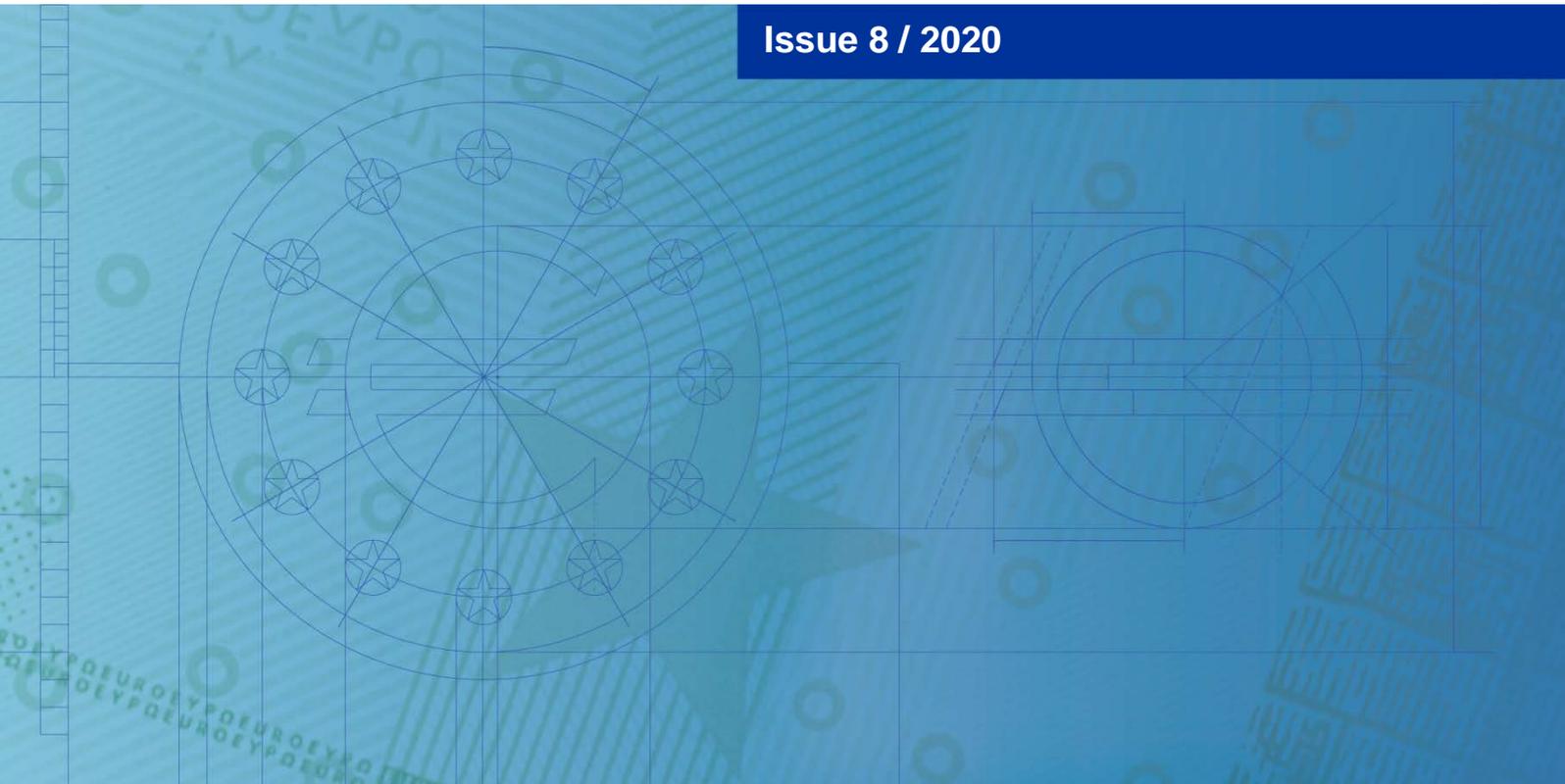




EUROPEAN CENTRAL BANK  
EUROSYSTEM

# Economic Bulletin

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# Economic and monetary developments

