EUROPEAN CENTRAL BANK

EUROSYSTEM

Economic Bulletin

Issue 7 / 2020

Contents

Update on economic and monetary developments

Summary

The resurgence in coronavirus (COVID-19) infections presents renewed challenges to public health and the growth prospects of the euro area and global economies. Incoming information signals that the euro area economic recovery is losing momentum more rapidly than expected, after a strong, yet partial and uneven, rebound in economic activity over the summer months. The rise in COVID-19 cases and the associated intensification of containment measures is weighing on activity, constituting a clear deterioration in the near-term outlook.

Incoming data for the global economy point to a fast rebound of global activity in the third quarter, but also to slowing momentum. After a sharp contraction in the first half of 2020, the global composite output Purchasing Managers' Index (excluding the euro area) and high-frequency indicators rebounded considerably in the third quarter, albeit stabilising in September. In addition to weak labour market prospects, uncertainty is weighing on consumer behaviour. Global trade also recovered sharply in the third quarter, following the sharp and deep contraction in the second quarter. Global inflation remained low.

Over the review period, the forward curve of the euro overnight index average (EONIA) shifted slightly downwards and remained mildly inverted. Despite the inversion, the curve does not suggest firm market expectations of an imminent rate cut. Long-term sovereign bond spreads declined steadily across euro area countries, amid expectations of further monetary policy and fiscal support. Equity price indices significantly declined, amid sizeable intra-period movement. In foreign exchange markets, the euro remained broadly stable in trade-weighted terms.

The latest data point to a strong rebound in output in the euro area in the third quarter of 2020, following the sharp contraction of 11.8%, quarter on quarter, in the second quarter. However, the ongoing increases in coronavirus infection rates constitute a headwind to the short-term outlook and will, in all likelihood, lead to a significant softening in output growth in the final quarter of the year, as already indicated by recent surveys. At the same time, the recovery continues to be uneven across sectors, with the services sector being the hardest hit by the pandemic, in part as a result of its sensitivity to social distancing measures. Looking further ahead, a sustained recovery remains highly dependent on the course the pandemic takes and the success of the containment policies. While the uncertainty related to the evolution of the pandemic will likely dampen the strength of the recovery in the labour market and in consumption and investment, the euro area economy should continue to be supported by favourable financing conditions, an expansionary fiscal stance and a gradual strengthening of global activity and demand.

Euro area annual HICP inflation decreased to -0.3% in September, from -0.2% in August, reflecting developments in the prices of energy, non-energy industrial goods and services. On the basis of current and futures prices for oil and taking into account the temporary reduction in German VAT, headline inflation is likely to remain negative until early 2021. Moreover, near-term price pressures will remain subdued owing to weak demand, notably in the tourism and travel-related sectors, as well as to lower wage pressures and the appreciation of the euro exchange rate. Over the medium term, a recovery in demand supported by accommodative monetary and fiscal policies will put upward pressure on inflation. Market-based indicators and survey-based measures of longer-term inflation expectations remain broadly unchanged at low levels.

The coronavirus pandemic has continued to influence significantly money and credit dynamics in the euro area. Money growth increased further in September 2020 and domestic credit, which continued to be the main source of money creation, was increasingly supported by the Eurosystem's net purchases of government bonds. The timely and sizeable measures taken by monetary, fiscal and supervisory authorities since the outbreak of the pandemic have continued to underpin the extension of bank credit on favourable terms to the euro area economy. However, as evidenced by the October 2020 euro area bank lending survey, banks tightened their credit standards on loans to firms and households in the third quarter of 2020 on account of heightened risk perceptions.

The monetary policy measures that the Governing Council has taken since early March are helping to preserve favourable financing conditions for all sectors and jurisdictions across the euro area, thereby providing crucial support to underpin economic activity and to safeguard medium-term price stability. At the same time, in the current environment of risks clearly tilted to the downside, the Governing Council will carefully assess the incoming information, including the dynamics of the pandemic, prospects for a rollout of vaccines and developments in the exchange rate. The new round of Eurosystem staff macroeconomic projections in December will allow a thorough reassessment of the economic outlook and the balance of risks. On the basis of this updated assessment, the Governing Council will recalibrate its instruments, as appropriate, to respond to the unfolding situation and to ensure that financing conditions remain favourable to support the economic recovery and counteract the negative impact of the pandemic on the projected inflation path. This will foster the convergence of inflation towards its aim in a sustained manner, in line with its commitment to symmetry.

In the meantime, the Governing Council decided to reconfirm its accommodative monetary policy stance.

The Governing Council will keep the key ECB interest rates unchanged. They are expected to remain at their present or lower levels until the inflation outlook robustly converges to a level sufficiently close to, but below, 2% within the projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics.

The Governing Council will continue its purchases under the pandemic emergency purchase programme (PEPP) with a total envelope of €1,350 billion. These purchases contribute to easing the overall monetary policy stance, thereby helping to offset the downward impact of the pandemic on the projected path of inflation. The purchases will continue to be conducted in a flexible manner over time, across asset classes and among jurisdictions. This allows the Governing Council to effectively stave off risks to the smooth transmission of monetary policy. The Governing Council will conduct net asset purchases under the PEPP until at least the end of June 2021 and, in any case, until it judges that the coronavirus crisis phase is over. The Governing Council will reinvest the principal payments from maturing securities purchased under the PEPP until at least the end of 2022. In any case, the future roll-off of the PEPP portfolio will be managed to avoid interference with the appropriate monetary policy stance.

Net purchases under the asset purchase programme (APP) will continue at a monthly pace of €20 billion, together with the purchases under the additional €120 billion temporary envelope until the end of the year. The Governing Council continues to expect monthly net asset purchases under the APP to run for as long as necessary to reinforce the accommodative impact of policy rates, and to end shortly before the Governing Council starts raising the key ECB interest rates. The Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

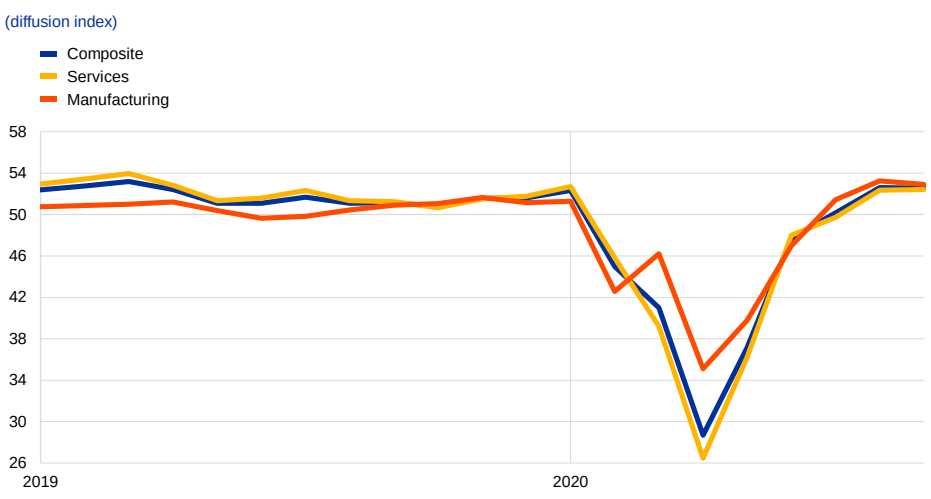
The Governing Council will also continue to provide ample liquidity through its refinancing operations. In particular, the third series of targeted longer-term refinancing operations (TLTRO III) remains an attractive source of funding for banks, supporting bank lending to firms and households.

1 External environment

Incoming data point to a fast rebound of global activity in the third quarter, but also to momentum slowing down afterwards. After a sharp contraction in the first half of 2020, the global composite output PMI (excluding the euro area) rebounded considerably during the third quarter, to 51.8 compared to 37.9 in the previous quarter. However, it remained unchanged in September, as the marginal improvement in services was offset by a slight drop in the manufacturing output PMI (Chart 1). Overall, services which are characterised by high physical proximity, such as tourism and recreation, transportation and consumer services, remained weak in the third quarter. Certain non-standard high-frequency indicators, such as mobility trends and consumer sentiment, also point to a softening of momentum at the end of the third quarter, in particular in advanced economies. This could be a sign that firms and households are continuing to exercise caution in their spending decisions amid concerns surrounding resurging infections, social distancing requirements and fears of the re-introduction of containment measures in the context of the ongoing coronavirus (COVID-19) pandemic.

Chart 1

Global composite output PMI and sub-indices (excluding the euro area)



Sources: Haver Analytics, Markit and ECB calculations.
Notes: The latest observations are for September 2020.

In addition to weak labour market prospects, uncertainty is weighing on consumer behaviour. The recovery of output and, to a lesser extent, of employment remains incomplete, particularly as regards those activities most affected by the pandemic. Overall retail sales have been rising sharply – supported by pent-up demand following lockdowns – buffered by disposable income, which has been supported by government measures. However, partly due to precautionary motive, due to the heightened economic uncertainty, savings rates also remain significantly higher than before the pandemic. Consumer confidence is still very low globally, with little improvement seen since the trough in April.

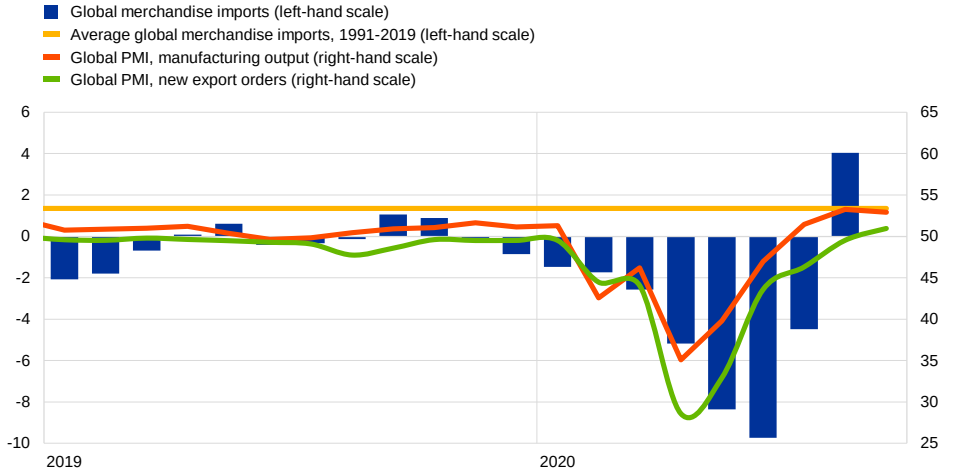
Global trade has also seen a sharp recovery in the third quarter. Following a double-digit fall in world trade during the second quarter, incoming data point to a

sharp recovery during the third quarter (Chart 2). World merchandise imports (excluding the euro area) increased by 2.4% in August on a month-on-month basis, according to CPB data. Despite being lower than in June and July, this increase provides confirmation of a strong recovery of world trade into the third quarter. The rebound is also confirmed by a tracker based on weekly indicators of trade. Compared to previous downturns, world trade has been relatively resilient considering the sharp and deep economic contraction in the second quarter. This partly reflects the fact that the less trade-intense services sector has borne the brunt of the collapse in activity.

Chart 2

Surveys and global trade in goods (excluding the euro area)

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



Sources: Markit, CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations.
Note: The latest observations are for August 2020 for global merchandise imports and September 2020 for the PMIs. The indices and data refer to the global aggregate excluding the euro area.

Global inflation remained stable in August. Annual consumer price inflation in Member countries of the Organisation for Economic Co-operation and Development (OECD) remained unchanged at 1.2% in August. The downward pressure from annual energy price inflation continued in August, albeit at a decelerating pace, while food price inflation increased marginally. Annual OECD CPI inflation excluding food and energy decreased slightly to 1.6%. Inflationary pressures remain muted across major advanced and emerging market economies and are expected to remain subdued in the short and medium term as a result of low demand.

Oil prices have increased slightly since the last Governing Council meeting, but remained range bound due to counteracting demand and supply dynamics. Since June, Brent oil prices have fluctuated between USD 35 and 45 per barrel and are currently around 7% higher than the values reported in the September Governing Council meeting. After the increase in global oil demand in July as coronavirus (COVID-19) restrictions eased, the International Energy Agency expects oil demand to decelerate amid an increase of COVID-19 cases worldwide. Lower oil supply continues to counteract downward pressures from demand, with oil supply falling in September as OPEC+ countries improved the compliance rate with their production agreement. This adds to the substantial oil supply cuts following the OPEC+ agreement in response to the pandemic and the significant shut-ins of oil production in

the United States. Compared to pre-coronavirus levels, oil prices are still down by approximately a third. At the same time, metal prices have remained broadly stable since the last Governing Council meeting whereas food prices have increased somewhat.

In the United States, the recovery is set to lose momentum slightly following strong growth in the third quarter. According to the first estimate, US real GDP expanded by 33.1% on a quarter-on-quarter annualised basis, supported by a sharp rebound in domestic demand, but the recovery is losing momentum. Industrial production declined in September, following a marked slowdown in August, while retail sales recovered somewhat in September (in real terms) after two sets of weak results in previous months. This was in line with developments in terms of personal income, which recovered somewhat in September, while the rate of households' savings remained at historically high levels. However, the outlook for spending is weak in the absence of further support measures. At the same time, the recovery in the US labour market is slowing. The marginal drop in unemployment to 7.9% seen in September was mainly due to a fall in the labour force participation, while the number of job postings stays low.

Japan is seeing a gradual economic recovery as the resurgence in COVID-19 infections seen over the summer appears contained. Economic activity bottomed out and started to gradually resume since the end of the partial lockdown in May. Industrial production and real exports of goods have trended upwards since then, whilst imports have fallen for a fourth consecutive month in August. Although resurging domestic COVID-19 cases and poor weather conditions temporarily eased the recovery pace early in the summer, since late July the containment of the pandemic has been associated with increased consumer sentiment supporting the recovery.

In the United Kingdom, the rebound in activity shows signs of slowing by the end of the third quarter. Real UK GDP shrank in the first half of 2020 by around 22% compared to the level seen at the end of 2019. Monthly GDP data available until August showed that economic activity has been on a consistent recovery path since its trough in April, despite recent signs of a loss in momentum. PMIs also suggest a loss of momentum since August, even before the re-introduction of additional containment measures, which have been increasing considerably since the second half of September. In addition to the resurgence in the rate of COVID-19 infections and hospitalisations, the large rises in unemployment and heightened uncertainty related to the outcome of ongoing Brexit negotiations are weighing on the recovery.

In China, real GDP growth during the third quarter confirmed the continuation and broadening of the recovery. Although GDP growth was slightly below consensus forecasts, China's economic recovery has continued consistently during the third quarter (4.9% year-on-year). The recovery has also been broadening. Capital formation and net trade continued to support growth, while final consumption contributed positively to growth for the first time this year. Moreover, September data point towards accelerating momentum towards the end of the quarter. Industrial production increased by 6.9% and retail sales by 3.3% year-on-year, both providing a positive surprise. All in all, recent data point to the continued normalisation of activity

and expansion towards sectors which have been most affected by the COVID-19 pandemic. However, the outlook is still mixed, due to an unfavourable global environment affected by the global resurgence of the pandemic and by the possibility of a second wave of infections in mainland China, although authorities have so far managed to contain this risk to a minimum.

2 Financial developments

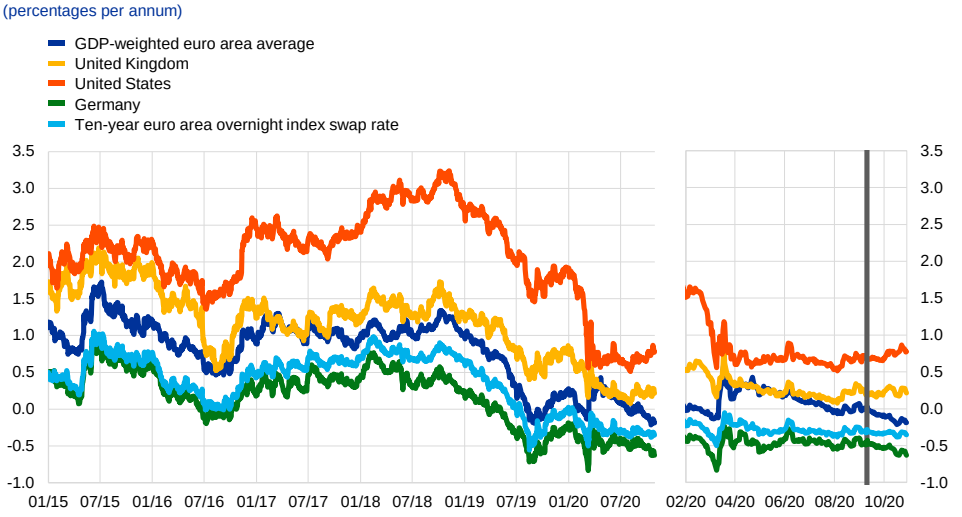
The euro overnight index average (EONIA) and the new benchmark euro short-term rate (€STR) averaged -46 and -55 basis points respectively[1] over the review period (10 September 2020 to 28 October 2020). In the same period, excess liquidity increased by approximately €225 billion to around €3,205 billion, mainly reflecting take-up of targeted longer-term refinancing operations (TLTRO III) together with asset purchases under the pandemic emergency purchase programme (PEPP) and the asset purchase programme (APP).

The EONIA forward curve shifted slightly downwards over the review period and remained mildly inverted. Despite the inversion, the curve does not suggest firm market expectations of an imminent rate cut.[2] Overall, EONIA forward rates remain below zero for horizons up to 2028, reflecting continued market expectations of a prolonged period of negative interest rates.

Long-term sovereign bond yields decreased across major jurisdictions in the period under review. The GDP-weighted euro area ten-year sovereign bond yield declined by 20 basis points to -0.19% (see Chart 3), owing to a combination of slightly lower risk-free rates and a more pronounced tightening of sovereign spreads. Ten-year sovereign bond yields in the United Kingdom also decreased by 3 basis points, while they increased by 8 basis points in the United States.

Chart 3

Ten-year sovereign bond yields



Sources: Refinitiv and ECB calculations.
Notes: Daily data. The vertical grey line denotes the start of the review period on 10 September 2020. The zoom window shows developments in sovereign yields since 1 February 2020. The latest observations are for 28 October 2020.

1 The methodology for computing the EONIA changed on 2 October 2019; it is now calculated as the €STR plus a fixed spread of 8.5 basis points. See the box entitled "Goodbye EONIA, welcome €STR!", *Economic Bulletin*, Issue 7, ECB, 2019.

2 This assessment reflects information from the latest survey results and empirical estimates of "genuine" rate expectations, i.e. forward rates net of term premia.

Euro area sovereign bond spreads relative to risk-free rates have continued to decline across jurisdictions amid expectations of further monetary and fiscal support. The resurgence of the coronavirus (COVID-19) and the reintroduction of local lockdown measures across Europe have so far had only a limited impact on sovereign bond markets. Ten-year sovereign bond spreads (relative to the corresponding risk-free rate) currently stand close to their pre-pandemic levels in all euro area countries. Declines in spreads were most pronounced in those countries which had been most severely affected by the pandemic during the spring of 2020 and which had recorded larger increases in spreads. The ten-year German, French, Italian, Spanish and Portuguese sovereign spreads decreased by 10, 9, 25, 9 and 14 basis points to reach -0.28, 0.03, 1.12, 0.53 and 0.52 percentage points respectively. Consequently, the GDP-weighted euro area ten-year sovereign spread decreased by 11 basis points to 0.18 percentage points, amid expectations of further monetary and fiscal support.

Equity price indices significantly declined, following sizeable intra-period movements. Towards the end of September equity prices of euro area non-financial corporations (NFCs) fell by 3.1%. After recovering fully, they declined again and currently stand 6% below the levels observed at the beginning of the review period. Bank equity prices in the euro area decreased in a more pronounced manner, falling by 15.8% over the review period. A similar dynamic could be seen in the United States, where NFC and bank equity prices stand 0.5% and 4.2% respectively below the levels observed at the beginning of the review period. Equity prices of euro area NFCs benefited from an improvement in short-term earnings expectations from the very low levels seen earlier this year, while the equity risk premium increased. The more recent sell-off has taken place amid a reintroduction in some European countries of containment measures to limit the spread of COVID-19. The decline in euro area bank equity prices is likely related to the perceived build-up of balance sheet risk resulting from the renewed lockdowns.

Euro area corporate bond spreads declined slightly over the review period. The spreads on both investment-grade NFC bonds and financial sector bonds relative to the risk-free rate declined slightly over the review period to stand at 93 and 76 basis points respectively as of 28 October. Overall, the slight decrease reflects a decline in the excess bond premium. Credit fundamentals (as measured by ratings and expected default frequencies) remained largely unchanged.

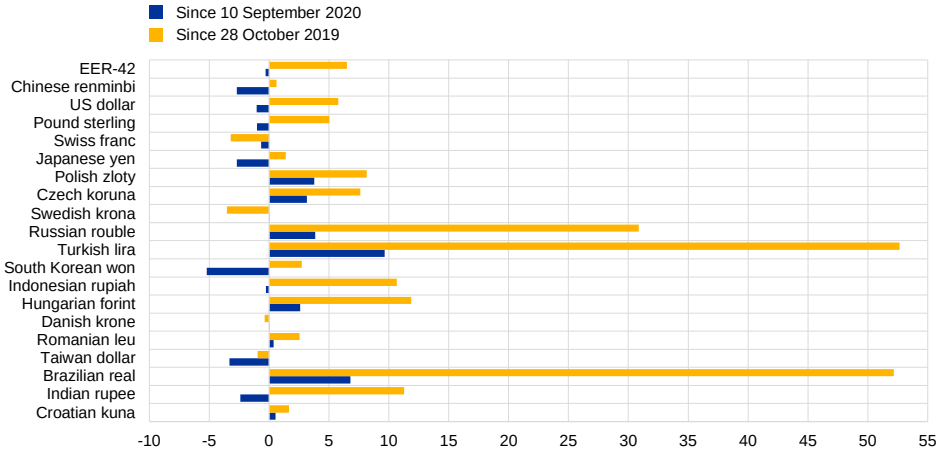
In foreign exchange markets, the euro remained broadly stable in trade-weighted terms (see Chart 4), with some bilateral exchange rates moving in opposite directions, reflecting differences in the outlook for the recovery from the COVID-19 crisis. Over the review period, the nominal effective exchange rate of the euro, as measured against the currencies of 42 of the euro area's most important trading partners, depreciated by 0.3%. Regarding bilateral exchange rate developments, the euro depreciated against the Chinese renminbi (by 2.7%) and the currencies of other major emerging economies in Asia, reflecting the strong rebound in activity and economic sentiment in the Asian manufacturing hubs. The euro also depreciated against the Japanese yen (by 2.7%), the US dollar (by 1%) and the pound sterling (by 1%). By contrast, the euro appreciated vis-à-vis the currencies of most

non-euro area EU Member States, most notably the Polish zloty (by 3.8%) and the Czech koruna (by 3.1%). It also continued to strengthen against the Turkish lira, the Brazilian real and the Russian rouble.

Chart 4

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

(percentage changes)



Source: ECB.
Notes: EER-42 is the nominal effective exchange rate of the euro against the currencies of 42 of the euro area's most important trading partners. A positive (negative) change corresponds to an appreciation (depreciation) of the euro. All changes have been calculated using the foreign exchange rates prevailing on 28 October 2020.

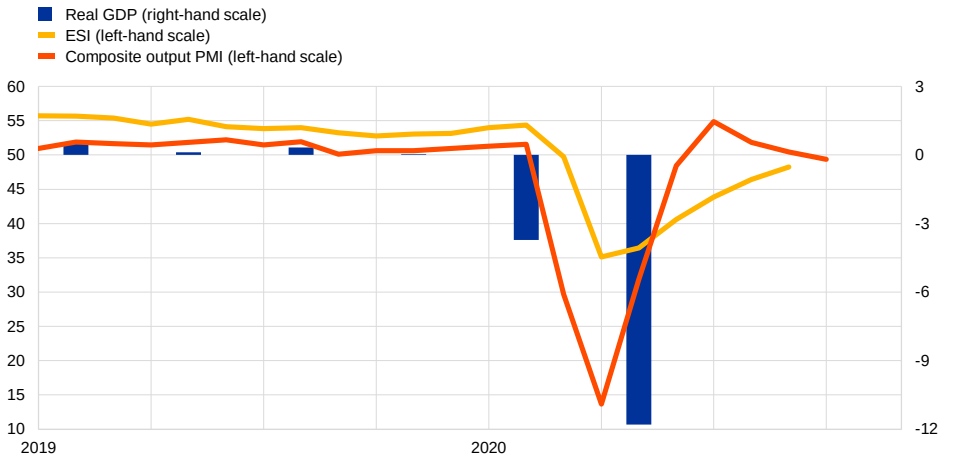
3 Economic activity

Following the unprecedented fall in euro area output in the second quarter of 2020, economic growth is set to rebound in the third quarter, before falling again in the fourth quarter. Total economic activity contracted by 11.8%, quarter on quarter, in the second quarter of 2020 – following a decline of 3.7% in the first quarter – resulting in an accumulated decline of 15.1% in the first half of the year (see Chart 5). The second quarter breakdown shows that the fall in GDP was broad based, with declines in domestic demand (which made a -10.9 percentage point contribution to growth) and net trade (-0.8 percentage points), as well as in changes in inventories (-0.1 percentage points). Economic indicators suggest that the decline in economic activity owing to the coronavirus (COVID-19) pandemic reached a trough in April 2020. Hard data, survey results and high-frequency indicators point to a vigorous bounceback in output in the third quarter, while growth is expected to soften again in the final quarter of the year. At the same time, the recovery in the euro area is expected to be uneven across sectors, with the services sector being hardest hit by the pandemic, in part as a result of its sensitivity to the social distancing measures. The same holds true across countries, with the recovery being dependent on the infection rates and efforts to contain the pandemic. The COVID-19 pandemic and the related containment measures have affected, and will continue to affect potential output. This is further explored in the article entitled "The impact of COVID-19 on potential output in the euro area" in this issue of the Economic Bulletin.

Chart 5

Euro area real GDP, the Economic Sentiment Indicator and the composite output Purchasing Managers' Index

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



Sources: Eurostat, European Commission, Markit and ECB calculations.
Notes: The Economic Sentiment Indicator (ESI) is standardised and rescaled to have the same mean and standard deviation as the Purchasing Managers' Index (PMI). The latest observations are for the second quarter of 2020 for real GDP, September 2020 for the ESI and October 2020 for the PMI.

The COVID-19 pandemic led to the sharpest contraction on record in employment and total hours worked in the first half of 2020, while the impact on the unemployment rate was more limited as a result of to job support schemes. Compared with the contraction in real GDP during the first half of 2020, the increase in

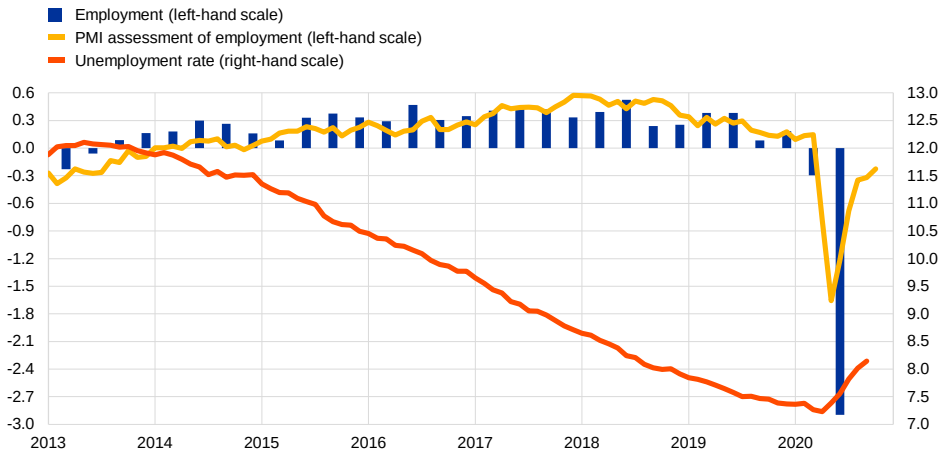
the official unemployment rate was relatively limited, rising to 8.1% in August from the historical low of 7.2% reached in March 2020, but still far from the peak of 12.7% recorded in February 2013. Employment support measures, such as short-time work schemes and temporary layoffs, as well as a reduction in the participation rate, help to explain the limited impact on the unemployment rate. Employment support measures also contained the fall in employment, which declined by 2.9% in the second quarter of 2020 relative to the first quarter (see Chart 6). Total hours worked declined substantially more, decreasing by 13.4% in the second quarter and leading to a fall of 10.8% in average hours worked per person employed. No information on employment and hours worked is yet available for the third quarter of 2020.

Short-term labour market indicators have partially recovered but continue to signal contractionary developments. The Purchasing Managers' Index (PMI) for employment increased to 48.1 in October according to its flash release, compared with 47.7 in September and 46.8 in August, following a stronger rebound in July of 3.3 points (see Chart 6). However, the current level of the PMI continues to suggest a contraction in employment and could be read as an early indication of subdued employment prospects in the period ahead.

Chart 6

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

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



Sources: Eurostat, Markit and ECB calculations.
Notes: The PMI is expressed as a deviation from 50 divided by 10. The latest observations are for the second quarter of 2020 for employment, October 2020 for the PMI and August 2020 for the unemployment rate.

The rebound in consumer spending stalled over the summer. The volume of retail trade increased by 4.4% in August compared with July. However, this increase seems to have been largely driven by the postponement of the sales period from July to August in some countries. Taking the July and August data together, retail trade stood 0.4% higher than in June. New passenger car registrations in the euro area have returned to their pre-COVID-19 level, standing in September only 1.0% below their level one year ago. Consumer confidence declined in October after increasing for two consecutive months. Households are increasingly reporting that their financial

situation is deteriorating. As a result, their intentions to make major purchases remain at their lowest level since the sovereign debt crisis.

The recovery in demand for goods remains uneven. Total retail trade has fully recovered from its earlier collapse following the outbreak of the pandemic in Europe, but this conceals a highly heterogeneous recovery across sub-categories. The retail sale of automotive fuel remained below its pre-COVID-19 level in July and August, as people continue to travel less. Likewise, households are purchasing less clothing and footwear owing to social distancing measures. In contrast, purchases of audio and video equipment are higher than before the pandemic. As infection rates have started to rise again recently, precautionary saving is expected to remain high. Consequently, the saving rate is expected to have declined in the third quarter, but to remain well above pre-COVID-19 levels.

Following the 20.8% drop in the second quarter, euro area business investment is likely to have rebounded in the third quarter in terms of growth rates, but the level of investment remains far below the pre-COVID-19 level. Industrial production of capital goods stood, on average in July and August, some 23% above its level in the second quarter. Given the typically close relationship with investment in machinery and equipment, a sharp rise in business investment is also expected in the third quarter. However, in the coming quarters, in addition to the uncertainty associated with the development of the pandemic, there is a risk that the recovery in investment will slow significantly. First, firms' balance sheets have deteriorated. In crisis periods, many companies with low revenues and profits traditionally postpone or cancel all non-essential business spending, which includes capital investment. Second, firms' capacity utilisation recovered in the third quarter of 2020 to stand at 72%, but remains 11% below the level recorded in the period prior to the COVID-19 outbreak. Third, firms' order books remain at very low levels.

After the 12.4% contraction in the second quarter, the strong rebound in housing investment expected for the third quarter should give way to a moderation in the pace of the recovery. In the first half of 2020 euro area housing investment dropped by 14.4% relative to the end of 2019, albeit with markedly different developments across the largest euro area countries – ranging from a rise of 0.8% in Germany to a decline of 31.5% in Spain. In fact, the outbreak of the COVID-19 pandemic induced a widespread shutdown of construction sites and limited the issuance of building permits. Nevertheless, this was partly alleviated by the large backlog of construction plans (especially in Germany and the Netherlands) and was accompanied by a reduction in transaction volumes with no visible effects on house prices up to the second quarter. As several countries started loosening containment measures from May to September, construction activity resumed in the third quarter, benefiting also from a broad-based decline in limits to production for companies, signalling similar dynamics in housing investment. Nevertheless, the euro area PMIs for construction output and business expectations were below the expansionary threshold in September, signalling subdued activity over the short term. This moderation in the construction sector may also be related to the recent increase in restrictions across jurisdictions aimed at containing a new rise in infections. Further downside risks to the medium-term outlook for housing investment may stem from the

increased risk on real estate firms' balance sheets, on the supply side, and the persistent uncertainty inducing households and investors to postpone transactions, on the demand side.

After collapsing in the second quarter, euro area trade rebounded strongly in the third quarter of 2020. Data on nominal trade in goods for July and August display a continuation of the recovery that started in May alongside the easing of COVID-19-related restrictions. In August euro area nominal exports and imports of goods rose by 4.0% and 2.7%, month on month, respectively. However, these figures still reflect a slowdown compared with July. The fourth consecutive month of expansion brought extra-euro area trade to 11.0% below its February level in August. Since July extra-euro area exports have risen across all destinations except Asia. Export volumes in some categories (namely chemicals and animal and vegetable oil), which had increased strongly during the onset of the pandemic in March and April, faltered from May to July. At the same time, exports of cars and fuel improved most strongly among the consumption sub-categories. The first two months of the third quarter of 2020 point to a marked rebound of manufacturing trade in quarterly terms. Leading indicators signal further improvement in the months ahead. The flash PMI for euro area manufacturing new export orders increased to 56.0 in October, after a strong performance in September. Firms' assessments of their export order book levels, according to the European Commission's business surveys, confirm improving conditions for manufacturing trade. This view is also supported by shipping indicators. However, euro area exports of services are undergoing a contraction that is not foreseen to end in the coming months. After a recovery following the easing of mobility restrictions, the PMI for euro area services new export orders worsened in August and was, in October, still in clear contractionary territory, at 39.6.

While economic indicators, particularly survey results, clearly point to a strong rebound in growth in the third quarter, they have recently lost some momentum, pointing to a significant slowdown in the final quarter of the year. Both the European Commission's Economic Sentiment Indicator and the composite output PMI rose between the second and third quarters of 2020, in line with a strong rebound in growth. This pick-up in economic activity is also confirmed by high-frequency indicators such as electricity consumption. However, the PMI decreased in September and October (falling to 49.4 compared with its recent peak of 54.9 in July), indicating a slowdown in growth in the fourth quarter of this year. It is clear that services have been more adversely affected by the pandemic than industry. This largely reflects the higher sensitivity of services to social distancing measures and the relatively sharper fall in growth in the services sector following the onset of the pandemic and the associated containment measures.

Looking further ahead, a sustained recovery remains highly dependent on the course the pandemic takes and the success of the containment policies. While the uncertainty surrounding COVID-19 is likely to dampen the strength of the recovery in the labour market and in consumption and investment, the euro area economy should continue to be supported by favourable financing conditions and an expansionary fiscal stance. The results of the latest round of the ECB Survey of Professional Forecasters, conducted in early October, show that private sector GDP

growth forecasts have been revised upwards for 2020 and downwards for 2021 compared with the previous round conducted in early July.

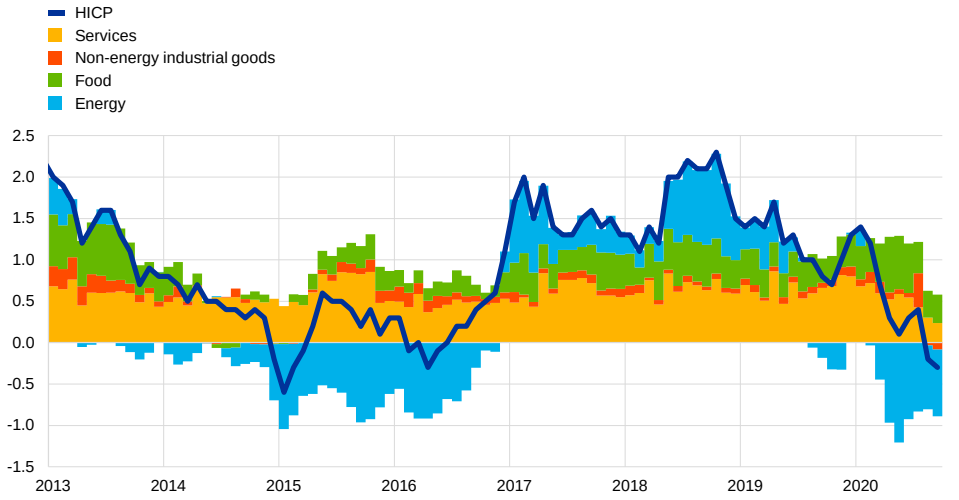
4 Prices and costs

Headline inflation became slightly more negative in September 2020. The decrease to -0.3% from -0.2% in August reflects lower inflation for energy, non-energy industrial goods and services, while food inflation increased marginally (see Chart 7).

Chart 7

Contributions of components of euro area headline HICP inflation

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.
Notes: The latest observations are for September 2020. Growth rates for 2015 are distorted upwards owing to a methodological change (see the box entitled "A new method for the package holiday price index in Germany and its impact on HICP inflation rates", *Economic Bulletin*, Issue 2, ECB, 2019).

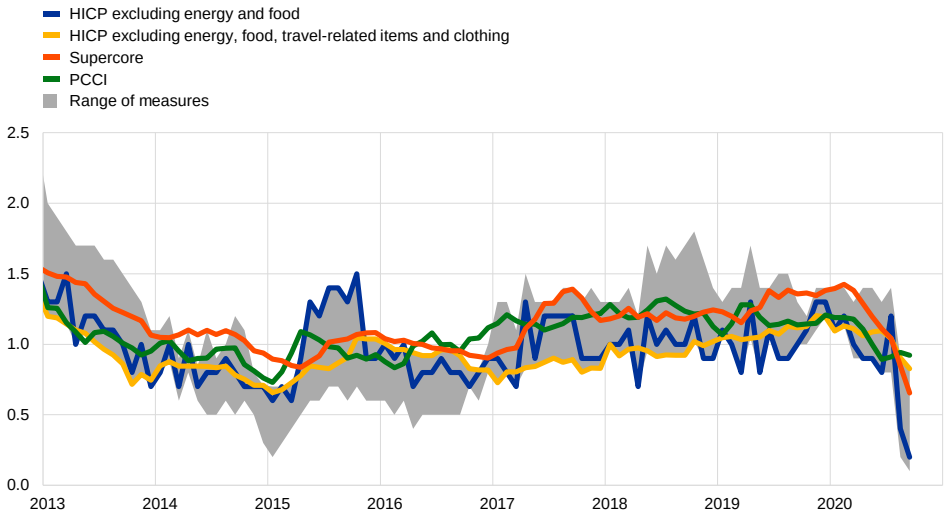
Measures of underlying inflation declined. HICP inflation excluding energy and food (HICPX) dropped from 0.4% in August to 0.2% in September, a new historical low. This reflects a decline in services inflation from 0.7% in August to 0.5% in September, with subdued services inflation in recent months mainly attributable to falling prices related to tourism and travel. It also reflects a decline in inflation for non-energy industrial goods from -0.1% in August to -0.3% in September, with part of this weakness probably reflecting the fact that in some euro area countries the seasonal sales of clothing and footwear were extended to non-summer items. Recent low readings in HICPX inflation also reflect the temporary reduction in German VAT rates since July 2020. Stripping out travel-related items and clothing from HICPX gives an inflation rate of 0.8% in September, compared with 0.9% in August and 1.0% in July, which suggests that there could be a more broad-based weakness in underlying inflation owing to subdued demand. This is also signalled by the Supercore indicator, which is made up of cyclically sensitive HICP items and declined to 0.7% in September from 0.8% in August, also marking a historical low.[3]

[3] For further information on this and other measures of underlying inflation, see Boxes 2 and 3 in the article entitled "Measures of underlying inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2018.

Chart 8

Measures of underlying inflation

(annual percentage changes)



Sources: Eurostat and ECB calculations.
Notes: The latest observations are for September 2020. The range of measures of underlying inflation consists of the following: HICP excluding energy; HICP excluding energy and unprocessed food; HICP excluding energy and food; HICP excluding energy, food, travel-related items and clothing; the 10% trimmed mean of the HICP; the 30% trimmed mean of the HICP; and the weighted median of the HICP. PCCI stands for the Persistent and Common Component of Inflation indicator. Growth rates for the HICP excluding energy and food for 2015 are distorted upwards owing to a methodological change (see the box entitled "A new method for the package holiday price index in Germany and its impact on HICP inflation rates", *Economic Bulletin*, Issue 2, ECB, 2019).

Pipeline price pressures for HICP non-energy industrial goods provide mixed signals. Inflation for imported non-food consumer goods fell to -1.3% in August, down by 0.5 percentage points from July. This probably reflects – at least in part – the appreciation of the exchange rate of the euro from July to August. Domestic producer price inflation for non-food consumer goods weakened only slightly to 0.6% in August from 0.7% in July, remaining in the vicinity of its longer-term average. At the earlier input stages, the annual rate of change in producer prices for intermediate goods rose slightly from -2.0% in July to -1.9% in August, while the annual rate of change in import prices for intermediate goods fell from -2.4% in July to -2.6% in August. Global non-energy producer price inflation[4] increased in July and August, albeit from low levels, and year-on-year rates of change in non-oil commodity prices have also been rising strongly, suggesting no further weakening of price pressures from the external side and at the early stages of the supply chain. However, lower oil prices and a stronger nominal effective exchange rate in September may imply continuing weakness in domestic intermediate goods prices and import prices beyond August.

Wage pressures are blurred by the impact of government support measures on compensation. Growth in compensation per employee and compensation per hour diverged strongly in the first half of 2020. Annual growth in compensation per employee fell to -4.7% in the second quarter, from 0.6% in the first quarter and 1.6% in the fourth quarter of 2019, while annual growth in compensation per hour increased from 2.0% in the fourth quarter of 2019 to 4.6% in the first quarter of 2020, and further to 9.4% in the second quarter. These contrasting developments reflect the impact of short-time work and temporary lay-off schemes, under which workers maintained their

4 The global Producer Price Index (PPI) excluding the energy sector is an ECB estimate.

employment status but only received part of their usual compensation, while actual hours worked per person declined sharply. At the same time, the decrease in compensation per employee overstates the actual loss in labour income, as a number of countries record government support, for statistical purposes, under transfers rather than compensation.[5] Negotiated wages, which are not directly affected by developments in hours worked and the recording of benefits from job retention schemes, grew by 1.7% in the second quarter of 2020, after 1.9% in the first quarter. While this implies only a slow weakening, the data still include agreements that were concluded before the onset of the pandemic.

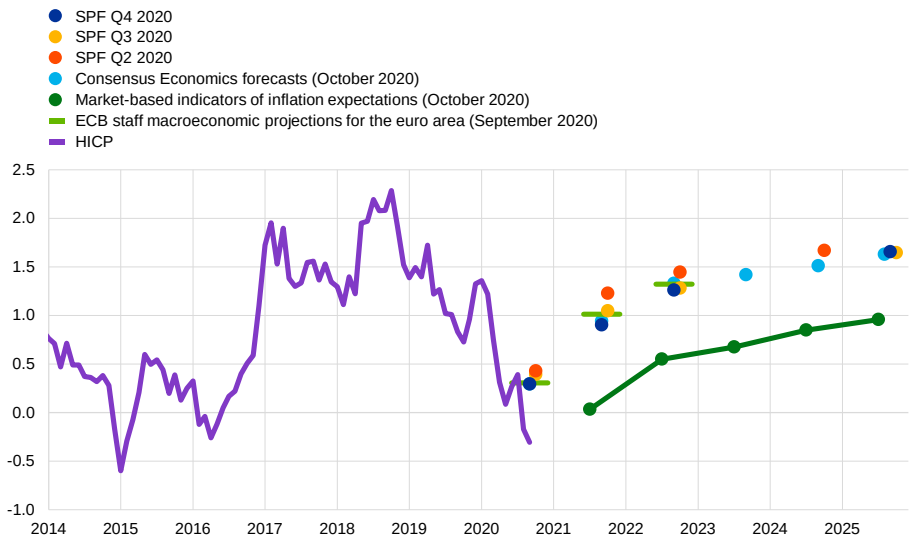
The rise in market-based indicators of longer-term inflation expectations came to a halt at pre-pandemic levels in the period under review (10 September to 28 October), while survey-based indicators of longer-term inflation expectations were broadly unchanged. Market-based indicators of longer-term inflation expectations reached historical lows in mid-March but then steadily increased, reflecting improvements in the global macroeconomic outlook and risk sentiment, as well as sizeable monetary and fiscal support. In the review period, however, the five-year forward inflation-linked swap rate five years ahead did not rise further, standing at 1.13% on 28 October. This level is still 41 basis points above its historical (mid-March) low of 0.72%. At the same time, the forward profile of market-based indicators of inflation expectations continues to indicate a prolonged period of low inflation. Inflation options markets also still signal considerable downside risks in the near term, as underlying deflation probabilities remain at historically elevated levels. The ECB Survey of Professional Forecasters (SPF) for the fourth quarter of 2020 showed shorter-term HICP inflation expectations edging down slightly further, while longer-term inflation expectations remained broadly unchanged (see Chart 9). Average point forecasts for annual HICP inflation stood at 0.3% for 2020, 0.9% for 2021 and 1.3% for 2022, representing a downward revision of 0.1 percentage points for 2020 and 2021, which appears to reflect the impact of the latest data outcomes. Longer-term inflation expectations (for 2025) averaged 1.7%, compared with 1.6% in the previous round of the survey. The upward revision was beyond the first decimal and very marginal.

[5] For more information, see the box entitled "Short-time work schemes and their effects on wages and disposable income", *Economic Bulletin*, Issue 4, ECB, 2020.

Chart 9

Market and survey-based indicators of inflation expectations

(annual percentage changes)



Sources: ECB Survey of Professional Forecasters (SPF), ECB staff macroeconomic projections for the euro area (September 2020) and Consensus Economics (15 October 2020).
Notes: The SPF for the fourth quarter of 2020 was conducted between 2 and 9 October 2020. The market-implied curve is based on the one-year spot inflation rate and the one-year forward rate one year ahead, the one-year forward rate two years ahead, the one-year forward rate three years ahead and the one-year forward rate four years ahead. The latest observations for market-based indicators of inflation expectations are for 28 October 2020.

5 Money and credit

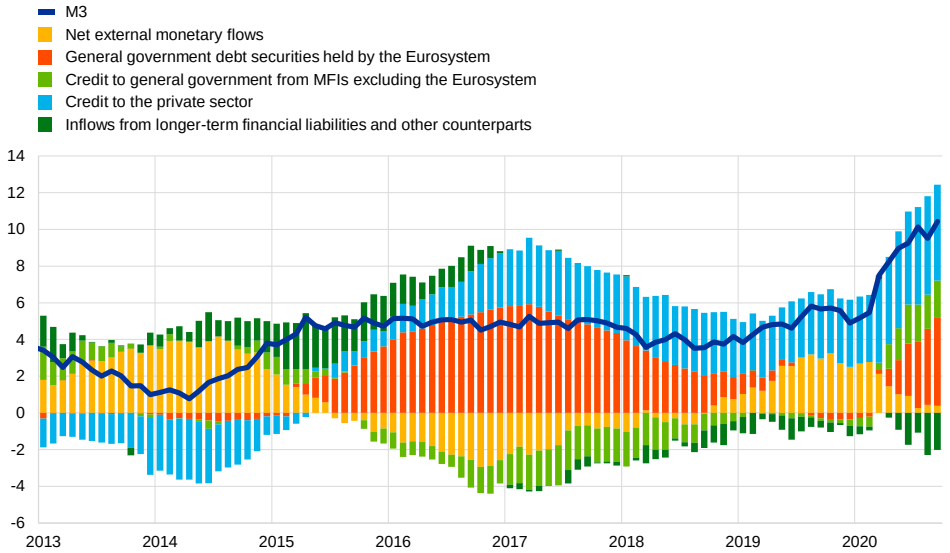
Broad money growth increased further in September. The broad monetary aggregate (M3) recorded another large inflow, pointing to an ongoing build-up of liquidity amid uncertainty related to the coronavirus (COVID-19) crisis. The annual growth rate of M3 increased to 10.4% in September 2020, after 9.5% in August (see Chart 10). While the overall decline in economic activity in 2020 dampened annual M3 growth, substantial support came from the extraordinary liquidity demand of firms and households in the context of the ample supply of liquidity provided by the Eurosystem. The increase in M3 was mainly driven by the narrow aggregate M1, which includes the most liquid components of M3. The annual growth rate of M1 increased from 13.2% in August to 13.8% in September. This development was mainly attributable to a further increase in the annual growth rates of overnight deposits held by firms and households, for which an important driver was a strong preference for liquidity. Other short-term deposits and marketable instruments made a small, positive contribution to annual M3 growth in September.

