Meet our people

The preceding chapters of the ECB Annual Report provide a detailed and factual overview of the ECB's main activities and results achieved in its areas of competence in 2021. In many instances, these achievements were made possible through collaboration between colleagues across business areas, within the Eurosystem and ESCB or even beyond. The following stories from our colleagues give an insight into that collaboration and a flavour of how they are making a real contribution to the ECB's achievements.

Ursel Baumann, Deputy Head of Division, Directorate General Monetary Policy



For the duration of the ECB's monetary policy strategy review in 2020-21, I was seconded to the Project Office Strategy Review, a small, but highly effective team of colleagues with very diverse skills (in areas such as economics, drafting, coordination, project management, IT and communications), that was set up to coordinate and shape the activities related to the review.

The review was a massive collaboration effort between more than 650 Eurosystem staff members, drawn from both the ECB and euro area NCBs. Much of the supporting analytical work on economic and monetary policy issues was conducted through joint workstreams, the results of which were later published in the ECB Strategy Review Occasional Paper Series. As one of the co-leads of the workstream on inflation expectations, it was a real challenge to lead this work remotely. We were nevertheless able to overcome this thanks to the high levels of motivation among staff and their strong sense of purpose in providing the best possible analysis within a limited period of time.

Overall, the collaborative and inclusive nature of the review achieved (at least) two goals: first, it made the analytical results, on which the ECB's new monetary policy strategy is founded, more robust by ensuring that different viewpoints were heard; and second, it increased trust among staff and the policymakers in the Governing Council. It was extremely rewarding to see the decisions slowly taking shape and ultimately the new strategy being unanimously approved.

Alexandra Calmuc, Senior Operational Resilience Expert, Chief Services Office, Operational Risk and Business Continuity



Adapting to the constantly evolving pandemic has been challenging for many organisations. At the ECB, we benefited from a coordinated response thanks to fruitful cross-functional collaboration within the Incident Response Team (IRT).¹⁵⁰

Since the outbreak of the pandemic, the IRT has been actively monitoring the situation in Frankfurt, Germany and Europe, and has recommended work arrangements and protective measures in line with developments and the guidelines issued by the authorities. Everybody involved has contributed their expertise in the interests of all staff members and the ECB as a whole.

In my role, I coordinated the IRT sub-groups and drafted joint recommendations for the Executive Board. Very early on in the pandemic, we realised that we would be running a marathon rather than a sprint. I am extremely thankful that everyone in the IRT has lived up to that challenge. Despite the virtual set-up, we managed to stay connected and worked well together. We are proud to say that to date we have held more than 111 IRT meetings and made 270 recommendations, and continue to show great commitment and enthusiasm.

Guy-Charles Marhic, ECB Representative in London, Directorate General International and European Relations



I took on my new responsibilities as ECB Representative in London on 1 February 2021. Post-Brexit, the United Kingdom remains a major economic and financial partner for the EU, and the ECB needs to follow UK developments in order to pursue its mandate. The key objectives of the ECB Representative Office are to monitor regulatory and policy developments related to the United Kingdom, monitor UK financial sector and economic trends, gather intelligence on the UK authorities' policy views, and explain the ECB's policies and EU institutional reforms to our UK counterparts.

Since arriving in London, I have established a broad range of contacts in both the public sector (for example, with the Bank of England, HM Treasury and representatives from EU national central banks and foreign central banks) and in the private sector (for example, banks, trade associations and think tanks). I report back to the ECB and engage frequently with managers and staff from multiple business areas responsible for international relations, payments, financial stability and banking supervision.

¹⁵⁰ The Incident Response Team (IRT) is a cross-functional team, led by the Operational Risk and Business Continuity (ORM/BCM) Section, which has a flexible composition and forms part of the ECB's critical incident management response structure. During the COVID-19 pandemic, the IRT has been composed of representatives from the Directorate General Human Resources, including the Medical Advisors, Occupational Health and Safety Committee, Directorate Administration, Directorate General Information Systems, Directorate General Communications, Directorate General Legal, ORM/BCM Section and Directorate general Market Operations, Directorate General Markets Infrastructure and Payments, and the Single Supervisory Mechanism.

The ECB Office is located within the Delegation of the European Union to the United Kingdom. This gives me the opportunity to meet new colleagues, hold some meetings and work together, where feasible. This complementarity is important, as several staff members of the EU Delegation also have similar interests in regulatory, macroeconomic and political developments in the United Kingdom.