## Overview

**At its monetary policy meeting on 10 December 2020, the Governing Council decided to recalibrate its monetary policy instruments.** While the rebound in economic activity in the third quarter was stronger than expected and the prospects for the roll-out of vaccines are encouraging, the coronavirus (COVID-19) pandemic continues to pose serious risks to public health and to the euro area and global economies. The resurgence in COVID-19 cases and the associated containment measures are significantly restricting euro area economic activity, which is expected to have contracted in the fourth quarter of 2020. While activity in the manufacturing sector continues to hold up well, services activity is being severely curbed by the increase in infection rates and the new restrictions on social interaction and mobility. Inflation remains very low in the context of weak demand and significant slack in labour and product markets. Overall, the incoming data and the December 2020 Eurosystem staff macroeconomic projections suggest a more pronounced near-term impact of the pandemic on the economy and a more protracted weakness in inflation than previously envisaged. Against this background, the Governing Council decided to recalibrate its monetary policy instruments at its meeting on 10 December 2020.

## Economic and monetary assessment at the time of the Governing Council meeting of 10 December 2020

**The global economy rebounded strongly in the third quarter of 2020 and this was followed by continued growth momentum at the start of the fourth quarter, but headwinds cloud the near-term economic outlook.** While recent news about the development of effective vaccines against the coronavirus has sparked financial market optimism, the short-term global economic outlook remains clouded by the pandemic. The significant rise in the number of new COVID-19 infections, particularly in advanced economies, has led to the reintroduction of containment measures, although these measures are seen as less disruptive to economic activity than those implemented during the first wave of the pandemic. According to the December 2020 Eurosystem staff macroeconomic projections, global real GDP (excluding the euro area) will contract by 3.0% this year and expand by 5.8% in 2021, before growing by 3.9% and 3.6% in 2022 and 2023 respectively. Global trade (excluding the euro area) contracted more sharply than real GDP in 2020, but is expected to rebound more strongly in 2021. This primarily reflects the more pronounced procyclicality of trade, especially during economic downturns. These adverse effects are expected to be less severe in the context of the recent resurgence in infections. The balance of risks around the global economic outlook is seen as less negative than previously expected, as, given the news about the viability of several vaccines, it is less likely that the severe scenario will materialise.

**Overall, financial conditions in the euro area have loosened somewhat further since the Governing Council's meeting in September 2020, amid improved risk sentiment on the back of positive announcements about vaccines.** Over the review period (10 September to 9 December 2020) the forward curve of the euro overnight index average (EONIA) fluctuated somewhat, but ultimately remained broadly unchanged. This reflects concerns about the accelerated spread of COVID-19 in Europe set against positive news about vaccines. The curve continues to be inverted only slightly at the short end. Long-term sovereign bond yields and spreads dropped significantly in the euro area over this period, amid expectations of continued monetary and fiscal support together with a global improvement in risk sentiment, triggered in particular by the news of successful vaccine trials. The prices of risk assets increased accordingly. In foreign exchange markets, the euro depreciated slightly in trade-weighted terms.

**Following a sharp contraction in the first half of 2020, euro area real GDP rebounded strongly and rose by 12.5%, quarter on quarter, in the third quarter, although remaining well below pre-pandemic levels.** The second wave of the pandemic and the associated intensification of containment measures observed since mid-October are expected to result in a renewed significant decline in activity in the fourth quarter, although to a much lesser extent than observed in the second quarter of this year. Economic developments continue to be uneven across sectors, with activity in the services sector being more adversely affected by the new restrictions on social interaction and mobility than activity in the industrial sector. Although fiscal policy measures are supporting households and firms, consumers remain cautious in the light of the pandemic and its ramifications for employment and earnings. Moreover, weaker corporate balance sheets and uncertainty about the economic outlook are weighing on business investment. Looking ahead, recent advances in the development of COVID-19 vaccines allow for greater confidence in the assumption of a gradual resolution of the health crisis. However, it will take time until widespread immunity is achieved, while further resurgences in infections, with challenges to public health and economic prospects, cannot be ruled out. Over the medium term, the recovery of the euro area economy should be supported by favourable financing conditions, an expansionary fiscal stance and a recovery in demand as containment measures are lifted and uncertainty recedes.

**This assessment is broadly reflected in the baseline scenario of the December 2020 Eurosystem staff macroeconomic projections for the euro area.** These projections foresee annual real GDP growth at -7.3% in 2020, 3.9% in 2021, 4.2% in 2022 and 2.1% in 2023. Compared with the September 2020 ECB staff macroeconomic projections, the outlook for economic activity has been revised downwards in the short term but is seen to broadly recover to the level projected in the September baseline scenario over the medium term. Overall, the risks surrounding the euro area growth outlook remain tilted to the downside, but have become less pronounced. While the news about the prospects for vaccine roll-outs is encouraging, downside risks remain related to the implications of the pandemic for economic and financial conditions.