Domestic credit has continued to be the main source of money creation. The Eurosystem's net purchases of government securities under the ECB's asset purchase programme (APP) and the pandemic emergency purchase programme (PEPP) made a larger contribution to M3 growth in September 2020 than in previous months (see the red portion of the bars in Chart 10). Credit to the private sector, which was mainly driven by higher loans to non-financial corporations, lost some of its momentum but still remained at elevated levels (see the blue portion of the bars in Chart 10). Further support to M3 growth came from a modest increase in the contribution from credit to general government from monetary financial institutions (MFIs) excluding the Eurosystem (see the light green portion of the bars in Chart 10), but the respective flows have been very limited in recent months. As in previous months, the contribution from annual net external monetary flows remained small in September (see the yellow portion of the bars in Chart 10), while longer-term financial liabilities and other counterparts had a dampening impact on broad money growth.

Chart 10

M3 and its counterparts

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

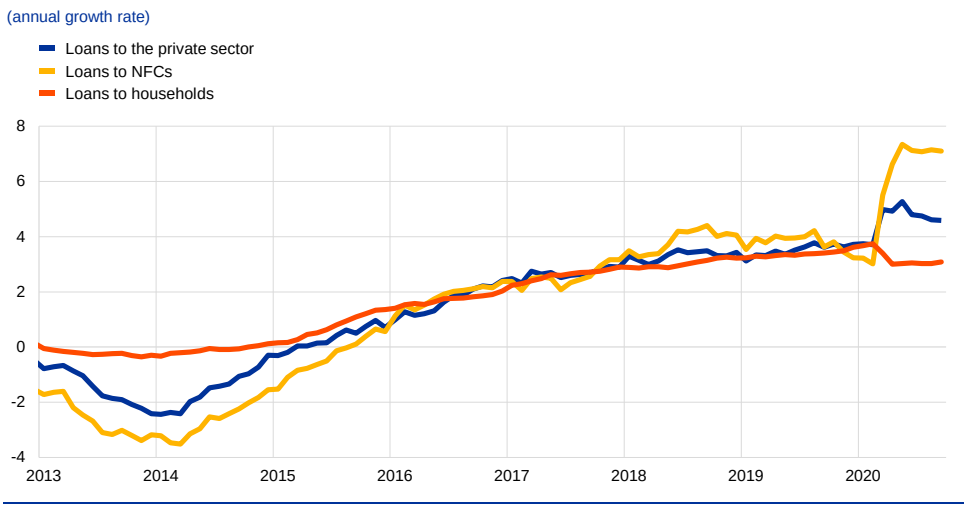


Source: ECB.
Notes: Credit to the private sector includes monetary financial institution (MFI) loans to the private sector and MFI holdings of securities issued by the euro area private non-MFI sector. As such, it also covers the Eurosystem's purchases of non-MFI debt securities under the corporate sector purchase programme. The latest observation is for September 2020.

Growth in loans to the private sector remained at elevated levels in September. The annual growth rate of bank loans to the private sector was unchanged at 4.6% in September 2020 (see Chart 11), as it was for loans to non-financial corporations (NFCs), at 7.1%, although monthly lending flows to NFCs continued to moderate. Annual growth of loans to households remained almost unchanged at 3.1% in September, from 3.0% in August. Banks responding to the euro area bank lending survey reported a moderate fall in firms' net loan demand in the third quarter, reflecting a decline in emergency liquidity needs and weakening fixed investment. For the fourth quarter of 2020, surveyed banks reported the expectation of a renewed increase in demand for loans to firms and decreasing demand for loans to households, which may signal the re-emergence of liquidity needs of firms in the context of the intensification of the COVID-19 pandemic. The divergence in the dynamics of loans to firms and loans to households is driven by the specific nature of the COVID-19 crisis, which has led to a collapse in corporate cash flows and compelled firms to strongly step up their reliance on external financing.

Chart 11

Loans to the private sector



Source: ECB.
Notes: Loans are adjusted for loan sales, securitisation and notional cash pooling. The latest observation is for September 2020.

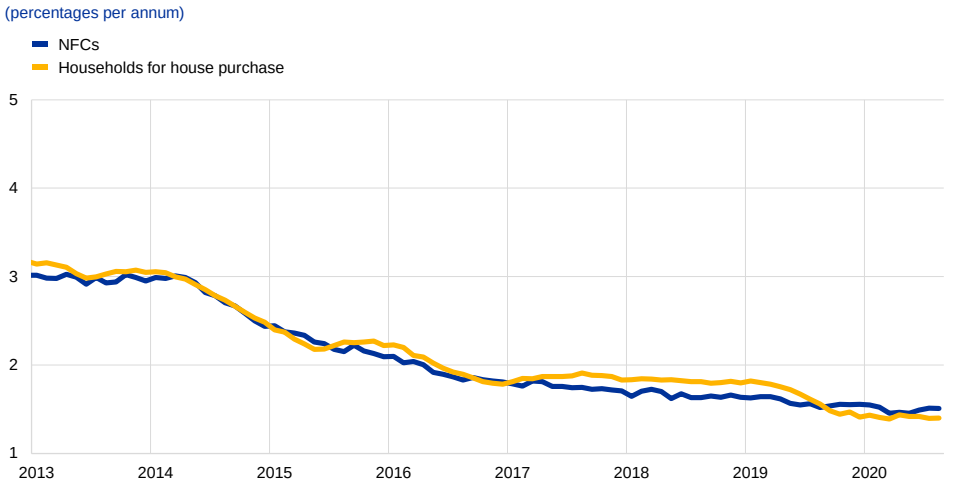
The October 2020 euro area bank lending survey **shows a significant tightening of credit standards for loans to firms and to households in the third quarter of 2020, mainly on account of higher risk perceptions.** While credit standards were supported by government loan guarantees and monetary policy measures, banks continued to indicate risk perceptions (related to the deterioration in the general economic outlook and the firm-specific situation) as the main factor contributing to their tightening. For the fourth quarter of 2020, banks expect a further net tightening of credit standards for firms. Credit standards for housing loans and for consumer credit continued to tighten significantly in the third quarter of 2020, against a background of deteriorating income and employment prospects. Net demand for housing loans and for consumer credit increased in the third quarter, after a considerable decline in the previous quarter, also benefiting from the temporary abatement of the pandemic and the concomitant easing of restrictions. Banks expect a further net tightening of credit standards for households and a fall in housing loan demand in the fourth quarter of 2020. Banks also indicated that the ECB's asset purchase programmes (APP and PEPP) and the third series of targeted longer-term refinancing operations (TLTRO III) had a positive impact on their liquidity position and market financing conditions. Furthermore, together with the negative deposit facility rate, banks reported that these measures had an easing impact on bank lending conditions and a positive impact on lending volumes. At the same time, banks suggested that the ECB's asset purchases and the negative deposit facility rate had a negative impact on their net interest income, while a large percentage of banks reported that the ECB's two-tier system supported bank profitability.

Favourable lending rates have continued to support euro area economic growth. Lending rates have stabilised around their historical lows, broadly in line with developments in market reference rates. In August 2020 the composite bank lending rates for loans to NFCs and households remained broadly unchanged at 1.51% and 1.40% respectively (see Chart 12). These favourable rates continued to reflect the beneficial impact on credit supply conditions originating from the ECB's

accommodative monetary policy and the crisis response by national authorities, including via loan guarantee schemes. Together, these measures remain essential to dampen upward pressures on bank lending rates in a difficult and uncertain economic environment.

Chart 12

Composite bank lending rates for NFCs and households



Source: ECB.
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The latest observation is for August 2020.

Boxes

1 A revised weighting scheme for the international environment projections

Prepared by Mirco Balatti and Philipp Hanheide

The September 2020 ECB staff macroeconomic projections used a revised weighting scheme for the euro area's trading partners.[6] The country weights are important for calculating foreign demand and the export prices of competitors. Both of these are used as conditioning assumptions in the macroeconomic projections for the euro area and for euro area countries.[7] This revision follows a recent enhancement of the method employed to calculate euro effective exchange rate indices. The latter was done to take account of the development of international trade linkages and, in particular, the growing importance of international trade in services.[8] This box discusses the impact of the revised weighting scheme on euro area foreign demand and export prices of competitors. It also touches upon updated weights used to calculate global aggregates for the purpose of the international environment projections prepared by ECB staff.

Two key conceptual changes were implemented in the calculation of country weights this year. First, data on trade in services were used in addition to data on trade in goods. Second, the number of euro area trading partners was increased from 30 to 42, while the remaining countries are consolidated in five regional aggregates. These changes increased the coverage of the euro area's foreign demand by individual country data from 85% to 92%.

The inclusion of trade in services for the purposes of calculating the country weights reshuffled the weights of the euro area's key trading partners. More specifically, the share of the United States and the United Kingdom has increased further so that together they account for 29.2% of the euro area's foreign demand (see Chart A). Also, Switzerland now accounts for a similar share of euro area foreign demand to China, which by contrast has seen a slight decline in its weight compared to previous values. The weights have fallen for a number of countries, including Poland, the Czech Republic and Turkey, which are important euro area trading partners, but where bilateral trade in goods is greater than trade in services.

---

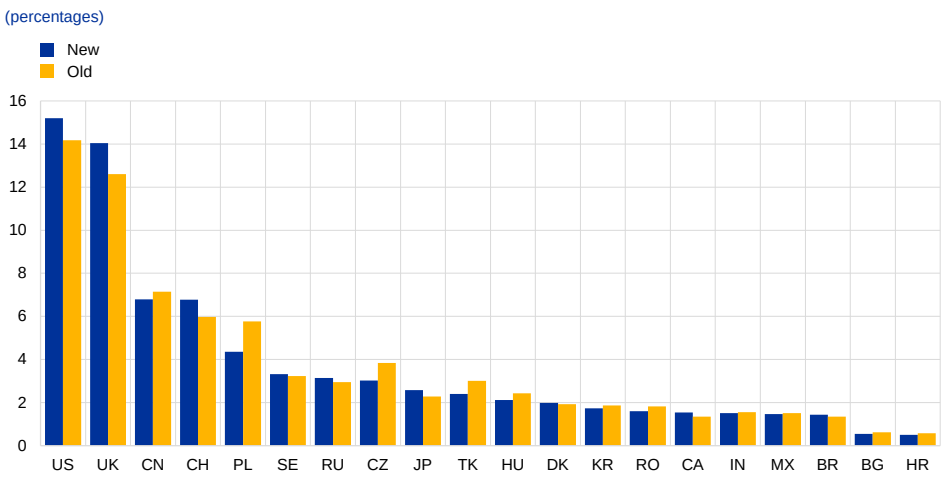
6 See Box 2, "The international environment", ECB staff macroeconomic projections for the euro area, September 2020.

7 For further details on the calculation of these assumptions and the methodology used to construct the weights, see Hubrich, K. and Karlsson, T., "Trade consistency in the context of the Eurosystem projection exercises – an overview", *Occasional Paper Series*, No 108, ECB, March 2010.

8 For further details, see the box entitled "The ECB's enhanced effective exchange rate measures", *Economic Bulletin*, Issue 6, ECB, 2020.

Chart A

Country weights in euro area foreign demand

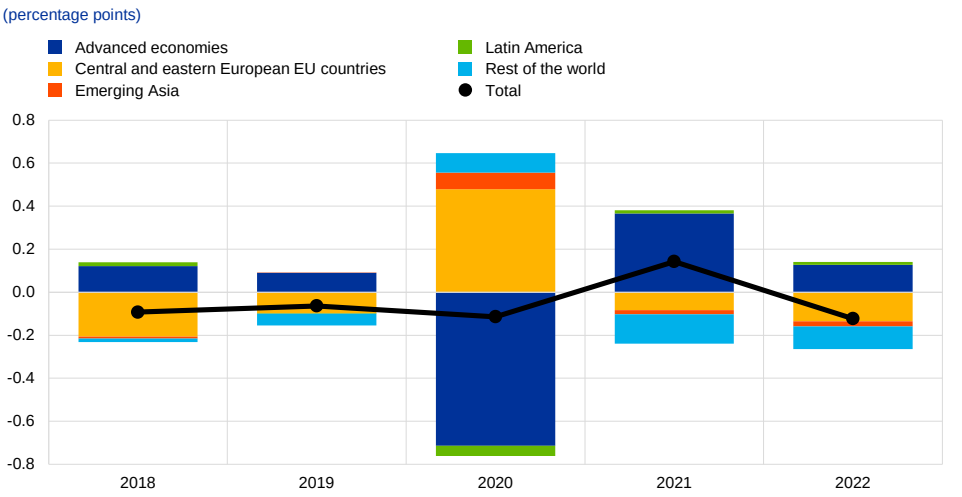


Source: ECB calculations.
Note: The reported country weights for 20 important trading partners are used to calculate euro area foreign demand in the ECB/Eurosystem staff macroeconomic projections.

The impact of the revised weights on euro area foreign demand projections was relatively modest. Zooming in on the contribution of selected country groups, a higher weight for advanced economies (excluding the euro area) accentuated the role of the projected decline in imports in this group of countries for this year, which in turn weighed on euro area foreign demand (see Chart B). For 2021, the contribution of advanced economies turned positive. The negative impact from advanced economies in 2020 was largely due to the higher weight of the United Kingdom, where imports are projected to decline sharply this year, while contributions of non-euro area EU countries in central and eastern Europe moved in the opposite direction to advanced economies.

Chart B

Revisions to euro area foreign demand implied by changes in weights

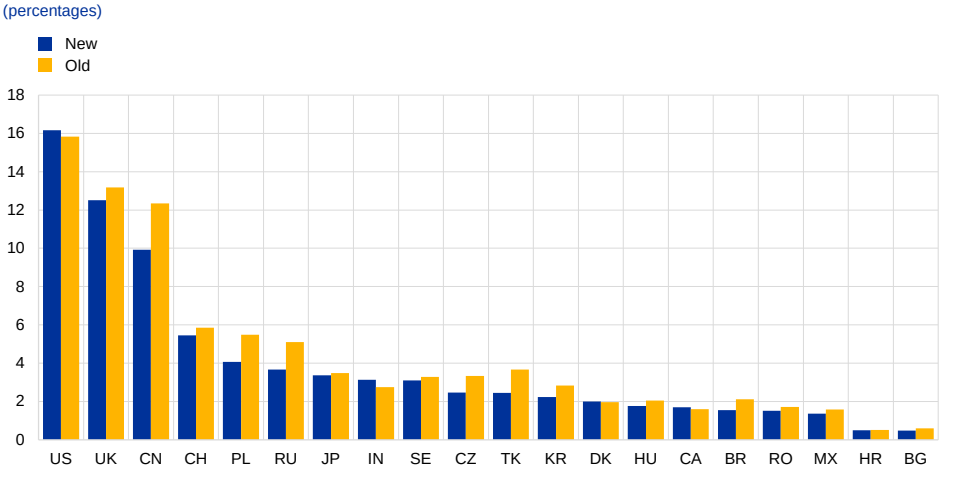


Source: ECB calculations.
Notes: Contributions to effective revisions of annual percentage growth. The weights of the five aggregates in euro area foreign demand are advanced economies 48.2%, emerging Asia 16.2%, Latin America 5%, central and eastern European EU countries 12.1% and rest of the world 18.5%. Before the update, the weights were 44.0%, 16.5%, 4.7%, 15.0% and 19.7% respectively. The figures refer to historical data and the September 2020 ECB staff projections.

Furthermore, the impact of revised export weights on the export prices of euro area competitors was relatively contained. The weights used to compute this indicator are double-weighted to account for the national competitors in both the importing country and the other, non-euro area, exporting countries. As Chart C shows, the weights for China, the United Kingdom and a number of non-euro area EU countries in central and eastern Europe declined markedly. For this year, the revised weights imply an annual growth rate for the export prices of euro area competitors that is 0.3 percentage points lower, as implemented in the September 2020 ECB staff projections, while for the outer years of the projection horizon, revisions are marginal.

Chart C

Country weights of export prices of euro area competitors



Source: ECB calculations.
Notes: The reported country weights for 20 important trading partners are used to calculate the export prices of euro area competitors in the ECB/Eurosystem staff macroeconomic projections. The export weights of euro area competitors are double-weighted to account for third-market effects.

The global aggregates for GDP reported for the ECB staff international environment projections use a different set of weights, which were also updated. This update, based on GDP measures in purchasing power parity (PPP), further increased the shares of China in the global economy.[9] It now commands 21.2% in world real GDP (excluding the euro area), up from 20.7% the year before. China is also the top exporter (with a 14.5% weight in world exports excluding the euro area), while the United States remains the most important importer in the world economy (17% of world imports excluding the euro area).

Taking a longer term perspective, the development of shares of world output and trade over the last two decades shows the steady rise in the global economic weight of China and the downward trend of the United States.[10] In PPP terms, which accounts for differences in price levels between countries, China overtook the United States as the world's largest economy in 2014 (see Chart D).[11] Import shares show a similar picture. While in 1999 there was an 18 percentage point gap between the two economies in favour of the United States, by 2018 this had narrowed to around 5 percentage points. While the decline of the United States' weight in output and imports followed a similar trajectory, in the case of China, import shares have grown at a slower pace than its GDP weight. Assuming past (linear) trends continue, by 2022 Chinese import volumes would surpass those of the United States, while the wedge in GDP weights would rise further to around 7 percentage points.

9 In contrast to market exchange rates, PPP measures are not directly observable. PPP weights, however, are less subject to short-term swings in foreign exchange markets and they are more appropriate for comparing non-traded goods and services and analysing welfare.
The global aggregates for GDP reported for the international environment are computed using PPP weights from the April 2020 IMF World Economic Outlook. For further details and the latest IMF update of world GDP weights, see Box 1.1 "Revised World Economic Outlook Purchasing-Power-Parity Weights", *World Economic Outlook*, IMF, October 2020.

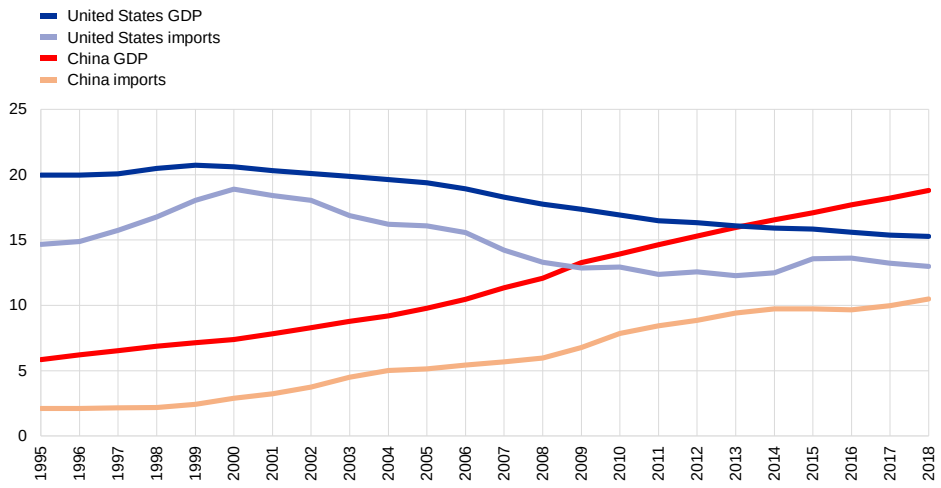
10 For comparison, the shares of the euro area in world GDP have also declined, from 17.7% in 1999 to 11.5% in 2018.

11 This is not the case when considering GDP at market exchange rates, where the latest world shares of the United States and China are 24% and 15% respectively.

Chart D

Long-term trends in world GDP and import shares

(percentages)



Sources: IMF World Economic Outlook and ECB calculations.
Note: The chart reports the shares of the United States and China in world GDP (in PPP terms) and import volumes.

2 New euro area statistics on insurance corporations' premiums, claims and expenses

Prepared by Katharina Cera and Niklas Döbbeling

August 2020 marked the ECB's first release of statistics on insurance corporations' written premiums, incurred claims and acquisition expenses.[12] The data are annual and are available from 2017. For the euro area aggregate data, a breakdown by type of insurer (reinsurance, life, non-life and composite) is available. In addition, a breakdown by country is also provided for the total insurance sector. These data complement the ECB's quarterly statistics on the assets and liabilities of the insurance corporation sector.[13]

The new dataset helps monitor a growing sector that is becoming increasingly important for the financing of the economy.[14] In the first quarter of 2020 insurance corporations represented 10% of the total assets held by the euro area financial sector. Insurers provide important financial services: as well as enabling risk sharing in the overall economy, they make it possible for households to store their savings in life insurance products. Insurers provide financing to the economy by purchasing corporate bonds. For instance, in the first quarter of 2020 euro area insurers held 25% of outstanding domestic non-financial corporate bonds, while total debt securities holdings also accounted for about 40% of insurers' assets.

The total amount of premiums written stood at €1,127 billion at the end of 2019, reflecting a 6.9% year-on-year increase (Chart A, panel a)). The growth of premiums in the reinsurance (12.2%) and non-life insurance (9.9%) sectors in 2019 exceeded the total insurance corporation sector's growth for that year. The relatively lower growth in the life (6.0%) and composite (3.1%) insurance sectors may reflect business models that have been facing profitability challenges in the prevailing low interest rate environment.[15] Overall, premiums written are a valuable indicator for monitoring the growth of the sector as they are not – in contrast to total assets – subject to valuation effects.

In 2019 incurred claims and their year-on-year growth remained below the amount and growth of premiums written (Chart A, panel b)). Compared with 2018, incurred claims increased by 6.5% and corresponded to 13.8% of total insurance technical reserves at the end of 2018. Overall claims stood at €822 billion in 2019 with claims incurred by life, non-life and composite insurance corporations each amounting to between €230 billion and €270 billion, while reinsurance corporations incurred claims of €84 billion.

---

12 Premiums written are amounts due during the financial year in respect of insurance contracts, regardless of the fact that such amounts may relate in whole or in part to a later financial year. Claims incurred relate to insured claim events taking place during the financial year. Acquisition expenses comprise commission costs and the costs of selling, underwriting and initiating an insurance contract, including renewal expenses. The data are released on the ECB's Statistical Data Warehouse (SDW) online platform.

13 Data are available on the SDW.

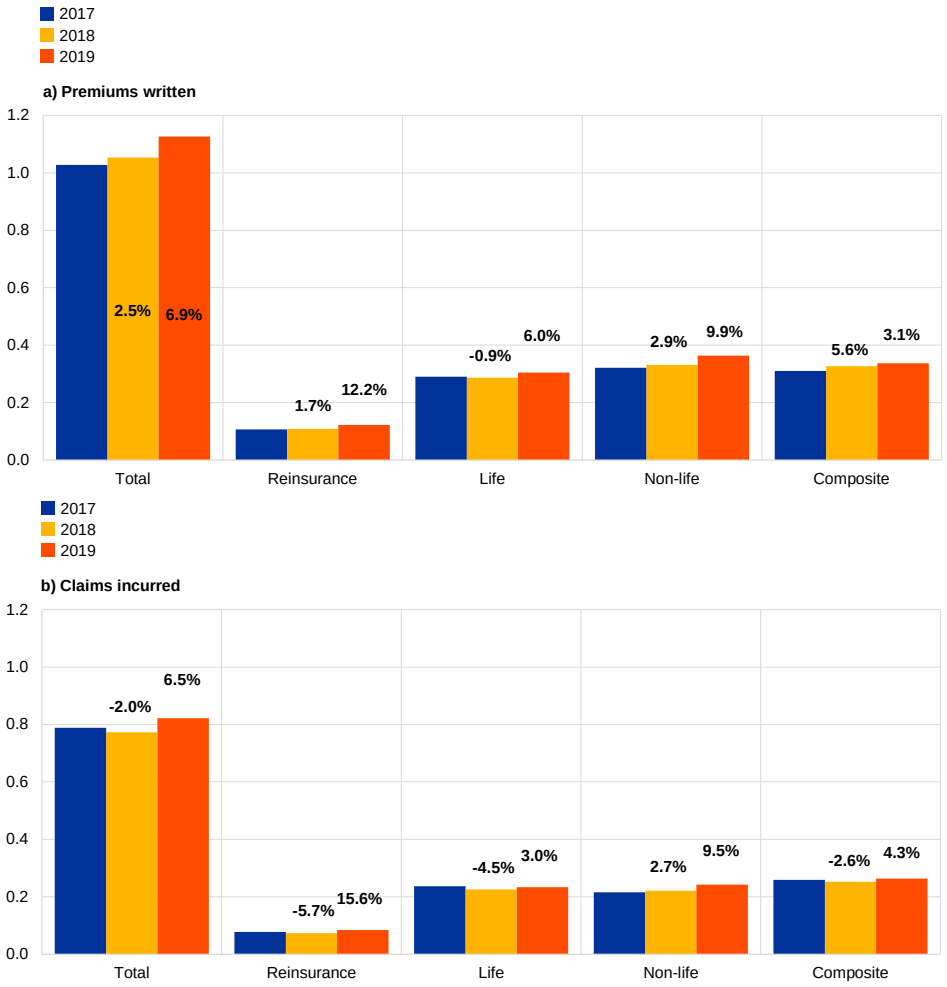
14 See "Non-bank financial sector", *Financial Stability Review*, ECB, November 2019, Chapter 4.

15 Composite insurers run both life and non-life insurance business.

Chart A

Premiums written and claims incurred by euro area insurance corporation sector

(EUR trillions, year-on-year growth rates in percentages)



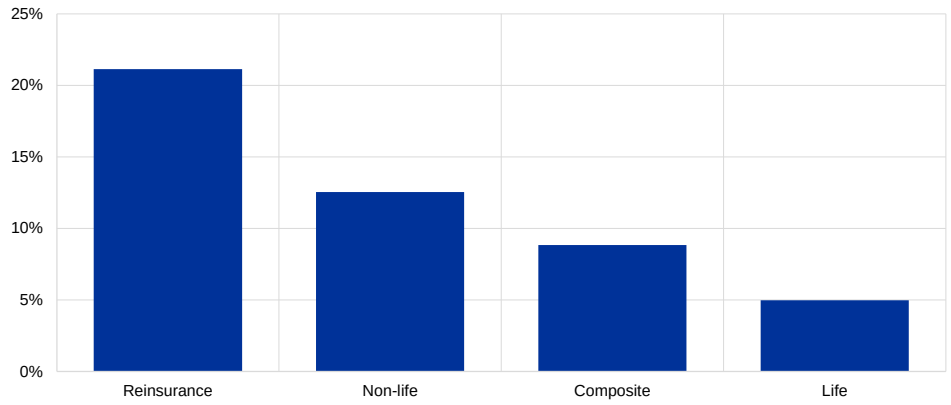
Source: ECB.

Acquisition expenses (mainly commissions) as a share of premiums written depict the relative costs incurred for attracting new policy holders. Total acquisition expenses in 2019 stood at €116 billion. Relative to other segments, the life insurance business has the lowest acquisition expenses as a share of premiums written, as life insurance policies typically have a very long duration and thus the number of new contracts (relative to total contracts) per year is also likely to be the lowest **(see Chart B)**. By contrast, the reinsurance sector spends around a fifth of premiums written on acquisition expenses.

Chart B

Acquisition expenses as a share of premiums written

(percentages)



Source: ECB.

The new dataset also provides breakdowns by location of underwriting, i.e. by the location of a corporation's head office and the locations of its branches in other countries. The data reveal that in 2019 most of the insurance business within the euro area was conducted domestically, with over 90% of premiums written and claims incurred in the country where the head office is located **(see Chart C)**.[16] Around 4.5% of premiums were written by branches in other euro area countries, with branches located in France, Germany, Italy, Spain and the Netherlands accounting for 81% of cross-country branch business within the euro area. In addition, 5.3% of premiums were written by branches outside the euro area, with branches in the United Kingdom contributing to more than a third of this share.

The reinsurance sector stands out for its significant share of cross-border business activity, with a third of premiums written via non-domestic branches. Of these, 7% were written in other euro area countries and 26% in the rest of the world. Cross-border activity can expose reinsurers to currency risk, which they may need to hedge using derivatives. Indeed, an analysis based on end-2017 data has shown that foreign exchange contracts are the second most prevalent derivative contract held by the euro area insurance sector after interest rate derivatives.[17]

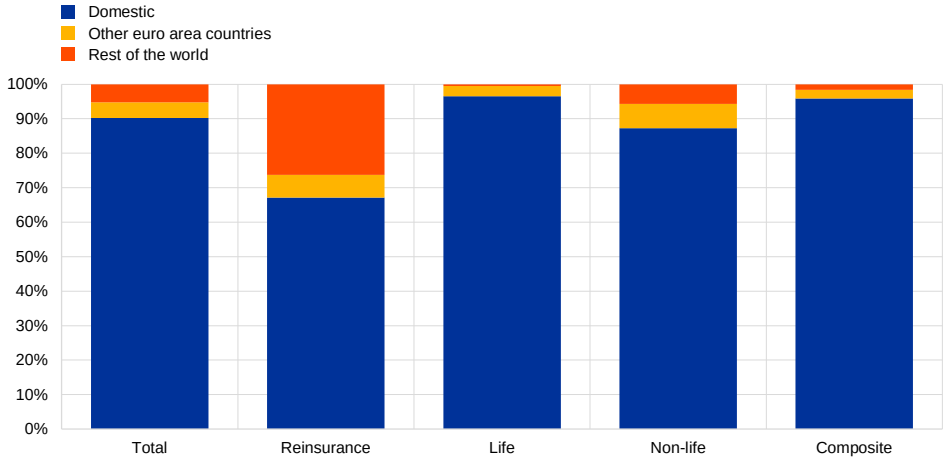
16 Domestic business also covers business carried out by the subsidiaries of foreign insurers resident in the country. The data do not provide any information on the location of the policy holder.

17 See Box 8, "Insurance companies and derivatives exposures: evidence from EMIR data", *Financial Stability Review*, ECB, November 2018.

Chart C

Premiums written by location of underwriting

(percentages of total premiums written, 2019)



Source: ECB.

In designing the framework for compiling the new dataset, the ECB and the European Insurance and Occupational Pensions Authority (EIOPA) have made a concerted effort to minimise the reporting burden on insurance corporations by integrating the European statistical and supervisory data reporting requirements. This allows the statistical information to be derived, to a large extent, from data reported for supervisory purposes under the EU's Solvency II framework. This means insurance corporations in most euro area countries only need to submit a single integrated report that covers both statistical and supervisory requirements.

3 Consumption patterns and inflation measurement issues during the COVID-19 pandemic

Prepared by Omiros Kouvavas, Riccardo Trezzi, Martin Eiglsperger, Bernhard Goldhammer and Eduardo Gonçalves

The coronavirus (COVID-19) pandemic has generated challenges in measuring consumer price inflation as a result of changes in consumption patterns and limitations in price collection. The pandemic has generated two main challenges when measuring consumer price inflation. First, the pandemic triggered unusually large changes in household spending patterns which are not reflected in aggregated consumer price indices.[18] Second, price collection was affected by the lockdown, and the missing observations therefore needed to be imputed.[19] This box discusses the gap between the Harmonised Index of Consumer Prices (HICP) and the development of prices for the goods and services actually purchased by final consumers. The box also discusses how imputation has affected published HICP statistics.[20]

The HICP is compiled using consumption weights that are kept constant within a given calendar year. When constructing the HICP, the price changes of individual items are weighted using household consumption shares that are fixed for the calendar year. This reflects the intended purpose of the HICP of estimating pure price changes without accounting for shifts in household consumption patterns. The HICP weights are primarily based on past years' national accounts data, which are adapted in an effort to be representative of the previous year's consumption shares.[21] This means, for example, that the 2020 HICP weights mainly reflect 2018 household consumption. While keeping the weights constant within a calendar year does not generate measurement issues in normal times, the nature of the pandemic shock has triggered large consumption shifts over a short period of time.

There is a growing body of literature documenting large pandemic-induced changes in household consumption and discussing their implications for inflation. Using high-frequency data, several studies have identified large changes in

---

18 Consumer price indices (CPIs) use a fixed basket approach. This means that they keep expenditure weights constant between the base period and the reference period, assuming that relative consumption shares do not change. Therefore they do not capture changes in consumption patterns.

19 For a detailed discussion on this point, see the box entitled "Inflation measurement in times of economic distress", *Economic Bulletin*, Issue 3, ECB, 2020.

20 Aspects related to social, health and environmental phenomena can have an impact on household utility related to consumption. Specific theoretical inflation measurement concepts try to account for some of these factors. However, there is no such quality adjustment in the HICP for a possible fall in the utility of certain services owing to infection risks and social distancing requirements such as those currently being experienced by consumers. An assessment of this issue is outside the scope of this box, which focuses on changing consumption patterns.

21 The derivation of the weights is laid down in Commission Implementing Regulation (EU) 2020/1148 of 31 July 2020 laying down the methodological and technical specifications in accordance with Regulation (EU) 2016/792 of the European Parliament and of the Council as regards harmonised indices of consumer prices and the house price index (OJ L 252, 4.8.2020, p. 12).

spending across product categories.[22] These time-varying expenditure shares[23] have been used to quantify the difference between published consumer price indices and the inflation rate of the items actually purchased by consumers.[24] Following this approach, two statistical agencies have published experimental price indices with monthly time-varying weights showing how the pandemic has affected consumer spending and that a gap has opened up between CPI-type inflation figures and the inflation rate of the items actually purchased by final consumers.[25]

Using publicly available data, we have estimated a monthly-reweighted consumer price index for the euro area. Several steps are needed to construct a monthly-reweighted consumer price index. First, nominal monthly turnover data for the retail trade and for other services (e.g. transport services) are matched to the corresponding HICP categories.[26] While retail trade turnover data primarily reflect transactions driven by household purchases, turnover of other services includes business-to-business transactions which need to be stripped out. Second, taking the latest HICP weights as a base, the evolution of the spending categories is estimated using the corresponding nominal turnover growth rates.[27] Third, relative weights are used to construct the monthly-reweighted consumer price index.[28] By design, our index captures part of the changes in consumption during the pandemic and therefore comes closer to the rate of change in the prices of items actually purchased by consumers during this period.

---

22 Consumption of food items has increased and remains relatively high because households are spending more time at home (effectively switching away from food served in bars, restaurants and cafés). See the box entitled "Recent developments in euro area food prices", *Economic Bulletin*, Issue 5, ECB, 2020. Contributions to this literature include, for the United States, Cavallo, A., "Inflation with Covid Consumption Baskets", *NBER Working Paper*, No 27352, 2020; Dunn, A.C, Hood, K.K. and Driessen, A., "Measuring the Effects of the COVID-19 Pandemic on Consumer Spending Using Card Transaction Data", *BEA Working Paper Series*, No WP2020-5, US Bureau of Economic Analysis, April 2020; for the United Kingdom, Surico, P., Känzig, D. and Hacioglu, S., "Consumption in the time of Covid-19: Evidence from UK transaction data", *CEPR Discussion Papers*, No 14733, May 2020; and, for Spain, Carvalho, V.M. et al., "Tracking the COVID-19 Crisis with High-Resolution Transaction Data", *CEPR Discussion Papers*, No 14642, 2020.

23 These weights are approximations and do not necessarily match the accuracy of the weights derived from national accounts.

24 See, for the United Kingdom, Jaravel, X. and O'Connell, M., "Inflation Spike and Falling Product Variety During the Great Lockdown", *CEPR Discussion Papers*, No 14880, June 2020; and, for Canada, Huynh, K., Lao, H., Sabourin, P. and Welte, A., "What do high-frequency expenditure network data reveal about spending and inflation during COVID-19?", *Staff Analytical Note*, No 2020-20 (English), Bank of Canada, September 2020.

25 See "How to compute a Consumer Price Index in the context of the Covid-19 crisis?", INSEE, April 2020; and "Re-weighted consumer prices basket – adjusting for consumption changes during lockdown: July 2020", Office for National Statistics, August 2020.

26 See "Classification of Individual Consumption According to Purpose (COICOP) 2018", *Statistical Papers*, Series M, No 99, United Nations Statistics Division.

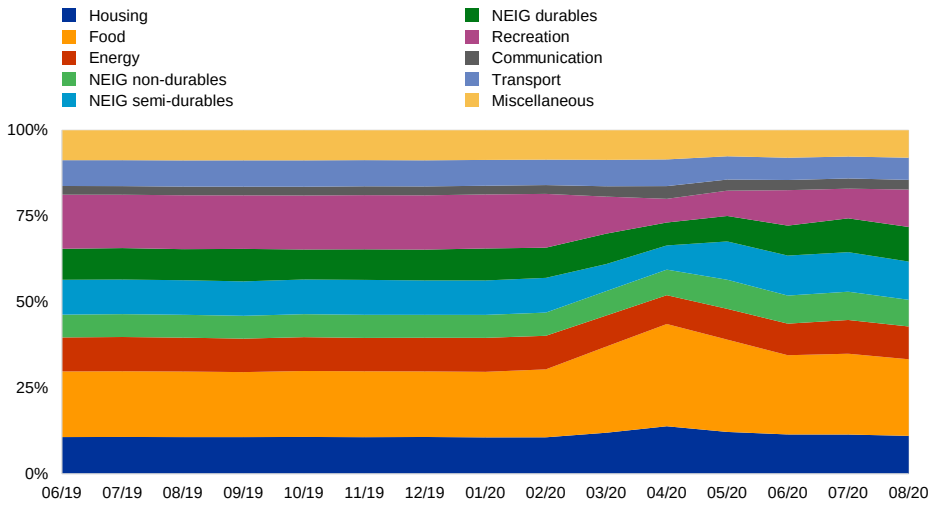
27 The latest HICP weights reflect expenditure shares calculated using mainly 2018 data.

28 The index calculation in this box is experimental. Data used for estimating monthly expenditure weights are compiled according to concepts and classifications that differ from the definition of consumption underlying the HICP. The match to HICP categories is therefore imperfect, particularly where monthly turnover data are used, as these data also include transactions between firms. The sources used to estimate monthly weights are less reliable than official HICP expenditure sources. Our (unchained) index assumes the same scope and coverage as the HICP. This implies that the items included in our index are the same as those in the HICP. It also implies that the monthly price changes of the individual items are the same as those of the HICP. In other words, the main difference between our index and the HICP is that we allow the spending weights to change from one month to the next, while the HICP keeps them constant. For the formula, we have employed a Fisher index.

Chart A

Shares in household consumption by category

(percentages)



Source: Authors' calculations based on Eurostat data.
Notes: The chart shows the evolution of estimated relative spending. Spending patterns are calculated using the latest HICP weights as a starting point and applying growth rates based on turnover data for the retail trade and for other services. "NEIG" stands for "non-energy industrial goods". "Food" refers to food items and does not include eating out.

The available data suggest that household consumption patterns have changed significantly during the pandemic. Relative consumption patterns were stable until the beginning of the pandemic (see Chart A), but the pandemic and the lockdown measures led to a large increase in the weight of some categories (such as food items and communication services) and a reduction in other categories (such as recreation and energy goods). Most of the pandemic-induced shifts have been temporary, such as for semi-durable goods, which includes a diverse set of items such as clothing, books and small utensils. However, shares of spending on food items and recreation services show persistent deviations from pre-pandemic trends, as some of the restrictions remain in place. As Chart A reports relative weights, some categories show an increase in March/April because the nominal spending in that category contracted less than overall consumption. Table A shows our estimates of the development of nominal household spending across categories.[29]

[29] Our estimate of the contraction in overall spending is in line with published Eurostat statistics for private final consumption.

Table A

Estimated nominal household spending

(index: February 2020 = 100)

HICP Item	February	March	April	May	June	July	August
Food	100.0	105.6	100.6	103.2	99.9	99.8	102.2
Energy	100.0	76.8	57.2	69.5	80.8	86.5	88.2
Non-Durables	100.0	87.7	73.4	95.1	103.9	102.7	104.0
Semi-Durables	100.0	64.7	46.3	83.6	98.6	98.5	99.5
Durables	100.0	83.8	50.2	63.3	84.2	93.0	102.9
Recreation	100.0	57.4	30.0	35.8	56.6	68.7	62.7
Housing	100.0	93.6	86.6	86.7	92.2	95.7	94.1
Communication	100.0	96.7	95.6	95.2	97.8	100.1	99.0
Transport	100.0	86.4	69.8	69.3	75.2	82.0	78.6
Miscellaneous	100.0	83.6	65.9	66.6	79.6	88.5	84.4

Source: Authors' calculations based on Eurostat data.
Notes: The table shows estimated absolute household consumption levels (nominal spending). Spending patterns are calculated using the latest HICP weights as a starting point and applying growth rates based on turnover data for the retail trade and for other services. Nominal spending levels are normalised to 100 in February 2020.

Since the beginning of the pandemic, inflation as measured by our experimental index has been running higher than HICP inflation, and the difference has remained broadly stable in recent months. Chart B shows the gap between the annual rates of change (year-on-year) of the experimental index and the HICP (the orange line in panel a). This gap started to open up in March (as shown by the orange bars in panel b) and increased to about 0.2 percentage points in April.[30] Since then, it has remained roughly constant.[31] Intuitively, this reflects consumers switching from lower-than-average inflation categories (such as fuel for transport, covered by "Energy") to higher-than-average inflation categories (such as food items). Chart B also shows the contributions from food and energy items (the blue bars in panel a) and core items (the yellow bars in panel a). Until June, the difference between the experimental index and the HICP was driven mainly by food and energy items, while the remaining items contributed to more than half of the gap in July.

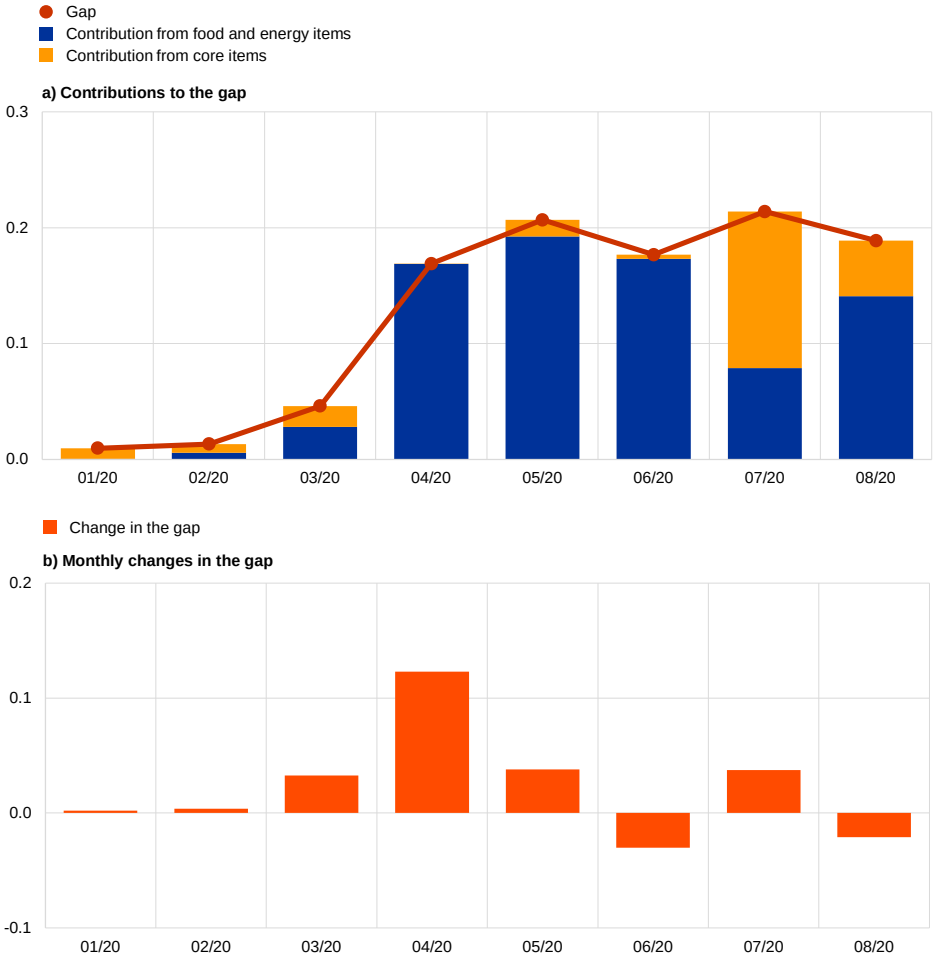
30 Our results are in line with evidence from similar studies outside the euro area.

31 Because our analysis is at COICOP-2 level, the gap between our index and HICP inflation reflects only the upper level of changes in consumption patterns during lockdown (in particular, the gap reflects switching between food and energy items and core items at COICOP-2 level). The gap between our index and the HICP has remained fairly constant in recent months because the change in weights has resulted in a lasting shift in the level of the series.

Chart B

Difference between changes in a monthly-reweighted index and the HICP

(percentage points, year-on-year changes)



Source: Authors' calculations based on Eurostat data.
Notes: The orange line in panel a shows the difference between year-on-year HICP inflation and the year-on-year change in our alternative index. The bars in panel a show the contributions of food and energy items (blue bars) and core inflation items (yellow bars). The orange bars in panel b show the monthly change in the gap (i.e. the monthly change in the orange line in panel a).

The lockdown period also caused issues for HICP price collection. As a result, the share of imputed prices changed from month to month.[32] Price collection in "bricks-and-mortar" stores stopped where outlets were closed. In addition, sampling in supermarkets and drugstores was largely discontinued in order to protect price collectors.[33] Imputation was required in areas where the collection of actual prices was substantially reduced. Chart C shows the evolution of price imputation in HICP categories from March to August. While March was largely unaffected, in April more

[32] See "Information on imputations made related to Covid-19", available on Eurostat's website. In general, imputation is required for items temporarily "missing" and for seasonal products when they are out of season and cannot be sampled.

[33] Eurostat and the national statistical offices of EU Member States decided not to cut out those product indices for which sampled prices were not available. The main reasons for keeping the coverage of the HICP basket complete, even though actual transactions were very limited in several of its product categories, are related to, but not limited to, legal obligations, established uses (for example, in contracts), user needs, and the continuation of HICP compilation according to its statistical concept (laid down in EU regulations).