María Soledad Ramos Possenti, Compliance and Governance Analyst, Compliance and Governance Office, Directorate General Secretariat



As a member of the Ethics and Integrity team of the Compliance and Governance Office and Secretary of the Ethics and Compliance Conference (ECC), I interact closely with my peers within the Eurosystem and Single Supervisory Mechanism (SSM). The (now virtual) gatherings of the ECC are a great opportunity to keep in touch with colleagues from other institutions, exchange and learn from each other's practical experiences, and work jointly on developing further ethics and compliance standards.

I recently worked on a demanding project that aimed to enhance and align integrity standards across the Eurosystem and SSM institutions. It was rewarding when the Governing Council approved this work in November 2021 by adopting the revised Ethics Guidelines, bringing to an end a long process which involved sometimes difficult discussions. Eventually, we came to the common view that our public mandate requires us to have state-of-the-art ethics frameworks in place to help maintain the trust of citizens in the Eurosystem and SSM. Thanks to the constructive and collaborative spirit among the ECC (including the support received from colleagues within the ECB) we were able to work together and deliver a solid result. I now look forward to continuing to cooperate with the ECC on implementing the revised Ethics Guidelines, which for us at the ECB will mean reviewing our own Ethics Framework.

Fabio Tamburrini, Economist, climate change centre



In early 2021 the ECB set up the climate change centre (CCC) to bring together the work on climate-related issues in different parts of the bank. Having worked on sustainable finance for more than four years in my previous position in the Directorate General International and European Relations, I was eager to take part in this new endeavour and help the new team shape and steer the ECB's climate agenda. Given the cross-cutting nature of the topic, the centre is organised around six workstreams that encompass the different climate-related activities of the bank. I am in charge of the workstream on EU and international policies and financial regulation. This involves coordinating the ECB's contributions to EU climate policies, sustainable finance legislation and initiatives in international fora such as the G7 and G20. A large part of my work involves interacting with EU institutions and international organisations. To name but one, I am a member of the EU Platform on

sustainable finance, which advises the European Commission on the implementation of the EU Taxonomy and the EU sustainable finance agenda. Working in the CCC is a highly rewarding experience: it combines the agility and team spirit of a start-up with the awareness that we are working to address the greatest societal challenge of our time.

Gijsbert ter Kuile, Team Lead, Legal Counsel, Secretariat to the Supervisory Board and Chair of the Board of the ECB's Rainbow Network



As Legal Counsel in ECB Banking Supervision I contribute to the safety and soundness of credit institutions. This is rewarding because it builds a better future for Europe and generations to come. I feel the same about my work for the ECB's Rainbow Network, of which I am Chair. My fellow Board members and I strive towards achieving a work environment where LGBT+ colleagues feel welcome and accepted, and where policies and rules are LGBT+ inclusive.

We also aim for our workplace to honour all aspects of diversity. To achieve this, we work with the other ECB diversity networks (focusing on disability, ethnicity and culture, parents, and gender), and with the Staff Committee and Directorate General Human Resources. We meet regularly and together raise awareness amongst our colleagues on aspects of diversity – because we are all diverse. I for one am cis-male, Dutch with Indonesian roots, an EU citizen, gay, a lawyer and a parent.

The Rainbow Network actively reaches out to colleagues from the national central banks and supervisory authorities. Our membership is open to everyone working for the ECB, ESCB and SSM, whether you identify as straight or LGBT+. Together, we are building a proud, colourful and European future!

Annual Accounts

<https://www.ecb.europa.eu/pub/annual/annual-accounts/html/ecb.annualaccounts2021~5130ce3be2.en.html>

Consolidated balance sheet of the Eurosystem as at 31 December 2021

<https://www.ecb.europa.eu/pub/annual/balance/html/ecb.eurosystembalancesheet2021~f9edd2ff57.en.html>

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The cut-off date for the data included in this report was 24 February 2022 (exceptions are explicitly indicated).

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

PDF ISBN 978-92-899-5072-5, ISSN 1725-2865, doi:10.2866/52714, QB-AA-22-001-EN-N
HTML ISBN 978-92-899-5069-5, ISSN 1725-2865, doi:10.2866/943795, QB-AA-22-001-EN-Q