**According to Eurostat’s flash estimate, euro area annual inflation remained unchanged at -0.3% in November.** On the basis of oil price dynamics and taking into account the temporary reduction in the German VAT rate, headline inflation is likely to remain negative until early 2021. Thereafter, it is expected to increase owing to the end of the temporary VAT reduction in Germany and upward base effects in energy price inflation. At the same time, underlying price pressures are expected to remain subdued owing to weak demand, notably in the tourism and travel-related sectors, as well as to low wage pressures and the historically high level of the effective exchange rate of the euro. Once the impact of the pandemic fades, a recovery in demand, supported by accommodative fiscal and monetary policies, will put upward pressure on inflation over the medium term. Market-based indicators and survey-based measures of longer-term inflation expectations remain at low levels.

**This assessment is broadly reflected in the baseline scenario of the December 2020 Eurosystem staff macroeconomic projections for the euro area, which foresees annual inflation at 0.2% in 2020, 1.0% in 2021, 1.1% in 2022 and 1.4% in 2023.** Compared with the September 2020 ECB staff macroeconomic projections, the outlook for inflation has been revised down for 2020 and 2022. Annual HICP inflation excluding energy and food is expected to be 0.7% in 2020, 0.8% in 2021 and 1.0% in 2022, before increasing to 1.2% in 2023.

**The coronavirus pandemic has continued to influence monetary dynamics in the euro area.** Broad money (M3) growth remained broadly unchanged at 10.5% in October 2020. Strong money growth has been supported by the ongoing asset purchases by the Eurosystem, which have become the largest source of money creation. In the context of a still heightened preference for liquidity and a low opportunity cost of holding the most liquid forms of money, the narrow monetary aggregate M1 continues to be the main contributor to broad money growth. The growth of lending to the private sector has plateaued, while still recording higher growth rates than prior to the COVID-19 pandemic. The annual growth rate of loans to non-financial corporations fell to 6.8% in October, after 7.1% in September. This deceleration has occurred in the context of abating emergency liquidity needs, weak investment and tighter credit conditions on loans to firms. The annual growth rate of loans to households stood at 3.1% in October, unchanged from September. The Governing Council’s policy measures, together with the measures adopted by national governments and European institutions, remain essential to support bank lending conditions and access to financing, in particular for those most affected by the ramifications of the pandemic.

**Substantial fiscal support has mitigated the significant negative impact of the coronavirus pandemic on the real economy.** The fiscal cost of this support has been very substantial for all euro area countries, although it has varied markedly across countries. As a result of the economic downturn and the fiscal support, the general government budget deficit in the euro area is projected to increase significantly to 8.0% of GDP in 2020 from 0.6% in 2019, according to the December 2020 Eurosystem staff macroeconomic projections. Thereafter, the deficit ratio is expected to decline to 6.1% of GDP in 2021, 3.9% in 2022 and 3.0% in 2023. The improvement is expected to be led by the phasing-out of the emergency containment

measures, while the cyclical component will only improve significantly from 2022. An ambitious and coordinated fiscal stance remains critical, in view of the sharp contraction in the euro area economy, although fiscal measures should be targeted and temporary. At the same time, weak demand from firms and households and the heightened risk of a delayed recovery in the light of the new lockdowns owing to the second wave of the pandemic warrant continued support from national fiscal policies. The Next Generation EU fund, which complements the fiscal measures implemented at the national level, will contribute to a faster, stronger and more uniform recovery and will increase economic resilience and the growth potential of EU Member States' economies, particularly if the funds are deployed for productive public spending and accompanied by productivity-enhancing structural policies.

## The monetary policy package

In view of the economic fallout from the resurgence of the pandemic and the resulting protracted weakness in inflation, on 10 December 2020 the Governing Council recalibrated its monetary policy instruments to preserve favourable financing conditions over the pandemic period, ultimately supporting economic activity and the robust convergence of inflation to levels that are below, but close to, 2% over the medium term.