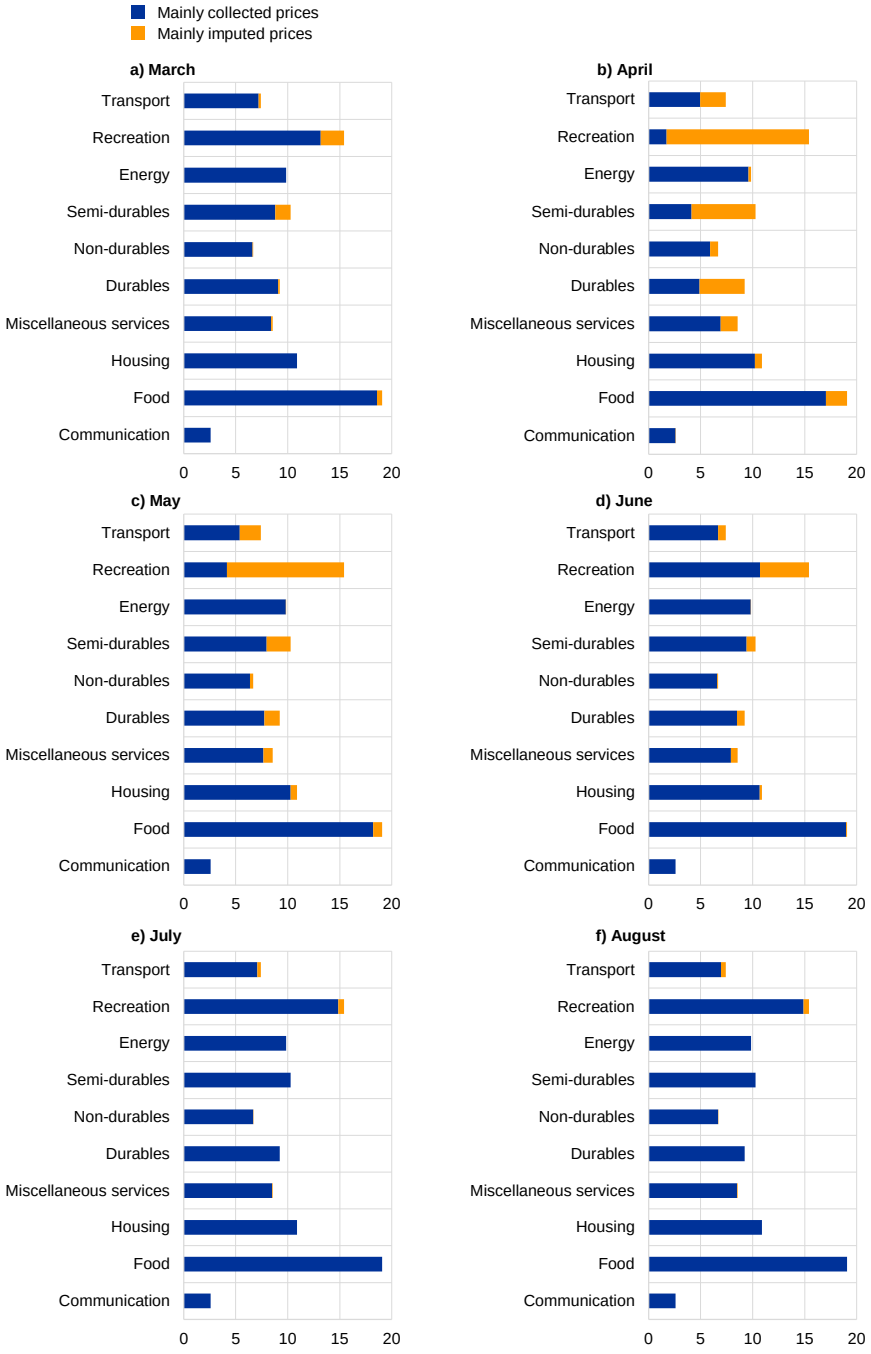
than 30% of the HICP was not sampled and had to be imputed.[34] This share of imputation declined to about 1% in July and remained at that level in August. Recreation was the category most affected by imputations, owing to the non-availability of package holidays and the cancellation of concerts and other events.

[34] This refers to 30% of the overall index (in terms of weights), and not 30% of prices of the (un-weighted) items.

Chart C

Price imputation by HICP category (March to August 2020)

(percentages)



Source: Authors' calculations based on Eurostat data.
Notes: The chart shows the share of prices in each HICP (COICOP 2-level) category as a percentage of the total HICP, divided into prices that were mainly collected (blue bars) and prices that were mainly imputed (yellow bars). Prices that were "mainly imputed" represent elementary aggregates of the respective category which were flagged with "U" by the national statistical offices in the respective month, meaning that more than 50% of the prices of the elementary aggregate were imputed.

The change in price collection method does not necessarily imply that the resulting price index is unreliable. For example, when food prices collected at traditional markets were replaced by food prices from supermarket scanner data, actual consumer behaviour was reflected quite closely. This was also the case when

web-scraped prices for clothing and footwear replaced prices normally collected in bricks-and-mortar stores.[35] For package holidays, airfares and many personal services (e.g. hairdressers and dentists), however, price changes had to be imputed since no actual purchases of such products were possible. In accordance with conventions agreed upon by EU statistical offices, price developments were imputed by reference to other consumer price indices, e.g. from the same product category or the all-items HICP. In some cases, prices or price changes from pre-crisis periods were used as estimates.[36]

While the pandemic-induced measurement challenges for the HICP have fallen significantly over recent months, they will most likely continue in 2021 and, to some extent, in 2022, at least with respect to expenditure weights. This box presented the estimated impact of measurement challenges triggered by the pandemic on consumer price inflation. The impact was mainly driven by the rapidly changing consumption patterns and price collection difficulties brought on by the lockdown measures. Measurement issues had an impact on published statistics in the first few months of the pandemic, but they have significantly decreased in recent months. Going forward, should the pandemic continue, some measurement challenges will remain in 2021. This will also be the case in 2022, when 2020 consumption data are expected to be used to construct HICP weights.

35 Internet price collection is in the form of web-scraping samples of offer prices. These prices might not necessarily reflect actual purchases.

36 See "Guidance on the compilation of the HICP in the context of the COVID-19 crisis", *methodological note*, Eurostat, April 2020.

Articles

1 The impact of COVID-19 on potential output in the euro area

Prepared by Katalin Bodnár, Julien Le Roux, Paloma Lopez-Garcia and Bela Szörfi

1 Introduction

Potential output is typically defined as the highest level of economic activity that can be sustained by means of the available technology and factors of production without pushing inflation above its target. Attempts to exceed this level of production will lead to rising levels of factor utilisation (and a positive output gap, defined as the difference between actual and potential output), thereby putting upward pressure on factor costs and ultimately on consumer price inflation. In contrast, when actual output is lower than potential output, there is slack in the economy (the output gap turns negative), putting downward pressure on factor costs and consumer price inflation. Since potential output cannot be observed directly, it must be inferred from existing data using statistical and econometric methods. There are various methods for estimating and projecting potential output and they are all subject to considerable uncertainty.[37]

The large macroeconomic shock stemming from the coronavirus (COVID-19) pandemic has affected both supply and demand. Potential output typically reflects supply conditions in the economy, such as changes in the key production inputs of capital and labour and their productivity. At the same time, fluctuations around potential output are related to demand factors.[38] The measures imposed by governments to contain the spread of the virus in the aftermath of the COVID-19 shock are a unique example of severe temporary supply-side restrictions. This raises the question: to what extent has potential output been affected.

This article discusses the impact of the COVID-19 pandemic on euro area potential output. It presents some conceptual issues and discusses the channels through which the pandemic and containment measures have affected and will likely continue to affect potential output. The article discusses the nature of the shock and describes channels through which the pandemic and the related containment measures could alter the contributions of labour, capital and total factor productivity (TFP) to potential output in the euro area. Finally, the article introduces a range of quantitative estimates of the impact of the pandemic. These are highly preliminary in

37 See the article entitled "Potential output in the post-crisis period", *Economic Bulletin*, Issue 7, ECB, 2018.

38 Potential output estimates are often procyclical and reflect developments in demand conditions. On the one hand, this procyclicality could partly be a statistical artefact due to methodological issues, such as the well-known end-point problem of filtering procedures. On the other hand, it could also reflect business cycle fluctuations, for example in investments in physical capital, or in research and development and innovation, leading to procyclical estimates of the capital stock and trend TFP growth.

that only two quarters of macroeconomic data have been released between the outbreak of the pandemic and the time of writing and the duration of the pandemic is highly uncertain (as are other factors, such as how long and to which degree containment measures will remain in place, when a vaccine or pharmaceutical solution will arrive and what the long-term implications for public health will be). In this context, the quantitative estimates should serve to gauge the mechanics involved, while ex post revisions can be expected as the magnitude of the crisis becomes clearer.

2 The nature of the COVID-19 shock

The interpretation of potential output during the shock

The level of potential output during the COVID-19 crisis depends on what can be considered the full capacity of the economy. When lockdown measures are in effect, the factors of production are still in place, but are prevented from being utilised fully. In this situation, the full capacity of the economy and hence the degree of capacity utilisation and the size of the output gap[39] may be very different from their levels in normal times. Chart 1 illustrates two extreme interpretations for the period in which national lockdowns were imposed and business operations were restricted, as well as when containment measures were subsequently lifted. The first interpretation assumes that the available factors of production are not affected by the lockdown and the related containment measures. For instance, a restaurant still has the same number of tables as before and a car assembly plant the same number of machines. The number of employees available is also unchanged, even if they are, for example, working fewer hours, on short-time working schemes or temporarily absent. Finally, technology does not change significantly in short periods of time and remains available. Under this interpretation, the degree of full capacity is unchanged during the lockdown (see Chart 1, upper panel, blue line). When containment measures are gradually lifted, production factors are fully utilised again (interpretation 1). By contrast, a second interpretation assumes that during the lockdown, none of the resources are available for production (i.e. the restaurant and the plant are closed and the workers need to stay at home). This implies that full capacity collapses to zero in firms that are closed, equivalent to a temporary steep drop in supply and thus in potential output (see Chart 1, upper panel, yellow line). As soon as the lockdown is over and containment measures are gradually being lifted, the degree of full capacity will gradually recover towards its pre-crisis level (interpretation 2).

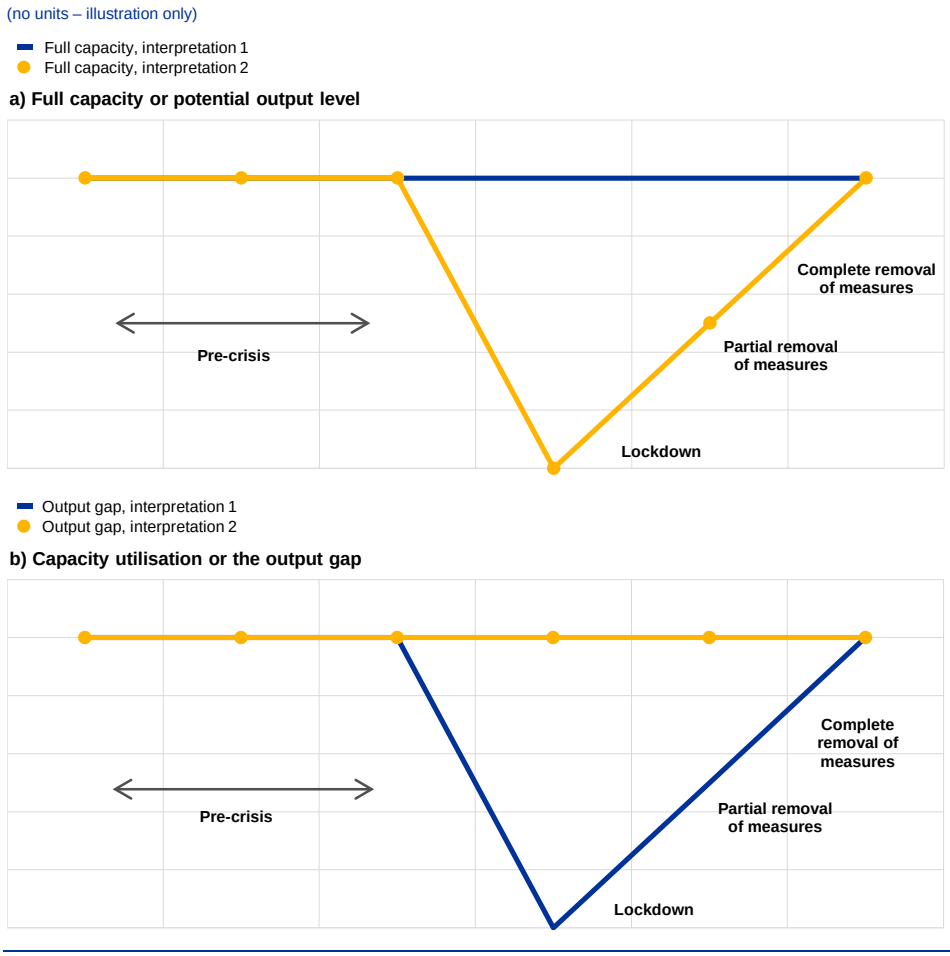
These interpretations imply very different output gaps as a result of the large fluctuations in the actual level of output during the crisis. In the first interpretation, the output gap becomes negative during the lockdown period (see Chart 1, lower panel, blue line), as actual output falls well below full capacity, which

[39] Normally, capacity utilisation represents the output gap well: “capacity utilisation is usually defined as the ratio of actual output to some measure of potential output” (see Nelson, Randy A., “On the Measurement of Capacity Utilization”, *The Journal of Industrial Economics*, Vol. 37, No 3, Wiley, March 1989, pp. 273-286). It follows that full capacity of the economy corresponds to potential output.

by contrast remains unaffected overall. In the second interpretation, however, the output gap is not affected by the lockdown (see Chart 1, lower panel, yellow line), since actual production is the same as the assumed full capacity. Potential output falls to the same extent as GDP. These two interpretations are of course illustrative extremes and, in practice, the truth lies somewhere in between. This is especially true at the aggregate level, given that the impact of the shock on full capacity has been different across sectors (not least because of differences in the scope for working remotely).

Chart 1

Interpretation of potential output and the output gap



Source: ECB staff calculations.

3 COVID-19: interplay of supply and demand shocks

The choice of interpretations outlined above determines the degree of cyclicality of potential output in the short term. The more potential output is assumed to be affected by the containment measures, the more potential output will fluctuate in the short term as restrictions are enforced and lifted. The less that is assumed to be case, the steadier potential output will stay. Different empirical

approaches can help to establish which interpretation is matched by data, i.e. the degree to which supply, and with it also potential output, has been affected.

Given data limitations, the complex nature of the shock and the interdependence of supply and demand factors, disentangling these factors is a challenging task.[40] As such, changes in the one might affect the other component. In that respect, a recent theoretical study suggests that a supply shock, affecting sectors of the economy asymmetrically, may in turn trigger demand contractions.[41] At the same time, as the great financial crisis showed, demand-side factors may also have persistent or even permanent impacts on potential output.[42]

Empirical analyses, based on limited data, find that both supply and demand dropped after the COVID-19 shock. In the United States, a study was conducted using data on hours worked and wages to estimate labour demand and supply shocks for the aggregate economy and for various sectors. It found that labour supply shocks accounted for a larger share of the fall in hours, although both shocks were noteworthy.[43] Another paper identified the supply and demand shocks from real-time survey data on inflation and real GDP growth and found that in the first quarter of 2020 negative demand had a bigger role in the fall in activity, but in the second quarter reduced supply played a more significant role.[44] Other data and methods suggest that demand factors were stronger and could be explained by uncertainty or fear of infection.[45] Overall, in the United States, empirical studies found that both supply and demand had an important role and, since the nature of the shock was the same across the globe, it can be reasonably assumed that the same holds for the euro area as well.[46]

It was possible for the effects of broader supply-side restrictions to be attenuated in sectors that were able to maintain and adapt production. Production was maintained in sectors that were considered to be essential while, at least in some countries and regions, production was cut back in non-essential sectors. In addition, the degree to which work could be carried out remotely influenced the decline in activity. Empirical papers found that the ability to telework varies greatly

---

40 Barry Eichengreen said "As someone who's estimated lots of models designed to distinguish supply and demand shocks, good luck identifying them" (see Vaitilingam, Romesh, Likelihood of a coronavirus recession: Views of leading US and European economists, , VOX, Centre for Economic Policy Research Policy Portal, 14 March 2020.

41 See Guerrieri, Veronica et al., "Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?", *NBER Working Paper No 26918*, National Bureau of Economic Research, Cambridge, Massachusetts, April 2020.

42 See the article entitled "Potential output in the post-crisis period", *Economic Bulletin*, Issue 7, ECB, 2018.

43 See Brinca, Pedro et al., "Measuring Labor Supply and Demand Shocks during COVID-19", *Working Paper 2020-011*, Federal Reserve Bank of St. Louis, St. Louis, Missouri, October 2020.

44 See Geert, Bekaert et al., "Aggregate Demand and Aggregate Supply Effects of COVID-19: A Real-time Analysis", *Finance and Economics Discussion Series 2020-049*, Federal Reserve Board, Washington D.C., 26 May 2020.

45 See Goolsbee, Austan and Syverson, Chad, "Fear, Lockdown, and Diversion: Comparing Drivers of Pandemic Economic Decline 2020", *NBER Working Paper No 27432, National Bureau of Economic Research,* Cambridge, Massachusetts, *June 2020*.

46 Two studies confirm this. See Balleer, Almut et al., "Demand or Supply? Price Adjustment during the Covid-19 Pandemic", *CESifo Working Paper No 8394*, Munich Society for the Promotion of Economic Research – CESifo, GmbH, Munich, August 2020 and Boham, D.A.R. and Smadu, A.I., "Was COVID-19 a supply or a demand shock? Evidence for Dutch sectors", mimeo, 2020.

across sectors and among workers both in the United States[47] and in Europe[48], and the supply-side effect of the COVID-19 shock has been stronger in sectors where fewer workers were able to carry out their tasks remotely.[49] In addition, negative spillover effects from firms and sectors more affected by social distancing imposed negative externalities on firms not directly affected by social distancing measures, as a result of input-output linkages.[50]

It is not only the degree of fluctuation of potential output in the short term that is difficult to assess, but also the long-term impact of the pandemic. The supply-side effects explored above may be temporary, persistent, or permanent.[51] Empirically, it is not possible to disentangle these effects in real time, which makes it difficult to predict the permanent effects. Nevertheless, one option for trying to gauge the long-term impact is to review the evidence from past exogenous shocks.[52] Box 1 provides some empirical evidence on the effect of selected past exogenous shocks on long-term economic activity.

Box 1
The long-term impact of selected past exogenous shocks on euro area output

Prepared by Katalin Bodnár and Julien Le Roux

While the COVID-19 shock is unique, previous large exogenous shocks provide a relevant basis for assessing its long-term impact. This box looks at the great influenza pandemic of 1918-19 and the oil price shocks of 1973 and 1979 with the aim of assessing their long-term impact on growth in what are today euro area countries. These episodes can be related to the COVID-19 shock in that they were exogenous, although their severity may have differed (see Chart A). At the same time, the fast, coordinated and large-scale policy response also makes the COVID-19 episode unique.

47 See Papanikolaou, Dimitris and Schmidt, Lawrence D.W. "Working Remotely and the Supply-side Impact of Covid-19", *NBER Working Paper No 27330*, National Bureau of Economic Research, June 2020 and del Rio-Chanona, R. Maria et al., "Predicting the supply and demand shocks of the COVID-19 pandemic: An industry and occupation perspective", VOX, Centre for Economic Policy Research Policy Portal, 16 May 2020

48 See Barrot, Jean-Noël et al., "Sectoral effects of social distancing", *Covid Economics, Vetted and Real-Time Papers*, No 3, Centre for Economic Policy Research, 10 April 2020, pp. 85-102.

49 After the initial shock, some changes in the way we work might be expected. For example, according to estimates, in the United States, nearly 40% of jobs could be plausibly performed from home. See Dingel, Jonathan and Neiman, Brent, "How many jobs can be done at home?", *Covid Economics, Vetted and Real-Time Papers*, No 1, Centre for Economic Policy Research, 3 April 2020, pp.16-24.

50 See Laeven, Luc, "Pandemics, Intermediate Goods, and Corporate Valuation", *CEPR Discussion Paper DP15022*, Centre for Economic Policy Research, 9 July 2020.

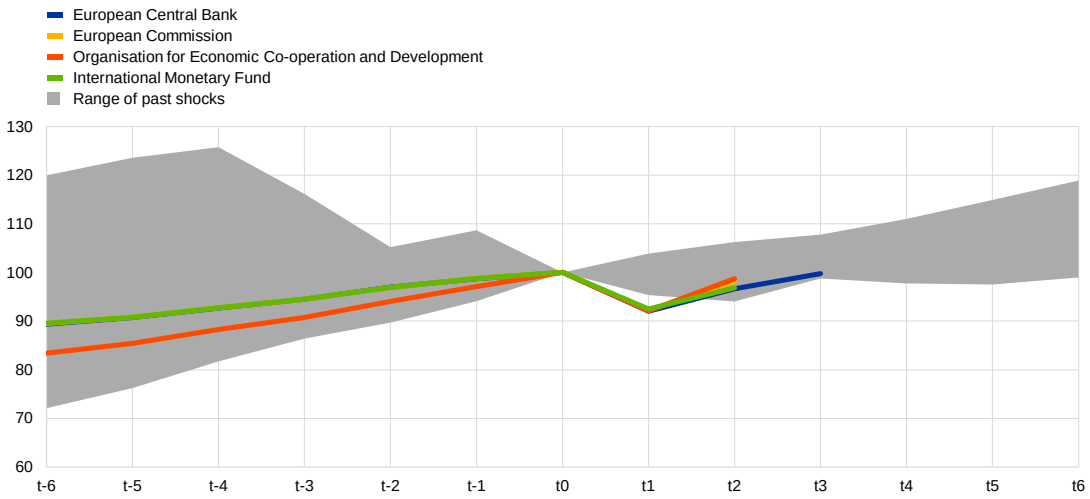
51 Possible permanent impacts are discussed in Cerra, Valerie et al., "Hysteresis and Business Cycles", *IMF Working Paper WP/20/73*, International Monetary Fund, May 2020.

52 See Ludvigson, Sydney C. et al., "COVID-19 and The Macroeconomic Effects of Costly Disasters", *NBER Working Paper No 26987*, National Bureau of Economic Research, Cambridge, Massachusetts, September 2020 and Jordà, Òscar et al., "Longer-run Economic Consequences of Pandemics", *NBER Working Paper No 26934*, National Bureau of Economic Research, Cambridge, Massachusetts, April 2020.

Chart A

Range of real GDP in past and present exogenous shocks in today's euro area

(level, year before the shock = 100)



Sources: Maddison Project Database, version 2018; Bolt, Jutta et al., "Rebasing Maddison: new income comparisons and the shape of long-run economic development", *GGDC Research Memorandum No 174*, January 2018; June 2020 Eurosystem staff macroeconomic projections; European Commission (EC); International Monetary Fund (IMF); and Organisation for Economic Co-operation and Development (OECD).
Notes: This chart shows GDP for the five years before and after the exogenous shock for an aggregation of the euro area countries. The legend indicates the dates chosen for t0, which is the year before the shock, or, if the shock hit only in the second half of the year, the year of the shock itself. The shocks included in the range include the influenza pandemic in 1918-19, the oil price shocks of 1973 and 1979 and the great financial crisis in 2007-08. The solid lines reflect the latest projections by the international organisations, where t0 is the 2019 level of GDP.

The great influenza pandemic does not appear to have resulted in a statistically significant lasting adverse effect on the GDP growth rate. That pandemic, which propagated worldwide in 1918-19 (namely in the last years of World War I), had a direct impact on labour input. It resulted in high fatality rates in the working age population,[53] absenteeism and shutdowns of businesses. The COVID-19 shock, however, is associated with a much lower fatality rate among the working age population. Moreover, its economic impact is more related to the containment measures aimed at protecting the population and it has resulted in confidence and uncertainty shocks that have affected both households and businesses, with some sectors more affected than others. Estimating a vector error correction model including fatality rate determinants (see below) for the period 1901-25, we find that the great influenza pandemic had a negative impact on GDP growth. However, the effect on GDP growth is estimated to have been temporary, in contrast to the shock concomitant with World War I.[54]

By contrast, the rises in oil prices of 1973 and 1979 were permanent and had a more lasting effect on euro area GDP growth rates. The oil price shocks largely hit European economies, with productivity being the main channel of economic growth affected.[55] While this shock primarily affected supply, it also had an impact on demand, as income and spending were squeezed in oil-importing countries. The oil price increase was permanent: the level of oil prices never returned to that observed in the early 1970s. Accordingly, we find that the oil price shocks had a permanent negative effect on GDP

53 The death toll estimates range from 50 million to close to 100 million, representing 2.5% to 5% of the world's population (see Maddison Historical Statistics, 2020 and Cirillo, Pasquale and Taleb, Nassim Nicholas, "Tail risk of contagious diseases", *Nature Physics*, Vol. 16, Nature Research, 25 May 2020, pp. 606-613.

54 This outcome is consistent with Barro, Robert J. et al., "The Coronavirus and the Great Influenza Pandemic: Lessons from the 'Spanish Flu' for the Coronavirus's Potential Effects on Mortality and Economic Activity", *NBER Working Paper No 26866*, National Bureau of Economic Research, Cambridge, Massachusetts, April 2020.

55 The price of a barrel of Brent oil rose by 168% in 1974, followed by a rise of 51% in 1979 and 67% in 1980. The shock was triggered by political events affecting the main producing countries.

level and a protracted negative effect on growth rates. The second-to-last column of Table B shows that a permanent 1% increase in oil prices reduced euro area GDP by 0.2% in the long run, regardless of the effect of higher oil prices on capital intensity, which mitigated the negative impact on GDP. Our findings are in line with other papers that link the oil price shocks to the ensuing period of curtailed economic growth.[56]

Our method is based on the estimation of error correction equations, primarily linking the change in GDP to that in capital intensity. Depending on the estimated period, we enhance our estimates with other explanatory factors. For the period of the great influenza pandemic, the equation has the following form:

$$\Delta y_{i,t} = c_{st} - \beta_0\left(y_{i,t-1} - \beta_1 ki_{i,t-1} - \beta_2 WAR_{i,t-1}\right) + \beta_3 FLU_{i,t} + \epsilon_{i,t}$$

where, for each country i, $y_{i,t}$ is the log of annual GDP, ki_t the log of capital intensity, $WAR_{i,t}$ the World War I fatality rate and $FLU_{i,t}$ the pandemic fatality rate. Fatality rates are expressed as a percentage of the population. The estimation is carried out using a panel and includes country fixed effects that are not shown in the equation. The coefficient estimates are shown in Table A.

Table A

Error correction model for the period of the great influenza pandemic

	c_{st}	β_0	β_1	β_2	β_3
	2.96***	0.13***	0.59***	-112.78***	-5.60***
R^2 : 0.19	Sample: 1901-25			Number of observations: 475	

Sources: ECB staff calculations; Bergeaud, Antonin et al., "Productivity Trends in Advanced Countries between 1890 and 2012", *Review of Income and Wealth*, Vol. 62, No 3, International Association for Research in Income and Wealth, September 2016, pp. 420-444; Barro, Robert J. et al., "The Coronavirus and the Great Influenza Pandemic: Lessons from the 'Spanish Flu' for the Coronavirus's Potential Effects on Mortality and Economic Activity", *NBER Working Paper No 26866*, National Bureau of Economic Research, Cambridge, Massachusetts, April 2020.
Notes: The rate of GDP growth, proxied by its log-difference, refers to the annual growth rate of real GDP in US dollar terms adjusted for purchasing power parity in 2010. Capital intensity refers to the ratio of capital to labour expressed in hours worked. Fatality rates are expressed as a percentage of the population. Values for the influenza fatality rate outside of 1918-20 are set to zero. Oil price is expressed in log-level in the long run and in log-difference in the short run. The sample for GDP growth covers 21 countries. Estimation is done by the panel least squares method. The standard errors of the coefficient estimates allow for clustering of the error terms by year. (*), (**) and (***) denote 10%, 5% and 1% significance level respectively.

For the oil price shocks period, the equation has the following form:

$$\Delta y_{i,t} = c_{st} - \beta_0\left(y_{i,t-1} - \beta_1 ki_{i,t-1} - \beta_2 oil_{t-1}\right) + \beta_3 \Delta oil_{t-1} + \epsilon_{i,t}$$

where, for each country i, $y_{i,t}$ is the log of annual GDP, $ki_{i,t}$ the log of capital intensity and oil_t the log of the price of Brent crude oil in euro. The estimation is carried out using a panel and includes country fixed effects that are not shown in the equation. The coefficient estimates are shown in Table B.

[56] Blinder, Alan S. and Rudd, Jeremy B., "The Supply-Shock Explanation of the Great Stagflation Revisited", in Bordo, Michael D. and Orphanides, Athanasios (eds.), *The Great Inflation: The Rebirth of Modern Central Banking*, University of Chicago Press, Cambridge, Massachusetts, June 2013, pp. 119-175.

Table B

Error correction model for the period of oil price shocks

	c_{st}	β_0	β_1	β_2	β_3
	2.10***	0.03***	0.68***	-0.20***	-0.03***
R^2 : 0.56	Sample: 1963-86		Number of observations: 216		

Sources: ECB staff calculations, Bergeaud et al., op. cit., Barro, Robert J. et al., op. cit.
Notes: The rate of GDP growth, proxied by its log-difference, refers to the annual growth rate of real GDP in US dollar terms adjusted for purchasing power parity in 2010. Capital intensity refers to the ratio of capital to labour expressed in hours worked. Death fatality rates are expressed as a percentage of the population. Values for the influenza death rate outside of 1918-20 are set to zero. Oil price is expressed in log-level in the long run and in log-difference in the short run. The sample for GDP growth covers 21 countries. Estimation is done by the panel least squares method. The standard errors of the coefficient estimates allow for clustering of the error terms by year. (*), (**) and (***) denote 10%, 5% and 1% significance level, respectively.

The COVID-19 shock is expected to be followed by a larger drop in GDP in the euro area than previous exogenous shocks or the great financial crisis. This reflects the large expected short-run effect of the shock, although the uncertainty about the longer run remains high. It should also be noted that in the second half of 2020, a strong rebound in economic activity is expected, which was not the case during the 2007-08 financial crisis. Transferring the results from this box to the current shock, its long-term damage to the economy could be hoped to be rather small should the shock fade out rather quickly (i.e. if a vaccine is found that ensures that the shock is not lasting or recurring).

4 COVID-19: channels of impact on potential output

The coronavirus and, in particular, the related containment and lockdown measures are likely to affect most components of potential output. The channels are discussed below for each component (TFP, capital and labour), also with reference to experience during and after the great financial crisis.

The coronavirus and containment measures negatively affect trend TFP through several channels. Supply chain disruption might be persistent and firms might need to find new suppliers, new transport routes or new locations of production. This might be exacerbated if the current pandemic increases protectionism and accelerates de-globalisation. If this is the case, sectors that have greatly benefited in terms of productivity growth from international exposure and globalisation might experience a decline in trend TFP. Financial distress might increase the financing cost of new, productive projects and might also increase corporate default rates (see Box 2 for a more detailed analysis). The destruction of jobs resulting from a surge in firm exits would potentially lead to productivity losses if reallocation of displaced workers to other firms is slow and results in a deterioration of workers' skills in the long run.

However, a few factors might counterbalance the negative impact on trend TFP. The COVID-19 shock has had an asymmetric impact on various sectors of activity and might, therefore, result in TFP-enhancing sector reallocation. This may be the case if some low-productivity sectors are more persistently affected and lose economic importance to the benefit of less affected high-productivity sectors. For example, during the great financial crisis, in some countries, notably in Spain and in Italy, trend TFP growth started to improve as the crisis was seen as increasing allocative efficiency by reallocating resources from the low-productive construction sector to the

relatively higher-productive manufacturing sector. Moreover, if low-productive firms were relatively more affected by the shock, there could be a "cleansing effect".[57] Box 2 shows, however, that given the non-economic nature of the COVID-19 shock, there might be less of a silver lining to the present crisis than to the great financial crisis. Finally, although the effect is probably rather small in the short term, containment measures might have accelerated the progress of digital uptake in firms across all sectors and may thus enhance productivity growth in the medium term.[58] Nevertheless, the overall negative impact on trend TFP and its contribution to potential growth might be considerable.

The COVID-19 shock may negatively affect the capital stock in the euro area, mainly through lower investment. First and foremost, despite supportive financing conditions, the high level of uncertainty could adversely affect investment decisions. Furthermore, the decline in value added could also hit investment (accentuated by the "accelerator effect"), while falling corporate margins could dampen investment expenditures.

Capital scrapping and depreciation may be affected by two offsetting effects. Company liquidations might entail some of the capital assets being scrapped before the end of their service life (see also Box 2). On a positive note, the lifespan of existing assets may be extended thanks to less intensive utilisation if they were shut down during the lockdown. The equipment of firms where employees work largely from home might also wear out more slowly, since equipment might be provided by the workers rather than the firm. During the great financial crisis, it seems that the former effect predominated, leading to an increase in the average scrapping rate of capital assets.[59]

The sectors most affected by the decline in activity are also those that contribute the most to changes in the euro area productive capital stock. Traditionally, the manufacturing and retail trade, transport (including travel), accommodation (including hotels) and food and beverage sectors have been the largest contributors to developments in investment in machinery and equipment. The first available data point to a substantial deterioration in investment in 2020, but a rebound in economic activity and investments is expected in the second half of the year. While the contraction in the first half of 2020 could lead to a permanent reallocation of capital from the sectors most affected, the overall impact on potential output depends on how persistently investments are ultimately curtailed.

The labour contribution to potential output could be severely hit but is currently significantly supported by sizeable policy measures. The short-time working

---

57 See Caballero, Ricardo J., and Hammour, Mohamad L., "The Cleansing Effect of Recessions", *The American Economic Review*, Vol. 84, No 5, December 1994, pp. 1350-1368.

58 The OECD has estimated that a 10 percentage point increase in the adoption of high-speed broadband (or cloud computing) would translate into a contemporaneous increase in TFP growth of 1.4 percentage points (see Gal, Peter et al., "Digitalisation and productivity: In search of the holy grail – Firm-level empirical evidence from EU countries", *OECD Economics Department Working Papers No 1533*, OECD Publishing, Paris, 12 February 2019.

59 See Anderton, Robert et al., "Potential output from a euro area perspective", *ECB Occasional Paper Series,* No 156, ECB, November 2014.

schemes introduced in many countries[60] have the potential to limit hysteresis and longer-term scarring in the euro area labour market. However, in the event of a more lasting shock and the eventual scaling down of mitigating policies, hysteresis effects could emerge, resulting in a more persistent increase in the non-accelerating inflation rate of unemployment (NAIRU). This can happen if people become long-term unemployed, which tends primarily to affect the younger and lower skilled. Based on the experience of the great financial crisis, we can assume that the NAIRU will rise again. There are, however, some differences here between that crisis and the present one.

(i) The increase of the NAIRU during the great financial crisis partially reflected the impact of the second phase of the crisis, which was relatively severe.

(ii) The NAIRU is estimated to have declined significantly in recent years, reflecting more flexible labour markets as a result of reforms in several euro area countries. The higher labour market flexibility might reduce the extent to which the NAIRU rises in the face of the current shock.

(iii) In contrast to the present shock, the great financial crisis mostly affected the construction sector and industry, but seemed to be smaller in market services, which have a high weight in the value added of the total economy. The COVID-19 shock, however, is assumed to be affecting all major sectors to a considerable degree and this simultaneous decline may increase the probability of hysteresis effects occurring. In some industrial and market services subsectors, the shock can also trigger or accelerate structural changes. This may imply a larger and more immediate impact on the NAIRU than that seen as a result of the great financial crisis.

If the shock turns out to be more persistent, working age population growth could slow due to lower migration. Immigration has had an upward impact on working age population growth in the euro area recently. Cross-border and immigrant workers tend to work in sectors that are considerably affected by the shock (for example accommodation, retail trade and food service). Due also to a higher share of precarious contracts, they may be more vulnerable to dismissal. In addition, tighter travel restrictions may prevail for an extended period of time and the willingness of workers to move might decrease. This, however, may also cushion the reaction of the NAIRU to the shock in net immigration countries. Due to differences in net immigration, the impact may vary considerably across euro area countries.

Other components of trend labour input might also be affected. The continuation of the recent rise in the trend participation rate may be at risk, for example in the case of older workers withdrawing from the labour market in the aftermath of the shock.[61] Trend participation of women may also be affected as they are more represented in the sectors hit harder by the shock (e.g. accommodation and food service activities; the arts, entertainment and recreation), compared with other sectors less affected.[62]

---

60 See the box entitled "Short-time work schemes and their effects on wages and disposable income", *Economic Bulletin*, Issue 4, ECB, 2020

61 See the article entitled "Drivers of rising labour force participation – the role of pension reforms", *Economic Bulletin*, Issue 5, ECB, 2020.

62 Adams, Abigail et al., "Furloughing", *CEPR Discussion Paper DP15194*, Centre for Economic Policy Research, August 2020.

Both groups have made a considerable contribution to the rising trend labour force participation rate in recent decades.

The impact of the shock on components of potential output may depend on which sectors are more affected. The current shock may have a more permanent impact on some service sectors, primarily those that have been relying on the benefits of globalisation – namely accommodation, travel and transportation. But domestic service sectors may also be negatively affected in the longer term. The expansion of services seen in recent decades supported employment growth and likely contributed to the rise of labour supply. An L-shaped shock in these sectors may increase the possibility of declining trend labour input, through the NAIRU, but also potentially through the trend participation rate. In addition, as described above, capital can be negatively affected. In manufacturing, purchases of goods (as opposed to services) can be postponed and pent-up demand may imply stronger growth later. However, at least some subsectors may be permanently affected as the current shock may coincide with the impact of ongoing structural challenges. By contrast, a permanent shock to some manufacturing sectors may increase the probability of a larger shock to capital and TFP components.

Box 2
The impact on potential output of a surge in firm exits as a result of COVID-19

Prepared by Paloma Lopez-Garcia

Whether the current crisis will leave long-term scars will depend, among other things, on the number and nature of companies that default as a result of the liquidity strains caused by the lockdown and containment measures. This box uses Orbis and iBACH-sourced financial accounts of firms operating in the private sector of four euro area countries (Germany, Spain, France and Italy) to approximate the number of firms at risk of default as a result of the lockdowns and subsequent weak economic growth. The objective of the analysis is to measure the economic impacts of a surge in firm exits on the drivers of potential output, these being employment, capital and productivity growth.

To gauge the magnitude of the impacts, the analysis simulates the dynamics of the liquidity of firms over time. The sudden collapse in revenues of firms as a result of the lockdowns together with their limited capacity to adjust costs have shocked the liquidity buffers firms have built up over recent years. In order to flag firms facing liquidity shortfalls as a result of the shock[63], it is assumed that the liquidity of firms at any month *t* is equal to the remaining liquidity from the previous month plus monthly sales net of operating costs.[64] Revenues change according to sector-specific value added consistent with expected headline GDP. The ability of firms to adjust costs, however, depends on estimated elasticities of intermediate and labour expenses to changes in firm-level turnover.[65]

Our analysis shows that Spain is the most affected country, with about 25% of the population of firms with employees at risk of becoming illiquid at the peak of the crisis (28% of employees) assuming no

63 Hence the analysis accounts only for firms that were liquid before the COVID-19 crisis.

64 Following Schivardi, Fabiano and Romano, Guido "A simple method to estimate firms' liquidity needs during the Covid-19 crisis with an application to Italy", *Covid Economics, Vetted and Real-Time Papers*, No 35, Centre for Economic Policy Research, 7 July 2020, pp. 51-69.

65 Initial liquidity is approximated by the liquidity level of firms at the latest available year, 2017 in the case of this exercise, and monthly sales and costs are computed simply as annual sales or costs divided by 12. Finally, firm-level data are weighted so they are representative of the population of firms in each country.

policy support (see Chart A, upper panel, blue bar).[66, 67] The results are in line with or somewhat below other estimates (e.g. those of the European Commission or the OECD).[68] Firms with strong balance sheets, however, could partially weather the losses incurred by relying on working capital buffers. In the light of this, the share of firms running into negative working capital is also computed (see Chart A, upper panel, orange bar). Furthermore, among all those firms under stress, i.e. at risk of either liquidity or working capital shortages, the highly leveraged ones might encounter difficulties in raising external finance to cover temporary shortages and might therefore default.[69] According to this criterion, about three-quarters of the firms identified as encountering liquidity or working capital shortfalls are at risk of exit. They account for 10% to 23% of all firms with employees, and between 10% and 17% of employees in the non-financial business sector (see Chart A, upper panel, dots).

The rapid implementation of policies to support the liquidity of firms has significantly reduced the share of firms under stress as a result of the lockdowns. One of the most effective policies has been the introduction of short-time working schemes, which allow firms to reduce their wage bill by temporarily transferring part of the labour costs to governments. They also keep workers attached to their firms, preserving the valuable worker-firm link. In order to evaluate their effectiveness, it is assumed that firms' labour costs are reduced in proportion to the share of workers covered by the schemes in each country, which averages 40% of employees. Chart A (upper panel) shows that the short-time working schemes halve the share of firms under liquidity stress in most countries, and reduce by almost two-thirds the employment at risk, given that labour costs account for a large part of firms' operating costs. These schemes, however, are not as effective in reducing the number of firms at risk of working capital shortfalls. The reason for this is that cash accounts for about 20% of firms' current assets. The schemes therefore affect a relatively small part of firms' working capital.

66 If the analysis also took into account corporations with no employees and sole traders, the share of firms at risk of illiquidity would go up in all countries by about 5 percentage points. If the original analysis included firms that were illiquid at the start of the crisis, the share of illiquid firms at its peak could double in all countries.

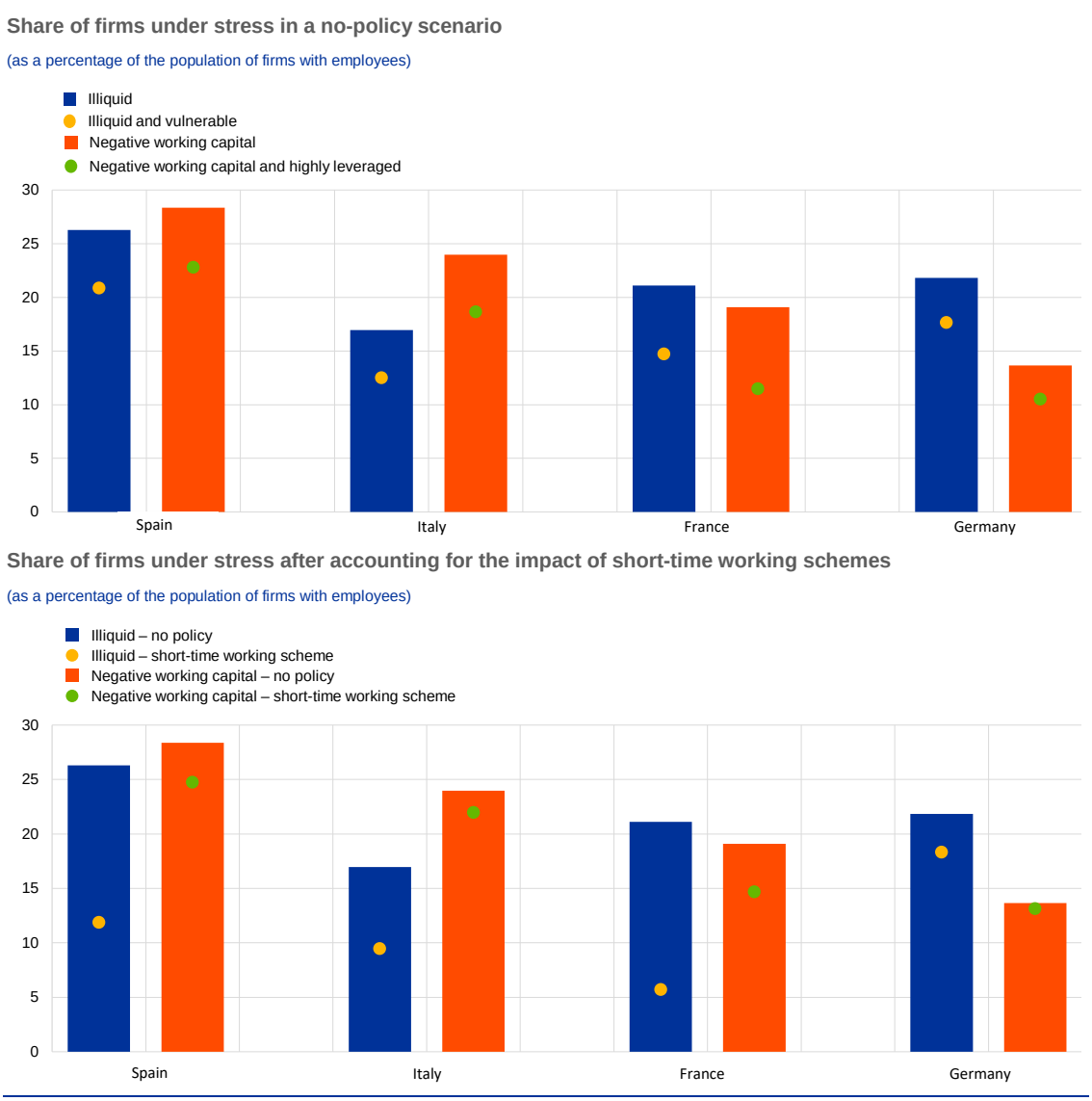
67 The severe impact of the crisis on Spain, and to a lesser extent on Italy, is grounded in its sector composition and the dominance of micro firms in the productive structure.

68 The most similar study, although with better Italian data, is Schivardi and Romano, op. cit., who estimate that about 20% of firms in Italy might be at risk. The European Commission estimates that 35% of firms across the EU27 would be under liquidity stress in their intermediate scenario, whereas the OECD estimates that about 30% of firms would be at risk of illiquidity after two months of lockdown.

69 Firms in the top 25% of the country-sector distribution of leverage are assumed to be "highly leveraged".

Chart A

Share of firms at risk



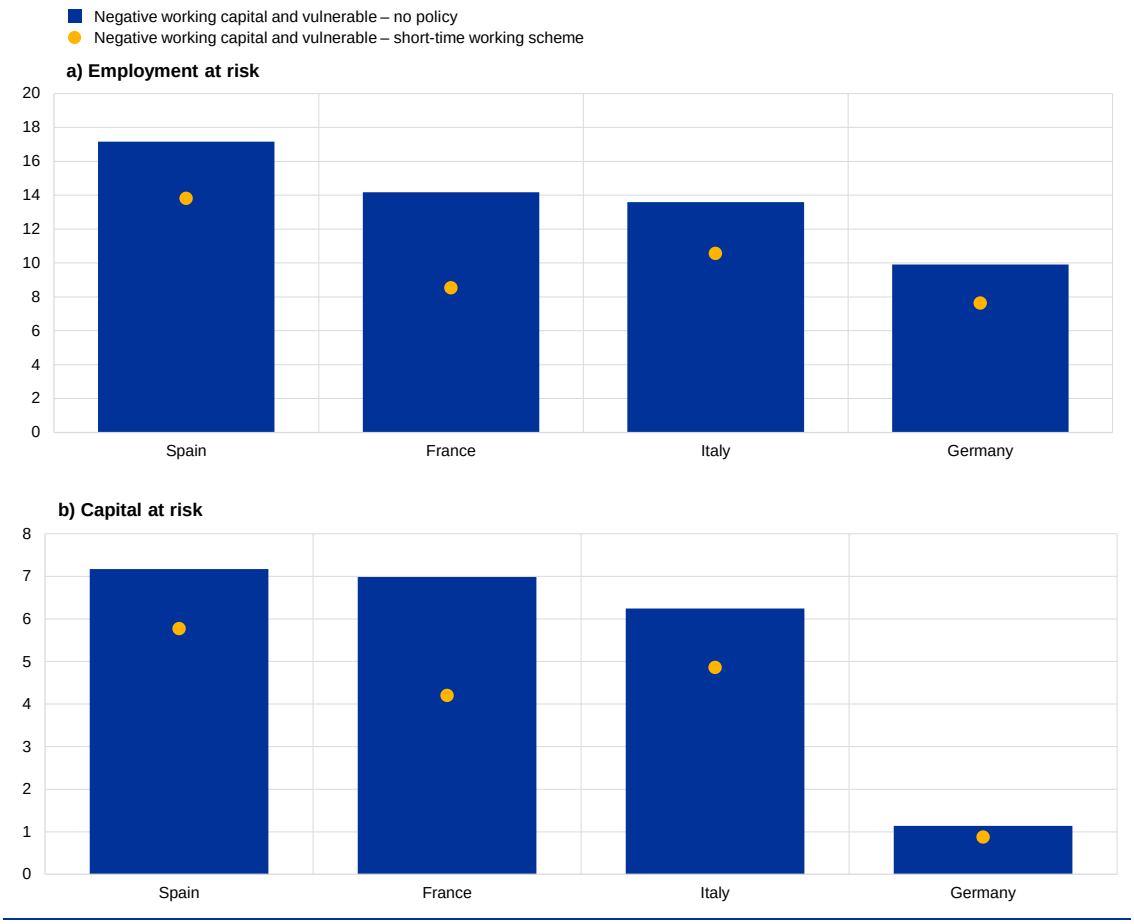
Source: ECB staff calculations based on Orbis and iBach data.