1. The Governing Council decided to 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.
2. The Governing Council decided to increase the envelope of the pandemic emergency purchase programme (PEPP) by €500 billion to a total of €1,850 billion. It also extended the horizon for net purchases under the PEPP to at least the end of March 2022. In any case, the Eurosystem will conduct net purchases until the Governing Council judges that the coronavirus crisis phase is over. The Eurosystem will conduct purchases under the PEPP to preserve favourable financing conditions over this extended period. It will purchase flexibly according to market conditions and with a view to preventing a tightening of financing conditions that is inconsistent with countering the downward impact of the pandemic on the projected path of inflation. In addition, the flexibility of purchases over time, across asset classes and among jurisdictions will continue to support the smooth transmission of monetary policy. If favourable financing conditions can be maintained with asset purchase flows that do not exhaust the envelope over the net purchase horizon of the PEPP, the envelope need not be used in full. Equally, the envelope can be recalibrated if required to maintain favourable financing conditions to help counter the negative pandemic shock to the path of inflation. The extension of the PEPP purchases over a longer horizon reflects the prolonged fallout from the pandemic for the economy and inflation. It allows for a continuous market presence and more durable support from the Governing Council's monetary stimulus. Preserving favourable financing conditions over the

pandemic period will help to reduce uncertainty and bolster confidence, thereby encouraging consumer spending and business investment, and, ultimately, underpinning the economic recovery and helping to offset the downward impact of the pandemic on the projected path of inflation. Finally, the Governing Council also decided to extend the reinvestment of principal payments from maturing securities purchased under the PEPP until at least the end of 2023. In any case, the future roll-off of the PEPP portfolio will be managed to avoid interference with the appropriate monetary policy stance.

3. The Governing Council decided to further recalibrate the conditions of the third series of targeted longer-term refinancing operations (TLTRO III). Specifically, it decided to extend the period over which considerably more favourable terms will apply by twelve months, to June 2022. Furthermore, the Governing Council will conduct three additional operations between June and December 2021. Moreover, the Governing Council decided to raise the total amount that counterparties will be entitled to borrow in TLTRO III operations from 50% to 55% of their stock of eligible loans. In order to provide an incentive for banks to sustain the current level of bank lending, the recalibrated TLTRO III borrowing conditions will be made available only to banks that achieve a new lending performance target. The extension of the pandemic-related low interest rate period under TLTRO III, the addition of more operations and the increase in the amount that can potentially be borrowed will preserve the very attractive funding conditions for banks. This will help to ensure that they can continue to offer favourable lending conditions and have ample liquidity to extend loans to households and firms.
4. The Governing Council decided to extend to June 2022 the duration of the set of collateral easing measures adopted by the Governing Council on 7 and 22 April 2020. The extension of these measures will continue to ensure that banks can make full use of the Eurosystem's liquidity operations, most notably the recalibrated TLTROs. The Governing Council will reassess the collateral easing measures before June 2022, ensuring that Eurosystem counterparties' participation in TLTRO III operations is not adversely affected.
5. The Governing Council also decided to offer four additional pandemic emergency longer-term refinancing operations (PELTROs) in 2021, which will continue to provide an effective liquidity backstop.
6. Net purchases under the asset purchase programme (APP) will continue at a monthly pace of €20 billion. 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 the ECB's policy rates, and to end shortly before the Governing Council starts raising the key ECB interest rates. In addition, 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.

7. The Eurosystem repo facility for central banks (EUREP) and all temporary swap and repo lines with non-euro area central banks will be extended until March 2022.
8. Finally, the Governing Council decided to continue conducting its regular lending operations as fixed rate tender procedures with full allotment at the prevailing conditions for as long as necessary.

The monetary policy measures that the Governing Council has taken will contribute to preserving favourable financing conditions over the pandemic period, thereby supporting the flow of credit to all sectors of the economy, underpinning economic activity and safeguarding medium-term price stability. At the same time, uncertainty remains high, including with regard to the dynamics of the pandemic and the timing of vaccine roll-outs. The Governing Council will also continue to monitor developments in the exchange rate with regard to their possible implications for the medium-term inflation outlook. Therefore, the Governing Council continues to stand ready to adjust all of its instruments, as appropriate, to ensure that inflation moves towards its aim in a sustained manner, in line with its commitment to symmetry.