Chart B (upper panel) shows the total number of employees working in firms at risk of exit, defined as firms with negative working capital and high leverage, in each country as a percentage of the workforce of the non-financial corporation (NFC) sector. It can be seen that under the no-policy scenario, between 10% and 17% of the employees in the NFC sector could lose their job. The share of the NFC capital stock installed in firms at risk of exit is shown in the lower panel. For this exercise, it is assumed that 60% of installed capital can be reused, or in other words 40% of capital is scrapped after firm exit. Under this assumption, up to 7% of the capital stock could be lost as a result of firm exit. Hence the potential costs of firm exit in terms of job separations and capital destruction can be large. The mitigating impact of short-time working schemes is shown by the dots in both panels of Chart B.

Chart B

Employment and capital at risk

(as a percentage of employment in the NFC sector)



Source: ECB staff calculations based on Orbis and iBach data.

The impact of firm exit on aggregate productivity growth is ambiguous. Besides the expected negative impacts of firm exit on TFP growth listed in the main text, the current crisis could have a silver lining for TFP growth. Indeed, sector reallocation triggered by the loss in economic importance of low-productive sectors like those related to tourism and the gain in high-productive ones could increase aggregate TFP growth in the medium term. Furthermore, if low-productive firms are relatively more affected by the shock, there could be a "cleansing effect". It is possible, however, that the latter will contribute relatively less to aggregate TFP growth than in previous crises. The reason is that the COVID-19 shock is not economic in nature and could therefore affect both productive and unproductive firms in any given sector.[70] Last and most importantly, the acceleration of digital uptake by the corporate sector could result in positive productivity impacts in the medium-term.

To conclude, the large potential economic costs of a surge in firm exits as a result of the COVID-19 shock justify the large support schemes implemented by all European governments. However, if those schemes are withdrawn before the revenues of firms from activity recover, we could see some

[70] ECB internal work confirms that whereas the average productivity of firms at risk of exit in Spain and Italy is clearly lower than that of other firms, this is not the case in Germany and France. In the latter two countries the productivity of firms at risk of exit is similar to that of less vulnerable firms, even after controlling for sector of activity. This is different from other crises, in which exiting firms were significantly less productive than incumbents.

cliff effects. Hence, to prevent long-term scars from the crisis the design and timing of the exit strategies will be as important as those of the support packages themselves.

5 Quantitative estimates of the impact of COVID-19 on potential output

This section reviews recent estimates of potential output and several statistical methods.

This section presents the unobserved components model (UCM), which is a key tool in the assessment of potential growth within the euro area.[71] The UCM combines a multivariate filter approach with a Cobb-Douglas production function relating potential output to labour, capital and TFP. The underlying model is a backward-looking state-space model that decomposes four key observable variables (real GDP, the unemployment rate, a measure of core inflation and another of wage inflation) into trend and cyclical components. It relies on several economic relationships for this, including a Cobb-Douglas production function, a wage and a price Phillips curve, and an Okun's law[72] relationship. In the model, a closed output gap is consistent with the absence of excessive price or wage pressures.[73]

At this point in time, modelling potential growth and trend-cycle breakdowns is a challenging exercise. The nature and magnitude of the shock (see Section 2) and its far-reaching implications, especially for the labour market, and extensive government interventions make it necessary to adjust the normal set-up of the UCM. Without being exhaustive, a few aspects that needed to be modified are listed below. First, given the sharp drop in activity in the first half of 2020, the UCM applied to the 1995-2022 period as a whole would lead to a substantial downward revision of potential growth in the period preceding the crisis. To avoid this statistical artefact, potential output estimate is frozen prior to 2020 and is then overlaid with the estimate carried out for the period 2020-22. Moreover, some economic relationships are temporarily affected by the shock, such as the Okun's law. This relationship had to be adjusted to allow for GDP to fall more than unemployment has risen. Finally, a degree of judgement had to be introduced on certain variables such as the NAIRU or the average number of hours worked so that their trend would better reflect foreseeable medium-term and long-term changes.

Potential growth in the euro area is estimated to have been severely affected throughout the current crisis. Conditional on the Eurosystem staff macroeconomic projections of December 2019, the UCM would originally have suggested that potential output was likely to evolve in line with observations in recent years, between

71 The estimates presented in this section are conditional on the September 2020 ECB staff projections.

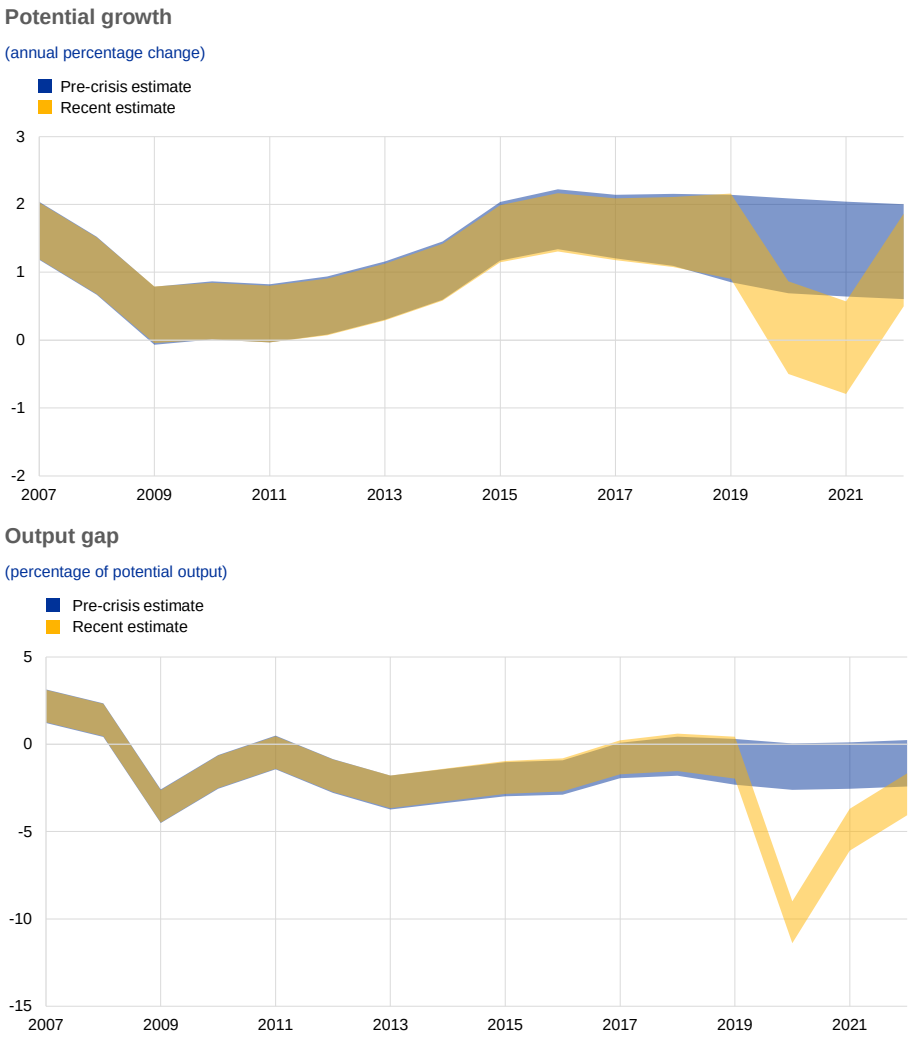
72 Okun's law links cyclical unemployment to the output gap.

73 The UCM approach estimates the trends of the different production function inputs jointly in a system of equations in which the trend-cycle decomposition is subject to certain key, albeit reduced-form, economic relationships. For further explanation, see Tóth, M., "An Unobserved Components Model to Estimate Potential Output in the Euro Area – a Production Function Based Approach", *ECB Working Paper Series*, ECB (forthcoming).

1% and 2% annually between 2020 and 2022. The COVID-19 crisis has changed the picture, as the latest estimates based on the September 2020 staff macroeconomic projections indicate that potential growth would average between -0.3 and 1.1% annually between 2020 and 2022 (see Chart 2, upper panel). Compared with the great financial crisis, the impact is much larger. In the wake of the previous crisis, potential growth only fell by somewhere between 0.0% and 0.7% per year. Potential output would, however, fall less than real GDP, resulting in an unprecedented drop in the output gap (see Chart 2, lower panel).

Chart 2

Euro area potential growth and output gap



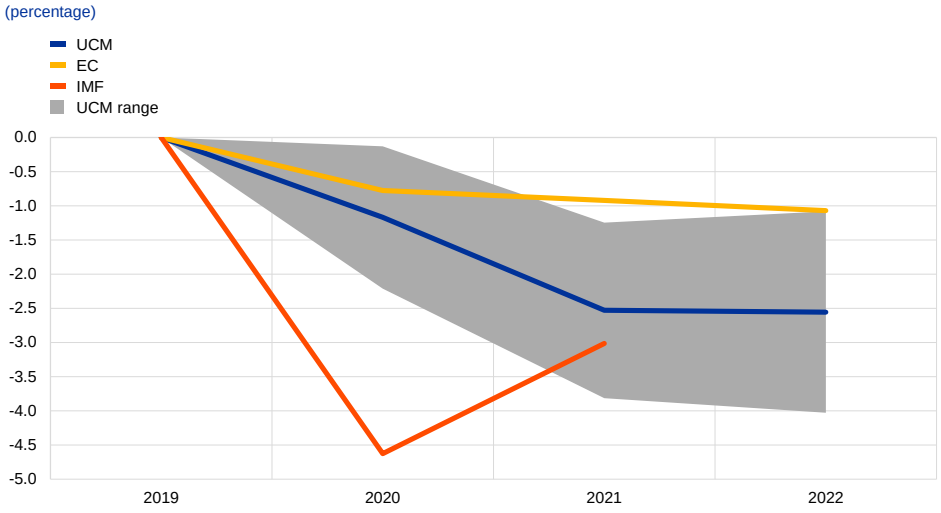
Source: ECB staff calculations.
Notes: Shaded areas indicate interval estimates based on the UCM (representing an uncertainty band of plus/minus two standard deviations around the point estimate). The blue area represents the UCM projection conditional on the December 2019 Eurosystem staff projections, while the yellow area represents the UCM projection conditional on the September 2020 ECB staff projections.

The level of euro area potential output would remain well below the path suggested by pre-crisis projections. This can be illustrated with the cumulative loss of potential output estimated with the UCM between December 2019 and September 2020 (see Chart 3). Overall, the loss in the level of potential output would reach almost 3% by the end of 2022. Even though potential growth would return fairly soon to

pre-crisis rates, the potential output level would be affected for longer. The UCM provides a tentative outlook on the future level of potential output. The projection falls between that of the IMF and that of the European Commission. Nevertheless, all these estimates are subject to considerable uncertainty, as indicated by the shaded areas in the charts above, accounting for a range between estimations of 95%. Furthermore, caution is warranted when using such gaps as a proxy for the impact of the crisis. Real-time estimates of potential output are often subject to substantial revisions, especially in times of crisis, and estimates of the euro area aggregate mask significant heterogeneity across individual euro area countries.

Chart 3

Loss in euro area potential output



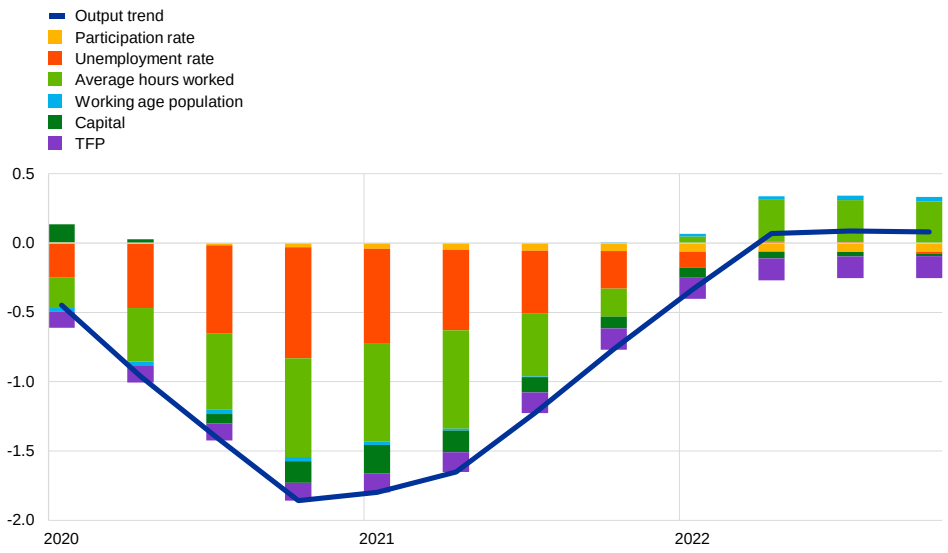
Sources: ECB staff calculations, IMF World Economic Outlook, European Commission.
Note: This chart shows the difference in the level of potential output before the crisis levels and based on the most recent estimates.

According to the UCM, the contribution of labour is pivotal to the changes in potential output. The contribution of labour to potential growth can be traced back to trends in the working age population, the labour force, the unemployment rate and hours worked per employee. Estimates of the UCM show that the latter two components would see their trend affected most by the current crisis. The NAIRU would rise significantly and remain elevated even in 2022 due to hysteresis phenomena. However, this effect might be mitigated by short-time working schemes, which is not fully captured by the UCM. Trend average hours worked would weigh on potential growth until the end of 2021 before having a positive effect in 2022. More incidentally, capital stock would also contribute to the downward revision of potential growth linked to the fall in investment (see Box 2 for an analysis of the balance sheets of companies). Conversely, revisions to TFP growth would have a relatively small effect on potential growth. This can be explained by the difficulty faced by the model in capturing major shifts that would affect potential: reallocation of resources, accelerated development of teleworking, increased spending on research and development or biotech, etc. (see Chart 4).

Chart 4

Revisions of components of potential output growth due to the COVID-19 crisis

(annual percentage point difference)



Source: ECB staff calculations.
Note: This chart shows the difference in the breakdown of potential output growth components before the crisis and based on the most recent estimates.

Box 3

A range of quantitative estimates of the impact on potential output

Prepared by Bela Szörfi

Different statistical methods can be used to estimate potential output. The methods presented in this box cover simple statistical filters (Hodrick-Prescott, Beveridge-Nelson), a small multivariate filter (a survey-based measure of slack[74]), the Blanchard-Quah structural vector autoregressive (SVAR) model (using an unemployment rate augmented by people under short-time working schemes), the unobserved components model discussed in detail above, and the Jarociński-Lenza model.[75]

The mean of estimates provided by six different methods shows potential growth stalling and a significantly negative output gap (see Chart A). Most estimates show lower, but still positive, potential growth in 2020, and as a consequence, a significant negative output gap, of at least -3.5% in 2020. One exception is the Jarociński-Lenza model, which estimates a significant drop in potential output and a more stable, albeit negative, output gap.[76]

Overall, the quantitative estimates fall in between the two extreme interpretations introduced in Section 1, confirming that euro area potential output has been seriously affected by COVID-19, but to a lesser extent than real GDP.

74 See the box entitled "A survey-based measure of slack for the euro area", *Economic Bulletin*, Issue 6, ECB, 2015.

75 Jarociński, Marek and Lenza, Michele, "An Inflation-Predicting Measure of the Output Gap in the Euro Area", *Journal of Money, Credit and Banking*, Vol. 50, No 6, 21 May 2018 pp. 1189-1224.

76 Nevertheless, in that model, the output gap estimate is significantly determined by the conditioning on inflation the model prescribes.

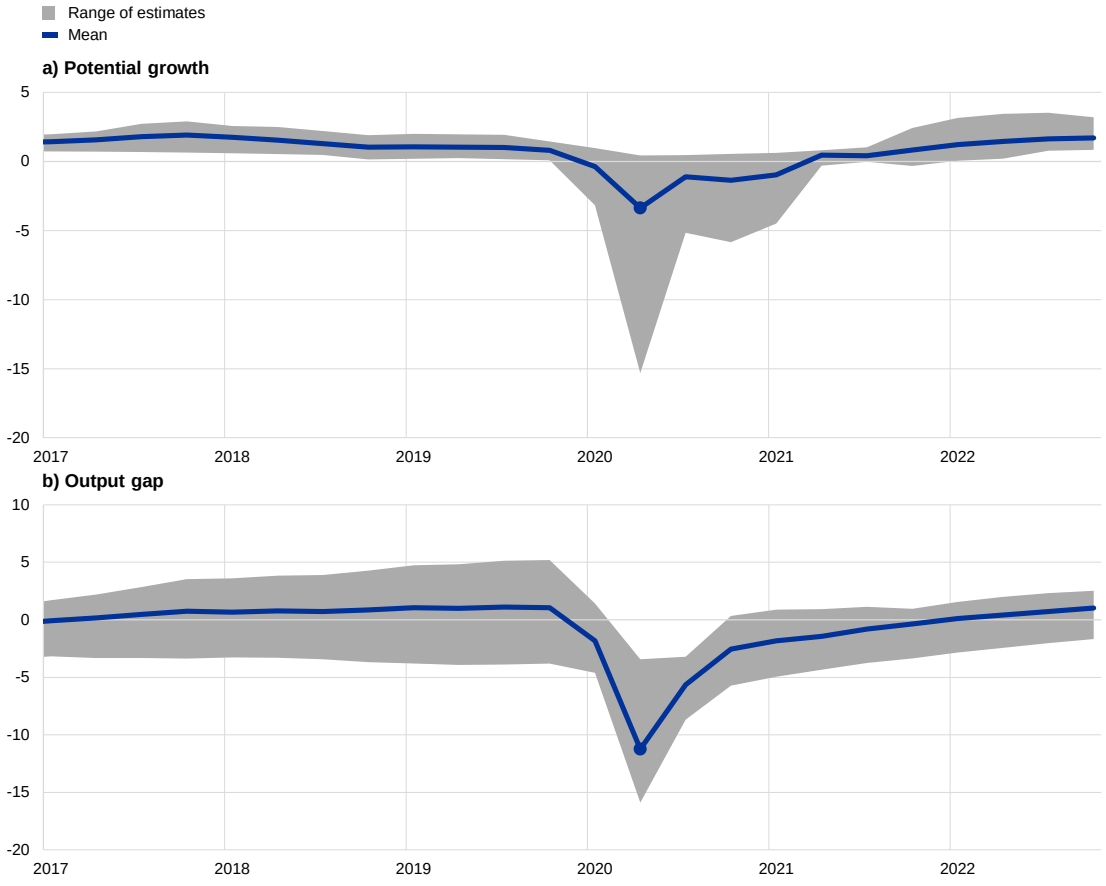
The uncertainty currently surrounding potential output and output gap estimates is at a high level. The range of estimates introduced here becomes extremely wide in the second quarter of 2020: the average width of the range of potential growth is about 2 percentage points, increasing to about 5-7 percentage points during the great financial crisis, and to 16 percentage points in the second quarter of 2020. The range declines beyond the second quarter of 2020 mostly because two of the six measures (the Jarociński-Lenza model and the survey-based measure of slack) do not use forecast data and therefore are not available between the third quarter of 2020 and the final quarter of 2022.

However, the large drop in the output gap may reflect an overestimation of the downward pressures on inflation. This reflects important government support measures for firms and households. Disposable income of households fell less than GDP in the first half of 2020, and thus the cyclical component of disposable income might be less negative than the output gap. As a consequence, the output gap might overestimate downward inflationary pressures. Likewise, labour market slack measures, such as the unemployment gap, defined as the difference between the unemployment rate and the NAIRU, might not be the most adequate measure of inflationary pressures on wages either. Owing to short-time working schemes, the headline unemployment rate has increased less than the business cycle would have suggested. As a result, the unemployment gap may understate downward wage pressures.

Chart A

Euro area potential growth and output gap

(upper panel: annual percentage change; lower panel: percentage of potential output)



Source: ECB staff calculations.
Notes: The range contains six indicators up to the second quarter of 2020, namely the Hodrick-Prescott and Beveridge-Nelson filters, the SVAR model of Blanchard-Quah, the survey-based measure of slack, the UCM and the Jarociński-Lenza model, and only four measures after that (as the survey-based measure and the Jarociński-Lenza model are unavailable). The second quarter of 2020 is marked with a blue circle.

6 Conclusions

The COVID-19 pandemic and related containment measures affect the industries and countries of the euro area to an extent that is likely to affect potential output. However, the scale of this impact over the short and long term is highly uncertain. For the short term, the amplitude of the fluctuation depends significantly on how containment measures are assumed to affect potential output. In the long run, it depends on how long the pandemic will last and the extent to which policy measures are able to protect the economy from excessive scarring, among other factors.

The current crisis is likely to induce some structural changes in the euro area economy and economic policies will play a pivotal role in facilitating this change. In particular, they have an important role in protecting the firms and employees of shrinking industries from hysteresis. Thus far, ECB analysis shows that the rapid implementation of short-time working schemes across European countries has mitigated the potential permanent employment losses resulting from lockdowns.[77] State-backed loans have also been key to facilitating firms' access to liquidity to cover working capital shortfalls. Such measures are crucial to protect the euro area economy from long-term scarring.

[77] See also the box entitled "Short-time work schemes and their effects on wages and disposable income" *Economic Bulletin*, Issue 4, ECB, 2020.

2 European financial integration during the COVID-19 crisis

Prepared by Stefano Borgioli, Carl-Wolfram Horn, Urszula Kochanska, Philippe Molitor and Francesco Paolo Mongelli

This article provides an overview of financial fragmentation during the coronavirus (COVID-19) crisis and the policies enacted to counter its effects. It does so through the lens of a set of high-frequency indicators for monitoring developments in financial integration. The readings from these indicators are then linked to unfolding economic and political events and to the main policy responses in monetary, fiscal and financial stability policy at the national and European levels. After initial sharp fragmentation, euro area financial integration broadly recovered to pre-crisis levels by mid-September, but not for all indicators. However, this recovery is still fragile and relies on an unprecedented amount of fiscal, monetary and prudential policy support.

1 Introduction

The coronavirus (COVID-19) has created an unprecedented type of shock and has caused a sharp economic downturn. In January 2020 the coronavirus started to spread around the globe, including large parts of Europe. On 30 January the World Health Organisation declared COVID-19 to be a public health emergency of international concern and on 11 March upgraded the threat to pandemic status. As it became clear that extensive containment measures would be required to control the spread of the virus, including lockdowns, economic activity in the euro area began a downturn unprecedented in scale and speed.

The coronavirus is a common health emergency, but it has had differing effects across euro area economies. The pandemic caused shocks to both supply and demand. Supply was constrained by business closures and workers staying at home. The halting of retail activities and disruptions in supply chains were then accompanied by a plunge in the demand for intermediate and final goods.[78] While the cause of these shocks has been common to all countries, the size of the economic fallout has differed markedly across countries owing to differences in, among other things, initial macroeconomic and financial conditions, the stringency of public health measures and the strength of domestic fiscal measures to support the economy, for example tax deferrals, loan guarantees, social security payments suspension, export guarantees, liquidity assistance and short-term work schemes.

The coronavirus crisis put the real economy and financial markets under extraordinary stress, leading to an initial sharp fragmentation of euro area financial markets. Within days of the first reported case of coronavirus in Europe on

[78] It has been shown that a supply shock affecting sectors asymmetrically can generate a contraction in demand larger than the initial shock if the interrelation between sectors is strong enough. See Guerrieri, V., Lorenzoni, G., Straub, L. and Werning, I., "Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?", *NBER Working Paper, April 2020.* For the United States, both demand and supply shocks were a factor in the COVID-19 crisis. See Brinca, P., Duarte, J.B. and Faria-e-Castro, M., "Measuring Labor Supply and Demand Shocks during COVID-19", *Working Paper*, No 2020-011D, Federal Reserve Bank of St. Louis, May 2020.

24 January 2020[79], the composite indicator of systemic stress (CISS) started surging towards levels close to those last seen during the global financial crisis (GFC) of 2008 and the euro area sovereign debt crisis (SDC) of 2011-12 (see the yellow line in Chart 1). Within weeks of the first reported cases, the price-based composite indicator of financial integration[80] fell towards levels similar to those observed in the months following the introduction of the euro (see the blue line in Chart 1). The drop between February and April 2020 was comparable to the declines it experienced at the start of the GFC of 2008 and the SDC, and the drop in March 2020 was the fourth-largest month-on-month drop in the level of this indicator since the launch of the euro. There were concerns about fragmentation among euro area countries.[81] A positive correlation between systemic stress and fragmentation in euro area financial markets – a characteristic of previous crises – reappeared. However, one remarkable feature of the COVID-19 crisis, documented in Section 2, has been the fast rebound of financial integration thanks to rapid policy responses and the resilience created by the financial backstops and reforms implemented in the last ten years.

79 See the European Centre for Disease Prevention and Control's COVID-19 timeline.

80 From Hoffmann, P., Kremer, M. and Zaharia, S., "Financial integration in Europe through the lens of composite indicators", *Working Paper Series*, No 2319, ECB, Frankfurt am Main, September 2019.

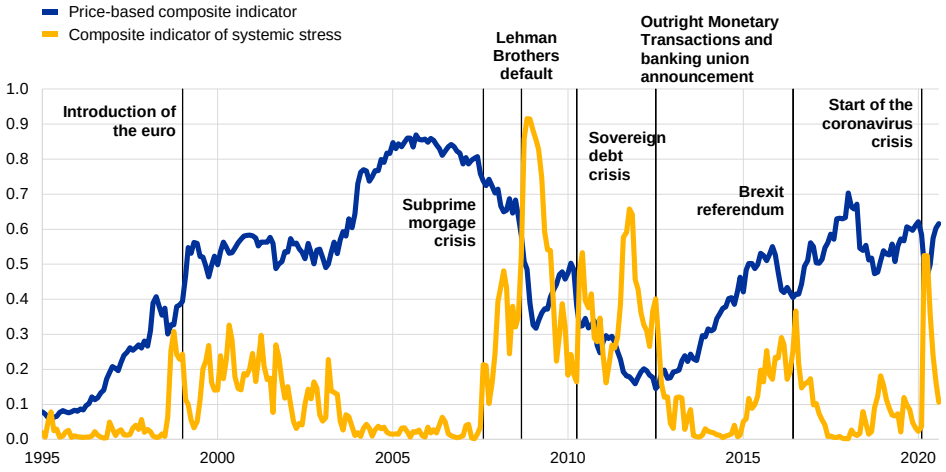
81 See, for instance, Buti, M., "A tale of two crises: Lessons from the financial crisis to prevent the Great Fragmentation", *VoxEU*, July 2020; also de Guindos, L., "Financial stability and the pandemic crisis", *Speech at the Frankfurt Finance Summit*, June 2020.

Chart 1

Financial integration and systemic risk in the euro area

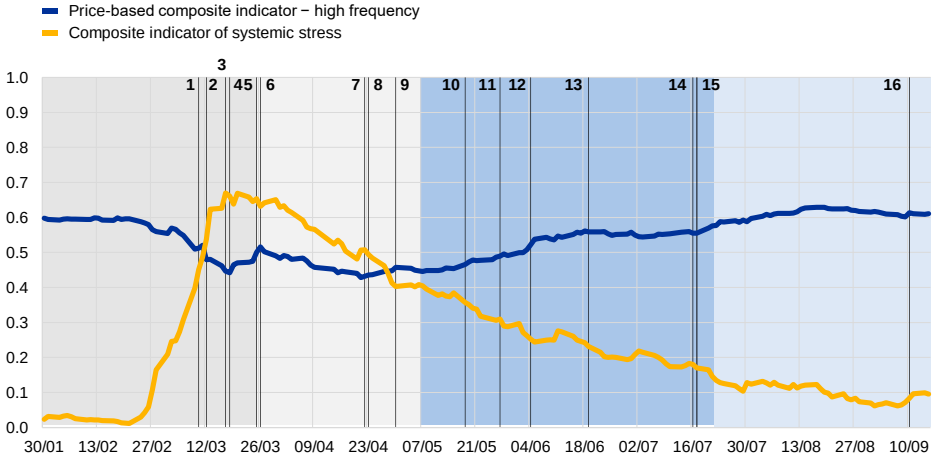
a) Historical price-based financial integration and systemic risk from January 1995 to August 2020

(monthly data)



b) Price-based financial integration and systemic risk during the COVID-19 crisis from 30 January to 15 September 2020

(daily data)



Sources: ECB and ECB calculations.
Notes: The price-based composite indicator of financial integration in panel (a) was developed by Hoffmann, P. et al., op. cit., and transformed to give the daily readings shown in panel (b) (see Box 1). For details on the general methodology behind the CISS, see Holló, D., Kremer, M. and Lo Duca, M., "CISS – a composite indicator of systemic stress in the financial system", *Working Paper Series*, No 1426, ECB, Frankfurt am Main, March 2012. Both indicators are calibrated to vary between 0 and 1. The shaded areas in panel (b) mark the four phases of the crisis as defined in Table 1.

The events shown as numbered lines in panel (b) of this chart are as follows:

1. First European Council meeting on the European response (10 March)
2. ECB Governing Council meeting (12 March)
3. Second European Council meeting on the European response (17 March)
4. ECB announcement of the PEPP (18 March)
5. PEPP legal documentation published (25 March)
6. Third European Council meeting on the European response (26 March)
7. ECB collateral rating freeze (22 April)
8. Fourth European Council meeting on the European response, with endorsement of the Eurogroup's comprehensive policy response and plans for a recovery fund (23 April)
9. ECB Governing Council meeting (30 April)
10. Franco-German €500 billion European recovery fund proposal (18 May)
11. European Commission €750 billion "Next Generation EU" recovery instrument proposal (27 May)
12. ECB expansion of the PEPP (4 June)
13. Fifth European Council meeting on the European response (19 June)
14. ECB Governing Council meeting (16 July)
15. Start of special European Council meeting (17-21 July)
16. ECB Governing Council meeting (10 September).

The rapid unfolding of the COVID-19 crisis triggered the need for high-frequency monitoring of financial fragmentation developments across different market segments. The ECB has monitored the state of financial integration in the euro area since the launch of the euro[82] because fragmented financial markets impede the smooth and uniform transmission of its monetary policy across member countries. In order to monitor euro area financial integration at a higher frequency during the COVID-19 crisis, a toolkit of high-frequency indicators was developed based on the set of indicators presented in an ECB report on financial integration and structure in the euro area and its statistical annex.[83] The technicalities of this development are presented in Box 1. These high-frequency financial integration indicators are a useful tool for monitoring financial fragmentation and can also be used to illustrate the effects of policy actions in response to the economic downturn.

Euro area policy responses to the crisis were decisive at both the national and supranational levels. This contributed to a rapid reversal of financial fragmentation towards pre-crisis levels by mid-September 2020. The ECB's prompt monetary policy and supervisory actions provided a first line of defence to soften the disinflationary shock and counteract the adverse effects of financial fragmentation on the effectiveness of its monetary policy (see the top part of Chart 2 for an overview). These responses have taken the form of additional asset purchases through the asset purchase programme (APP) and the new pandemic emergency purchase programme (PEPP), bank lending programmes at highly favourable conditions (targeted longer-term refinancing operations), supervisory measures and coordinated liquidity provision programmes. National fiscal policymakers also reacted immediately throughout the euro area, even in fiscally constrained countries, although the size of fiscal packages varied across countries. In addition, recognising the importance of a centralised crisis response, over the course of the crisis European policymakers have established a variety of pan-European support measures, such as the three safety nets – the temporary SURE scheme (Support to mitigate Unemployment Risks in an Emergency), a loan guarantee scheme by the European Investment Bank (EIB), a new credit line from the European Stability Mechanism (ESM) –, the Next Generation EU fund and the reinforcement of the 2021-2027 Multiannual Financial Framework (MFF) (see Chart 2 for an overview of the European monetary, supervisory and fiscal measures taken). National fiscal measures, which were deployed very rapidly, are not included in this chart. These policies, together with the higher degree of resilience in financial integration achieved through the institutional reforms of the last ten years, have helped to reverse much of the initial sharp fragmentation of financial markets. Financial integration has broadly returned to its pre-crisis levels as of mid-September. This apparent return to the situation before the COVID-19 outbreak, however, is fragile and relies heavily on continued policy support.

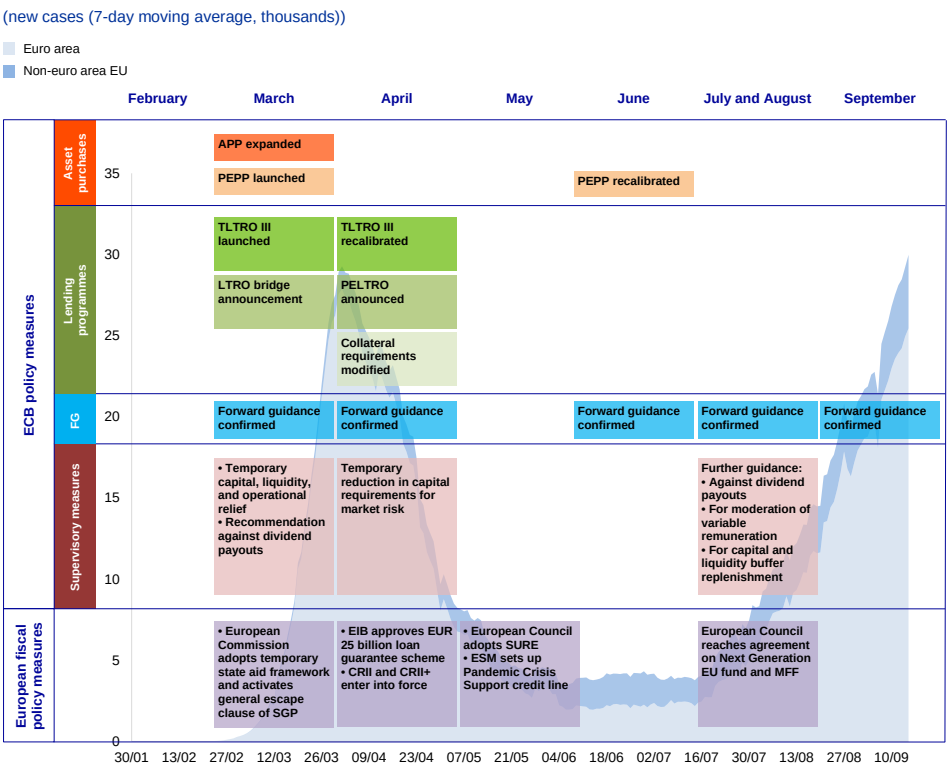
---

82 For the ECB, the market for a given set of financial instruments and/or services is fully integrated if all potential market participants share the following relevant characteristics: (1) they face a single set of rules when they decide to make transactions in those financial instruments and/or services; (2) they have equal access to the above-mentioned set of financial instruments and/or services; and (3) they are treated equally when they are active in the market. For further reference, see Baele, L. et al., "Measuring financial integration in the euro area", *Occasional Paper Series*, No 14, ECB, Frankfurt am Main, April 2004.

83 See "Financial integration and structure in the euro area", ECB, Frankfurt am Main, March 2020, as well as the accompanying Statistical annex.

Chart 2

Overview of European monetary and fiscal policy measures



Sources: ECB, Johns Hopkins via Bloomberg and ECB calculations.
Notes: Various swap and repo lines introduced by the ECB in cooperation with other euro area and non-euro area central banks are not mentioned here. Information on central bank swap and repo lines can be found on the ECB's website.

The price-based composite indicator of financial integration and its subcomponents suggest that the coronavirus crisis has, broadly speaking, unfolded in four phases. Section 2 describes the developments in financial integration during each of these four phases (see Chart 1 above and Box 1). Phase 1, from 30 January to 25 March 2020, spanned the outbreak of the crisis and the announcement of the PEPP. Phase 2, from 26 March to 7 May, saw increasing economic damage and initial uncertainty regarding a pan-European fiscal response. Phase 3, from 8 May to 21 July, spanned the gradual relaxation of lockdowns and the progress made towards a common European fiscal response and the Next Generation EU decision. Phase 4, from 22 July to 15 September (the cut-off point for this analysis), was a period primarily of maintaining the re-integration achieved through the European monetary and fiscal policy responses during the previous phases. Section 3 concludes the article and provides a cautious outlook. For reasons of space, the international environment and the normalisation of market volatility following policy decisions by other central banks are not discussed here.

It is prudent to mention that the analyses carried out in this article have several limitations. First, owing to the need for high-frequency data, this article is solely focused on price-based measures of financial integration. These capture discrepancies in asset prices across countries and sectors, as opposed to quantity-based measures, which are based on cross-border holdings of different asset

classes and usually have a lower frequency of observation. Second, many of our indicators do not control for fundamentals, including firm or country risks. Similarly, particularly in crisis situations, financial markets might act upon forward-looking expectations and significantly overreact to news signalling changes in fundamentals: such changes in general risk attitudes in markets are also not accounted for in this article. Third, the analysis of causal relationships, or counterfactuals, is beyond the scope of this article. Thus, the article offers only a partial perspective of the events which have unfolded during the coronavirus crisis; a more complete assessment of the state of financial integration and structural developments in the euro area financial system would require additional analysis. Despite these limitations, the analysis of the high-frequency indicators in this article provides useful insights into the development of euro area financial integration during this period.

Box 1
High-frequency financial integration indicators within a real-time monitoring toolkit

Prepared by Urszula Kochanska, Eva Mulder and Alessandro Zito

Analysing the impact of the coronavirus (COVID-19) crisis on financial integration requires an agile and comprehensive real-time monitoring toolkit. The aim of this box is therefore to describe the development of the high-frequency price-based financial integration indicator and to introduce the high-frequency monitoring toolkit.

To develop such a toolkit, the available financial integration indicators were reviewed to identify those which could be updated at a sufficiently high frequency. From the large set of indicators from the ECB's report on financial integration and structure in the euro area[84] and its Statistical annex[85] a subset was selected focusing on the coverage of the most relevant financial market segments. Most of the selected indicators relate to the price-based dimension of financial integration, given their instant reaction to incoming news. However, a few quantity-based indicators were also included.

The law of one price, which implies that assets that are similar in terms of risk and return should have the same price, is a cornerstone of price-based financial integration. Against this background, the monthly price-based composite indicator of financial integration developed by Hoffmann et al.[86] measures such integration by examining cross-country dispersion of returns in four market segments, namely the money market (MM), bond market (BM), equity market (EM) and banking market. Many other indicators of financial integration focus on a specific market segment, but this indicator offers a synthetic and unique measure by merging data from different financial market segments. However, it does not account for different risks across countries. In addition, the monthly observation frequency of the price-based composite indicator posed a challenge with regard to timely analysis of financial integration. Owing to the lag in data availability and the small number of observations in each year, it is difficult to link trends in financial integration to certain events using this indicator. For this reason, developing a higher-frequency version of the price-based composite indicator appears useful.

84 See "Financial integration and structure in the euro area", ECB, Frankfurt am Main, March 2020.

85 See the Statistical annex of "Financial integration and structure in the euro area", ECB, Frankfurt am Main, March 2020.

86 Hoffmann, P., Kremer, M. and Zaharia, S., "Financial integration in Europe through the lens of composite indicators", *Working Paper Series*, No 2319, ECB, Frankfurt am Main, September 2019.

For the money, bond and banking markets, dispersion is calculated by taking the cross-country standard deviation of interest rates, while for the equity market segment two other indicators are calculated, namely EM1 and EM2. EM1, developed by Bekaert et al.,[87] draws on the idea that the earnings yields of the same industries should be similar across countries in a well-integrated market. EM2, based on the work of Adjaouté and Danthine,[88] points to the convergence of the country and sector effects in equity portfolios in financially integrated markets, where investors have the ability to diversify their equity portfolios optimally. Higher-frequency input data are available for all market segments except the banking market. Daily data can be used for the money and bond markets and for a sub-index (EM2) of the equity market component. Data for the other sub-index of the equity market (EM1) is available weekly, while the banking markets data will have to be calculated on a monthly basis.

The high-frequency price-based composite indicator is constructed with a view to achieving the greatest possible congruence between high-frequency and low-frequency data. The input measures have been treated according to the monthly methodological transformations used by Hoffmann et al.[89] Instead of monthly data, daily data are used for BM and EM2 and weekly data are used for EM1, while for MM a 1-month trailing daily average is used. A further step for EM2 involves the recursive application of the Hodrick-Prescott filter on a series consisting of past monthly observations complemented with the latest daily observations. This allows the derivation of a smoothed daily EM2 value.

The high-frequency input measures are further transformed in order to combine them into a composite indicator, once again following the procedures used for the monthly composite indicator. However, this means that historical monthly cumulative distribution functions are used for the evaluation of the daily input measures. The procedure for calculating the monthly composite involves normalisation based on the input measures' empirical cumulative distribution function, adjusting wherever necessary for the direction so that a higher value would indicate a higher level of financial integration, and finally scaling the measures for benchmarking to an unobserved state of perfect integration. Using the monthly cumulative distribution function for a full history, the high-frequency indicators are calculated for the period since the beginning of 2020 by mapping them onto the corresponding distributions of the lower-frequency indicators. Along with the banking market indicator, the transformed input measures constitute the subcomponents of the high-frequency composite indicator for the selected financial market segments (see Chart A).

87 Bekaert, G., Harvey, C.R., Lundblad, C.T. and Siegel, S., "What Segments Equity Markets?", *Review of Financial Studies*, Vol. 24, No 12, 2011, pp. 3841-3890.

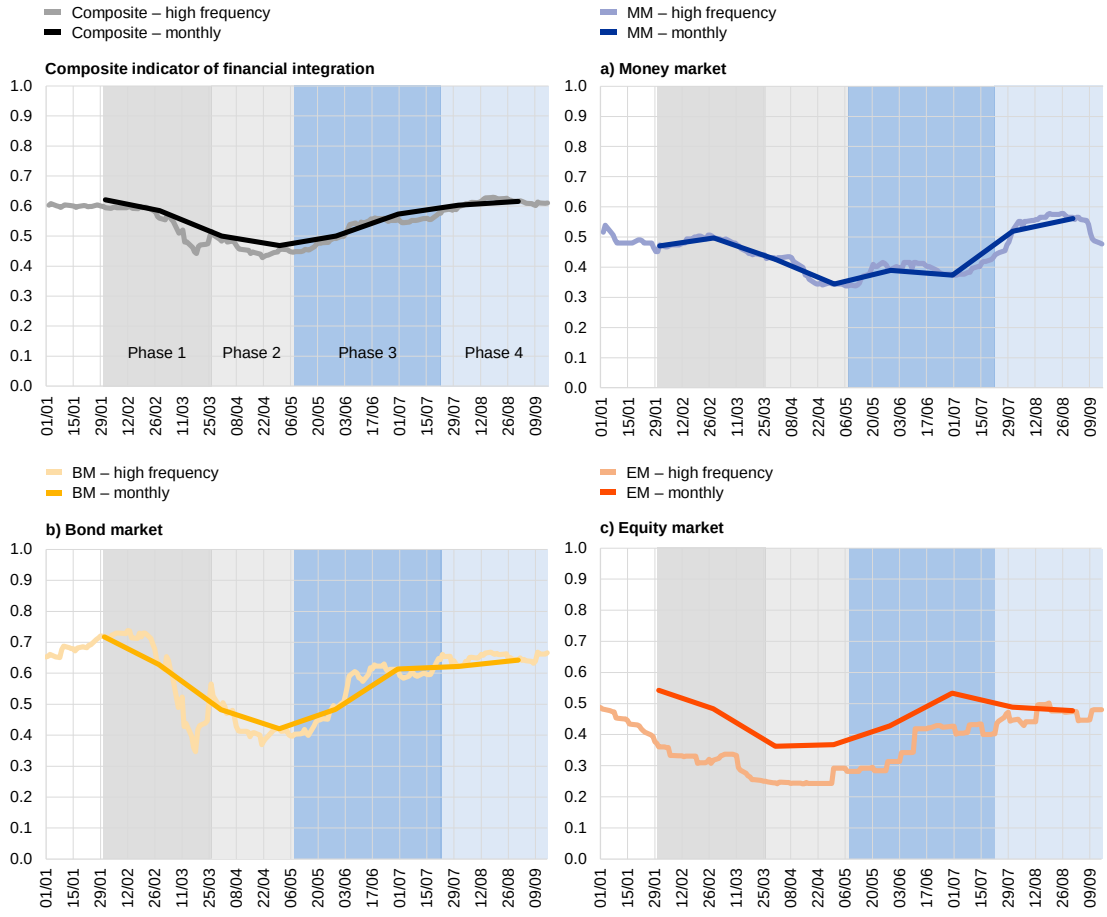
88 Adjaouté, K. and Danthine, J.P., "European Financial Integration and Equity Returns: A Theory-based Assessment", in Gaspar, V. et al. (eds.), *Second ECB Central Banking Conference: The transformation of the European financial system*, ECB, Frankfurt am Main, 2003.

89 Hoffmann, P. et al., op. cit.

Chart A

The composite indicator and its subcomponents at a lower and higher frequency over various phases of the COVID-19 crisis

(daily data; 1 January 2020 to 15 September 2020)



Sources: ECB, Refinitiv and ECB calculations.
Notes: The banking market observation from the previous month is carried over in aggregating of the composite indicator. The four phases correspond to those described in Table 1.

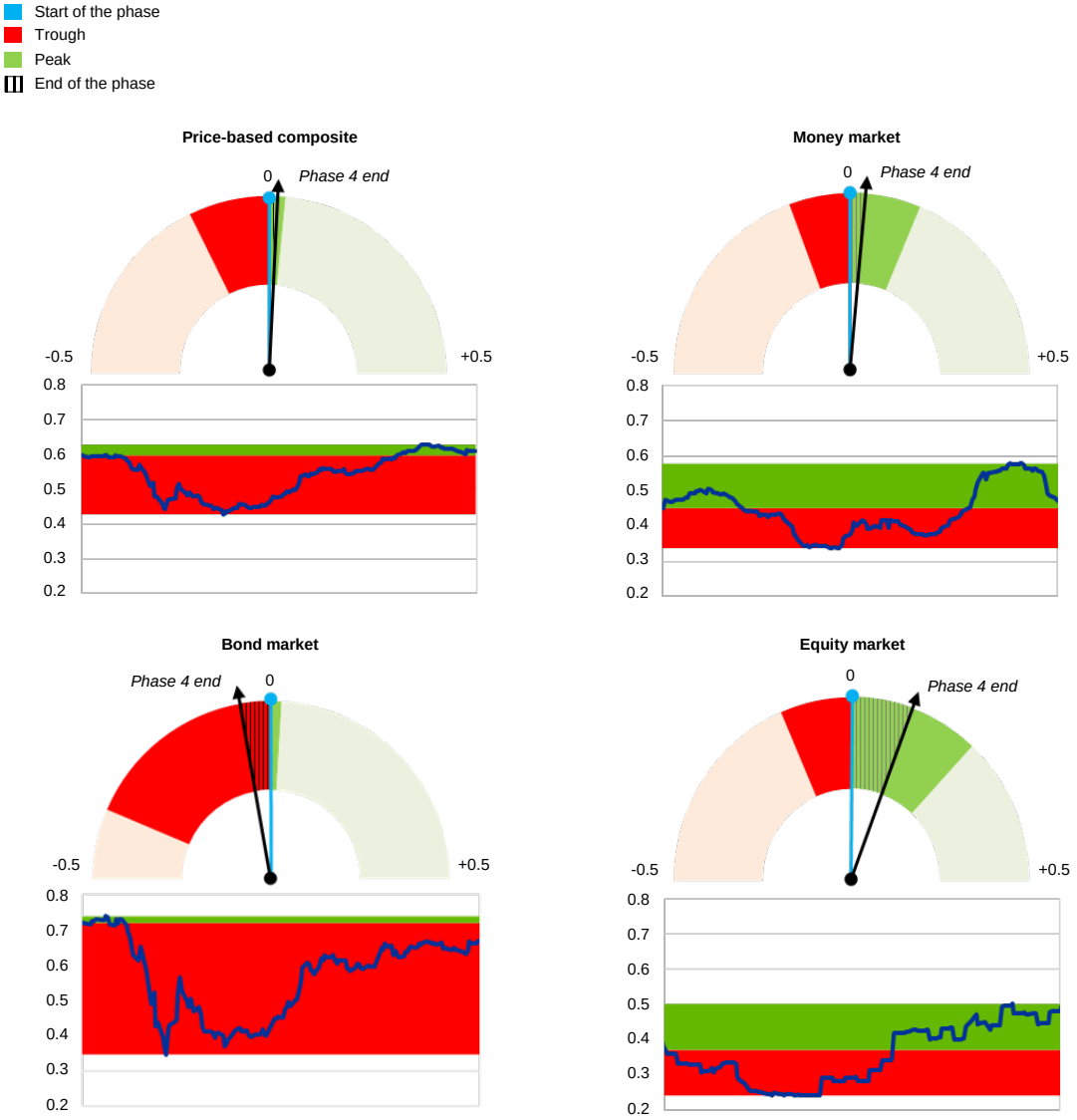
Together, the high-frequency subcomponents and the monthly indicator for the banking market are combined into a high-frequency composite indicator. The composite is calculated as a market size-weighted average of the four subcomponents.[90] It thus offers an aggregate daily indicator on financial integration in the euro area. The new indicator enables financial integration to be tracked on a daily basis throughout the crisis (see Chart B).

[90] Hoffmann, P. et al., op. cit., calculate the weights using the relative average amounts outstanding from the aggregated euro area financial accounts for the base period 1997-2013, with the following results: money markets 17%, bond markets 36%, equity markets 15% and banking markets 32%.

Chart B

Price-based composite indicator of financial integration and its subcomponents since the onset of the COVID-19 crisis – dashboard view

(changes in indicator levels; indicator levels are bound between zero (full fragmentation) and one (full integration).
The dashboard charts depict two extreme swings of the indicators' levels (from the starting date to the peak and from the starting date to the trough) and the change from the starting date to the last observation within the analysed crisis period. The starting date is marked in blue, the positive swing to the peak is marked in green, and the negative swing to the trough is marked in red. The change in the level of the indicators at the end of the phase with respect to the starting date is marked with a black line; the lined area between the start and end points is coloured red or green depending on whether the level decreased or increased respectively.



Source: ECB calculations.
Notes: The data cover the period from 30 January to 15 September 2020. For more information on the price-based composite indicators, see Hoffmann, P. et al., op. cit.

Besides the price-based composite indicator shown above, the toolkit comprises several other high-frequency statistical indicators. For example, in order to gain further insights into money market developments, the toolkit includes a new dispersion indicator for money markets. The indicator is based on the work of Duffie and Krishnamurthy[91] and focuses on the very short-term unsecured

[91] Duffie, D. and Krishnamurthy, A., "Passthrough Efficiency in the Fed's New Monetary Policy Setting", *Jackson Hole Symposium of the Federal Reserve Bank of Kansas City*, 2016.

(euro overnight index average (EONIA) and euro short-term rate (€STR[92])) and secured (repo country-level) money markets.[93] In a frictionless market dispersion should be low and stable, while increased dispersion levels may signal limited pass-through efficiency of monetary policy. For the sovereign and corporate segments of the bond market, the toolkit includes both the level and dispersion of spreads or yields at different maturities. Corporate bond indices are monitored for financial and non-financial sectors across countries. Investment-grade corporate bonds are mostly monitored with a view to capturing the financial integration trends in this highly liquid and investible market segment, as well as demonstrating the importance of corporate liquidity and solvency in an environment of widespread lockdowns, and the potential re-emergence of the sovereign-bank nexus. To deepen the cross-country analysis of the government sector, the toolkit further includes daily credit default swap (CDS) premia and a market assessment of redenomination risk premia, although these are not covered in this article.

2 Financial integration during the four phases of the crisis

This section documents how the coronavirus crisis strained the resilience of euro area financial integration during each of the four phases set out in Table 1. The time frames chosen are meant to highlight the salient characteristics of the four phases of the major events which took place.

Table 1

The four phases of the COVID-19 crisis

Phase	Time frame	Salient characteristics and major events
1	30 January to 25 March	Outbreak of the COVID-19 pandemic, sharp financial fragmentation, national fiscal responses, the ECB's monetary policy response – including the PEPP – and swift supervisory measures
2	26 March to 7 May	Increasing economic damage, some financial re-integration and uncertainty about the European fiscal response
3	8 May to 21 July	Gradual relaxation of lockdowns and agreement on a common European fiscal response with the EU Recovery and Resilience Facility under Next Generation EU. Substantial financial re-integration
4	22 July to 15 September	Continuing financial re-integration, albeit unevenly across financial segments

Phase 1: COVID-19 outbreak and the ECB's stabilisation measures

The first phase of the crisis spanned the period from 30 January to 25 March 2020. This phase was characterised by the COVID-19 outbreak and the ECB's stabilisation measures.[94]

92 For more information on the €STR and the statement of methodology, see the ECB's website. See also, the box entitled "Goodbye EONIA, welcome €STR!", *Economic Bulletin*, Issue 7, ECB, 2019.

93 Corradin, S., Eisenschmidt, J., Hoerova, M., Linzert, T., Schepens, G. and Sigaux, J.-D., "Money markets, central bank balance sheet and regulation", *Working Paper Series*, No 2483, ECB, Frankfurt am Main, October 2020.

94 During this phase, new COVID-19 cases were already receding in China and the rest of Asia, and the epicentre of the pandemic shifted to Europe and the United States. Over the course of March, the total number of confirmed cases in the euro area exceeded the total number of cases in China.

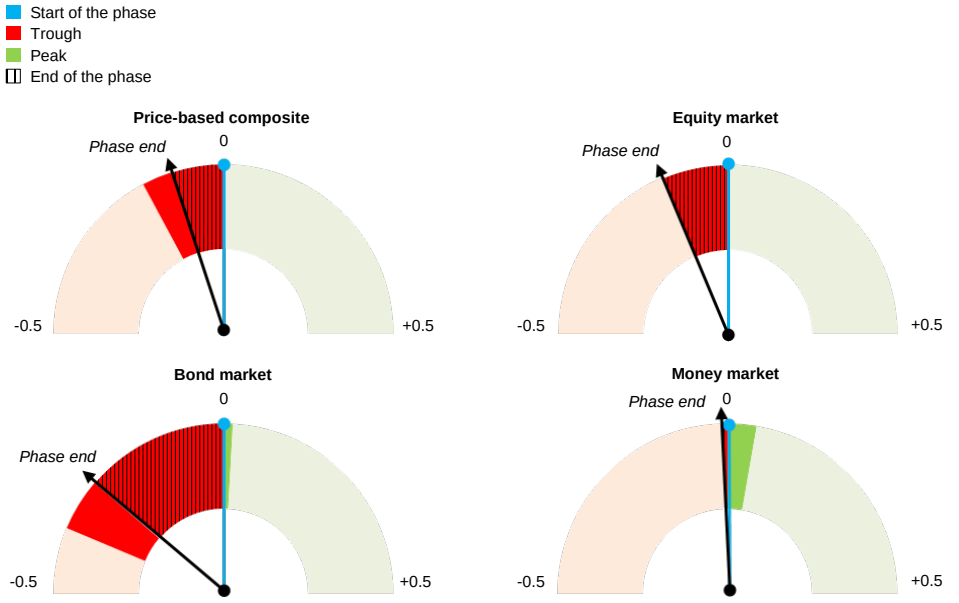
Following the outbreak of the coronavirus, initial "alarm-bells" were sounded by the CISS (see Chart 1). Over the course of February the coronavirus spread rapidly throughout the euro area and on 17 February the Eurogroup finance ministers listed the coronavirus outbreak as a new downside risk to economic growth. The first major local lockdown occurred in the Lombardy region in Italy on 23 February. A national lockdown followed on 9 March. Strict containment measures were also enacted in other euro area countries in the ensuing weeks.[95]

The rapid spread of the coronavirus and the ensuing containment measures in the first quarter of 2020 had a strong impact on financial markets, leading to sharp fragmentation. Signs of financial fragmentation in the euro area emerged in February and gained pace in early March. The CISS for the euro area increased sharply to levels last seen during the GFC and the euro area SDC (see Chart 1). Thereafter, the price-based composite indicator of financial integration signalled rising fragmentation in the euro area during this initial phase, with bond markets being the most affected segment (see the dashboard in Chart 3). Between the end of January and mid-March, the price-based composite indicator fell by roughly 25%. This constituted the fourth-largest decline in this indicator since the introduction of the euro. This strong negative correlation between systemic risk and financial integration was also observed during the GFC and SDC.

Chart 3

Financial integration developments in Phase 1 – dashboard view

(changes in indicator levels; indicator levels are bound between zero (full fragmentation) and one (full integration))



Source: ECB calculations.
Notes: Phase 1 refers to the period from 30 January to 25 March 2020. See Chart B for a more detailed description of the chart. For more information on the price-based composite indicators, see Hoffmann, P. et al., op. cit.

In the sovereign bond market, spreads diverged rapidly on the back of sharp downward revisions to the economic and financial outlook paired with extreme

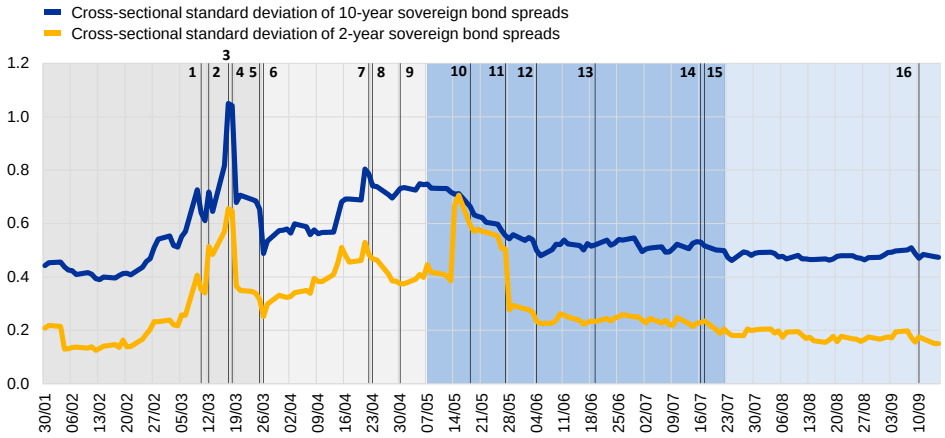
95 Spain and France, for instance, ordered nationwide lockdowns on 14 March and 17 March respectively. Germany issued a contact ban and implemented far-reaching lockdown measures on 22 March.

uncertainty. Deteriorating fundamentals drove up expectations of large fiscal burdens resulting from public support to firms and households, potential tax shortfalls and pre-existing differences in fiscal space. At the same time, the global financial system was put under extraordinary strain, and stress in the operation of debt markets resurfaced. There was an abrupt rebalancing of portfolios in the direction of greater liquidity and lower leverage. This stoked the risks of forced fire sales in many asset markets, as well as illiquidity spirals and market freezes.[96] In order to limit self-fulfilling overshooting dynamics and the associated risks to financial stability, central banks initiated new types of liquidity provisions and asset purchases. These policy measures are discussed in more detail below. The divergence in sovereign spreads could be seen at both short and long maturities (see Chart 4) and was driven by more vulnerable member countries with less fiscal space. For 10-year sovereign spreads, the increase was most notable for Italy, which saw its spread rise from 132 basis points on 17 February to 281 basis points on 17 March. In terms of levels, however, sovereign spreads stayed well below the peaks of the SDC in 2011-12. In the earliest stages of the crisis, spread dynamics were consistent with flight-to-quality capital flows into German safe assets, which pushed German yields down further (see Chart 5).

Chart 4

Cross-country standard deviation of sovereign bond spreads vis-à-vis Germany from 30 January to 15 September 2020

(percentage points; daily data)

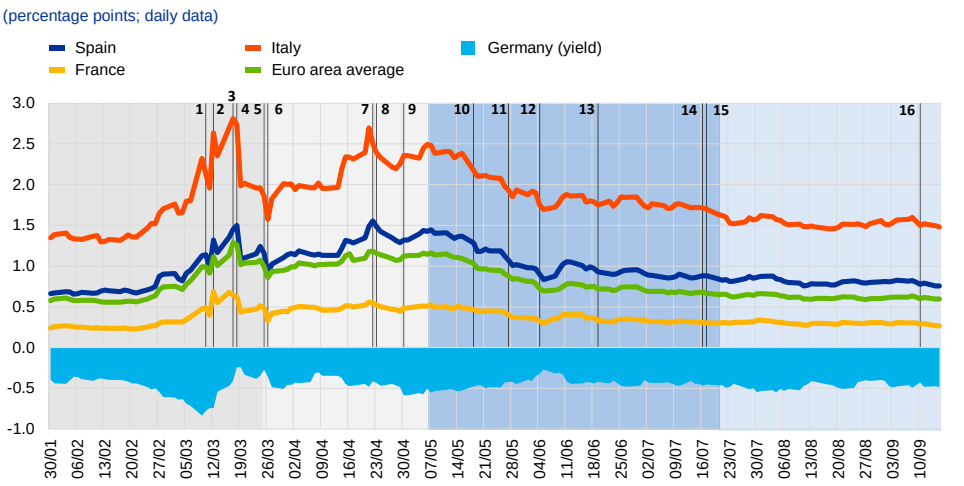


Sources: Refinitiv and ECB calculations.
Notes: The shaded areas mark the four phases of the crisis as defined in Table 1. For a detailed list of the events shown as numbered lines in this chart, please see the Notes to of Chart 1.

[96] For further information on the role of cross-border portfolio investment flows in shaping these developments, see, Lane, P., "The market stabilisation role of the pandemic emergency purchase programme", *The ECB Blog*, ECB, June 2020.

Chart 5

10-year sovereign bond spreads vis-à-vis German 10-year yield from 30 January to 15 September 2020



Source: Refinitiv and ECB calculations.
Notes: The shaded areas mark the four phases of the crisis as defined in Table 1. For a detailed list of the events shown as numbered lines in this chart, please see the Notes to Chart 1.

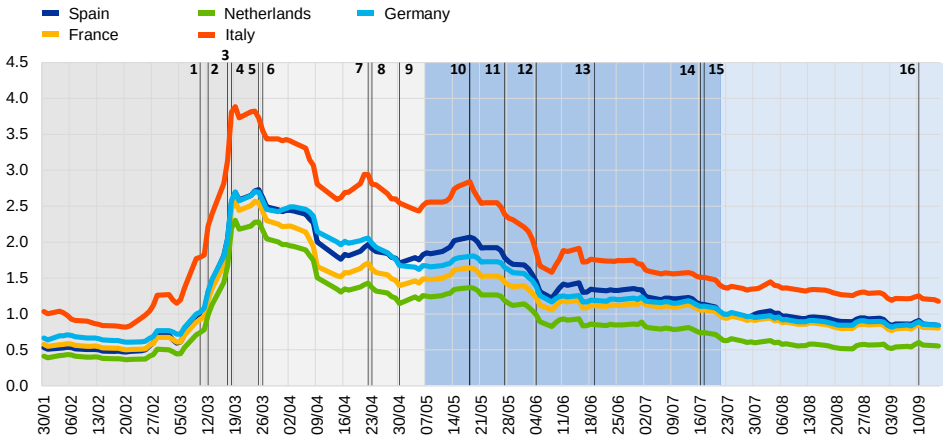
At the beginning of the COVID-19 crisis, corporate bond markets showed dynamics similar to those of their sovereign counterparts. Both financial and non-financial corporate bond yields across major euro area countries more than quadrupled between mid-February and mid-March (see Chart 6). While the uniform increase in corporate bond yields suggests that the pandemic and the resulting containment measures were a common risk to the viability of all euro area firms, the same time period also witnessed significant divergence in yields, with the standard deviation of financial and non-financial corporate bond yields increasing nearly fourfold and threefold respectively between 18 February and 23 March. In particular, the diverging corporate bond yields of Italian financial corporations were consistent with a re-emergence of the sovereign-bank nexus. There was also a sovereign-insurance companies and pension funds nexus, but this is not discussed here.

Chart 6

Corporate bond yields from 30 January to 15 September 2020

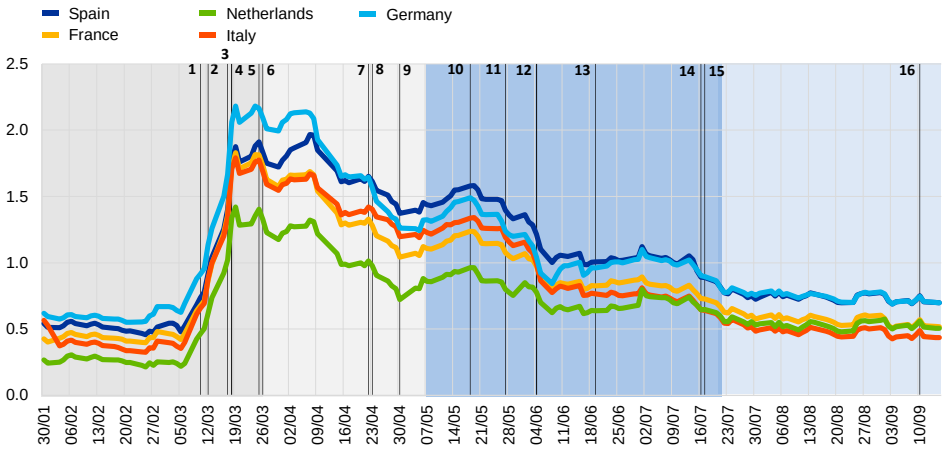
a) Financial corporate bond yields

(percentage points; daily data)



b) Non-financial corporate bond yields

(percentage points; daily data)



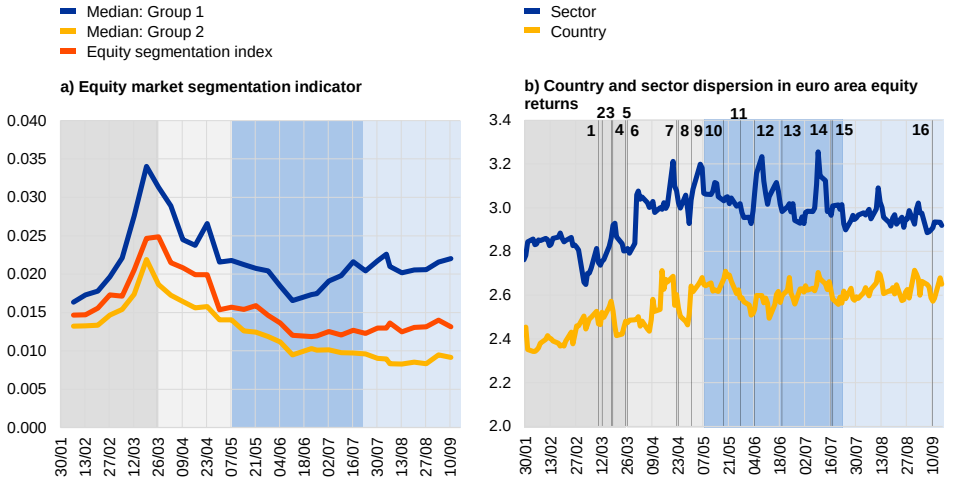
Sources: IHS Markit iBoxx and ECB calculations.
Notes: The shaded areas mark the four phases of the crisis as defined in Table 1. For a detailed list of the events shown as numbered lines in this chart, please see the Notes to Chart 1.

Equity market fragmentation also increased sharply during the first phase of the crisis (see Chart 7, left panel). This reflects the contraction of economic activity across member countries, including the global stock market crash in the last week of February. However, equity market segmentation was more pronounced in the Group 1 countries, which have smaller economies and less liquid equity markets than the Group 2 countries, which have deeper equity markets (see, respectively, the blue and yellow lines in the left panel of Chart 7).

Chart 7

Equity market fragmentation from 30 January to 15 September 2020

(weekly data (panel a) and daily data (panel b))



Sources: Refinitiv and ECB calculations.
Notes: In the left panel, Group 1 consists of Belgium, Ireland, Greece, Finland and Austria (small countries with relatively less liquid equity markets); Group 2 consists of Germany, Spain, France, Italy, the Netherlands and Portugal (larger countries with relatively more liquid equity markets). For a technical description of the indicators, please see Chart 13 (for the left panel indicator) and Chart 10 (for the right panel indicator) in the Statistical annex of the ECB's March 2020 report on "Financial integration and structure in the euro area". The shaded areas mark the four phases of the crisis as defined in Table 1. For a detailed list of the events shown as numbered lines in this chart, please see the Notes to Chart 1.

The ECB announced a comprehensive set of measures between mid-March and end-March. Their aim was to stabilise markets, protect the supply of credit to the economy and neutralise disinflationary developments stemming from the pandemic (see Chart 2). These included temporary capital and operational relief for banks, lending to European banks at negative interest rates, and the PEPP,[97] which made €750 billion available for security purchases by the end of 2020 (see Chart 2). The PEPP represents a temporary and flexible asset purchase programme of private and public sector securities to counter financial fragmentation and help stabilise the euro area economy in order to ensure the smooth transmission of monetary policy across countries. These measures helped to halt and partially reverse the divergence of bond yields in both the corporate and the sovereign bond markets.[98]

Despite the market tensions, the improvements in euro area governance and institutional infrastructure since the GFC helped to limit fragmentation. A legacy of the GFC and euro area SDC has been the overhaul of euro area governance and institutional infrastructure with the launch of the ESM and, some years later, the Single Supervisory Mechanism (SSM), among other things. During the COVID-19 crisis, in its capacity as single supervisor, the ECB was able to act in a swift and coordinated manner with respect to banks. The new institutional architecture introduced following the GFC and SDC helped to contain fragmentation. In fact, even during the extreme market volatility seen at the peak of the crisis during Phase 1 and before the PEPP

97 The legal documentation for the PEPP was published on 25 March 2020.

98 See Lane, P.R., "The ECB's monetary policy in the pandemic: meeting the challenge", *speech at the 62nd NABE Annual Meeting "Global Reset? Economics, Business, and Policy in the Pandemic"*, October 2020.

announcement, fragmentation increased much less dramatically than during the GFC and SDC from 2008 to 2012.

Phase 2: Increasing economic damage and uncertainty regarding the European fiscal response

The second phase of the crisis spanned the period from 26 March to 7 May 2020. This phase was characterised by extensive economic and financial damage and the initial challenges of formulating a common European fiscal response to add to national fiscal initiatives.[99]

In this phase, the pandemic had uneven effects across financial market segments. The data from the subcomponents of the price-based composite indicator suggest that equity markets were the only market segment for which financial integration rebounded during the second phase, as it continued to recede in other market segments (see Chart 8). This re-integration occurred across both more and less liquid equity markets (see Chart 7, left panel) and illustrates the apparent "disconnect" between real economic developments (the outlook was worsening rapidly according to macro and survey data) and equity market performance during the crisis.[100] However, the dispersion and volatility of forecast equity index returns remained heightened throughout Phases 2 and 3, especially across sectors. This is consistent with the development of equity market volatility. Option-implied equity market volatility rose sharply during the first phase of the crisis to levels last seen at the height of the GFC. It has since receded, but remains above its levels prior to the COVID-19 crisis. Cross-country and sectoral dispersion in euro area equity returns both rose, yet reassuringly the former remains below the latter, signalling that companies have continued to benefit from sectoral and geographic diversification even during the crisis (see Chart 7, right panel)

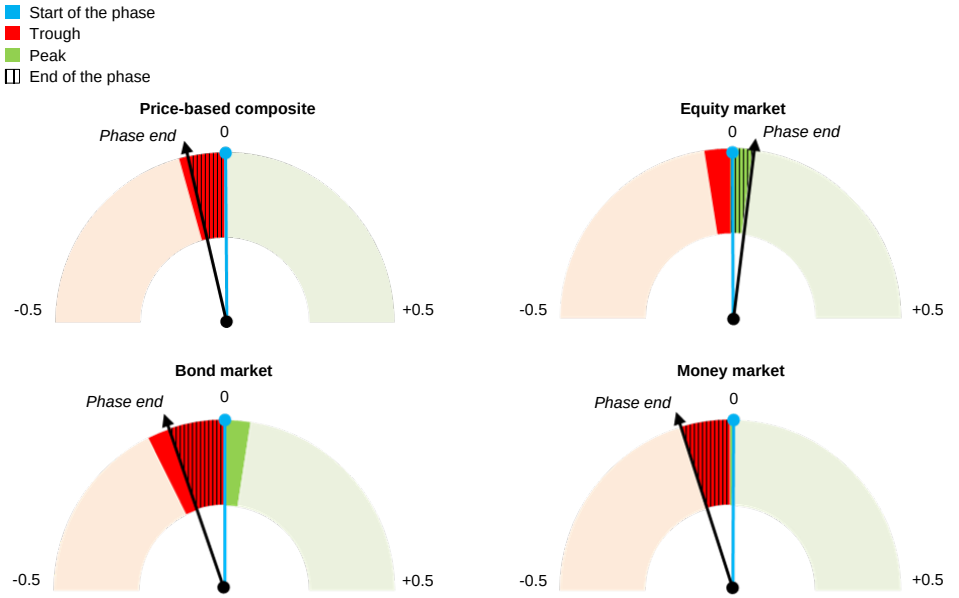
[99] This phase was marked by a continuous sharp increase in new cases, with the United States showing the highest rate of growth, while euro area countries started showing signs of improvement. In the following weeks, new confirmed infections started to decline in advanced economies, but continued to rise in emerging market economies.

[100] See also, Igan, D., Kirti, D. and Martinez Peria, S., "The Disconnect between Financial Markets and the Real Economy", *Special Notes Series on COVID-19*, IMF, August 2020.

Chart 8

Financial integration developments in Phase 2 – dashboard view

(changes in indicator levels; indicator levels are bound between zero (full fragmentation) and one (full integration))



Source: ECB calculations.
Notes: Phase 2 refers to the period from 26 March to 7 May 2020. See Chart B for a more detailed description of the chart. For more information on the price-based composite indicators, see Hoffmann, P. et al., op. cit.

The different evolutions of equity and sovereign bond markets, furthermore, suggest some degree of "disconnect" between equity and fixed income markets throughout this phase of the crisis. While equity market integration improved in Phase 2, sovereign bond markets in particular lost much of the integration impetus obtained from the PEPP. The levels and cross-country dispersion of sovereign bond spreads increased sharply. These dynamics came to a halt only following the ECB's decision on 22 April to "freeze" sovereign ratings for its collateralised lending operations and the fourth European Council meeting, which led to the agreement of a first common European fiscal package, consisting of three safety nets: the ESM, EIB, and SURE funds.

The agreement on the €540 billion safety net marked a breakthrough for the pan-European fiscal response to the COVID-19 crisis. The agreement on a three-pronged safety net during the fourth dedicated European Council meeting on 23 April was a major step in the formulation of a common European fiscal response. This safety net comprises the €100 billion SURE instrument, a €200 billion pan-European guarantee fund for loans to companies by the EIB and a €240 billion pandemic crisis support credit line by the ESM. Furthermore, during this meeting the European Council tasked the European Commission with developing a proposal for a European crisis recovery fund, even though diverse views remained regarding the make-up of such a fund in terms of the distribution of grants and loans. In retrospect, the policy discussions that took place at the earlier European Council meetings on this topic were necessary for reaching consensus on the above safety nets and ultimately to agree on the Next Generation EU fund, which had many of the desired effects on financial integration.

These positive signs of progress towards a common European fiscal response to the pandemic supported market confidence and marked a turning point in overall financial integration (see Chart 1). They revived the re-integration trend in sovereign and corporate bond markets set in motion by the PEPP and other monetary and financial stability measures (see Chart 2). Other measures that have contributed to this re-integration of financial markets were the ECB's decision on 22 April to "freeze" ratings for its collateralised lending operations, i.e. to uphold the eligibility of marketable assets that fulfilled minimum credit quality requirements in the event of a deterioration in credit ratings.[101]

Phase 3: Relaxation of lockdowns and the Next Generation EU fund

The third phase of the crisis spanned the period from 8 May to 21 July 2020. This phase was characterised by a gradual relaxation of lockdowns and the agreement on the Next Generation EU fund.[102]

The third phase of the crisis saw several events that supported financial integration. These events include the Franco-German and European Commission proposals for an EU Recovery Fund, a gradual relaxation of lockdowns, a larger-than-expected €600 billion expansion of the PEPP purchase envelope and eventual agreement on the Next Generation EU recovery fund. The subcomponents of the price-based composite indicator point to positive financial integration developments across markets during this phase (see Chart 9).

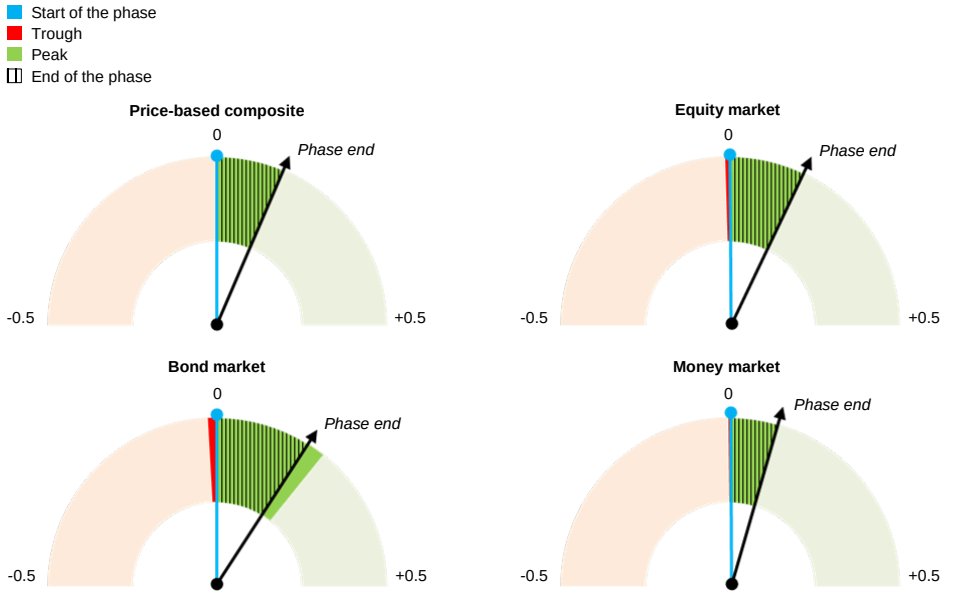
[101] For further information on the ECB's collateral easing policies, see de Guindos, L. and Schnabel, I., "Improving funding conditions for the real economy during the COVID-19 crisis: the ECB's collateral easing measures", *The ECB Blog*, ECB, April 2020.

[102] During this phase, global COVID-19 infections carried on rising with no signs of stabilisation. Daily new global cases rose to over 200,000 in mid-July, more than double the number at which they had temporarily stabilised in April. At the end of July the total number of COVID-19 cases topped 17 million. Different underlying dynamics were driving these developments, with emerging market economies affected by a constantly rising number of cases. However, at the end of this period, advanced economies including the euro area also experienced a resurgence of COVID-19 cases.

Chart 9

Financial integration developments in Phase 3 – dashboard view

(changes in indicator levels; indicator levels are bound between zero (full fragmentation) and one (full integration))



Source: ECB calculations.
Notes: Phase 3 refers to the period from 8 May to 21 July 2020. See Chart B for a more detailed description of the chart. For more information on the price-based composite indicators, see Hoffmann, P. et al., op. cit.

Financial integration improved across market segments against the background of a mixed data flow. On the one hand, new data during this phase showed declining COVID-19 infections and slowing death rates, which led to the gradual relaxation of European containment measures. On the other hand, data show historically negative economic growth and downward forecast revisions. In this environment, the Franco-German proposal on 18 May for a €500 billion fund of grants and the European Commission's Next Generation EU proposal on 27 May for €750 billion of grants and loans (both funded through the EU budget) led to sizeable reductions and some material reconvergence of sovereign spreads and corporate yields, notably for vulnerable countries (see Charts 4, 5 and 6). These positive developments were further reinforced by the decision of the ECB's Governing Council on 4 June to increase the size of the PEPP by €600 billion (to a total of €1,350 billion) and to extend the programme's reinvestment period at least until the end of 2022.

The joint European fiscal response is a milestone which reinforces financial integration. The calming effects of these proposals in underpinning the European recovery (along with other parallel factors) are also reflected in euro area corporate bond yields, though with some delay for non-financial corporate bond yields. Depending on the country considered, most or all of the yield increases observed by the end of April/early May had been corrected by late May. The different sizes of the corporate bond markets in different euro area countries − both in absolute terms and

relative to the countries' respective economies − may explain some of the bond yield and fragmentation developments.[103]

The end of this phase was marked by the agreement on the EU Recovery and Resilience Facility – under the Next Generation EU fund proposal – and the 2021-27 MFF. The agreement resolved part of the uncertainty around a common European fiscal response[104] and had an immediate positive effect on financial integration across a broad set of markets, most notably sovereign and corporate bond markets. It thus reinforced the positive integration developments following the Franco-German and European Commission proposals in May.

There was less fragmentation in money markets than in other financial market segments. While money markets had been exhibiting some signs of fragmentation since the start of Phase 1 and well into Phase 2 − albeit to a lesser degree than other markets − indicators for the money market segment started falling to lower dispersion levels in late April 2020 (see the left panel of Chart 10). The different lending operations and the adjustments to lending criteria and eligible collateral supported a gradual reduction of dispersion, in particular for unsecured money market rates such as the €STR. The dispersion of secured money market rates spiked around key dates in the coronavirus crisis on account of flight-to-quality dynamics or around futures delivery dates owing to collateral scarcity. In early May 2020 it again approached pre-crisis levels, where it broadly continued to fluctuate (see right panel of Chart 10).

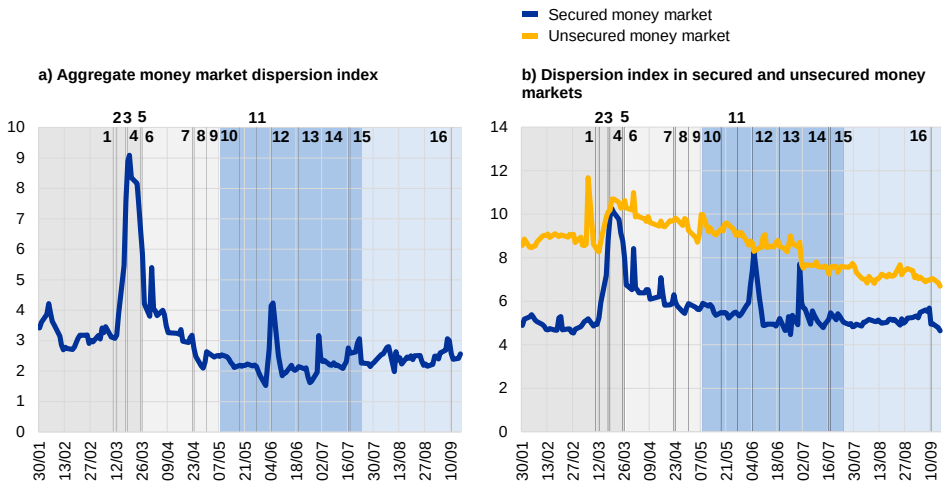
[103] For example, in absolute terms, France has the largest (and most developed) corporate bond market of all euro area countries, followed by Germany, Italy and Spain. As a share of GDP, however, the German market is smaller than the French, Italian, Dutch or even Spanish markets. The main reason for this is that the segment for non-financial corporations is less developed in Germany than in France or the Netherlands, as German companies still rely more on bank loans. Along with the changing risk environments for companies in the different countries over time, this may explain why German non-financial corporate yields are sometimes the highest among all the countries covered in Chart 6.

[104] See the box entitled "The fiscal implications of the EU's recovery package", *Economic Bulletin*, Issue 6, ECB, 2020.

Chart 10

Money market integration from 30 January to 15 September

(daily data)



Sources: ECB and ECB calculations.
Notes: For technical details on the construction of this indicator, see Corradin, S. et al., op. cit. For a detailed list of the events shown as numbered lines in this chart, please see the Notes to Chart 1.

Phase 4: Sustained signs of financial normalisation

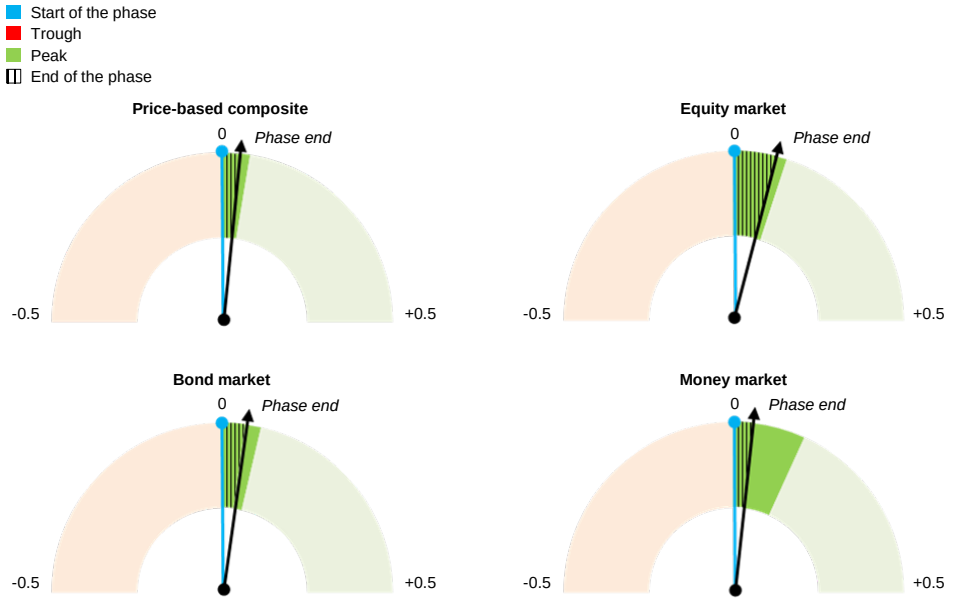
The fourth phase of the crisis spanned the period from 22 July to 15 September and was characterised by an improvement in measured financial integration across a wide range of indicators.[105]

[105] During this phase, the global number of newly confirmed cases continued to increase until the beginning of August. The daily number of cases remained high, exceeding 300,000 by mid-September. New cases were increasing rapidly among advanced economies outside the United States. There was a sharp rise in cases in the euro area, leading to mounting concerns about a second wave.

Chart 11

Financial integration developments in Phase 4 – dashboard view

(changes in indicator levels; indicator levels are bound between zero (full fragmentation) and one (full integration))



Source: ECB calculations.
Note: Phase 4 refers to the period from 22 July to 15 September 2020. See Chart B for a more detailed description of the chart. For more information on the price-based composite indicators see Hoffmann, P. et al., op. cit.

The broad-based improvement in financial integration continued during this phase. The data from the price-based composite indicator and its subcomponents suggest that throughout this phase of the crisis, the agreement on the EU Recovery Fund and the MFF continued to have a positive impact on the level of financial integration. Indeed, the composite indicator recovered to its pre-crisis levels at the end of August (see Chart 1). The continuing re-integration trend in European financial markets is also illustrated, for instance, by the decline in the level and dispersion of 10-year sovereign spreads throughout the fourth phase of the crisis (see Chart 5). Furthermore, the corporate bond market showed a continued downward trend towards levels last observed in March 2020, driven also by low primary market activity and relatively low market liquidity over the summer period.

The current stabilisation and apparent return to the situation before the COVID-19 outbreak, however, calls for several qualifications. The return of financial integration measures towards pre-crisis levels has to be seen against the background of the substantial amount of monetary and fiscal stimulus on which it relies and which is essential for its sustainability. Although some of the uncertainty has been resolved following the agreement on a European recovery instrument, substantial uncertainty about the post-crisis economic recovery remains, in particular in view of a renewed increase in infection rates across European countries, which raises the possibility of a new round of lockdown measures, and the pending ratification of the Next Generation EU fund in national parliaments.

3 Conclusion

This article has presented a set of high-frequency indicators to monitor developments in financial integration during the COVID-19 crisis. The article focuses on a price-based composite indicator of financial integration and its subcomponents for the money, bond, equity and banking markets. An original contribution of this article is to transform them – with the support of big data techniques – so that they give higher-frequency observations. The high-frequency monitoring toolkit presented here is based on analysis conducted at the ECB and in the Eurosystem. It includes new high-frequency indicators for the money market along with various indicators tracking sovereign and corporate bond markets. This toolkit is flexible and can be expanded over time.

The data from these high-frequency financial indicators can be used to track the unfolding of the COVID-19 crisis and interpret the effects of monetary, fiscal and financial policy responses from the viewpoint of euro area financial integration. The indicators suggest that the most significant challenge for the resilience of financial integration in the euro area came in the initial phases of the COVID-19 crisis. The onset of the crisis was especially severe in terms of fragmentation developments, especially prior to the PEPP announcement. Thereafter, sustained signs of financial re-integration emerged as progress was made on a joint European fiscal response, highlighting the powerful effects of monetary and fiscal policy coordination in weathering economic crises.

A nuanced picture emerges when cross-checking the price-based composite indicator of financial integration against the segment-specific indicators. The composite indicator of financial integration shows a trough in mid-April 2020 – but by mid-August 2020 surpasses the levels seen prior to the coronavirus crisis. However, such re-integration is not observed in all market segments; nor do all euro area countries benefit from it to the same degree. Money markets have been a strong contributor to the rebound of price-based financial integration to early 2020 levels. For both sovereign and corporate bond markets, the re-integration trend stabilised as late as August 2020, and integration only returned to pre-crisis levels towards the end of the reporting period. Equity market integration displays diverging paths across countries and has picked up slightly compared with early July 2020, but remains around pre-crisis levels.

At present, the re-integration of euro area financial markets is still fragile and uneven, and the gradual return to the situation before the COVID-19 outbreak relies on the unprecedented amount of monetary and fiscal stimulus in place. While many indicators of financial integration show an improvement throughout the third and fourth phases of the crisis, this re-integration trend is subject to the risk of further waves of infections and renewed lockdown measures.

3 New pension fund statistics

Prepared by Jordi Gutiérrez Curos, Jürgen Herr, Rafael Quevedo, Mirna Valadzija and Me-Lie Yeh

1 Introduction and relevance of pension funds

Pension funds play an important role in the euro area economy. They provide an opportunity for households to save for retirement and, at the same time, help the efficient allocation of long-term capital. Pension-related assets are typically one of the main assets of households (representing around 20% of euro area households' net financial wealth), particularly in countries where occupational pensions are prevalent.

The new pension fund[106] statistics combine data on the different pension schemes in euro area countries in one harmonised set of statistics. They offer a much enhanced set of information, essential for monitoring the development of pension funds from the perspective of monetary policy, financial stability and financial structures. Pension schemes that are provided through governments (e.g. social security schemes[107]) and pension plans offered by insurance corporations are excluded from the scope of the Regulation. The first reporting of pension fund statistics from national central banks to the ECB in line with the Regulation began with quarterly data on assets and liabilities for the third quarter of 2019 and with annual data on number of pension scheme members for 2019. The first public release of the pension funds dataset took place on 31 July 2020 on the ECB's Statistical Data Warehouse (SDW)[108] platform.

Pension funds have grown substantially in the euro area over the past two decades in terms of their financial assets and as a percentage of GDP. Euro area pension fund assets have almost doubled in size since 2008, with total assets currently amounting to approximately €3 trillion and almost doubling their percentage relative to euro area GDP from 13% in 2008 to 25% in 2019 (see Chart 1). By comparison, according to OECD data, the value of US private pension fund assets was equivalent to around 140% of GDP in 2018.[109]

---

106 Autonomous pension funds, as defined by the European System of National and Regional Accounts (ESA 2010). Pension funds consist only of those pension funds that are institutional units separate from the units that create them; non-autonomous pension funds set up, for example, by credit institutions or non-financial corporations are therefore not covered. Individual pension plans offered by insurance corporations or other institutions are also excluded from the scope of the Regulation, as are social security schemes.

107 See the article entitled "Social spending, a euro area cross-country comparison", Economic *Bulletin*, Issue 5, ECB, 2019.

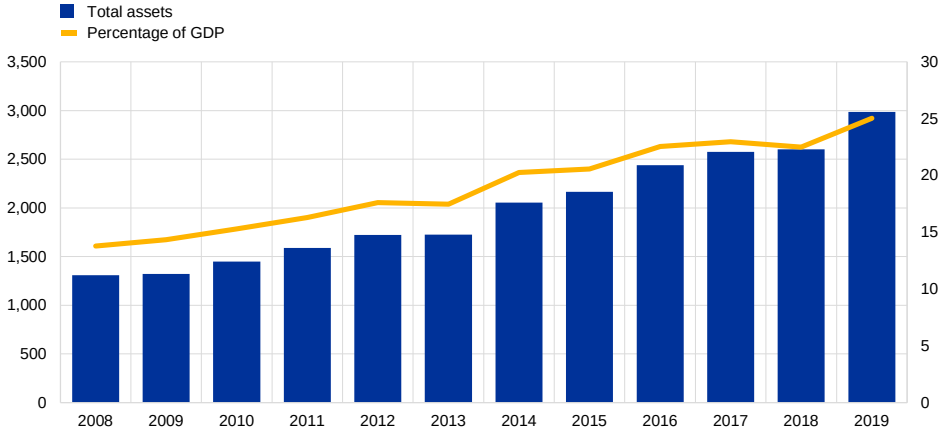
108 Pension fund statistics are available on the ECB's website in the Statistical Data Warehouse (SDW).

109 This reflects the higher share of private pensions in total pensions in the US and the fact that the role of public social security pensions is more relevant in nearly all euro area countries. See "Pension Markets in Focus", OECD, 2019 and "OECD Pensions Outlook", OECD, 2018.

Chart 1

Total assets of euro area pension funds

(left-hand scale: total assets, EUR billions; right-hand scale: percentage of euro area GDP)



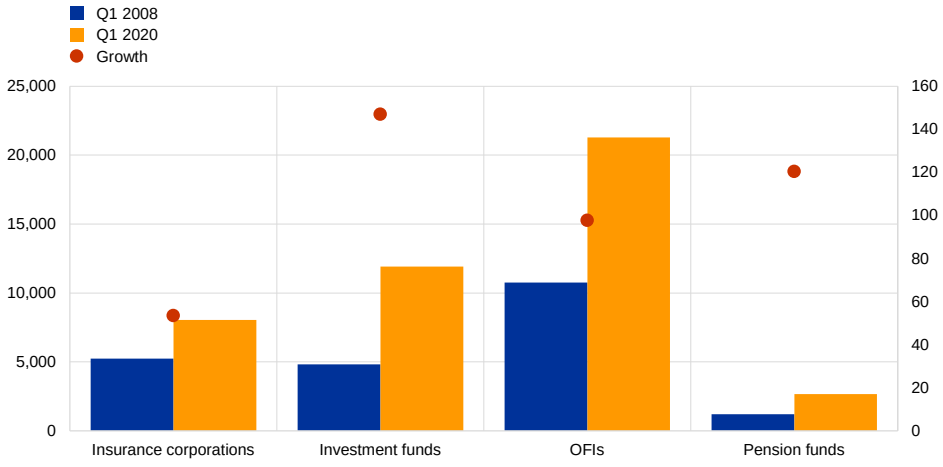
Source: ECB calculations.

Since the financial crisis pension funds[110] have represented a dynamically growing financial sector in the euro area. Chart 2 shows how fast pension funds grew as a financial sector between the 2008 financial crisis and the first quarter of 2020, when euro area pension funds had around 75 million members.

Chart 2

Total assets and growth of selected non-MFI financial sectors

(left-hand scale: total assets, log of EUR billions; right-hand scale: percentage growth between Q1 2008 and Q1 2020)



Source: ECB calculations.
Note: OFIs stands for other financial institutions.

In the euro area, pension funds are highly diverse in terms of their legal and regulatory set-ups, corresponding to their different roles in social protection systems from country to country. Depending on the nature of the contributor, pension schemes are usually classified into three pillars (World Bank, 2008[111]) (see

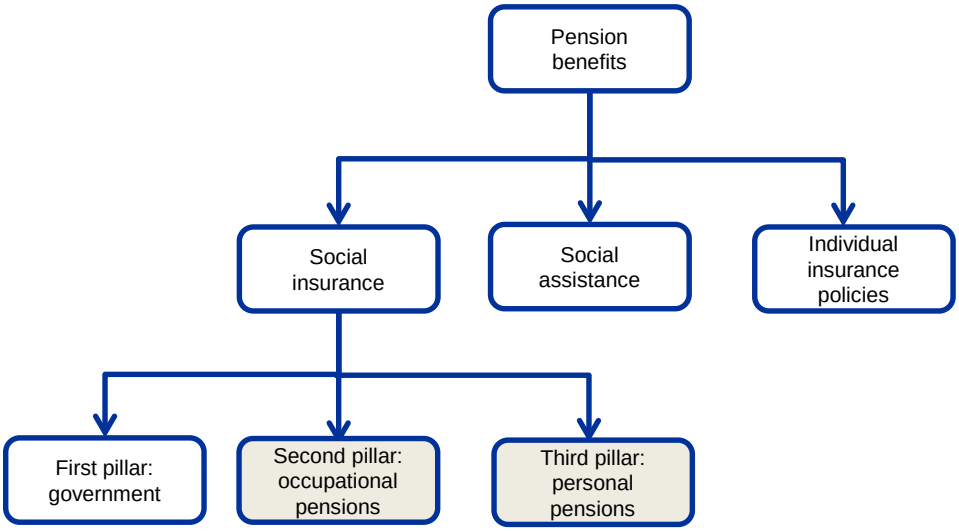
110 Including “second pillar” and (partly) “third pillar” pensions (see also Section 2).

111 The World Bank Pension Conceptual Framework, *World Bank Pension Reform Primer Series*, Washington, DC, 2008.

Figure 1). First-pillar pensions are organised by the government. Second-pillar pensions are occupational pension arrangements linked to employment, most of which are associated with a specific employer, group of employers, economic sector or social partner. Third-pillar pensions are personal pension products or savings.

Figure 1

Pillars of pension schemes



Sources: World Bank, Eurostat.
Notes: Social insurance and social assistance are defined in Eurostat's Pension Guide[112]. The ECB Regulation covers the pension schemes in the shadowed cells in the figure, namely social insurance schemes under the second and third pillars.

Euro area countries often provide first-pillar pension plans under a pay-as-you-go (PAYG[113]) approach. Such pension benefits differ considerably in terms of their level and nature, ranging from "poverty protection" in some Member States to replacement of up to 80% of final salaries in others.[114]

The roles, size and nature of private pensions are also highly diverse across euro area countries. It is worth noting that there are a few Member States with very low levels of first-pillar pensions, but significant private pension savings (particularly in the occupational pension sector) and high asset values relative to the Member State's GDP.[115] Occupational pension funds in the Netherlands make up around two-thirds of all such pensions in the euro area. Occupational pension plans are often negotiated by employers and social partners and are frequently subject to national social and labour law, which has an impact on the pension funds' governance structures.

112 See Eurostat, "Technical compilation guide for pension data in national accounts – 2020 edition": "Social insurance schemes are schemes in which participants are obliged, or encouraged, by a third party to take out insurance against certain social risks or circumstances that may adversely affect their welfare or that of their dependants. […] In contrast to social insurance benefits, social assistance benefits are payable without qualifying contributions having been made to a social insurance scheme."

113 PAYG schemes imply that pensions paid to current pensioners are funded from contributions paid by current workers. There is thus a key relationship between the number of workers and the number of pensioners in the scheme.

114 See, for instance, European Commission, "Pension adequacy report 2018 – Current and future income adequacy in old age in the EU", April 2018.

115 In the Netherlands, for instance, around half of all pension income comes from second- and third-pillar pensions (with the first pillar acting as a safety net to prevent poverty). That is the main reason for the high ratio of pension assets to GDP (which has exceeded 200%).

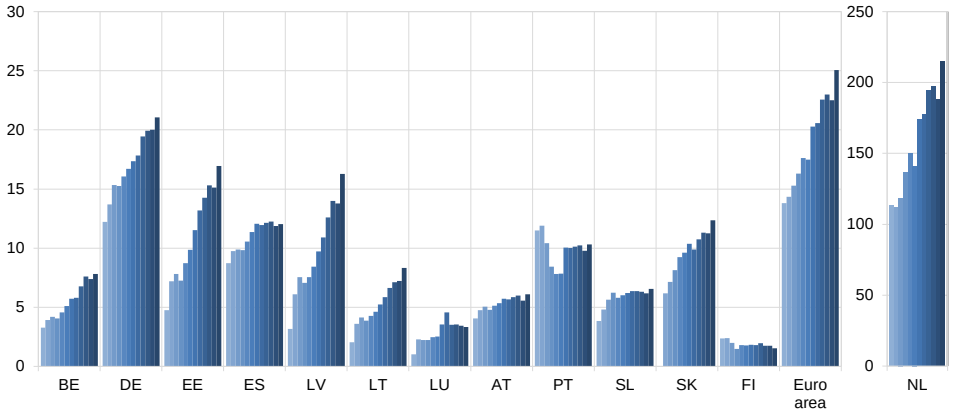
The euro area pension fund sector is highly concentrated in a few countries. In the euro area, the Netherlands stands out for its exceptionally large share, followed by Germany. Another characteristic of the pension fund sector in the euro area is the disparity in the number of reporting institutions, as in some countries there are large reporting populations made up of small pension funds (for instance Ireland and Cyprus[116]) while in other countries there are just a few pension funds.

Pension funds' assets have grown in most euro area countries since 2008. Although this growth as a percentage equivalent of a country's GDP has varied across countries, in most the upward trend has been continuous in spite of the financial crisis (see Chart 3).

Chart 3

Total assets as percentage of country GDP

(annual data, 2008 to 2019; right-hand scale applies to NL)



Source: ECB calculations.
Notes: GR, IE, IT and CY are excluded owing to missing data. FR and MT are excluded as they lacked a pension fund sector as defined by ESA 2010 in the period covered by the chart.

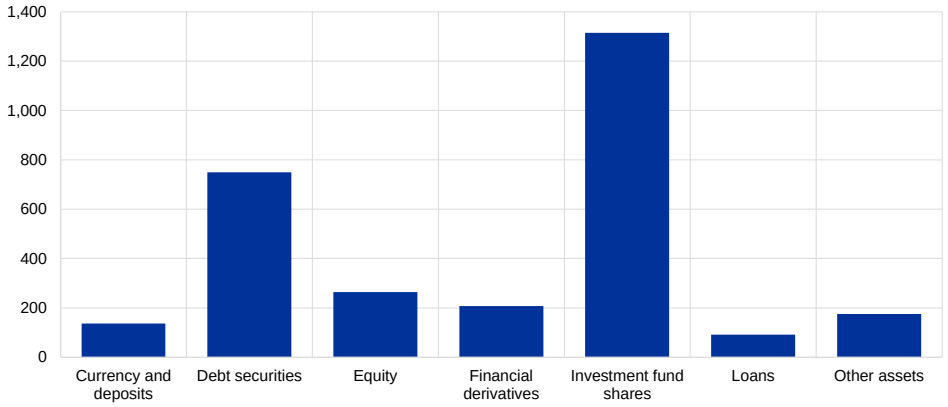
The type of assets most commonly held by euro area pension funds are investment fund shares followed by debt securities (see Chart 4). Other investments, on a smaller scale, comprise equity, financial derivatives, currency and loans.

[116] As part of the preparatory work carried out when drafting the Regulation, more than 75,000 pension funds were identified in Ireland and around 2,000 in Cyprus.

Chart 4

Assets held by euro area pension funds

(EUR billions; Q2 2020)



Source: ECB calculations
Note: "Other assets" include pension fund reserves, non-financial assets and remaining assets.

The main liabilities for pension funds (making up more than 95% of the total for the euro area) are insurance technical reserves/pension entitlements. In the euro area, defined benefit[117] schemes represent more than 85% of total pension entitlements. However, in most euro area countries there has been a shift in recent years from defined benefit to defined contribution contracts,[118] although the impact on the outstanding amounts will not be seen until after a few years of accumulation (see Chart 5).

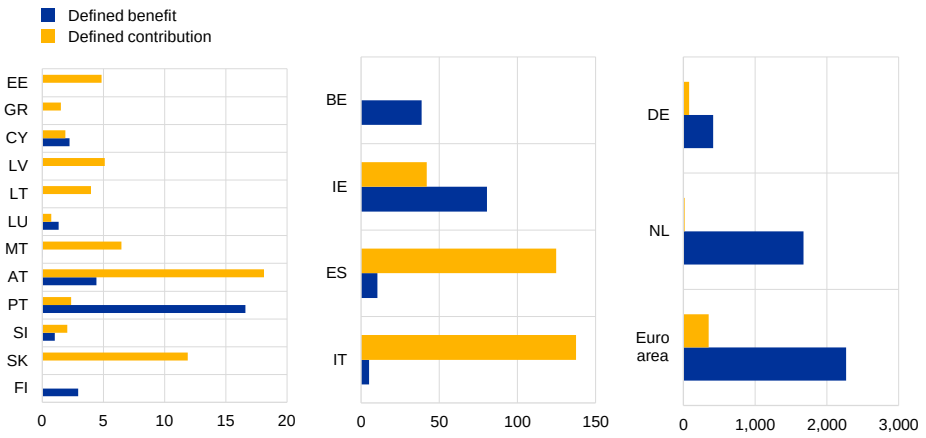
117 In a defined benefit pension scheme, the benefit on retirement is predetermined by a formula based on the earnings history, working life and age of the individual. The benefit at retirement does not depend directly on investment returns, as it is fixed in advance. By contrast, in defined contribution schemes, individual accounts are set up for participants and benefits are based on the amounts credited to these accounts plus any investment earnings. In such plans, future benefits fluctuate on the basis of investment earnings, and sponsors (which are typically employers) do not have any obligation to make further contributions to the plan if it evolves unfavourably; this is explained in more detail by way of the new statistics available in Section 3. Hybrid plans include both defined benefit and defined contribution components.

118 See European Insurance and Occupational Pensions Authority, Consumer Trends Report 2019, Luxembourg, Publications Office of the European Union, 2019.

Chart 5

Pension entitlements by country and type of scheme

(EUR billions; Q2 2020)



Source: ECB calculations.

2 ECB Regulation on pension fund statistics

The legal requirements for the harmonised pension fund statistics are laid down in Regulation ECB/2018/2**.**[119] The Regulation defines the statistical standards to be met by pension funds when reporting information on their assets and liabilities. Prior to the introduction of the harmonised statistics, data were collected on a best effort basis by the national central banks, which used sources other than direct collection to compute those data. The Regulation is complemented by Guideline ECB/2019/18[120], which sets out the procedures national central banks must follow when reporting pension fund statistics to the ECB.

The ECB Regulation aims to improve the availability and quality of data reported by pension funds and to increase harmonisation and data comparability across countries. The new pension fund statistics provide a larger, more harmonised set of data, resulting in a stronger information base for monetary policy decision-making, for financial stability purposes (including from a macroprudential perspective[121]) and for a better derivation of euro area accounts statistics. More data means more transparency on pension funds' activities. This is vital, as pension sector reforms are taking place across the European Union and there is also a shift from defined benefit to defined contribution schemes. Another advantage of the additional data reported under the ECB Regulation is that it is opening up new avenues for research on topics such as the impact of pension funds

119 Regulation (EU) 2018/231 of the European Central Bank of 26 January 2018 on statistical reporting requirements for pension funds (ECB/2018/2) (OJ L 45, 17.2.2018, p. 3).

120 Guideline (EU) 2019/1386 of the European Central Bank of 7 June 2019 amending Guideline ECB/2014/15 on monetary and financial statistics (ECB/2019/18) (OJ L 232, 6.9.2019, p.1).

121 See Serrano, A.S. and Peltonen, T., "Pension schemes in the European Union: challenges and implications from macroeconomic and financial stability perspectives", *Occasional Paper Series*, No 17, ESRB, July 2020.

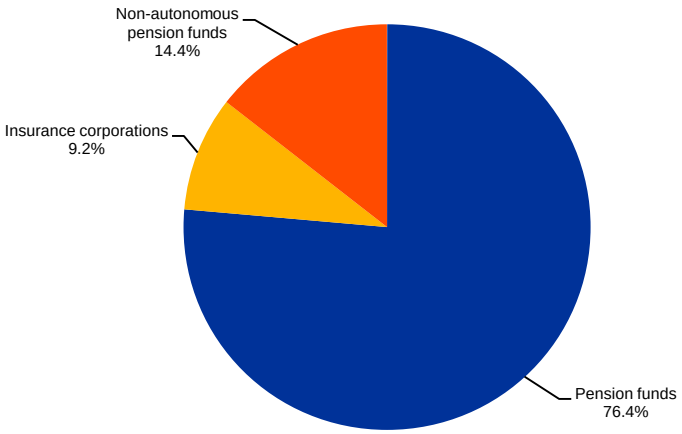
on the economy and the financial sector. A few examples of the use of the new pension fund statistics are detailed in Section 3.

The Regulation covers autonomous pension funds, as defined by the European System of National and Regional Accounts (ESA 2010**)**[122]. Pension funds are financial corporations that are mainly engaged in financial intermediation as a consequence of the pooling of the social risks and needs of their members and beneficiaries. About 76% of total pension entitlements are pension fund liabilities[123] according to the euro area accounts (see Chart 6). Insurance corporations may also offer saving schemes, which are recorded as pensions, in particular if participation in such a scheme is part of an employment contract. The liabilities of insurance corporations make up 9% of total pension entitlements.[124]

Chart 6

Pension entitlements by sector

(share of total euro area pension entitlements; Q1 2020)



Sources: Euro area accounts and ECB calculations.
Note: "Non-autonomous pension funds" cover non-financial corporations, monetary financial institutions, other financial institutions, general government and households and non-profit institutions serving households.

Only those pension funds that are institutional units separate from the units that create them are included in pension fund statistics. In some countries employers can create pensions schemes for their employees without involving a pension fund or insurance corporation. These non-autonomous schemes are not included in pension fund statistics. Where pension commitments are recognised on the balance sheet of the employers, they are covered in the euro area accounts. Non-autonomous schemes account for about 14% of total pension entitlements.

122 At the time of the implementation of the Regulation there were no pension funds in France that met the ESA 2010 definition.

123 These pension entitlements are those covered under the second pillar (occupational pensions) and the third pillar (e.g. individual pension schemes offered by pension funds) in Figure 1.

124 Pension schemes offered by insurance corporations are covered by the statistics on insurance corporations. Voluntary savings products, e.g. individual life insurance policies and annuities, are not considered pension schemes but are recorded under life insurance and annuities in insurance statistics and the euro area accounts.

Social security schemes are not included in the core definition of pensions[125] (the first pillar in Figure 1).

Pension fund statistics are an important source for the euro area accounts, not only for data on the pension fund sub-sector, which is presented separately in the financial accounts[126], but also for information on households' financial investments with pension funds. The pension funds Regulation provides a stable basis for outstanding amounts and the breakdown of flows into financial transactions, revaluations and other changes in volume.[127] This significantly improves the compilation of data on pension funds and households' financial investments in the financial accounts.

Co-operation with the European Insurance and Occupational Pensions Authority (EIOPA) has been a key factor in minimising the reporting burden for the pension funds and ensuring consistency between supervisory and statistical data. The relevant EIOPA and ECB bodies have cooperated closely in setting up the definitions, methodological framework and transmission format for both ESCB statistics and supervisory reporting.[128] A very high level of convergence between reporting requirements, data content, timeliness and coverage has been achieved. This gives national authorities the option of implementing a single reporting flow for pension funds in order to reduce the reporting burden and maximise consistency between data used in supervision and data used in macroeconomic statistics.[129]

In 2017 the ECB launched a public consultation[130] on the draft regulation on statistical reporting requirements for pension funds. Key documents – comprising the draft regulation, a summary of the related merits and costs procedure run in 2016, and frequently asked questions – were made available on the ECB's website as background information. The public consultation was instrumental in terms of finding an appropriate balance between user needs and reporting agents' costs, and also formed the basis for some technical fine-tuning.

In line with the pension funds reporting scheme, national central banks report to the ECB end-of-quarter stock data[131] and quarterly reclassification and

---

125 Pension entitlements as recognised financial assets and liabilities in the core of the national financial accounts and social security entitlements are presented together in Table 29 "Accrued-to-date pension entitlements in social insurance" of the ESA 2010 Transmission programme (see also the Box entitled "Accrued-to-date pension entitlements of households across euro area countries", *Economic Bulletin*, Issue 5, ECB, 2019).

126 In the non-financial sector accounts pension funds are covered as part of the financial sectors; non-financial transactions are not generally available by sub-sector.

127 These are reclassifications under the ECB Regulation.

128 See Decision of the Board of Supervisors on EIOPA's regular information requests towards NCAs regarding provision of occupational pensions information, EIOPA-BoS/18-114,10 April 2018.

129 A common technical framework, based on the eXtensible Business Reporting Language (XBRL) taxonomy, has been set up by EIOPA to facilitate the integration.

130 The documents related to the public consultation can be consulted here.

131 If not reported by the industry, NCBs estimate quarterly liabilities. The main item to be estimated is pension entitlements. As established in the Regulation, where liabilities data are not reported directly on a quarterly basis, NCBs must derive quarterly estimates of the liabilities of pension funds on the basis of the annual data provided. To this effect, the ECB published a Compilation Guide, which includes the mapping of supervisory and statistical requirements with EIOPA and methodologies agreed on for the estimation of quarterly liabilities.

revaluation adjustments. In addition, annual data on pension scheme members, broken down into active, deferred and retired members, are also reported. Stocks refer to the value of the asset or liability at the end of the reference quarter or year. Revaluation adjustments refer to changes in stocks due to changes in prices or exchange rates. Transactions refer to the sum of all net acquisitions (minus sales) of a given type of asset during the period, and the net incurrence (inflows minus outflows) of liabilities. In addition, the split between defined benefit and defined contribution schemes can be complemented with the information reported security-by-security (s-b-s)[132] and with the list of pension funds.[133] Growth rates will be calculated from an index obtained by dividing transactions by the stocks at the beginning of the period to which they refer.

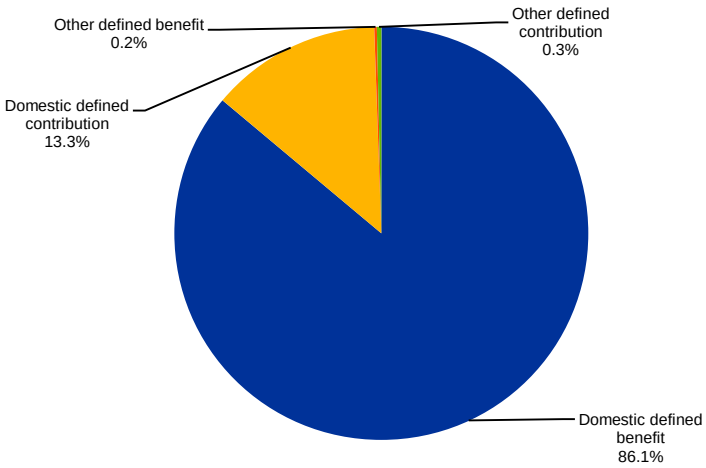
3 New euro area data on pension fund statistics

Euro area pension funds obtain capital from resident members. More than 99% of pension entitlements, the main liability item, are from the Member State where the pension fund is located, showing a strong domestic bias and also pointing to the low level of cross-border business carried out by pension funds (see Chart 7).

Chart 7

Geographical distribution of euro area pension entitlements by scheme – residency of beneficiaries

(percentages; Q2 2020)



Source: ECB calculations.

Pension funds invest in a geographically broader area. Euro area pension funds' assets are more widely geographically distributed than their liabilities, with only about 55% of assets invested domestically. Investment fund shares are invested mainly in

[132] The s-b-s reporting and the list of pension funds will also be key complementary data in the analysis of the shift from defined benefit to defined contribution schemes where the investment risks are borne by the policyholder or beneficiary. While this shift may reduce direct financial risks for pension funds, it necessitates increased monitoring of defined contribution schemes, which may have a significant economic impact on the net wealth of households.

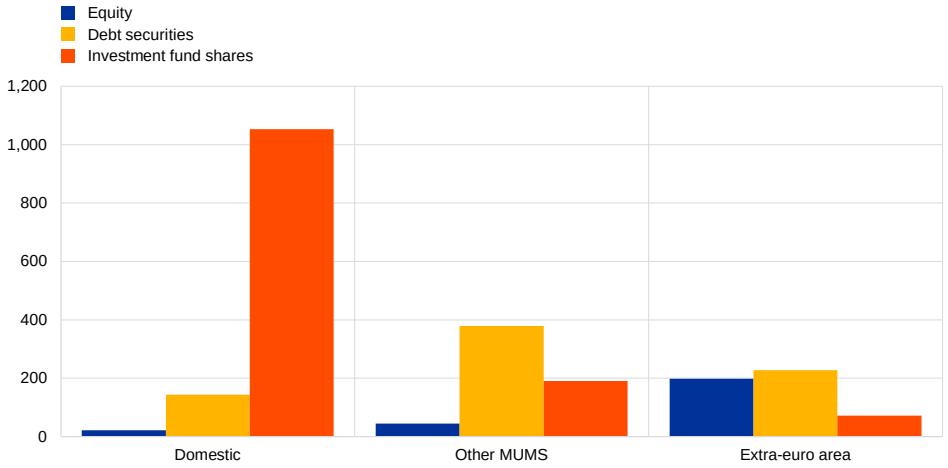
[133] See Guideline (EU) 2019/1335 of the European Central Bank of 7 June 2019 amending Guideline (EU) 2018/876 on the Register of Institutions and Affiliates Data (ECB/2019/17) (OJ L 208, 8.8.2019, p.47).

domestic investment funds, while debt securities, for example, tend to be invested in issuers in other euro area countries (i.e. outside the country the pension fund is located in). In the case of equity, the largest holdings are from issuers resident outside the euro area (see Chart 8).

Chart 8

Geographical distribution of assets

(EUR billions; Q2 2020)



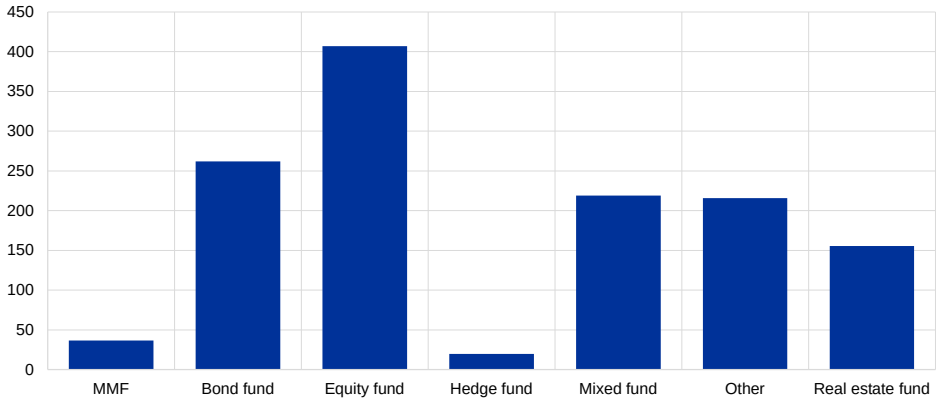
Source: ECB calculations.
Note: Other MUMS stands for other Monetary Union Member States.

The breakdown of types of investment fund now available is key to the analysis of the interconnectedness of the pension funds sector. In the previous pension fund data collection, only the absolute amount of all investment fund shares – the largest type of asset held – was reported. Therefore, data on the real exposure of pension funds to stock and debt market movements were not available. Under the Regulation, when pension funds report investment fund shares they must specify which type of fund they are investing in (namely equity, bond, mixed, hedge, real estate or other) (see Chart 9). The new reporting shows that the largest type of investment fund shares held by euro area pension funds is equity, followed by bond funds and mixed funds (which combine the previous two types).

Chart 9

Investment fund shares by type

(EUR billions; Q2 2020)



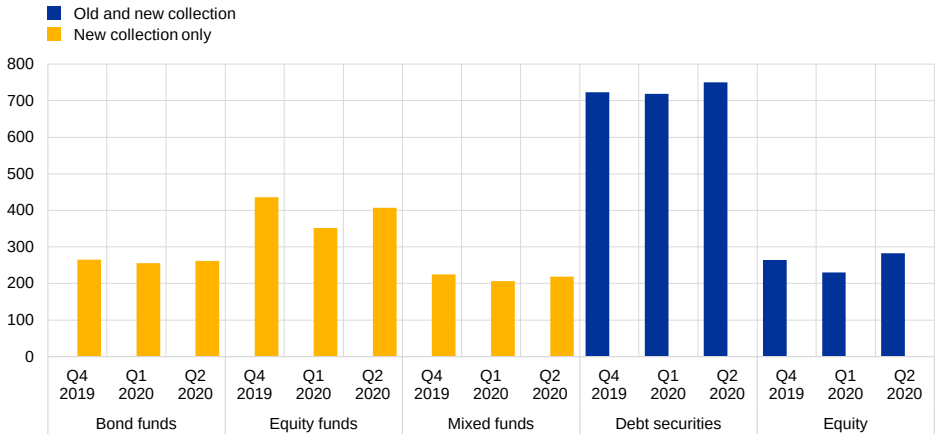
Source: ECB calculations.
Note: MMF stands for money market funds.

The exposure of euro area pension funds to stock and debt markets can be analysed in more detail with the new breakdowns. For instance, the effect of the Covid-19 crisis on pension funds in the first quarter of 2020 can now be analysed in detail: the pandemic affected the asset side of pension funds' balance sheets mainly through their exposure on stock markets, measured not only by the equity they directly hold but also through their equity (and mixed) investment fund shares (see Chart 10). Holdings of equity fund shares fell by 15%, while those of bond funds were stable throughout the quarter, with revaluation losses mostly compensated by positive transactions. Without this new breakdown, all data on fund types would be merged, providing a less clear picture.

Chart 10

Holdings of debt and equity instruments

(EUR billions; Q2 2020)



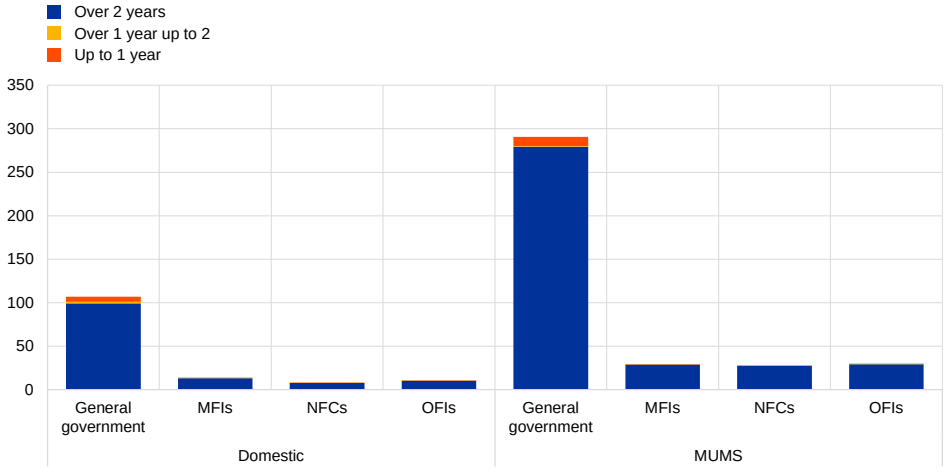
Source: ECB calculations.

In debt markets, pension funds invest mostly long term and in government bonds. Of the debt securities held, 96% have original maturities of over one year. Both domestically and in other euro area countries, pension funds hold more general government debt than monetary and financial institution debt and non-financial corporation debt combined (see Chart 11).

Chart 11

Holdings of debt securities by main issuing sector, area and maturity

(EUR billions; Q2 2020)

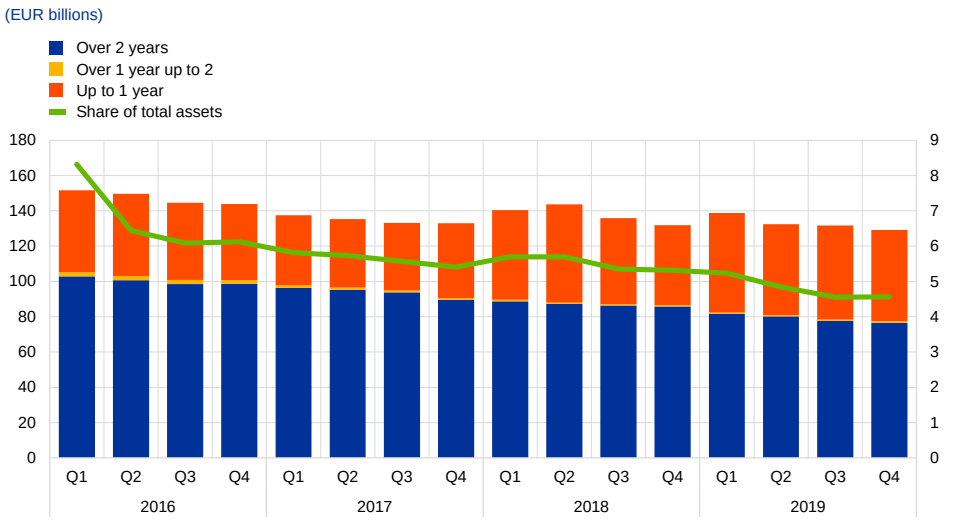


Source: ECB calculations.
Note: MFIs stands for monetary and financial institutions, NFCs for non-financial corporations, OFIs for other financial institutions.

Investments in currency and deposits are also more long-term oriented. At the end of 2019, 60% of the holdings of cash and deposits of euro area pension funds had maturities of over two years (see Chart 12). Although the share of short-term deposits has grown over time, cash and deposits have slightly declined in importance on pension fund balance sheets in a general move towards longer-term investments.

Chart 12

Holdings of currency and deposits



Source: ECB calculations.

Net worth is the balancing item in the statistical balance sheet[134]**, and its evolution can be better understood with the new data on revaluation adjustments.** In a defined benefit pension scheme, the level of pension benefits promised to participating employees is defined by a formula agreed in advance. Since assets are valued at market prices, their value might be higher or lower than the promised entitlements, leading to a positive or negative worth of the pension fund, respectively. When net worth turns negative, a pension fund can be said to be underfunded.[135] Another advantage of the new collection of data is the availability of revaluations and reclassifications, which can help explain why net worth grows or falls. The net worth of euro area pension funds fell from €124 billion in the fourth quarter of 2019 to €-122 billion in the first quarter of 2020. This drop can mostly be explained by the newly reported negative revaluations in the first quarter of 2020 (see Chart 13), mirroring exceptional market developments in this quarter due to the pandemic.

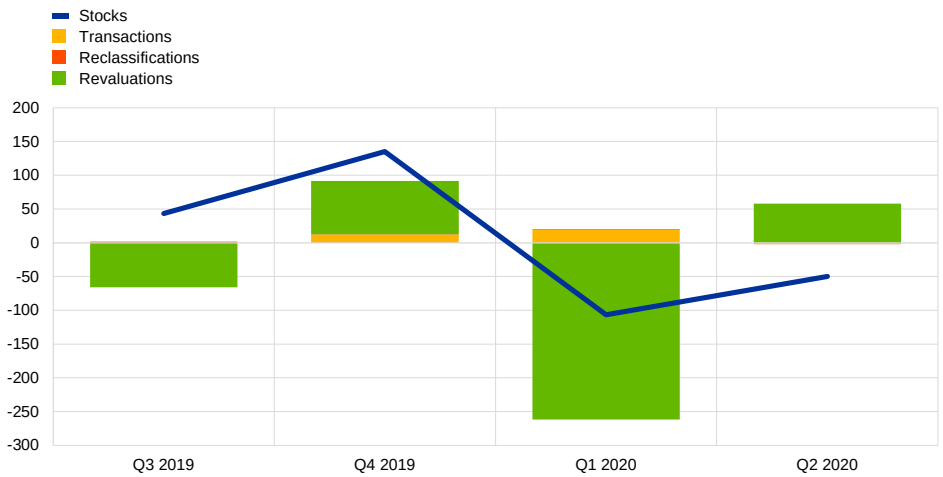
134 In a defined contribution scheme the benefits paid are dependent on the performance of the assets acquired by the pension scheme. The liability of a defined contribution scheme is the current market value of the fund's assets. The fund's net worth is always zero.

135 The new pension fund statistics also cover possible financial positions between pension funds and "pension managers" as defined by ESA 2010. If the employer retains the responsibility for any deficit in funding, the fund may record a claim on the employer. In practice, funding shortfalls may be addressed by increased contributions from employers and employees and/or by adjustments to benefits, depending on national legal provisions.

Chart 13

Evolution of net worth

(EUR billions; Q2 2020)



Source: ECB calculations.

4 Conclusions

Pension funds play a dual role, helping individuals save for old age and allocating long-term capital efficiently across firms, sectors and global markets. Pension funds are among the largest and fastest-growing investors in global capital markets. Their investments are diverse in terms of financial instruments, sectors and geographical location. Their role in the funding of euro area governments and non-financial corporations through investments in debt securities and equity is also increasing. The effects of the financial crisis and the pandemic, the low interest rate environment and Europe's ageing population have all highlighted the need for better quality, more granular and comparable data on this sector. Previously, gaps in the data available and the lack of comparability across countries made it difficult to gain a comprehensive understanding of the role of the sector in the monetary policy transmission mechanism, of cash flows and of the risks associated with pension obligations, as well as the risks associated with pension funds' investment behaviour and their interconnectedness with the rest of the financial system and the real economy. This is why it is crucial to have good, harmonised statistics on euro area pension funds.

The new euro area statistics on pension funds improve upon the previous dataset in several respects. The new dataset features (i) harmonised concepts that comply with international statistical standards and ensure the dataset is consistent with supervisory data; (ii) full coverage of institutions; (iii) detailed breakdowns of assets and liabilities, including by maturity, counterpart sector and geographical area; (iv) data on transactions and adjustments (e.g. revaluations and reclassifications); and (v) more timely releases of data. In addition, they are a vital building block for the compilation of data on pension funds and households' financial investments in the financial accounts.

Statistics

Contents

Further information

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

Conventions used in the tables

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

1 External environment

1.1 Main trading partners, GDP and CPI

	GDP [1] (period-on-period percentage changes)						CPI (annual percentage changes)						
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	OECD countries		United States	United Kingdom (HICP)	Japan	China	Memo item: euro area [2] (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2017	3.8	2.3	1.7	2.2	6.8	2.6	2.3	1.9	2.1	2.7	0.5	1.6	1.5
2018	3.6	3.0	1.3	0.3	6.6	1.9	2.6	2.1	2.4	2.5	1.0	2.1	1.8
2019	2.8	2.2	1.3	0.7	6.1	1.3	2.1	2.2	1.8	1.8	0.5	2.9	1.2
2019 Q3	0.6	0.6	0.3	0.0	1.0	0.3	1.9	2.2	1.8	1.8	0.3	2.9	1.0
Q4	0.4	0.6	0.1	-1.8	1.6	0.0	1.9	2.1	2.0	1.4	0.5	4.3	1.0
2020 Q1	-3.5	-1.3	-2.5	-0.6	-10.0	-3.7	2.1	2.2	2.1	1.7	0.5	5.0	1.1
Q2	-6.9	-9.0	-19.8	-7.9	11.7	-11.8	0.9	1.6	0.4	0.6	0.1	2.7	0.2
2020 Apr.	-	-	-	-	-	-	0.8	1.6	0.3	0.8	0.1	3.3	0.3
May	-	-	-	-	-	-	0.7	1.5	0.1	0.5	0.1	2.4	0.1
June	-	-	-	-	-	-	1.1	1.6	0.6	0.6	0.1	2.5	0.3
July	-	-	-	-	-	-	1.2	1.7	1.0	1.0	0.3	2.7	0.4
Aug.	-	-	-	-	-	-	1.2	1.6	1.3	0.2	0.2	2.4	-0.2
Sep.	-	-	-	-	-	-	.	.	1.4	0.5	0.0	1.7	-0.3

Sources: Eurostat (col. 3, 6, 10, 13); BIS (col. 9, 11, 12); OECD (col. 1, 2, 4, 5, 7, 8).
1) Quarterly data seasonally adjusted; annual data unadjusted.
2) Data refer to the changing composition of the euro area.

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports [1]		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index [2]					
	Global [2]	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders	Global	Advanced economies	Emerging market economies
	1	2	3	4	5	6	7	8	9	10	11	12
2017	53.2	54.3	54.7	52.5	51.8	56.4	53.8	53.8	52.8	5.9	4.0	8.0
2018	53.4	55.0	53.3	52.1	52.3	54.6	53.1	53.8	50.8	4.4	3.3	5.6
2019	51.7	52.5	50.2	50.5	51.8	51.3	50.3	52.2	48.8	-0.6	-0.3	-0.8
2019 Q4	51.3	51.9	49.5	49.2	52.6	50.7	51.3	51.3	49.5	-0.9	-2.2	0.6
2020 Q1	46.1	47.9	47.4	44.4	42.0	44.2	46.7	45.9	46.0	-2.6	-2.0	-3.2
Q2	37.9	37.3	30.5	31.5	52.6	31.3	40.6	36.9	35.0	-9.7	-9.2	-10.3
Q3	51.8	53.1	57.5	45.6	54.7	52.4	52.5	51.5	48.9	.	.	.
2020 May	37.2	37.0	30.0	27.8	54.5	31.9	39.8	36.3	32.9	-8.4	-6.8	-10.0
June	47.7	47.9	47.7	40.8	55.7	48.5	47.0	48.0	43.6	-9.7	-9.2	-10.3
July	50.2	50.3	57.0	44.9	54.5	54.9	51.4	49.7	46.3	-4.5	-4.8	-4.1
Aug.	52.6	54.6	59.1	45.2	55.1	51.9	53.3	52.4	49.5	4.0	2.4	5.9
Sep.	52.6	54.3	56.5	46.6	54.5	50.4	52.9	52.4	51.0	.	.	.
Oct.	.	55.5	.	.	.	49.4	.	.	.	.	.	.

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

2 Financial developments

2.1 Money market interest rates

(percentages per annum; period averages)

	Euro area [1]						United States	Japan
	Euro short-term rate (€STR) [2]	Overnight deposits (EONIA)	1-month deposits (EURIBOR)	3-month deposits (EURIBOR)	6-month deposits (EURIBOR)	12-month deposits (EURIBOR)	3-month deposits (LIBOR)	3-month deposits (LIBOR)
	1	2	3	4	5	6	7	8
2017	-	-0.35	-0.37	-0.33	-0.26	-0.15	1.26	-0.02
2018	-0.45	-0.36	-0.37	-0.32	-0.27	-0.17	2.31	-0.05
2019	-0.48	-0.39	-0.40	-0.36	-0.30	-0.22	2.33	-0.08
2020 Mar.	-0.53	-0.45	-0.48	-0.42	-0.36	-0.27	1.10	-0.09
Apr.	-0.54	-0.45	-0.43	-0.25	-0.19	-0.11	1.09	-0.01
May	-0.54	-0.46	-0.46	-0.27	-0.14	-0.08	0.40	-0.03
June	-0.55	-0.46	-0.49	-0.38	-0.22	-0.15	0.31	-0.05
July	-0.55	-0.46	-0.51	-0.44	-0.35	-0.28	0.27	-0.05
Aug.	-0.55	-0.47	-0.52	-0.48	-0.43	-0.36	0.25	-0.05
Sep.	-0.55	-0.47	-0.52	-0.49	-0.46	-0.41	0.24	-0.09

Source: Refinitiv and ECB calculations.

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

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

2.2 Yield curves

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1], [2]					Euro area [1], [2]	United States	United Kingdom	Euro area [1], [2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2017	-0.78	-0.74	-0.64	-0.17	0.52	1.26	0.67	0.83	-0.66	-0.39	0.66	1.56
2018	-0.80	-0.75	-0.66	-0.26	0.32	1.07	0.08	0.51	-0.67	-0.45	0.44	1.17
2019	-0.68	-0.66	-0.62	-0.45	-0.14	0.52	0.34	0.24	-0.62	-0.52	-0.13	0.41
2020 Mar.	-0.70	-0.69	-0.71	-0.67	-0.41	0.28	0.49	0.22	-0.70	-0.73	-0.48	0.09
Apr.	-0.54	-0.61	-0.71	-0.72	-0.46	0.16	0.47	0.16	-0.72	-0.85	-0.51	0.01
May	-0.57	-0.60	-0.63	-0.61	-0.36	0.24	0.48	0.14	-0.64	-0.69	-0.42	0.12
June	-0.57	-0.64	-0.69	-0.69	-0.45	0.19	0.50	0.14	-0.71	-0.77	-0.52	0.03
July	-0.58	-0.65	-0.71	-0.72	-0.49	0.16	0.42	0.07	-0.73	-0.80	-0.57	-0.04
Aug.	-0.58	-0.62	-0.66	-0.63	-0.37	0.25	0.58	0.30	-0.68	-0.71	-0.43	0.15
Sep.	-0.62	-0.64	-0.69	-0.71	-0.50	0.15	0.56	0.20	-0.69	-0.78	-0.58	-0.04

Source: ECB calculations.

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

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

2.3 Stock market indices

(index levels in points; period averages)

	Dow Jones EURO STOXX indices												United States	Japan
	Benchmark		Main industry indices											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2017	376.9	3,491.0	757.3	268.6	690.4	307.9	182.3	605.5	468.4	272.7	339.2	876.3	2,449.1	20,209.0
2018	375.5	3,386.6	766.3	264.9	697.3	336.0	173.1	629.5	502.5	278.8	292.9	800.5	2,746.2	22,310.7
2019	373.6	3,435.2	731.7	270.8	721.5	324.4	155.8	650.9	528.2	322.0	294.2	772.7	2,915.5	21,697.2
2020 Mar.	308.5	2,824.2	622.6	233.6	578.8	210.5	116.1	519.9	500.5	315.7	242.6	731.2	2,652.4	18,974.0
Apr.	310.3	2,839.6	657.9	245.7	588.3	216.7	107.2	508.9	539.3	296.4	242.8	786.8	2,763.2	19,208.4
May	322.1	2,909.3	678.1	251.2	601.3	219.9	109.3	539.7	576.8	307.1	249.9	829.2	2,919.6	20,543.3
June	353.9	3,237.4	733.8	270.5	656.5	236.6	124.7	604.7	637.2	341.5	264.2	866.9	3,104.7	22,486.9
July	362.0	3,316.3	773.2	271.5	666.9	226.7	125.9	617.5	681.3	358.0	262.7	877.5	3,207.6	22,529.5
Aug.	361.8	3,297.7	785.5	278.3	666.1	225.5	123.8	641.3	677.3	355.8	253.6	841.5	3,391.7	22,874.2
Sep.	359.2	3,260.7	800.6	228.0	255.8	101.8	119.0	638.1	669.1	347.2	245.9	822.8	3,365.5	23,306.9

Source: Refinitiv.

2 Financial developments

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

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

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase					
	Overnight	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation		APRC [3)]		By initial period of rate fixation				APRC [3)]	Composite cost-of-borrowing indicator
			Up to 2 years	Over 2 years			Floating rate and up to 1 year	Over 1 year			Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2019 Sep.	0.03	0.43	0.27	0.78	5.82	16.46	5.65	5.61	6.17	2.22	1.46	1.65	1.49	1.44	1.77	1.48
Oct.	0.03	0.42	0.24	0.83	5.70	16.50	5.88	5.55	6.19	2.26	1.45	1.59	1.44	1.39	1.74	1.44
Nov.	0.03	0.42	0.23	0.73	5.61	16.49	5.36	5.53	6.26	2.21	1.43	1.59	1.61	1.48	1.80	1.47
Dec.	0.03	0.42	0.22	0.79	5.58	16.55	5.44	5.28	5.89	2.09	1.46	1.58	1.43	1.39	1.75	1.41
2020 Jan.	0.02	0.42	0.27	0.73	5.62	16.55	5.62	5.69	6.25	2.21	1.46	1.52	1.43	1.40	1.73	1.43
Feb.	0.02	0.36	0.32	0.70	5.63	16.60	5.56	5.58	6.15	2.20	1.43	1.54	1.38	1.36	1.71	1.41
Mar.	0.02	0.36	0.30	0.65	5.61	16.18	5.58	5.45	5.91	2.06	1.39	1.54	1.35	1.35	1.64	1.39
Apr.	0.02	0.36	0.22	0.73	5.39	16.06	3.71	5.50	5.58	1.99	1.30	1.54	1.36	1.44	1.67	1.44
May	0.02	0.36	0.23	0.70	5.27	16.06	4.22	5.30	5.67	1.83	1.47	1.58	1.40	1.41	1.70	1.42
June	0.02	0.35	0.23	0.72	5.29	16.01	4.52	5.14	5.59	1.87	1.44	1.64	1.38	1.39	1.68	1.42
July	0.02	0.35	0.22	0.74	5.17	15.91	4.83	5.27	5.72	2.00	1.43	1.58	1.34	1.38	1.67	1.40
Aug. [(p)]	0.02	0.35	0.19	0.71	5.21	15.87	5.46	5.34	5.90	1.91	1.42	1.61	1.31	1.40	1.67	1.40

Source: ECB.

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

2) Including non-profit institutions serving households.

3) Annual percentage rate of charge (APRC).

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

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

	Deposits			Revolving loans and overdrafts	Other loans by size and initial period of rate fixation									Composite cost-of-borrowing indicator
	Overnight	With an agreed maturity of:			up to EUR 0.25 million			over EUR 0.25 and up to 1 million			over EUR 1 million			
		Up to 2 years	Over 2 years		Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2019 Sep.	0.03	-0.05	0.88	2.16	2.03	2.25	2.15	1.61	1.51	1.45	1.10	1.26	1.29	1.54
Oct.	0.02	-0.03	0.43	2.08	2.01	2.41	2.11	1.61	1.54	1.40	1.14	1.40	1.27	1.56
Nov.	0.02	-0.04	0.39	2.06	2.02	2.36	2.13	1.59	1.55	1.41	1.14	1.34	1.29	1.55
Dec.	0.01	0.00	0.42	2.09	2.00	2.28	2.08	1.58	1.54	1.39	1.26	1.21	1.37	1.56
2020 Jan.	0.01	-0.06	0.34	2.09	2.17	2.31	2.10	1.63	1.57	1.44	1.11	1.25	1.28	1.55
Feb.	0.00	-0.12	0.33	2.07	1.99	2.29	2.11	1.57	1.54	1.41	1.11	1.22	1.25	1.52
Mar.	0.00	-0.08	0.25	2.00	1.90	2.17	1.97	1.57	1.52	1.47	1.14	1.10	1.18	1.46
Apr.	0.00	-0.06	0.31	1.99	2.00	1.17	1.70	1.61	0.93	1.48	1.22	1.12	1.26	1.47
May	0.00	-0.10	0.39	1.91	1.87	1.22	1.62	1.54	0.87	1.56	1.23	1.07	1.31	1.46
June	0.00	-0.12	0.33	1.96	1.87	1.51	1.79	1.55	1.15	1.50	1.23	1.17	1.42	1.49
July	0.00	-0.18	0.27	1.87	1.98	1.86	1.87	1.60	1.31	1.51	1.23	1.17	1.38	1.51
Aug. [(p)]	0.00	-0.20	0.38	1.85	1.88	1.90	1.93	1.57	1.40	1.47	1.29	1.30	1.20	1.51

Source: ECB.

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

2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector.

2 Financial developments

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

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

	Outstanding amounts							Gross issues [1]						
	Total	MFIs (including Euro-system)	Non-MFI corporations			General government		Total	MFIs (including Euro-system)	Non-MFI corporations			General government	
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Short-term														
2017	1,240	519	155	.	70	438	57	367	167	54	.	37	79	31
2018	1,217	504	170	.	72	424	47	389	171	66	.	41	76	35
2019	1,283	550	181	.	84	406	61	415	177	80	.	47	73	38
2020 Mar.	1,368	546	182	.	103	450	86	407	111	86	.	46	103	61
Apr.	1,478	527	185	.	117	537	111	553	150	89	.	65	171	78
May	1,595	521	184	.	129	617	144	544	162	81	.	60	159	81
June	1,670	535	190	.	119	673	153	516	198	82	.	46	139	50
July	1,666	513	158	.	122	728	146	477	181	59	.	41	157	39
Aug.	1,665	504	154	.	121	744	142	383	153	56	.	29	112	34
Long-term														
2017	15,353	3,560	3,059	.	1,224	6,866	643	247	66	73	.	18	83	7
2018	15,745	3,688	3,161	.	1,247	7,022	627	228	64	68	.	15	75	6
2019	16,312	3,818	3,397	.	1,321	7,151	626	247	69	74	.	20	78	7
2020 Mar.	16,515	3,846	3,421	.	1,336	7,276	636	250	58	66	.	16	91	19
Apr.	16,708	3,943	3,417	.	1,373	7,326	648	460	135	70	.	54	180	20
May	16,878	3,945	3,416	.	1,407	7,447	663	341	58	52	.	50	162	19
June	17,104	3,973	3,452	.	1,434	7,569	676	424	100	94	.	38	172	20
July	17,108	3,936	3,161	.	1,445	7,891	675	305	55	66	.	32	140	12
Aug.	17,199	3,930	3,180	.	1,443	7,969	678	162	21	45	.	3	85	8

Source: ECB.

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

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

(EUR billions; percentage changes)

	Debt securities							Listed shares			
	Total	MFIs (including Eurosystem)	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central government	Other general government				
	1	2	3	4	5	6	7	8	9	10	11
Oustanding amount											
2017	16,593.3	4,079.8	3,214.5	.	1,293.4	7,304.7	700.9	7,963.3	612.5	1,258.3	6,092.6
2018	16,962.3	4,192.8	3,331.2	.	1,319.0	7,445.8	673.5	7,033.1	465.0	1,108.9	5,459.2
2019	17,595.3	4,368.2	3,577.9	.	1,405.5	7,557.2	686.5	8,595.6	546.0	1,410.7	6,638.8
2020 Mar.	17,883.1	4,392.0	3,603.9	.	1,439.4	7,725.9	721.9	6,448.6	333.9	975.0	5,139.7
Apr.	18,186.3	4,470.5	3,602.9	.	1,490.6	7,863.6	758.7	6,969.6	343.3	1,081.6	5,544.7
May	18,472.9	4,466.5	3,599.8	.	1,535.6	8,063.6	807.3	7,276.6	362.9	1,115.6	5,798.1
June	18,774.1	4,508.0	3,641.6	.	1,552.5	8,242.3	829.6	7,513.9	392.0	1,171.0	5,950.8
July	18,774.6	4,448.9	3,318.8	.	1,566.6	8,618.8	821.5	7,439.4	380.0	1,149.4	5,910.0
Aug.	18,864.1	4,433.3	3,333.4	.	1,564.3	8,713.2	820.0	7,726.8	398.8	1,191.3	6,136.7
Growth rate											
2017	1.3	-0.5	0.1	.	6.0	2.2	0.4	1.0	6.1	2.8	0.2
2018	1.9	1.7	3.0	.	3.3	1.9	-4.3	0.7	0.3	2.4	0.4
2019	3.1	3.8	5.0	.	5.6	1.5	1.8	0.0	0.5	0.0	0.0
2020 Mar.	2.7	1.8	4.2	.	4.2	2.1	3.6	0.0	0.1	0.0	0.0
Apr.	4.4	3.4	4.6	.	6.9	4.2	7.7	0.0	0.1	0.0	0.0
May	5.9	3.2	4.1	.	10.2	6.4	16.3	0.0	0.0	0.1	0.0
June	7.3	4.5	4.6	.	11.7	8.2	20.3	0.0	-0.2	0.1	0.0
July	7.3	3.1	4.1	.	12.0	9.2	19.2	0.1	-0.3	0.3	0.1
Aug.	7.7	2.8	4.5	.	12.1	10.2	18.0	0.3	-0.1	0.5	0.3

Source: ECB.

2 Financial developments

2.8 Effective exchange rates [1)]

(period averages; index: 1999 Q1=100)

	EER-19						EER-42	
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM	Real ULCT	Nominal	Real CPI
	1	2	3	4	5	6	7	8
2017	97.5	93.5	92.4	89.1	80.5	94.1	112.4	91.9
2018	100.0	95.7	93.9	90.5	80.8	95.5	117.3	95.1
2019	98.2	93.3	92.2	88.7	79.1	92.8	115.5	92.4
2019 Q4	97.7	92.4	91.8	88.4	78.1	92.0	114.9	91.4
2020 Q1	97.5	91.8	91.6	88.1	78.6	92.6	115.2	91.2
Q2	98.8	93.1	92.8	88.1	78.3	92.1	118.1	93.4
Q3	101.2	94.9	94.7	.	.	.	121.7	95.6
2020 Apr.	98.2	92.6	92.5	-	-	-	117.5	93.1
May	98.4	92.8	92.2	-	-	-	117.6	93.0
June	99.8	94.0	93.6	-	-	-	119.1	94.1
July	100.5	94.6	94.0	-	-	-	120.3	94.9
Aug.	101.6	95.2	95.1	-	-	-	122.4	96.1
Sep.	101.6	95.0	95.0	-	-	-	122.5	95.8
Percentage change versus previous month								
2020 Sep.	0.0	-0.2	-0.1	-	-	-	0.0	-0.2
Percentage change versus previous year								
2020 Sep.	3.5	2.1	3.0	-	-	-	6.2	4.1

Source: ECB.

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

2.9 Bilateral exchange rates

(period averages; units of national currency per euro)

	Chinese renminbi	Croatian kuna	Czech koruna	Danish krone	Hungarian forint	Japanese yen	Polish zloty	Pound sterling	Romanian leu	Swedish krona	Swiss franc	US Dollar
	1	2	3	4	5	6	7	8	9	10	11	12
2017	7.629	7.464	26.326	7.439	309.193	126.711	4.257	0.877	4.5688	9.635	1.112	1.130
2018	7.808	7.418	25.647	7.453	318.890	130.396	4.261	0.885	4.6540	10.258	1.155	1.181
2019	7.735	7.418	25.670	7.466	325.297	122.006	4.298	0.878	4.7453	10.589	1.112	1.119
2019 Q4	7.801	7.439	25.577	7.471	331.933	120.323	4.287	0.861	4.7666	10.652	1.096	1.107
2020 Q1	7.696	7.490	25.631	7.472	339.137	120.097	4.324	0.862	4.7973	10.669	1.067	1.103
Q2	7.808	7.578	27.058	7.458	351.582	118.410	4.503	0.887	4.8378	10.651	1.061	1.101
Q3	8.086	7.527	26.479	7.445	353.600	124.049	4.441	0.905	4.8454	10.364	1.075	1.169
2020 Apr.	7.686	7.593	27.262	7.462	356.688	116.970	4.544	0.875	4.8371	10.884	1.054	1.086
May	7.748	7.575	27.269	7.458	350.762	116.867	4.525	0.887	4.8371	10.597	1.057	1.090
June	7.973	7.568	26.681	7.455	347.686	121.120	4.445	0.899	4.8392	10.487	1.071	1.125
July	8.035	7.530	26.514	7.447	351.163	122.380	4.449	0.905	4.8383	10.354	1.071	1.146
Aug.	8.195	7.508	26.167	7.446	348.928	125.404	4.400	0.901	4.8376	10.309	1.077	1.183
Sep.	8.033	7.542	26.741	7.442	360.605	124.501	4.473	0.909	4.8602	10.428	1.079	1.179
Percentage change versus previous month												
2020 Sep.	-2.0	0.5	2.2	-0.1	3.3	-0.7	1.7	1.0	0.5	1.2	0.2	-0.3
Percentage change versus previous year												
2020 Sep.	2.6	1.9	3.4	-0.3	8.5	5.3	2.7	2.1	2.6	-2.5	-1.1	7.2

Source: ECB.

2 Financial developments

2.10 Euro area balance of payments, financial account

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

	Total [1]			Direct investment		Portfolio investment		Net financial derivatives	Other investment		Reserve assets	Memo: Gross external debt
	Assets	Liabilities	Net	Assets	Liabilities	Assets	Liabilities		Assets	Liabilities		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts (international investment position)												
2019 Q3	28,130.2	28,289.3	-159.1	11,619.9	9,430.6	9,659.0	12,064.2	-88.7	6,113.1	6,794.4	827.0	15,370.8
Q4	27,888.1	27,893.4	-5.3	11,525.2	9,371.8	9,908.1	12,136.7	-50.3	5,691.4	6,384.9	813.6	14,734.6
2020 Q1	27,524.7	27,557.2	-32.5	11,273.3	9,310.5	8,904.3	11,168.6	-64.0	6,544.8	7,078.1	866.3	15,505.2
Q2	28,050.8	28,062.8	-12.0	11,192.0	9,363.8	9,859.8	11,934.7	-33.0	6,127.1	6,764.3	905.0	15,182.1
Outstanding amounts as a percentage of GDP												
2020 Q2	243.5	243.6	-0.1	97.2	81.3	85.6	103.6	-0.3	53.2	58.7	7.9	131.8
Transactions												
2019 Q3	492.2	401.8	90.4	180.5	151.4	150.6	195.5	-2.1	163.0	54.9	0.1	-
Q4	-341.5	-423.6	82.1	-144.7	-62.6	155.2	11.6	-5.3	-344.2	-372.7	-2.5	-
2020 Q1	609.3	597.7	11.6	-33.4	-60.5	-127.4	59.1	12.2	754.5	599.1	3.4	-
Q2	93.1	87.1	6.0	22.9	155.8	383.3	188.8	37.5	-353.8	-257.6	3.3	-
2020 Mar.	-9.6	-11.0	1.4	-53.5	-47.6	-212.9	-98.1	-2.0	255.3	134.8	3.6	-
Apr.	92.2	118.9	-26.7	-6.8	24.8	165.1	1.7	10.6	-78.3	92.4	1.7	-
May	95.0	103.7	-8.7	81.8	139.7	104.0	58.5	9.3	-101.7	-94.4	1.7	-
June	-94.1	-135.6	41.4	-52.1	-8.6	114.2	128.6	17.6	-173.7	-255.6	-0.1	-
July	174.2	188.4	-14.2	33.0	13.8	25.3	58.7	6.4	110.1	116.0	-0.5	-
Aug.	98.4	62.7	35.7	62.1	36.6	41.8	44.5	-0.1	-6.8	-18.3	1.3	-
12-month cumulated transactions												
2020 Aug.	687.2	524.5	162.8	-18.3	115.0	548.8	445.7	45.1	112.6	-36.2	-0.9	-
12-month cumulated transactions as a percentage of GDP												
2020 Aug.	6.0	4.6	1.4	-0.2	1.0	4.8	3.9	0.4	1.0	-0.3	0.0	-

Source: ECB.

1) Net financial derivatives are included in total assets.

3 Economic activity

3.1 GDP and expenditure components

(quarterly data seasonally adjusted; annual data unadjusted)

	GDP											
	Total	Domestic demand								External balance [1]		
		Total	Private consumption	Government consumption	Gross fixed capital formation				Changes in inventories [2]	Total	Exports [1]	Imports [1]
						Total construction	Total machinery	Intellectual property products				
	1	2	3	4	5	6	7	8	9	10	11	12
	Current prices (EUR billions)											
2017	11,216.7	10,731.3	6,041.3	2,301.2	2,312.1	1,099.7	714.7	491.2	76.8	485.3	5,305.5	4,820.2
2018	11,587.6	11,119.5	6,222.7	2,368.7	2,431.3	1,178.5	745.7	500.5	96.8	468.1	5,576.2	5,108.1
2019	11,935.4	11,492.0	6,378.0	2,453.9	2,624.3	1,259.0	771.9	586.6	35.9	443.5	5,755.6	5,312.2
2019 Q3	2,995.8	2,862.6	1,600.5	616.9	641.0	316.8	194.1	128.4	4.2	133.1	1,447.2	1,314.1
Q4	3,014.8	2,904.8	1,606.6	621.6	678.2	317.6	192.6	166.3	-1.6	110.0	1,450.6	1,340.6
2020 Q1	2,916.9	2,820.4	1,539.0	624.8	649.4	312.3	174.3	161.1	7.1	96.5	1,389.9	1,293.4
Q2	2,598.6	2,514.2	1,346.7	624.1	541.7	273.2	140.3	126.5	1.7	84.4	1,109.1	1,024.7
	as a percentage of GDP											
2019	100.0	96.3	53.4	20.6	22.0	10.5	6.5	4.9	0.3	3.7	-	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2019 Q3	0.3	-1.1	0.3	0.6	-5.0	0.9	-0.6	-21.3	-	-	0.6	-2.4
Q4	0.0	1.1	0.1	0.3	5.6	-0.3	-0.8	29.4	-	-	0.0	2.2
2020 Q1	-3.7	-3.3	-4.5	-0.8	-5.1	-2.3	-9.8	-4.9	-	-	-3.8	-2.9
Q2	-11.8	-11.3	-12.4	-2.5	-17.1	-12.7	-19.6	-23.0	-	-	-18.8	-18.3
	annual percentage changes											
2017	2.6	2.3	1.8	1.1	3.8	3.4	5.3	2.8	-	-	5.5	5.2
2018	1.9	1.9	1.5	1.2	3.2	3.8	3.7	1.2	-	-	3.6	3.7
2019	1.3	1.9	1.3	1.9	5.8	3.5	2.3	16.4	-	-	2.5	3.9
2019 Q3	1.4	1.4	1.6	2.2	3.5	3.6	2.0	5.5	-	-	2.8	2.8
Q4	1.0	1.3	1.2	2.0	4.9	2.0	0.4	17.2	-	-	1.7	2.4
2020 Q1	-3.3	-1.7	-3.9	0.6	1.3	-2.2	-10.4	27.7	-	-	-3.1	0.3
Q2	-14.8	-14.3	-16.0	-2.4	-21.0	-14.2	-28.5	-25.3	-	-	-21.4	-20.9
	contributions to quarter-on-quarter percentage changes in GDP; percentage points											
2019 Q3	0.3	-1.1	0.2	0.1	-1.1	0.1	0.0	-1.2	-0.2	1.4	-	-
Q4	0.0	1.0	0.1	0.1	1.2	0.0	-0.1	1.3	-0.3	-1.0	-	-
2020 Q1	-3.7	-3.2	-2.4	-0.2	-1.2	-0.2	-0.6	-0.3	0.5	-0.5	-	-
Q2	-11.8	-11.0	-6.6	-0.5	-3.8	-1.4	-1.2	-1.3	-0.1	-0.8	-	-
	contributions to annual percentage changes in GDP; percentage points											
2017	2.6	2.2	1.0	0.2	0.8	0.3	0.3	0.1	0.2	0.4	-	-
2018	1.9	1.8	0.8	0.2	0.6	0.4	0.2	0.0	0.1	0.1	-	-
2019	1.3	1.8	0.7	0.4	1.2	0.4	0.1	0.7	-0.5	-0.5	-	-
2019 Q3	1.4	1.3	0.8	0.4	0.7	0.4	0.1	0.2	-0.7	0.1	-	-
Q4	1.0	1.3	0.7	0.4	1.1	0.2	0.0	0.8	-0.9	-0.3	-	-
2020 Q1	-3.3	-1.7	-2.1	0.1	0.3	-0.2	-0.7	1.2	0.0	-1.6	-	-
Q2	-14.8	-13.9	-8.5	-0.5	-4.8	-1.5	-1.9	-1.4	-0.1	-0.9	-	-

Sources: Eurostat and ECB calculations.

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

2) Including acquisitions less disposals of valuables.

3 Economic activity

3.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											Taxes less subsidies on products
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	Const-ruction	Trade, transport, accom-modation and food services	Infor-mation and com-munica-tion	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services	
	1	2	3	4	5	6	7	8	9	10	11	12
	Current prices (EUR billions)											
2017	10,055.8	176.2	2,001.8	498.9	1,909.3	469.5	468.2	1,134.6	1,146.6	1,900.0	350.7	1,160.9
2018	10,383.7	174.5	2,052.2	528.2	1,965.0	500.3	476.8	1,167.3	1,206.6	1,957.9	354.9	1,203.9
2019	10,693.0	178.5	2,064.5	570.1	2,026.8	530.5	481.3	1,204.8	1,251.4	2,020.4	364.7	1,242.4
2019 Q3	2,683.8	44.8	517.0	143.8	508.8	133.6	120.9	301.9	314.1	506.9	91.8	312.0
Q4	2,701.8	45.2	519.1	145.5	511.3	135.0	120.1	305.5	316.2	511.8	92.0	313.0
2020 Q1	2,623.9	45.1	498.3	142.0	479.4	132.9	121.2	303.5	305.5	509.6	86.4	293.0
Q2	2,344.6	44.8	429.9	125.9	383.3	127.5	115.3	299.5	257.1	493.0	68.3	254.0
	as a percentage of value added											
2019	100.0	1.7	19.3	5.3	19.0	5.0	4.5	11.3	11.7	18.9	3.4	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2019 Q3	0.3	0.3	0.1	0.7	0.4	0.4	0.3	0.4	0.1	0.2	0.3	0.7
Q4	0.0	0.7	-0.7	0.1	0.1	0.5	-0.1	0.5	0.2	0.3	-0.3	0.0
2020 Q1	-3.4	-1.5	-4.0	-3.1	-6.3	-1.4	-0.9	-0.9	-3.4	-2.1	-6.7	-6.6
Q2	-11.9	-2.5	-14.4	-12.9	-20.6	-4.4	-2.4	-2.1	-16.4	-7.3	-21.6	-11.1
	annual percentage changes											
2017	2.6	0.5	3.4	1.9	2.8	6.5	1.6	0.9	5.0	1.2	2.1	2.3
2018	1.9	-0.2	1.7	2.4	1.9	6.4	0.9	1.3	3.7	1.0	0.5	1.6
2019	1.3	0.8	-0.9	3.0	1.9	4.7	1.3	1.5	1.6	1.1	1.6	1.6
2019 Q3	1.4	1.1	-0.6	3.1	2.0	4.8	1.3	1.5	1.7	1.1	2.0	1.9
Q4	0.9	0.8	-1.3	1.6	1.6	4.3	1.1	1.7	0.6	1.1	1.4	1.7
2020 Q1	-3.0	-0.8	-5.0	-2.7	-5.8	1.8	-0.1	0.3	-2.9	-1.5	-6.3	-5.9
Q2	-14.6	-3.0	-18.3	-14.9	-25.3	-4.8	-3.0	-2.1	-19.1	-8.8	-26.9	-16.3
	contributions to quarter-on-quarter percentage changes in value added; percentage points											
2019 Q3	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-
Q4	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-
2020 Q1	-3.4	0.0	-0.8	-0.2	-1.2	-0.1	0.0	-0.1	-0.4	-0.4	-0.2	-
Q2	-11.9	0.0	-2.7	-0.7	-3.8	-0.2	-0.1	-0.2	-1.9	-1.4	-0.7	-
	contributions to annual percentage changes in value added; percentage points											
2017	2.6	0.0	0.7	0.1	0.5	0.3	0.1	0.1	0.6	0.2	0.1	-
2018	1.9	0.0	0.3	0.1	0.4	0.3	0.0	0.1	0.4	0.2	0.0	-
2019	1.3	0.0	-0.2	0.2	0.4	0.2	0.1	0.2	0.2	0.2	0.1	-
2019 Q3	1.4	0.0	-0.1	0.2	0.4	0.2	0.1	0.2	0.2	0.2	0.1	-
Q4	0.9	0.0	-0.3	0.1	0.3	0.2	0.1	0.2	0.1	0.2	0.0	-
2020 Q1	-3.0	0.0	-1.0	-0.1	-1.1	0.1	0.0	0.0	-0.3	-0.3	-0.2	-
Q2	-14.6	0.0	-3.5	-0.8	-4.8	-0.2	-0.1	-0.2	-2.2	-1.7	-0.9	-

Sources: Eurostat and ECB calculations.

3 Economic activity

3.3 Employment [1)]

(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity										
		Employees	Self-employed	Agriculture, forestry and fishing	Manufacturing, energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
as a percentage of total persons employed													
2017	100.0	85.6	14.4	3.2	14.6	5.9	25.0	2.8	2.5	1.0	13.8	24.3	6.9
2018	100.0	85.8	14.2	3.1	14.6	6.0	25.0	2.9	2.4	1.0	14.0	24.2	6.8
2019	100.0	86.0	14.0	3.0	14.5	6.0	25.0	2.9	2.4	1.0	14.0	24.3	6.7
annual percentage changes													
2017	1.6	2.0	-0.7	-0.5	0.9	1.2	1.8	3.2	-1.6	2.5	3.6	1.2	1.1
2018	1.6	1.8	0.1	-0.4	1.5	2.7	1.6	3.9	-1.1	2.0	2.8	1.2	0.2
2019	1.2	1.4	0.0	-1.9	0.8	2.0	1.3	3.6	-0.4	1.5	1.3	1.5	0.6
2019 Q3	1.1	1.3	-0.2	-2.2	0.7	1.7	1.0	3.3	-0.3	1.7	1.2	1.6	0.8
Q4	1.0	1.3	-0.3	-1.7	0.2	1.2	1.3	2.7	0.2	-0.2	1.1	1.6	0.9
2020 Q1	0.4	0.6	-1.2	-3.4	-0.4	1.0	0.3	2.3	0.1	-0.9	0.3	1.2	-0.1
Q2	-2.9	-3.0	-2.4	-4.4	-2.2	-1.1	-6.0	0.0	-1.8	-2.3	-3.9	0.3	-5.5
Hours worked													
as a percentage of total hours worked													
2017	100.0	80.7	19.3	4.3	15.0	6.7	25.9	3.0	2.5	1.0	13.6	21.8	6.2
2018	100.0	81.1	18.9	4.3	15.0	6.8	25.8	3.0	2.5	1.0	13.8	21.7	6.1
2019	100.0	81.3	18.7	4.1	14.9	6.8	25.8	3.1	2.4	1.0	13.9	21.8	6.1
annual percentage changes													
2017	1.1	1.6	-1.1	-0.8	0.6	1.1	1.1	3.1	-2.3	2.4	3.4	0.5	0.6
2018	1.7	2.1	0.0	0.1	1.4	3.3	1.5	4.1	-0.9	2.7	3.2	1.3	0.5
2019	0.9	1.2	-0.4	-2.6	0.3	1.8	0.9	3.6	-0.2	1.4	1.1	1.3	0.4
2019 Q3	0.7	1.0	-0.9	-3.1	0.1	1.1	0.6	3.3	0.0	1.6	0.8	1.3	0.7
Q4	0.5	0.9	-0.9	-1.9	-0.6	0.4	0.8	2.7	0.1	1.3	0.7	1.2	0.2
2020 Q1	-4.0	-3.2	-7.4	-4.7	-4.3	-4.5	-6.2	0.7	-2.5	-4.9	-2.7	-1.3	-8.2
Q2	-16.8	-15.5	-22.4	-7.7	-15.8	-18.0	-27.8	-6.6	-6.7	-15.6	-16.4	-5.5	-28.3
Hours worked per person employed													
annual percentage changes													
2017	-0.5	-0.3	-0.4	-0.3	-0.3	-0.1	-0.7	-0.1	-0.6	-0.1	-0.2	-0.7	-0.4
2018	0.1	0.3	-0.1	0.6	-0.1	0.6	-0.1	0.2	0.2	0.7	0.4	0.1	0.3
2019	-0.3	-0.2	-0.4	-0.7	-0.5	-0.2	-0.4	0.0	0.2	-0.1	-0.2	-0.2	-0.2
2019 Q3	-0.4	-0.3	-0.7	-1.0	-0.6	-0.6	-0.5	0.0	0.3	-0.1	-0.4	-0.3	-0.2
Q4	-0.5	-0.4	-0.6	-0.2	-0.8	-0.8	-0.4	0.0	-0.1	1.5	-0.3	-0.4	-0.7
2020 Q1	-4.3	-3.8	-6.2	-1.3	-3.9	-5.4	-6.5	-1.6	-2.6	-4.1	-2.9	-2.5	-8.1
Q2	-14.3	-12.9	-20.5	-3.4	-13.9	-17.1	-23.3	-6.6	-5.0	-13.6	-13.1	-5.7	-24.1

Sources: Eurostat and ECB calculations.

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

3 Economic activity

3.4 Labour force, unemployment and job vacancies

(seasonally adjusted, unless otherwise indicated)

	Labour force, millions	Under-employ-ment, % of labour force	Unemployment [1]											Job vacancy rate [3]
			Total		Long-term unemploy-ment, % of labour force [2]	By age				By gender				
						Adult		Youth		Male		Female		
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	% of total posts
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
% of total in 2019			100.0			81.9		18.3		51.3		48.7		
2017	161.860	4.1	14.585	9.0	4.4	11.946	8.1	2.640	18.6	7.556	8.7	7.029	9.4	1.9
2018	162.485	3.7	13.211	8.1	3.8	10.823	7.3	2.388	16.8	6.809	7.8	6.402	8.5	2.1
2019	163.302	3.5	12.268	7.5	3.3	10.030	6.7	2.238	15.6	6.290	7.2	5.978	7.9	2.3
2019 Q3	163.085	3.4	12.141	7.4	3.2	9.915	6.7	2.225	15.5	6.263	7.2	5.878	7.8	2.2
Q4	163.376	3.4	11.979	7.3	3.2	9.756	6.5	2.223	15.6	6.110	7.0	5.869	7.7	2.2
2020 Q1	162.278	3.4	11.737	7.2	3.1	9.521	6.4	2.217	15.7	5.970	6.9	5.768	7.6	1.9
Q2	159.646	3.5	11.671	7.3	2.5	9.416	6.4	2.256	16.5	6.145	7.2	5.526	7.5	1.6
2020 Mar.	-	-	11.819	7.2	-	9.646	6.5	2.173	15.4	6.063	6.9	5.756	7.6	-
Apr.	-	-	11.945	7.4	-	9.670	6.5	2.275	16.7	6.249	7.2	5.696	7.6	-
May	-	-	12.146	7.6	-	9.881	6.7	2.265	17.0	6.269	7.3	5.877	7.9	-
June	-	-	12.574	7.8	-	10.219	6.9	2.355	17.6	6.562	7.6	6.012	8.1	-
July	-	-	12.937	8.0	-	10.546	7.1	2.391	17.8	6.724	7.8	6.212	8.3	-
Aug.	-	-	13.188	8.1	-	10.728	7.2	2.460	18.1	6.841	7.9	6.347	8.4	-

Sources: Eurostat and ECB calculations.

1) Where annual and quarterly Labour Force Survey data have not yet been published, annual and quarterly data are derived as simple averages of the monthly data. Owing to technical issues with the introduction of the new German system of integrated household surveys, including the Labour Force Survey, the figures for the euro area include data from Germany for the first and second quarters of 2020 which are not direct estimates from Labour Force Survey microdata, but based on a larger sample including data from other integrated household surveys.

2) Not seasonally adjusted.

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

3.5 Short-term business statistics

	Industrial production						Con-struction produc-tion	ECB indicator on industrial new orders	Retail sales				New passenger car regis-trations
	Total (excluding construction)	Main Industrial Groupings							Total	Food, beverages, tobacco	Non-food	Fuel	
		Manu-facturing	Inter-mediate goods	Capital goods	Consumer goods	Energy							
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2015	100.0	88.7	32.1	34.5	21.8	11.6	100.0	100.0	100.0	40.4	52.5	7.1	100.0
	annual percentage changes												
2017	3.0	3.2	3.4	3.9	1.4	1.1	3.0	8.0	2.5	1.6	3.5	0.8	5.7
2018	0.7	0.9	0.6	1.1	1.4	-1.5	1.8	2.7	1.6	1.4	1.9	0.6	0.9
2019	-1.3	-1.3	-2.4	-1.8	1.5	-1.9	2.0	-4.4	2.3	0.9	3.6	0.8	1.8
2019 Q4	-2.0	-2.1	-3.8	-2.8	1.9	-2.5	0.0	-5.8	2.1	0.6	3.5	-0.6	12.5
2020 Q1	-6.1	-6.1	-5.4	-10.2	-0.7	-5.6	-3.8	-6.5	-1.4	4.7	-4.7	-10.1	-27.4
Q2	-20.2	-21.3	-19.5	-28.1	-13.6	-10.5	-15.6	-26.3	-6.8	3.0	-11.1	-29.4	-50.8
Q3	.	.	.	.	.	.	.	.	.	.	.	.	-6.9
2020 Apr.	-28.6	-30.2	-26.6	-41.0	-18.6	-13.4	-30.9	-37.0	-19.3	2.1	-32.1	-47.8	-79.6
May	-20.4	-21.6	-19.4	-28.0	-14.9	-10.5	-10.5	-28.3	-2.6	5.9	-5.9	-27.0	-48.5
June	-12.0	-12.5	-12.8	-15.6	-7.5	-7.4	-4.7	-13.4	1.4	1.1	3.9	-14.0	-28.1
July	-7.1	-7.3	-8.8	-9.4	-2.0	-5.7	-3.4	-10.5	-0.1	1.1	-0.3	-6.3	-3.8
Aug.	-7.2	-7.7	-5.4	-13.2	-3.2	-3.6	-0.9	-6.7	3.7	3.2	5.9	-4.9	-15.7
Sep.	.	.	.	.	.	.	.	.	.	.	.	.	-1.8
	month-on-month percentage changes (s.a.)												
2020 Apr.	-18.1	-19.5	-16.8	-26.1	-13.1	-5.8	-18.1	-24.0	-11.9	-5.5	-16.3	-28.7	-46.7
May	12.5	13.5	9.9	25.6	5.9	2.9	29.3	11.8	20.5	2.5	38.9	38.7	141.2
June	9.5	10.3	7.0	14.5	6.1	2.9	5.4	20.7	5.5	-3.2	12.1	19.3	40.1
July	5.0	5.7	5.0	6.5	4.7	1.5	0.3	2.1	-1.8	0.0	-4.6	8.9	29.3
Aug.	0.7	0.2	3.1	-1.6	-0.7	2.3	2.6	4.6	4.4	2.4	6.1	2.1	1.0
Sep.	.	.	.	.	.	.	.	.	.	.	.	.	0.9

Sources: Eurostat, ECB calculations, ECB experimental statistics (col. 8) and European Automobile Manufacturers Association (col. 13).

3 Economic activity

3.6 Opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances, unless otherwise indicated)								Purchasing Managers' Surveys (diffusion indices)			
	Economic sentiment indicator (long-term average = 100)	Manufacturing industry		Consumer confidence indicator	Construction confidence indicator	Retail trade confidence indicator	Service industries		Purchasing Managers' Index (PMI) for manufacturing	Manufacturing output	Business activity for services	Composite output
		Industrial confidence indicator	Capacity utilisation (%)				Services confidence indicator	Capacity utilisation (%)				
	1	2	3	4	5	6	7	8	9	10	11	12
1999-15	98.7	-5.2	80.6	-11.7	-15.4	-8.6	7.3	-	51.2	52.5	53.0	52.8
2017	110.4	5.7	83.1	-5.4	-3.0	2.3	14.7	89.9	57.4	58.5	55.6	56.4
2018	111.5	6.7	83.7	-4.9	7.0	1.3	15.2	90.4	54.9	54.7	54.5	54.6
2019	103.1	-5.1	81.9	-7.1	6.4	-0.4	10.7	90.5	47.4	47.8	52.7	51.3
2019 Q4	100.6	-9.2	80.9	-7.7	4.9	-0.1	9.8	90.2	46.4	46.7	52.3	50.7
2020 Q1	100.0	-8.1	74.6	-8.8	3.4	-3.0	6.6	88.0	47.2	45.1	43.9	44.2
Q2	69.4	-27.2	70.2	-18.5	-14.9	-26.4	-39.2	85.6	40.1	34.2	30.3	31.3
Q3	87.0	-13.4	.	-14.5	-10.9	-11.4	-18.2	.	52.4	56.0	51.1	52.4
2020 May	67.5	-27.5	-	-18.8	-17.5	-29.8	-43.6	-	39.4	35.6	30.5	31.9
June	75.8	-21.6	-	-14.7	-11.3	-19.4	-35.5	-	47.4	48.9	48.3	48.5
July	82.4	-16.2	72.1	-15.0	-11.4	-15.1	-26.2	85.6	51.8	55.3	54.7	54.9
Aug.	87.5	-12.8	-	-14.7	-11.8	-10.5	-17.2	-	51.7	55.6	50.5	51.9
Sep.	91.1	-11.1	-	-13.9	-9.6	-8.7	-11.1	-	53.7	57.1	48.0	50.4
Oct.	.	.	-	-15.5	.	.	.	-	54.4	57.8	46.2	49.4

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

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

	Households							Non-financial corporations					
	Saving ratio (gross)	Debt ratio	Real gross disposable income	Financial investment	Non-financial investment (gross)	Net worth [2]	Housing wealth	Profit share [3]	Saving ratio (net)	Debt ratio [4]	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted) [1]		Annual percentage changes					Percentage of net value added		Percentage of GDP	Annual percentage changes		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2017	12.2	93.8	1.6	2.3	5.4	4.7	4.6	35.1	7.0	77.4	4.6	9.6	3.0
2018	12.4	93.4	1.8	2.0	6.2	2.6	4.6	35.4	5.8	77.9	2.2	6.9	1.6
2019	12.9	93.8	1.8	2.6	5.0	5.6	3.8	34.6	5.6	77.8	2.3	3.5	1.9
2019 Q3	12.9	93.5	2.2	2.5	4.6	4.7	3.8	34.7	5.6	79.4	1.7	0.6	1.6
Q4	12.9	93.8	1.0	2.6	3.1	5.6	3.8	34.6	5.6	77.8	2.3	-7.8	1.9
2020 Q1	13.8	93.6	0.9	2.7	0.0	2.9	4.2	33.6	4.4	79.0	2.3	0.0	2.0
Q2	16.5	94.8	-3.5	3.3	-14.3	3.8	4.3	30.9	3.8	83.6	2.6	-28.1	1.9

Sources: ECB and Eurostat.
1) Based on four-quarter cumulated sums of saving, debt and gross disposable income (adjusted for the change in pension entitlements).
2) Financial assets (net of financial liabilities) and non-financial assets. Non-financial assets consist mainly of housing wealth (residential structures and land). They also include non-financial assets of unincorporated enterprises classified within the household sector.
3) The profit share uses net entrepreneurial income, which is broadly equivalent to current profits in business accounting.
4) Defined as consolidated loans and debt securities liabilities.

3 Economic activity

3.8 Euro area balance of payments, current and capital accounts

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

	Current account											Capital account [1]	
	Total			Goods		Services		Primary income		Secondary income			
	Credit	Debit	Balance	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019 Q3	1,103.8	1,021.6	82.3	605.3	520.8	252.4	224.9	217.5	206.3	28.5	69.7	10.2	12.9
Q4	1,096.7	1,038.3	58.4	611.5	520.4	255.3	250.5	200.5	204.6	29.3	62.7	16.4	19.0
2020 Q1	1,060.7	1,018.6	42.1	586.5	498.4	241.1	258.8	203.4	196.2	29.7	65.2	10.8	10.8
Q2	860.3	805.3	55.0	466.5	412.2	190.4	172.9	177.7	150.1	25.8	70.1	10.5	15.3
2020 Mar.	327.2	316.4	10.8	183.6	152.6	72.8	79.6	61.8	64.3	9.0	19.9	4.1	4.3
Apr.	274.9	259.4	15.6	142.2	130.8	61.4	55.6	62.7	50.5	8.7	22.5	3.8	5.8
May	283.2	267.0	16.2	155.0	136.8	63.2	57.3	57.0	45.3	8.0	27.7	3.5	4.5
June	302.2	278.9	23.3	169.3	144.7	65.8	60.0	58.1	54.3	9.0	19.9	3.3	5.0
July	312.2	295.3	17.0	180.6	150.5	65.5	61.7	56.3	61.9	9.8	21.3	3.3	3.1
Aug.	313.5	293.6	19.9	184.8	152.8	63.7	61.5	56.0	59.6	9.1	19.6	4.1	1.9
12-month cumulated transactions													
2020 Aug.	4,011.9	3,788.2	223.7	2,232.5	1,909.5	900.3	875.8	766.2	741.9	112.8	261.1	48.0	54.6
12-month cumulated transactions as a percentage of GDP													
2020 Aug.	34.8	32.9	1.9	19.4	16.6	7.8	7.6	6.6	6.4	1.0	2.3	0.4	0.5

1) The capital account is not seasonally adjusted.

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

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
			Total				Memo item:	Total				Memo items:	
	Exports	Imports		Intermediate goods	Capital goods	Consumption goods	Manufacturing		Intermediate goods	Capital goods	Consumption goods	Manufacturing	Oil
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2019 Q3	3.2	0.6	586.3	278.8	117.7	178.0	489.1	531.2	297.7	87.9	137.3	388.4	60.2
Q4	2.3	-2.0	592.5	276.4	125.3	179.4	497.1	526.3	290.6	86.6	138.8	385.8	60.7
2020 Q1	-1.7	-4.1	578.0	275.2	115.7	175.8	480.5	507.2	283.5	82.6	133.8	370.3	56.5
Q2	-23.6	-21.5	447.4	217.8	87.2	133.0	369.0	422.4	220.9	76.9	118.5	319.3	26.1
2020 Mar.	-6.0	-10.3	182.8	88.6	35.4	54.5	149.4	155.9	86.8	26.7	41.3	113.9	14.2
Apr.	-30.0	-25.3	135.8	69.6	26.4	37.4	109.6	135.3	73.2	24.7	36.3	99.6	7.9
May	-29.9	-26.7	148.0	71.8	28.8	44.4	123.3	139.4	71.8	25.3	39.9	106.9	7.7
June	-10.5	-12.1	163.7	76.4	32.0	51.2	136.1	147.7	75.9	26.8	42.3	112.8	10.5
July	-10.5	-14.4	173.1	79.9	34.9	54.8	145.5	153.8	79.9	27.6	43.3	116.6	11.4
Aug.	-12.3	-13.5	176.5	.	.	.	147.7	154.6	.	.	.	118.3	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2019 Q3	1.0	1.6	106.8	109.2	103.3	106.3	106.2	109.9	108.4	111.2	113.2	112.1	96.7
Q4	0.1	-1.7	107.3	108.3	108.5	106.1	107.2	107.5	105.2	105.9	113.2	110.1	96.2
2020 Q1	-4.1	-4.8	103.7	106.7	100.3	102.5	102.3	103.8	103.5	100.1	108.7	104.9	98.5
Q2	-23.6	-16.6	81.8	86.4	75.9	79.0	79.1	91.9	89.9	94.0	96.7	91.1	81.3
2020 Feb.	-1.3	-2.0	106.9	108.2	107.7	107.1	106.6	107.0	106.0	100.7	113.6	109.4	101.1
Mar.	-7.8	-9.1	98.8	104.2	91.8	94.8	95.3	97.2	98.4	94.0	100.6	95.8	92.6
Apr.	-29.9	-20.1	74.4	82.7	68.0	67.1	70.4	88.4	89.9	88.7	89.1	84.8	83.1
May	-29.6	-21.2	81.2	85.5	75.8	78.8	79.2	91.6	89.0	93.0	97.4	91.6	79.1
June	-10.6	-8.0	89.8	91.1	83.8	91.1	87.7	95.5	90.8	100.2	103.5	96.9	81.7
July	-9.9	-10.8	95.5	95.5	91.8	98.5	94.5	99.4	95.0	102.4	107.1	101.0	80.0

Sources: ECB and Eurostat.

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

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

4 Prices and costs

4.1 Harmonised Index of Consumer Prices [1)]

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) [2)]						Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unprocessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Administered prices
			Total excluding food and energy										
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2020	100.0	100.0	71.1	55.1	44.9	100.0	14.6	4.4	26.2	9.8	44.9	87.6	12.4
2017	101.8	1.5	1.0	1.6	1.4	-	-	-	-	-	-	1.6	1.0
2018	103.6	1.8	1.0	2.0	1.5	-	-	-	-	-	-	1.7	2.1
2019	104.8	1.2	1.0	1.0	1.5	-	-	-	-	-	-	1.1	1.9
2019 Q4	105.3	1.0	1.2	0.4	1.7	0.3	0.4	0.0	0.1	0.2	0.4	1.0	1.2
2020 Q1	104.7	1.1	1.1	0.8	1.5	0.1	0.6	1.2	0.0	-1.3	0.1	1.2	0.8
Q2	105.5	0.2	0.9	-0.6	1.2	-0.4	0.7	3.6	-0.1	-7.9	0.3	0.2	0.5
Q3	105.1	0.0	0.6	-0.7	0.7	0.0	-0.2	-1.9	0.4	0.9	-0.2	-0.1	0.4
2020 Apr.	105.4	0.3	0.9	-0.4	1.2	-0.2	0.3	3.7	-0.1	-4.8	0.2	0.3	0.6
May	105.3	0.1	0.9	-0.9	1.3	-0.1	0.2	-0.3	0.0	-1.7	0.1	0.0	0.6
June	105.7	0.3	0.8	-0.5	1.2	0.2	0.1	-0.2	0.0	1.7	0.1	0.2	0.4
July	105.3	0.4	1.2	-0.1	0.9	0.2	-0.3	-1.9	1.6	0.5	-0.2	0.4	0.4
Aug.	104.9	-0.2	0.4	-0.9	0.7	-0.5	0.0	0.3	-1.7	0.0	-0.1	-0.2	0.3
Sep.	105.0	-0.3	0.2	-1.0	0.5	-0.1	0.0	0.1	-0.1	-0.4	0.0	-0.4	0.4

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing		Transport	Communication	Recreation and personal care	Miscellaneous
	Total	Processed food	Unprocessed food	Total	Non-energy industrial goods	Energy		Rents				
	14	15	16	17	18	19	20	21	22	23	24	25
% of total in 2020	19.1	14.6	4.4	36.1	26.2	9.8	10.9	6.6	7.4	2.6	15.4	8.5
2017	1.8	1.5	2.4	1.5	0.3	4.9	1.3	1.2	2.1	-1.1	2.1	0.8
2018	2.2	2.1	2.3	1.9	0.3	6.4	1.2	1.2	1.5	-0.1	2.0	1.4
2019	1.8	1.9	1.4	0.5	0.3	1.1	1.4	1.3	2.0	-0.7	1.7	1.5
2019 Q4	1.8	1.9	1.6	-0.3	0.4	-2.1	1.5	1.5	2.4	-0.2	2.0	1.5
2020 Q1	2.2	2.0	2.8	0.0	0.5	-1.0	1.6	1.4	1.7	0.0	1.6	1.5
Q2	3.4	2.3	6.7	-2.7	0.2	-10.3	1.4	1.3	1.1	0.1	1.2	1.5
Q3	1.8	1.5	2.8	-2.0	0.4	-8.1	1.3	1.2	-0.3	-0.7	0.6	1.4
2020 Apr.	3.6	2.3	7.6	-2.4	0.3	-9.7	1.4	1.3	0.7	-0.4	1.3	1.5
May	3.4	2.4	6.7	-3.2	0.2	-11.9	1.4	1.3	1.4	0.3	1.3	1.6
June	3.2	2.3	6.0	-2.4	0.2	-9.3	1.4	1.3	1.1	0.3	1.2	1.5
July	2.0	1.6	3.1	-1.2	1.6	-8.4	1.3	1.2	0.2	-0.6	0.9	1.5
Aug.	1.7	1.5	2.3	-2.3	-0.1	-7.8	1.3	1.2	-0.8	-0.8	0.7	1.4
Sep.	1.8	1.4	3.1	-2.5	-0.3	-8.2	1.3	1.2	-0.5	-0.8	0.3	1.3

Sources: Eurostat and ECB calculations.

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

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

4 Prices and costs

4.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction [1]										Con-struction [2]	Residential property prices [3]	Experimental indicator of commercial property prices [3]
	Total (index: 2015 = 100)	Total		Industry excluding construction and energy						Energy			
			Manu-facturing	Total	Intermediate goods	Capital goods	Consumer goods						
							Total	Food, beverages and tobacco	Non-food				
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2015	100.0	100.0	77.3	72.1	28.9	20.7	22.5	16.5	5.9	27.9			
2017	100.8	3.0	3.0	2.1	3.2	0.9	1.9	2.9	0.2	5.6	2.0	4.4	4.7
2018	104.0	3.2	2.4	1.5	2.6	1.0	0.4	0.2	0.6	8.1	2.4	4.8	4.1
2019	104.7	0.7	0.6	0.7	0.1	1.5	1.0	1.1	0.8	-0.1	2.0	4.2	4.6
2019 Q3	104.2	-0.6	0.0	0.5	-0.4	1.5	1.0	1.2	0.8	-4.3	1.2	4.0	4.3
Q4	104.4	-1.2	0.0	0.4	-1.2	1.4	1.7	2.4	0.7	-5.9	1.9	4.3	4.2
2020 Q1	103.8	-1.5	0.0	0.4	-1.4	1.2	2.3	3.4	0.6	-7.3	1.5	5.0	3.9
Q2	100.3	-4.4	-3.0	-0.4	-2.6	1.0	1.1	1.5	0.6	-15.5	0.8	5.1	5.8
2020 Mar.	102.5	-2.8	-1.4	0.2	-1.9	1.1	2.3	3.5	0.6	-11.1	-	-	-
Apr.	100.4	-4.5	-3.1	-0.3	-2.6	1.1	1.7	2.5	0.6	-16.5	-	-	-
May	99.8	-5.0	-3.5	-0.6	-2.9	0.9	1.0	1.3	0.6	-17.2	-	-	-
June	100.6	-3.6	-2.3	-0.5	-2.5	1.1	0.7	0.8	0.6	-12.7	-	-	-
July	101.3	-3.1	-2.1	-0.4	-2.0	0.9	0.6	0.5	0.7	-10.8	-	-	-
Aug.	101.4	-2.5	-1.8	-0.4	-1.9	0.8	0.5	0.3	0.6	-8.7	-	-	-

Sources: Eurostat, ECB calculations, and ECB calculations based on MSCI data and national sources (col. 13).

1) Domestic sales only.

2) Input prices for residential buildings.

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

4.3 Commodity prices and GDP deflators

(annual percentage changes, unless otherwise indicated)

	GDP deflators								Oil prices (EUR per barrel)	Non-energy commodity prices (EUR)					
	Total (s.a.; index: 2015 = 100)	Total	Domestic demand				Exports [1]	Imports [1]		Import-weighted [2]			Use-weighted [2]		
			Total	Private consump-tion	Govern-ment consump-tion	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
% of total										100.0	45.4	54.6	100.0	50.4	49.6
2017	102.0	1.1	1.4	1.3	1.6	1.6	1.9	2.8	48.1	5.8	-3.5	16.6	6.7	-1.6	17.8
2018	103.4	1.4	1.7	1.5	1.7	1.9	1.5	2.2	60.4	-0.7	-5.8	4.3	-0.1	-5.3	5.7
2019	105.2	1.7	1.4	1.1	1.7	2.1	0.7	0.1	57.2	1.7	3.7	-0.1	2.6	7.5	-2.3
2019 Q4	106.0	1.7	1.2	1.0	1.7	1.5	0.4	-0.9	56.5	3.7	8.7	-0.6	5.1	13.7	-3.6
2020 Q1	106.5	1.9	1.3	1.3	2.6	1.9	0.0	-1.3	45.9	1.9	7.6	-3.1	1.4	7.5	-4.9
Q2	107.5	2.5	1.5	0.7	4.7	1.5	-1.9	-4.4	28.5	-2.6	3.7	-8.1	-4.8	-0.8	-9.2
Q3	.	.	.	.	.	.	.	.	36.5	1.8	1.1	2.4	-1.4	-3.5	1.0
2020 Apr.	-	-	-	-	-	-	-	-	21.5	-4.5	4.2	-12.1	-7.3	-2.0	-13.0
May	-	-	-	-	-	-	-	-	28.4	-1.3	5.6	-7.5	-3.4	1.4	-8.7
June	-	-	-	-	-	-	-	-	35.5	-1.8	1.4	-4.6	-3.7	-1.9	-5.7
July	-	-	-	-	-	-	-	-	37.3	-2.2	-1.2	-3.2	-4.9	-5.4	-4.2
Aug.	-	-	-	-	-	-	-	-	37.4	4.7	1.8	7.3	1.1	-2.9	5.6
Sep.	-	-	-	-	-	-	-	-	34.9	3.0	2.8	3.2	-0.3	-2.2	1.9

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

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

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

4 Prices and costs

4.4 Price-related opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 12 months	Input prices		Prices charged	
	Manu-facturing	Retail trade	Services	Construction		Manu-facturing	Services	Manu-facturing	Services
	1	2	3	4	5	6	7	8	9
1999-15	4.3	-	-	-4.5	32.3	56.7	56.3	-	49.7
2017	9.3	5.2	7.1	2.8	12.9	64.6	56.3	55.1	51.6
2018	11.6	7.5	9.5	12.5	20.6	65.4	57.9	56.1	52.7
2019	4.3	7.2	9.0	7.4	18.3	48.8	57.1	50.4	52.4
2019 Q4	1.4	6.9	7.9	5.9	14.7	44.2	56.9	48.6	52.0
2020 Q1	2.0	6.6	7.4	3.9	13.3	45.6	54.7	48.0	49.7
Q2	-6.8	-3.7	-7.5	-11.7	11.0	44.2	48.1	46.1	43.3
Q3	-1.3	0.9	-0.7	-7.8	12.5	49.4	52.9	49.3	47.7
2020 May	-8.6	-3.1	-8.8	-11.3	12.6	43.0	47.7	45.8	43.3
June	-4.4	0.1	-3.9	-10.8	14.5	45.1	52.2	46.6	46.3
July	-1.1	-0.6	-0.1	-9.9	12.7	47.5	52.5	49.0	47.8
Aug.	-2.1	0.7	-1.1	-7.5	13.9	50.1	53.4	49.4	48.2
Sep.	-0.6	2.7	-1.0	-6.0	11.0	50.6	53.0	49.6	47.1
Oct.	.	.	.	.	.	52.3	53.0	50.2	48.3

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

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

	Total (index: 2016 = 100)	Total	By component		For selected economic activities		Memo item: Indicator of negotiated wages [1]
			Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	
	1	2	3	4	5	6	7
% of total in 2018	100.0	100.0	75.3	24.7	69.0	31.0	
2017	101.8	1.8	1.8	1.9	1.9	1.7	1.5
2018	104.2	2.4	2.3	2.7	2.5	2.1	2.0
2019	106.8	2.5	2.6	1.9	2.4	2.8	2.2
2019 Q3	103.4	2.5	2.6	1.9	2.5	2.5	2.6
Q4	113.2	2.4	2.4	1.9	2.2	2.8	2.0
2020 Q1	103.3	3.7	3.9	3.1	3.3	4.6	1.9
Q2	115.7	4.2	5.2	0.9	4.1	4.3	1.7

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

4 Prices and costs

4.6 Unit labour costs, compensation per labour input and labour productivity

(annual percentage changes, unless otherwise indicated; quarterly data seasonally adjusted; annual data unadjusted)

	Total (index: 2015 =100)	Total	By economic activity									
			Agriculture, forestry and fishing	Manu-facturing, energy and utilities	Con-struction	Trade, transport, accom-modation and food services	Information and commu-nication	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12
Unit labour costs												
2017	106.3	0.7	0.8	-0.7	1.3	0.4	-0.8	-2.0	4.2	1.3	1.8	1.0
2018	108.4	1.9	1.0	1.7	2.2	1.8	-0.1	0.3	4.4	1.9	2.3	2.8
2019	110.4	1.9	-1.0	3.3	1.0	1.5	0.8	0.4	2.6	1.1	2.6	1.7
2019 Q3	110.6	1.7	-1.9	3.4	0.5	1.2	0.6	0.2	2.9	0.9	2.4	1.0
Q4	111.0	1.7	-0.1	2.5	1.0	1.2	0.1	0.5	-0.4	1.7	2.7	2.0
2020 Q1	114.1	4.4	-1.5	4.4	2.3	5.3	2.7	-0.5	1.2	4.7	5.2	6.9
Q2	119.5	8.5	-0.1	10.1	6.6	11.5	2.8	0.5	-4.2	11.2	11.5	20.2
Compensation per employee												
2017	111.2	1.7	1.7	1.8	2.0	1.4	2.3	1.2	2.5	2.6	1.8	2.0
2018	113.6	2.2	1.2	1.9	1.9	2.1	2.3	2.4	3.7	2.8	2.1	3.2
2019	115.9	1.9	1.8	1.5	2.0	2.1	1.9	2.1	2.6	1.4	2.1	2.7
2019 Q3	116.4	2.0	1.4	2.1	1.9	2.2	2.1	1.8	2.7	1.3	2.0	2.2
Q4	116.6	1.6	2.4	1.0	1.4	1.6	1.6	1.5	1.5	1.2	2.2	2.6
2020 Q1	115.8	0.6	1.2	-0.4	-1.5	-1.1	2.1	-0.7	2.4	1.3	2.4	0.3
Q2	110.2	-4.7	1.4	-8.1	-8.3	-11.4	-2.2	-0.8	-3.9	-6.4	1.4	-7.0
Labour productivity per person employed												
2017	104.5	1.0	0.9	2.5	0.7	1.0	3.2	3.3	-1.6	1.3	0.0	1.0
2018	104.9	0.3	0.2	0.2	-0.3	0.3	2.4	2.1	-0.7	0.8	-0.2	0.4
2019	105.0	0.1	2.8	-1.7	1.0	0.6	1.0	1.7	0.0	0.3	-0.4	1.0
2019 Q3	105.3	0.3	3.3	-1.3	1.4	1.0	1.4	1.6	-0.2	0.5	-0.4	1.2
Q4	105.1	0.0	2.6	-1.6	0.4	0.4	1.5	0.9	1.9	-0.4	-0.5	0.5
2020 Q1	101.5	-3.6	2.7	-4.6	-3.7	-6.1	-0.5	-0.2	1.2	-3.2	-2.7	-6.2
Q2	92.2	-12.2	1.5	-16.5	-14.0	-20.5	-4.8	-1.3	0.3	-15.8	-9.0	-22.7
Compensation per hour worked												
2017	113.0	2.1	2.1	2.0	2.0	1.8	2.3	1.9	2.3	2.5	2.5	2.4
2018	115.2	1.9	0.8	2.0	0.9	1.9	2.0	2.3	2.8	2.1	2.1	2.8
2019	117.7	2.2	2.0	2.1	2.2	2.3	1.8	1.8	2.9	1.6	2.3	3.1
2019 Q3	117.8	2.3	2.4	2.6	2.4	2.5	1.8	1.3	3.1	1.8	2.2	2.5
Q4	118.2	2.0	2.4	1.7	2.0	1.8	2.0	1.3	1.3	1.5	2.6	3.5
2020 Q1	121.6	4.6	4.2	3.3	3.5	4.6	3.6	1.7	6.0	3.9	4.9	8.2
Q2	128.2	9.4	5.9	6.1	7.7	12.7	4.4	4.2	7.2	6.4	6.9	18.2
Hourly labour productivity												
2017	106.8	1.5	1.2	2.8	0.8	1.7	3.3	3.9	-1.5	1.5	0.6	1.4
2018	107.0	0.2	-0.4	0.3	-0.9	0.4	2.2	1.9	-1.3	0.5	-0.3	0.0
2019	107.5	0.4	3.4	-1.1	1.2	1.0	1.0	1.5	0.1	0.5	-0.2	1.2
2019 Q3	107.4	0.8	4.4	-0.8	2.0	1.4	1.4	1.3	-0.1	0.9	-0.2	1.3
Q4	107.5	0.5	2.8	-0.7	1.3	0.8	1.6	1.0	0.4	-0.1	-0.1	1.3
2020 Q1	107.9	0.8	4.0	-0.8	1.9	0.4	1.1	2.5	5.5	-0.3	-0.2	2.1
Q2	109.9	2.5	5.1	-3.0	3.7	3.6	1.9	3.9	16.0	-3.2	-3.5	1.9

Sources: Eurostat and ECB calculations.

5 Money and credit

5.1 Monetary aggregates [1)]

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

	M3											
	M2							M3-M2				
	M1			M2-M1								
	Currency in circulation	Overnight deposits		Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months			Repos	Money market fund shares	Debt securities with a maturity of up to 2 years		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2017	1,112.0	6,638.1	7,750.1	1,196.6	2,261.8	3,458.3	11,208.5	74.4	512.0	72.6	659.1	11,867.5
2018	1,163.3	7,114.7	8,278.1	1,124.9	2,299.0	3,423.9	11,702.0	74.3	524.0	71.5	669.8	12,371.8
2019	1,220.0	7,724.2	8,944.2	1,069.5	2,363.8	3,433.3	12,377.5	78.5	531.6	7.9	618.0	12,995.5
2019 Q4	1,220.0	7,724.2	8,944.2	1,069.5	2,363.8	3,433.3	12,377.5	78.5	531.6	7.9	618.0	12,995.5
2020 Q1	1,262.1	8,075.3	9,337.4	1,077.5	2,361.4	3,439.0	12,776.4	109.9	533.5	56.5	700.0	13,476.4
Q2	1,304.5	8,401.6	9,706.1	1,076.0	2,403.1	3,479.1	13,185.2	96.5	584.6	16.7	697.7	13,882.9
Q3 [p]	1,330.8	8,621.3	9,952.1	1,080.2	2,427.9	3,508.2	13,460.3	100.9	618.6	0.3	719.8	14,180.1
2020 Apr.	1,276.8	8,229.6	9,506.5	1,071.0	2,376.7	3,447.7	12,954.2	94.9	546.6	37.7	679.3	13,633.4
May	1,296.5	8,334.7	9,631.3	1,095.1	2,389.1	3,484.2	13,115.4	96.6	556.9	26.8	680.2	13,795.6
June	1,304.5	8,401.6	9,706.1	1,076.0	2,403.1	3,479.1	13,185.2	96.5	584.6	16.7	697.7	13,882.9
July	1,311.1	8,474.8	9,785.8	1,082.9	2,409.4	3,492.3	13,278.1	107.0	601.8	9.1	718.0	13,996.1
Aug.	1,322.9	8,532.0	9,854.8	1,050.7	2,417.8	3,468.4	13,323.2	91.3	595.5	6.8	693.6	14,016.9
Sep. [p]	1,330.8	8,621.3	9,952.1	1,080.2	2,427.9	3,508.2	13,460.3	100.9	618.6	0.3	719.8	14,180.1
Transactions												
2017	36.0	592.6	628.6	-109.5	34.5	-74.9	553.7	6.5	-10.8	-18.5	-22.7	530.9
2018	50.3	465.1	515.4	-74.0	45.2	-28.9	486.6	-0.9	12.3	-3.3	8.1	494.7
2019	56.7	603.1	659.8	-60.0	62.8	2.7	662.5	4.1	-1.8	-57.6	-55.3	607.1
2019 Q4	15.8	122.8	138.6	-38.0	8.1	-29.9	108.7	4.5	-16.0	-9.5	-21.1	87.6
2020 Q1	42.1	346.6	388.7	6.0	-2.5	3.5	392.2	31.1	2.0	46.7	79.8	471.9
Q2	42.4	323.2	365.6	0.4	42.1	42.5	408.1	-12.9	51.1	-40.7	-2.4	405.7
Q3 [p]	26.4	296.5	322.8	8.3	25.2	33.5	356.3	5.4	33.3	-15.0	23.7	380.0
2020 Apr.	14.7	151.4	166.2	-7.8	15.2	7.4	173.5	-15.4	13.2	-18.5	-20.7	152.8
May	19.7	103.3	123.0	26.7	12.8	39.5	162.5	2.4	10.3	-11.7	0.9	163.5
June	7.9	68.5	76.4	-18.4	14.0	-4.4	72.1	0.1	27.7	-10.4	17.4	89.4
July	6.6	152.5	159.1	11.6	6.5	18.1	177.2	11.7	17.2	-5.4	23.4	200.6
Aug.	11.8	59.2	71.0	-31.4	8.5	-22.9	48.2	-15.6	-7.1	-1.7	-24.4	23.8
Sep. [p]	7.9	84.8	92.7	28.1	10.2	38.3	131.0	9.3	23.2	-7.9	24.6	155.7
Growth rates												
2017	3.3	9.8	8.8	-8.3	1.6	-2.1	5.2	9.5	-2.1	-21.1	-3.3	4.7
2018	4.5	7.0	6.6	-6.2	2.0	-0.8	4.3	-1.3	2.4	-4.7	1.2	4.2
2019	4.9	8.5	8.0	-5.3	2.7	0.1	5.7	5.4	-0.4	-86.7	-8.2	4.9
2019 Q4	4.9	8.5	8.0	-5.3	2.7	0.1	5.7	5.4	-0.4	-86.7	-8.2	4.9
2020 Q1	7.0	10.9	10.4	-3.7	1.8	0.0	7.4	47.5	2.0	51.5	9.8	7.5
Q2	9.7	13.1	12.6	-3.3	2.7	0.8	9.2	29.4	11.1	-54.1	9.2	9.2
Q3 [p]	10.5	14.3	13.8	-2.1	3.1	1.4	10.3	37.5	12.9	-98.8	12.5	10.4
2020 Apr.	8.0	12.5	11.9	-5.2	2.1	-0.3	8.3	28.2	3.8	2.0	6.2	8.2
May	9.3	13.0	12.5	-2.5	2.3	0.7	9.1	35.9	5.8	-34.2	6.3	9.0
June	9.7	13.1	12.6	-3.3	2.7	0.8	9.2	29.4	11.1	-54.1	9.2	9.2
July	9.8	14.1	13.5	-1.5	2.7	1.4	10.1	43.0	12.4	-67.7	11.4	10.1
Aug.	10.4	13.7	13.2	-5.1	2.9	0.4	9.6	28.3	8.7	-60.4	8.2	9.5
Sep. [p]	10.5	14.3	13.8	-2.1	3.1	1.4	10.3	37.5	12.9	-98.8	12.5	10.4

Source: ECB.

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

5 Money and credit

5.2 Deposits in M3 [1]

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

	Non-financial corporations [2]					Households [3]					Financial corporations other than MFIs and ICPFs [2]	Insurance corporations and pension funds	Other general government [4]
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2017	2,240.3	1,797.4	285.0	149.1	8.8	6,317.6	3,702.8	562.1	2,051.9	0.8	991.1	206.6	415.3
2018	2,331.4	1,898.7	277.3	147.8	7.6	6,644.9	4,035.9	517.6	2,090.1	1.4	998.2	202.9	435.5
2019	2,476.2	2,062.7	256.9	150.1	6.5	7,040.7	4,395.5	492.5	2,151.8	0.9	1,036.9	214.4	467.8
2019 Q4	2,476.2	2,062.7	256.9	150.1	6.5	7,040.7	4,395.5	492.5	2,151.8	0.9	1,036.9	214.4	467.8
2020 Q1	2,609.4	2,190.9	263.2	147.5	7.7	7,161.4	4,530.5	472.0	2,158.3	0.6	1,151.7	226.4	475.3
Q2	2,867.7	2,392.7	320.1	148.6	6.2	7,349.9	4,682.0	462.7	2,204.3	0.9	1,068.3	225.3	466.0
Q3 [p]	2,954.9	2,476.5	324.2	147.2	7.1	7,501.0	4,822.1	446.6	2,231.3	1.1	1,060.3	242.7	471.5
2020 Apr.	2,715.5	2,277.9	284.8	146.5	6.3	7,242.1	4,596.8	467.1	2,177.4	0.8	1,120.1	229.8	464.8
May	2,824.5	2,355.8	316.8	147.2	4.7	7,299.7	4,642.8	464.8	2,191.1	1.0	1,100.8	231.1	459.4
June	2,867.7	2,392.7	320.1	148.6	6.2	7,349.9	4,682.0	462.7	2,204.3	0.9	1,068.3	225.3	466.0
July	2,918.9	2,433.3	333.2	147.1	5.3	7,400.5	4,729.8	456.3	2,213.3	1.1	1,035.4	243.3	476.0
Aug.	2,944.6	2,467.8	325.6	146.9	4.3	7,443.2	4,770.8	450.6	2,220.8	1.0	1,003.7	233.2	467.0
Sep. [p]	2,954.9	2,476.5	324.2	147.2	7.1	7,501.0	4,822.1	446.6	2,231.3	1.1	1,060.3	242.7	471.5
Transactions													
2017	180.7	182.4	-1.9	-0.8	0.9	254.7	304.7	-82.1	33.6	-1.5	54.9	7.2	26.7
2018	93.1	105.3	-9.7	-1.1	-1.4	326.5	324.8	-45.0	46.1	0.5	0.5	-3.9	19.1
2019	146.2	163.8	-18.8	1.7	-0.5	394.5	358.4	-25.7	62.4	-0.5	29.0	10.2	30.1
2019 Q4	28.8	34.6	-4.3	-2.2	0.7	76.8	76.9	-11.5	11.5	-0.2	-3.0	-6.9	1.8
2020 Q1	130.6	126.4	5.6	-2.5	1.2	119.4	134.2	-21.0	6.4	-0.3	112.1	11.6	7.4
Q2	260.4	203.1	57.7	1.1	-1.5	190.4	152.7	-9.0	46.5	0.3	-88.2	-0.6	-9.2
Q3 [p]	93.5	87.9	6.0	-1.3	1.0	153.8	141.9	-15.4	27.2	0.2	64.7	17.6	5.7
2020 Apr.	104.6	86.0	21.0	-1.0	-1.4	80.1	65.9	-5.1	19.1	0.2	-34.4	3.5	-10.5
May	112.3	80.2	33.0	0.7	-1.5	59.1	46.7	-1.9	14.2	0.1	-22.4	1.6	-5.4
June	43.5	36.8	3.7	1.4	1.5	51.2	40.1	-2.0	13.2	-0.1	-31.4	-5.7	6.7
July	59.0	45.9	15.3	-1.5	-0.8	53.3	49.6	-5.6	9.1	0.2	41.1	18.8	10.1
Aug.	25.2	33.6	-7.2	-0.2	-0.9	45.0	43.0	-5.6	7.6	-0.1	-30.4	-10.0	-9.0
Sep. [p]	9.4	8.3	-2.1	0.4	2.7	55.6	49.3	-4.2	10.4	0.0	54.0	8.8	4.6
Growth rates													
2017	8.6	11.2	-0.7	-0.5	11.5	4.2	9.0	-12.7	1.7	-65.1	5.8	3.6	6.9
2018	4.2	5.9	-3.5	-0.7	-16.5	5.2	8.8	-8.0	2.3	67.7	0.0	-1.9	4.6
2019	6.3	8.6	-6.8	1.2	-6.8	5.9	8.9	-5.0	3.0	-36.8	2.9	5.0	6.9
2019 Q4	6.3	8.6	-6.8	1.2	-6.8	5.9	8.9	-5.0	3.0	-36.8	2.9	5.0	6.9
2020 Q1	9.7	12.1	-2.2	-1.0	24.8	6.0	9.8	-8.4	2.3	-56.7	16.8	5.9	2.9
Q2	19.1	20.5	21.2	-1.7	-13.5	7.4	11.2	-9.3	3.7	-48.3	4.5	3.6	0.9
Q3 [p]	21.0	22.3	24.8	-3.2	23.9	7.8	11.7	-11.3	4.3	0.5	8.4	9.8	1.2
2020 Apr.	13.7	16.2	5.5	-2.2	-11.6	6.7	10.6	-9.1	2.9	-48.2	12.1	8.0	1.0
May	17.7	19.3	18.3	-2.0	-31.8	7.0	10.9	-9.2	3.2	-37.5	9.6	7.1	-0.2
June	19.1	20.5	21.2	-1.7	-13.5	7.4	11.2	-9.3	3.7	-48.3	4.5	3.6	0.9
July	20.4	21.4	27.2	-2.8	-15.7	7.4	11.3	-10.2	3.9	-40.1	9.0	10.2	3.7
Aug.	19.9	21.3	24.5	-3.4	-31.5	7.5	11.5	-11.0	4.1	-40.9	4.5	0.9	1.0
Sep. [p]	21.0	22.3	24.8	-3.2	23.9	7.8	11.7	-11.3	4.3	0.5	8.4	9.8	1.2

Source: ECB.

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

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

3) Including non-profit institutions serving households.

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

5 Money and credit

5.3 Credit to euro area residents [1)]

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

	Credit to general government			Credit to other euro area residents								
					Loans						Debt securities	Equity and non-money market fund investment fund shares
					Total							
	Total	Loans	Debt securities	Total		Adjusted loans [2)]	To non-financial corporations [3)]	To households [4)]	To financial corporations other than MFIs and ICPFs [3)]	To insurance corporations and pension funds		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2017	4,617.2	1,032.3	3,571.0	13,114.0	10,870.5	11,165.8	4,323.4	5,600.3	838.0	108.7	1,440.4	803.2
2018	4,676.7	1,006.2	3,659.0	13,415.9	11,122.4	11,482.8	4,402.3	5,742.1	851.2	126.8	1,517.9	775.6
2019	4,652.5	984.4	3,656.3	13,865.5	11,452.1	11,838.5	4,472.5	5,930.9	896.1	152.6	1,560.5	852.9
2019 Q4	4,652.5	984.4	3,656.3	13,865.5	11,452.1	11,838.5	4,472.5	5,930.9	896.1	152.6	1,560.5	852.9
2020 Q1	4,774.4	1,006.9	3,755.7	14,046.9	11,688.3	12,063.7	4,601.8	5,966.5	958.5	161.5	1,558.2	800.3
Q2	5,300.9	1,005.8	4,283.4	14,245.5	11,783.1	12,165.8	4,717.7	5,993.9	917.8	153.7	1,644.2	818.2
Q3 [p]	5,749.5	1,001.6	4,736.1	14,205.2	11,866.3	12,224.7	4,732.0	6,063.9	913.6	156.9	1,526.0	812.9
2020 Apr.	4,962.3	1,015.5	3,935.0	14,122.9	11,728.0	12,103.9	4,670.7	5,960.9	939.7	156.8	1,609.0	785.9
May	5,131.2	1,017.5	4,101.9	14,225.1	11,805.1	12,179.2	4,719.2	5,981.8	949.7	154.4	1,627.1	793.0
June	5,300.9	1,005.8	4,283.4	14,245.5	11,783.1	12,165.8	4,717.7	5,993.9	917.8	153.7	1,644.2	818.2
July	5,587.6	1,003.6	4,572.2	14,126.8	11,812.7	12,183.4	4,729.8	6,015.8	913.0	154.2	1,497.4	816.6
Aug.	5,639.1	998.3	4,628.9	14,184.9	11,847.0	12,210.8	4,757.3	6,030.9	903.7	155.2	1,522.2	815.6
Sep. [p]	5,749.5	1,001.6	4,736.1	14,205.2	11,866.3	12,224.7	4,732.0	6,063.9	913.6	156.9	1,526.0	812.9
Transactions												
2017	287.5	-43.7	330.6	363.2	274.2	316.4	84.9	173.2	19.7	-3.5	63.6	25.4
2018	90.3	-28.4	118.7	374.8	307.3	382.1	123.6	166.3	-0.4	17.8	88.1	-20.6
2019	-88.3	-23.5	-65.2	453.0	378.7	426.0	115.0	199.9	42.5	21.2	30.6	43.8
2019 Q4	-5.2	-15.6	10.2	90.2	78.5	104.6	2.8	60.2	9.1	6.5	-7.8	19.5
2020 Q1	133.4	21.9	111.5	228.7	246.0	238.3	135.7	41.8	59.6	8.8	15.0	-32.3
Q2	507.1	-1.7	508.8	194.9	102.5	110.6	123.1	33.0	-45.9	-7.7	80.9	11.5
Q3 [p]	244.3	-4.0	248.3	160.4	102.0	84.1	29.9	71.6	-2.9	3.4	56.4	2.0
2020 Apr.	194.6	8.3	186.2	68.4	38.2	38.0	71.6	-5.3	-23.5	-4.7	46.7	-16.4
May	159.0	1.6	157.5	103.8	79.1	76.9	51.4	22.1	7.9	-2.4	19.2	5.6
June	153.5	-11.5	165.0	22.6	-14.7	-4.2	0.0	16.2	-30.4	-0.6	15.0	22.4
July	94.0	-2.2	96.2	74.4	45.1	38.2	21.7	24.5	-1.7	0.6	28.7	0.6
Aug.	58.4	-5.0	63.4	62.8	37.4	30.4	26.6	18.9	-9.1	1.0	23.0	2.4
Sep. [p]	91.9	3.2	88.7	23.2	19.5	15.5	-18.3	28.2	7.9	1.7	4.7	-1.1
Growth rates												
2017	6.6	-4.1	10.2	2.8	2.6	2.9	2.0	3.2	2.4	-3.2	4.6	3.2
2018	2.0	-2.8	3.4	2.9	2.8	3.4	2.9	3.0	-0.1	16.4	6.1	-2.6
2019	-1.9	-2.3	-1.8	3.4	3.4	3.7	2.6	3.5	5.0	16.2	2.0	5.6
2019 Q4	-1.9	-2.3	-1.8	3.4	3.4	3.7	2.6	3.5	5.0	16.2	2.0	5.6
2020 Q1	1.6	0.4	1.9	4.2	4.8	5.0	4.9	3.3	11.4	20.7	3.0	-0.6
Q2	13.6	0.4	17.3	4.7	4.7	4.8	6.5	3.2	4.1	16.3	7.1	0.7
Q3 [p]	18.8	0.1	24.0	4.9	4.7	4.6	6.5	3.5	2.7	7.5	9.5	0.1
2020 Apr.	6.2	1.5	7.5	4.4	4.7	4.9	6.0	3.0	7.7	21.2	6.3	-3.4
May	9.8	1.1	12.2	4.9	5.2	5.3	6.7	3.3	8.4	20.9	6.8	-2.4
June	13.6	0.4	17.3	4.7	4.7	4.8	6.5	3.2	4.1	16.3	7.1	0.7
July	15.5	0.2	19.7	5.0	4.7	4.7	6.5	3.3	3.6	14.8	9.4	0.4
Aug.	16.5	-0.6	21.3	5.0	4.5	4.6	6.6	3.3	2.2	10.7	11.0	1.0
Sep. [p]	18.8	0.1	24.0	4.9	4.7	4.6	6.5	3.5	2.7	7.5	9.5	0.1

Source: ECB.

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

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

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

4) Including non-profit institutions serving households.

5 Money and credit

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

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

	Non-financial corporations [2)]					Households [3)]				
	Total		Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total		Loans for consumption	Loans for house purchase	Other loans
		Adjusted loans [4)]					Adjusted loans [4)]			
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2017	4,323.4	4,358.7	986.2	821.2	2,516.1	5,600.3	5,867.4	654.8	4,216.4	729.0
2018	4,402.3	4,487.6	993.0	843.7	2,565.6	5,742.1	6,025.2	682.6	4,356.8	702.7
2019	4,472.5	4,575.5	970.6	877.0	2,624.8	5,930.9	6,224.3	719.8	4,524.2	686.9
2019 Q4	4,472.5	4,575.5	970.6	877.0	2,624.8	5,930.9	6,224.3	719.8	4,524.2	686.9
2020 Q1	4,601.8	4,703.7	1,002.0	915.8	2,683.9	5,966.5	6,254.2	715.5	4,566.5	684.5
Q2	4,717.7	4,827.3	957.9	991.5	2,768.3	5,993.9	6,277.6	700.6	4,602.9	690.3
Q3 [p)]	4,732.0	4,843.7	929.7	1,014.7	2,787.6	6,063.9	6,333.7	703.7	4,665.3	694.9
2020 Apr.	4,670.7	4,775.2	988.4	961.2	2,721.1	5,960.9	6,247.1	701.0	4,574.6	685.3
May	4,719.2	4,822.8	958.1	997.9	2,763.2	5,981.8	6,265.1	698.6	4,593.9	689.3
June	4,717.7	4,827.3	957.9	991.5	2,768.3	5,993.9	6,277.6	700.6	4,602.9	690.3
July	4,729.8	4,832.6	950.7	997.9	2,781.2	6,015.8	6,292.5	704.6	4,620.5	690.6
Aug.	4,757.3	4,862.3	948.1	1,017.6	2,791.6	6,030.9	6,307.3	702.9	4,631.7	696.3
Sep. [p)]	4,732.0	4,843.7	929.7	1,014.7	2,787.6	6,063.9	6,333.7	703.7	4,665.3	694.9
Transactions										
2017	84.9	134.8	0.6	39.1	45.2	173.2	165.6	45.0	134.0	-5.9
2018	123.6	175.7	18.6	32.7	72.3	166.3	188.6	41.3	134.3	-9.3
2019	115.0	144.7	-11.6	43.1	83.6	199.9	217.2	40.7	168.7	-9.4
2019 Q4	2.8	21.7	-5.2	7.5	0.5	60.2	63.7	9.4	53.7	-2.9
2020 Q1	135.7	135.2	28.9	43.5	63.3	41.8	37.6	-2.9	45.9	-1.2
Q2	123.1	130.8	-38.0	80.8	80.3	33.0	30.0	-13.2	36.8	9.4
Q3 [p)]	29.9	35.4	-22.8	17.7	35.0	71.6	58.4	7.7	63.7	0.2
2020 Apr.	71.6	72.8	-13.4	47.0	38.0	-5.3	-6.1	-14.2	7.0	1.9
May	51.4	50.5	-28.4	39.1	40.8	22.1	18.8	-2.1	19.7	4.6
June	0.0	7.5	3.9	-5.3	1.5	16.2	17.3	3.2	10.1	3.0
July	21.7	17.0	-5.9	9.0	18.6	24.5	18.6	4.5	18.8	1.2
Aug.	26.6	29.0	1.6	9.8	15.2	18.9	18.3	2.6	16.0	0.3
Sep. [p)]	-18.3	-10.6	-18.5	-1.1	1.3	28.2	21.5	0.5	29.0	-1.3
Growth rates										
2017	2.0	3.2	0.1	5.0	1.8	3.2	2.9	7.3	3.3	-0.8
2018	2.9	4.1	1.9	4.0	2.9	3.0	3.2	6.4	3.2	-1.3
2019	2.6	3.2	-1.2	5.1	3.3	3.5	3.6	6.0	3.9	-1.3
2019 Q4	2.6	3.2	-1.2	5.1	3.3	3.5	3.6	6.0	3.9	-1.3
2020 Q1	4.9	5.5	2.9	9.1	4.3	3.3	3.4	3.8	4.0	-1.2
Q2	6.5	7.1	-1.1	16.1	6.2	3.2	3.0	0.2	4.1	0.4
Q3 [p)]	6.5	7.1	-3.8	17.3	6.8	3.5	3.1	0.1	4.5	0.8
2020 Apr.	6.0	6.6	1.1	13.7	5.3	3.0	3.0	1.3	3.9	-0.8
May	6.7	7.3	-1.5	17.5	6.3	3.3	3.0	0.3	4.2	0.1
June	6.5	7.1	-1.1	16.1	6.2	3.2	3.0	0.2	4.1	0.4
July	6.5	7.1	-2.2	16.3	6.4	3.3	3.0	0.4	4.2	0.7
Aug.	6.6	7.1	-3.2	17.0	6.8	3.3	3.0	0.3	4.1	0.8
Sep. [p)]	6.5	7.1	-3.8	17.3	6.8	3.5	3.1	0.1	4.5	0.8

Source: ECB.

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

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

3) Including non-profit institutions serving households.

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

5 Money and credit

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

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

	MFI liabilities						MFI assets			
	Central government holdings [2)]	Longer-term financial liabilities vis-à-vis other euro area residents					Net external assets	Other		
		Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves		Total	Repos with central counter-parties [3)]	Reverse repos to central counter-parties [3)]
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2017	342.7	6,771.1	1,967.5	59.8	2,017.5	2,726.2	933.7	316.3	143.5	92.5
2018	379.3	6,818.7	1,940.7	56.1	2,099.1	2,722.8	1,033.7	443.4	187.0	194.9
2019	350.3	7,062.0	1,946.5	50.1	2,156.1	2,909.3	1,459.8	430.0	178.9	187.2
2019 Q4	350.3	7,062.0	1,946.5	50.1	2,156.1	2,909.3	1,459.8	430.0	178.9	187.2
2020 Q1	413.2	7,037.0	1,935.5	47.2	2,122.0	2,932.4	1,573.5	531.9	183.7	196.5
Q2	676.1	7,039.1	1,931.4	43.9	2,080.1	2,983.7	1,554.9	496.7	158.3	173.7
Q3 [p]	812.8	7,040.7	1,935.5	43.2	2,059.8	3,002.1	1,562.3	516.6	139.3	147.3
2020 Apr.	521.0	7,059.6	1,930.3	46.1	2,125.7	2,957.4	1,568.2	560.6	187.6	203.3
May	598.8	7,046.5	1,934.1	45.1	2,101.8	2,965.4	1,543.7	540.8	196.5	211.4
June	676.1	7,039.1	1,931.4	43.9	2,080.1	2,983.7	1,554.9	496.7	158.3	173.7
July	756.4	7,041.4	1,931.8	43.7	2,046.2	3,019.7	1,525.0	554.5	162.3	174.1
Aug.	836.5	7,029.9	1,940.2	43.2	2,032.0	3,014.5	1,551.5	507.8	170.4	177.6
Sep. [p]	812.8	7,040.7	1,935.5	43.2	2,059.8	3,002.1	1,562.3	516.6	139.3	147.3
Transactions										
2017	39.0	-73.4	-83.5	-6.6	-71.1	87.8	-96.1	-58.2	-61.2	-28.5
2018	40.5	51.2	-37.8	-4.9	16.0	77.9	89.0	32.3	16.2	23.6
2019	-28.2	106.9	-5.3	-3.3	27.5	88.1	310.1	11.1	-2.7	-2.5
2019 Q4	-37.5	4.3	-1.4	-3.7	-14.3	23.7	-1.0	-29.5	-5.3	-10.9
2020 Q1	63.2	-47.4	-8.7	-2.9	-45.0	9.2	74.3	51.3	4.7	9.3
Q2	263.0	-4.9	-2.3	-3.3	-16.3	16.9	-48.1	10.0	-25.4	-22.8
Q3 [p]	73.0	10.1	1.6	-0.6	1.0	8.2	25.7	32.8	-19.1	-26.5
2020 Apr.	107.9	-19.5	-6.0	-1.0	-1.4	-11.1	-62.5	40.7	4.0	6.8
May	77.8	16.4	5.7	-1.0	-8.1	19.6	1.8	-7.1	8.9	8.1
June	77.4	-1.7	-2.0	-1.2	-6.8	8.4	12.5	-23.6	-38.2	-37.6
July	16.8	-9.2	-1.9	-0.2	-9.0	1.9	-35.0	74.8	4.0	0.4
Aug.	80.1	10.1	9.0	-0.4	-11.7	13.2	43.9	-51.2	8.0	3.5
Sep. [p]	-23.9	9.2	-5.5	0.0	21.7	-7.0	16.7	9.2	-31.1	-30.3
Growth rates										
2017	12.6	-1.1	-4.0	-9.6	-3.4	3.4	-	-	-29.8	-23.5
2018	11.8	0.8	-1.9	-8.1	0.8	2.9	-	-	8.1	7.7
2019	-7.4	1.6	-0.3	-6.0	1.3	3.2	-	-	-1.5	-1.5
2019 Q4	-7.4	1.6	-0.3	-6.0	1.3	3.2	-	-	-1.5	-1.5
2020 Q1	11.9	0.2	-0.1	-11.1	-2.5	2.8	-	-	-0.3	0.6
Q2	81.3	-0.5	-1.4	-19.6	-3.3	2.5	-	-	-10.9	-9.2
Q3 [p]	92.1	-0.5	-0.6	-19.3	-3.4	2.0	-	-	-24.4	-25.6
2020 Apr.	42.3	0.0	-0.4	-13.4	-2.2	2.1	-	-	-6.6	-4.9
May	63.1	0.1	0.0	-15.9	-2.6	2.5	-	-	-0.3	0.2
June	81.3	-0.5	-1.4	-19.6	-3.3	2.5	-	-	-10.9	-9.2
July	85.5	-0.6	-0.1	-20.3	-4.1	2.2	-	-	-15.3	-15.6
Aug.	90.4	-0.1	1.2	-20.5	-4.3	2.4	-	-	-13.6	-16.6
Sep. [p]	92.1	-0.5	-0.6	-19.3	-3.4	2.0	-	-	-24.4	-25.6

Source: ECB.

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

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

3) Not adjusted for seasonal effects.

6 Fiscal developments

6.1 Deficit/surplus

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

	Deficit (-)/surplus (+)					Memo item: Primary deficit (-)/ surplus (+)
	Total	Central government	State government	Local government	Social security funds	
	1	2	3	4	5	6
2016	-1.5	-1.7	0.0	0.2	0.1	0.6
2017	-0.9	-1.4	0.1	0.2	0.1	1.0
2018	-0.5	-1.0	0.1	0.2	0.3	1.4
2019	-0.6	-1.0	0.1	0.0	0.2	1.0
2019 Q3	-0.8	.	.	.	.	0.9
Q4	-0.6	.	.	.	.	1.0
2020 Q1	-1.1	.	.	.	.	0.5
Q2	-3.7	.	.	.	.	-2.1

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

6.2 Revenue and expenditure

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

	Revenue						Expenditure						
	Total	Current revenue				Capital revenue	Total	Current expenditure					Capital expenditure
			Direct taxes	Indirect taxes	Net social contributions				Compen-sation of employees	Intermediate consumption	Interest	Social benefits	
	1	2	3	4	5	6	7	8	9	10	11	12	13
2016	46.3	45.8	12.6	13.0	15.3	0.5	47.7	44.2	10.0	5.4	2.1	22.7	3.6
2017	46.2	45.8	12.8	13.0	15.2	0.4	47.2	43.3	9.9	5.3	1.9	22.4	3.8
2018	46.5	46.0	13.0	13.0	15.2	0.5	46.9	43.2	9.9	5.3	1.8	22.3	3.7
2019	46.4	46.0	12.9	13.1	15.1	0.5	47.1	43.3	9.9	5.3	1.6	22.5	3.8
2019 Q3	46.4	45.9	12.8	13.1	15.1	0.5	47.1	43.3	9.9	5.3	1.7	22.4	3.8
Q4	46.4	46.0	12.9	13.1	15.1	0.5	47.1	43.3	9.9	5.3	1.6	22.5	3.8
2020 Q1	46.5	46.1	13.0	13.0	15.1	0.5	47.6	43.8	10.0	5.4	1.6	22.8	3.8
Q2	46.7	46.2	13.0	12.9	15.4	0.5	50.4	46.5	10.4	5.7	1.6	24.0	3.9

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

6.3 Government debt-to-GDP ratio

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

	Total	Financial instrument			Holder			Original maturity		Residual maturity			Currency	
		Currency and deposits	Loans	Debt securities	Resident creditors	MFIs	Non-resident creditors	Up to 1 year	Over 1 year	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Euro or participating currencies	Other curren-cies
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2016	90.1	3.3	15.7	71.0	47.5	30.8	42.6	9.4	80.7	17.9	29.9	42.3	87.9	2.2
2017	87.7	3.2	14.6	70.0	48.2	32.1	39.5	8.6	79.0	16.5	29.0	42.3	85.8	1.9
2018	85.8	3.1	13.8	68.8	48.0	32.4	37.8	8.1	77.7	16.1	28.4	41.3	84.2	1.6
2019	84.0	3.0	13.1	67.9	45.4	30.6	38.6	7.7	76.3	15.7	27.9	40.4	82.6	1.4
2019 Q3	85.8	3.2	13.3	69.2	.	.	.	.	.	.	.	.	.	.
Q4	84.0	3.0	13.1	67.9	.	.	.	.	.	.	.	.	.	.
2020 Q1	86.3	3.1	13.4	69.8	.	.	.	.	.	.	.	.	.	.
Q2	95.1	3.2	14.4	77.6	.	.	.	.	.	.	.	.	.	.

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

6 Fiscal developments

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

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

	Change in debt-to-GDP ratio [2)]	Primary deficit (+)/ surplus (-)	Deficit-debt adjustment								Interest-growth differential	Memo item: Borrowing requirement
			Total	Transactions in main financial assets					Revaluation effects and other changes in volume	Other		
				Total	Currency and deposits	Loans	Debt securities	Equity and investment fund shares				
	1	2	3	4	5	6	7	8	9	10	11	12
2016	-0.8	-0.6	0.2	0.3	0.3	-0.1	0.0	0.1	0.0	-0.1	-0.4	1.6
2017	-2.4	-1.0	-0.1	0.4	0.5	0.0	-0.2	0.1	-0.1	-0.4	-1.3	0.9
2018	-1.9	-1.4	0.4	0.5	0.4	-0.1	0.0	0.2	0.0	-0.1	-1.0	0.8
2019	-1.7	-1.0	0.1	0.3	0.0	0.0	0.1	0.2	-0.2	0.0	-0.9	0.9
2019 Q3	-1.2	-0.9	0.6	0.3	0.2	-0.1	0.0	0.2	-0.1	0.3	-0.9	1.4
Q4	-1.7	-1.0	0.1	0.3	0.0	0.0	0.1	0.2	-0.2	0.0	-0.9	0.9
2020 Q1	-0.1	-0.5	0.5	0.7	0.5	0.0	0.0	0.1	-0.2	0.0	0.0	1.8
Q2	8.9	2.1	3.5	3.0	2.8	0.2	-0.1	0.2	-0.2	0.7	3.4	7.4

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

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

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

6.5 Government debt securities [1)]

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

	Debt service due within 1 year [2)]					Average residual maturity in years [3)]	Average nominal yields [4)]						
	Total	Principal		Interest			Outstanding amounts					Transactions	
			Maturities of up to 3 months		Maturities of up to 3 months		Total	Floating rate	Zero coupon	Fixed rate	Maturities of up to 1 year	Issuance	Redemption
	1	2	3	4	5	6	7	8	9	10	11	12	13
2017	12.9	11.2	4.2	1.7	0.4	7.1	2.4	1.1	-0.2	2.8	2.3	0.3	1.1
2018	12.6	11.1	3.7	1.5	0.4	7.3	2.3	1.1	-0.1	2.7	2.5	0.4	0.9
2019	12.2	10.8	3.6	1.4	0.3	7.5	2.1	1.3	-0.1	2.4	2.1	0.3	1.1
2019 Q2	12.5	11.0	3.6	1.4	0.4	7.4	2.3	1.3	0.0	2.6	2.3	0.5	0.9
Q3	12.7	11.3	3.8	1.4	0.4	7.4	2.2	1.3	-0.1	2.6	2.3	0.3	1.0
Q4	12.2	10.8	3.6	1.4	0.3	7.5	2.1	1.3	-0.1	2.4	2.1	0.3	1.1
2020 Q1	12.3	11.0	4.1	1.3	0.3	7.5	2.0	1.2	-0.2	2.4	1.9	0.1	1.0
2020 Apr.	13.1	11.8	4.5	1.3	0.3	7.5	2.0	1.2	-0.2	2.3	2.1	0.1	1.1
May	14.1	12.7	4.2	1.4	0.4	7.4	2.0	1.2	-0.2	2.4	2.1	0.1	1.1
June	14.7	13.3	4.7	1.4	0.4	7.5	2.0	1.1	-0.2	2.3	2.0	0.1	0.9
July	14.5	13.1	4.6	1.4	0.4	7.5	1.9	1.1	-0.2	2.3	2.1	0.1	1.0
Aug.	14.8	13.4	5.1	1.4	0.3	7.4	1.9	1.1	-0.2	2.3	2.2	0.1	0.9
Sep.	15.1	13.7	4.4	1.4	0.3	7.5	1.9	1.1	-0.2	2.3	2.2	0.1	0.8

Source: ECB.

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

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

3) Residual maturity at the end of the period.

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

6 Fiscal developments

6.6 Fiscal developments in euro area countries

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

	Belgium	Germany	Estonia	Ireland	Greece	Spain	France	Italy	Cyprus
	1	2	3	4	5	6	7	8	9
	Government deficit (-)/surplus (+)								
2016	-2.4	1.2	-0.4	-0.7	0.5	-4.3	-3.6	-2.4	0.3
2017	-0.7	1.4	-0.7	-0.3	0.7	-3.0	-3.0	-2.4	1.9
2018	-0.8	1.8	-0.5	0.1	1.0	-2.5	-2.3	-2.2	-3.5
2019	-1.9	1.5	0.1	0.5	1.5	-2.9	-3.0	-1.6	1.5
2019 Q3	-1.8	1.5	-0.7	0.6	0.6	-2.7	-3.2	-2.0	2.0
Q4	-2.0	1.5	0.1	0.5	1.5	-2.9	-3.0	-1.6	1.5
2020 Q1	-2.6	1.2	-0.9	0.0	1.1	-3.4	-3.6	-2.3	2.0
Q2	-5.7	-1.4	-2.9	-2.1	-1.7	-6.9	-5.8	-4.7	-2.3
	Government debt								
2016	105.0	69.3	9.9	74.1	180.8	99.2	98.0	134.8	103.1
2017	102.0	65.1	9.1	67.0	179.2	98.6	98.3	134.1	93.5
2018	99.8	61.8	8.2	63.0	186.2	97.4	98.1	134.4	99.2
2019	98.1	59.6	8.4	57.4	180.5	95.5	98.1	134.7	94.0
2019 Q3	102.2	61.0	9.0	61.3	178.1	97.5	100.1	136.8	96.5
Q4	98.7	59.6	8.4	57.4	176.6	95.5	98.1	134.7	94.0
2020 Q1	104.3	61.1	8.9	59.0	176.9	99.0	101.3	137.6	96.1
Q2	115.3	67.4	18.5	62.7	187.4	110.1	114.1	149.4	113.2

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	10	11	12	13	14	15	16	17	18	19
	Government deficit (-)/surplus (+)									
2016	0.2	0.2	1.9	0.9	0.0	-1.5	-1.9	-1.9	-2.6	-1.7
2017	-0.8	0.5	1.3	3.2	1.3	-0.8	-3.0	-0.1	-0.9	-0.7
2018	-0.8	0.6	3.1	2.0	1.4	0.2	-0.3	0.7	-1.0	-0.9
2019	-0.6	0.3	2.4	0.5	1.7	0.7	0.1	0.5	-1.4	-1.0
2019 Q3	-1.4	-0.3	3.8	0.5	1.3	0.2	-0.2	0.7	-1.1	-1.9
Q4	-0.6	0.3	2.4	0.5	1.7	0.7	0.1	0.5	-1.3	-1.0
2020 Q1	-0.7	-0.2	1.4	-1.7	1.5	0.4	-0.1	-0.8	-1.9	-1.1
Q2	-1.7	-2.4	-1.8	-5.1	-1.5	-3.8	-1.9	-4.7	-3.6	-3.4
	Government debt									
2016	40.4	39.7	20.1	54.5	61.9	82.8	131.5	78.5	52.4	63.2
2017	39.0	39.1	22.3	48.8	56.9	78.5	126.1	74.1	51.7	61.3
2018	37.1	33.7	21.0	45.2	52.4	74.0	121.5	70.3	49.9	59.6
2019	36.9	35.9	22.0	42.6	48.7	70.5	117.2	65.6	48.5	59.3
2019 Q3	37.1	35.4	20.0	42.9	49.3	71.1	119.6	67.7	48.8	60.1
Q4	36.9	35.9	22.0	42.6	48.7	70.5	117.2	65.6	48.3	59.3
2020 Q1	37.1	33.0	22.2	44.0	49.5	73.1	119.5	69.0	49.6	64.3
Q2	42.9	41.4	23.8	51.1	55.2	82.6	126.1	78.2	60.2	68.7

Source: Eurostat.

Postal address 60640 Frankfurt am Main, Germany
Telephone +49 69 1344 0
Website www.ecb.europa.eu

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

The cut-off date for the statistics included in this issue was 28 October 2020.

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

PDF ISSN 2363-3417, QB-BP-20-007-EN-N
HTML ISSN 2363-3417, QB-BP-20-007-EN-Q