## 1 External environment

*While recent developments regarding vaccines against the coronavirus (COVID-19) have sparked financial market optimism, the short-term global economic outlook remains clouded by the pandemic. The significant rise in the number of new COVID-19 infections, particularly in advanced economies, has been met with the re-introduction of containment measures, although these are seen as less disruptive to economic activity than those observed during the first wave of the pandemic. According to the December 2020 Eurosystem staff macroeconomic projections, global real GDP (excluding the euro area) will contract by 3.0% this year and expand by 5.8% in 2021, before growing by 3.9% and 3.6% in 2022 and 2023 respectively. Global trade (excluding the euro area) has contracted more sharply than real GDP in 2020, but the rebound in 2021 is likewise expected to be stronger. This reflects mainly the more pronounced procyclicality of trade, especially during economic downturns. Moreover, the containment measures introduced in response to the resurgence of infections are expected to be less disruptive to trade than those observed in the first wave. The balance of risks around the global outlook is seen as less negative, as the news about the viability of several vaccines makes it less likely that the severe scenario considered in the December 2020 Eurosystem staff macroeconomic projections will materialise. As the outcome of the Brexit negotiations remained uncertain when the projections were finalised, the macroeconomic projections are based on the technical assumption that, as of 1 January 2021, the European Union (EU) and the United Kingdom will trade on the basis of the World Trade Organization's most favoured nation terms. Other risks relate to the possibility that, in an effort to reduce their dependence on external suppliers, countries start to diversify global suppliers (potentially increasing resilience) and/or to re-shore production (negatively affecting complex global value chains).*

### Global economic activity and trade

**The global economy staged a sharp rebound in the third quarter of 2020, which was stronger than previously envisaged.** As the number of infections gradually abated and containment measures were lifted, the global economy started to rebound strongly. Economic recovery, especially among advanced economies, was supported mainly by private consumption, which was also propped up by the generous policy support deployed at the peak of the crisis. Across emerging market economies, net exports also contributed positively, given the recovery in external demand. In China, while private investment remained the main driver of the rebound, private consumption contributed positively to GDP growth for the first time in the year. Overall, global real GDP (excluding the euro area) expanded at a stronger pace than was envisaged in the September 2020 ECB staff macroeconomic projections.

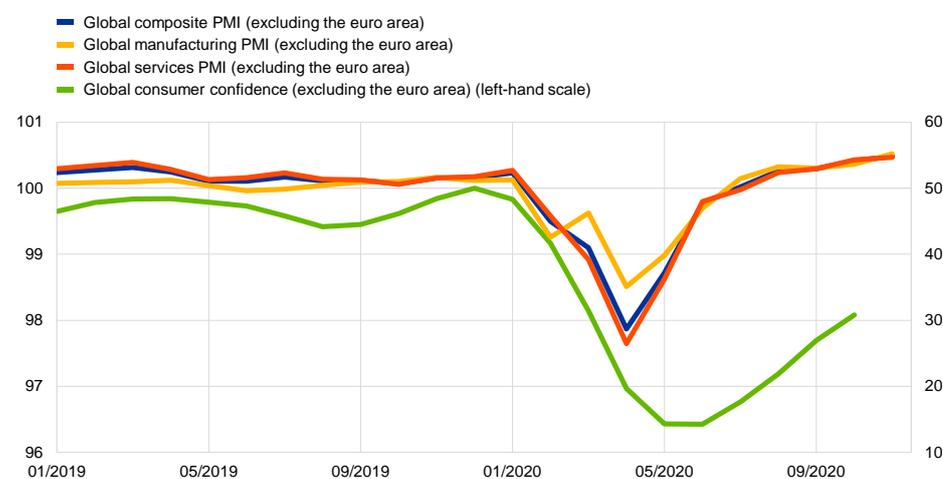
**Incoming survey data point to a continued growth momentum at the start of the fourth quarter, although consumer confidence remains weak.** In November the global composite output Purchasing Managers' Index (PMI) (excluding the euro area) improved further to 54.8 (from 54.1 in October), supported by an improvement in both the services and manufacturing sectors, suggesting a broadening of the economic

recovery (see Chart 1). Developments were mixed across countries, as the composite output PMI increased further in the United States, but fell into contractionary territory in the United Kingdom, while remaining broadly unchanged and still in contractionary territory in Japan. Among emerging market economies, the composite PMI rose further in China, pointing to solid growth in activity, while it decreased in India and Brazil, albeit from very high levels, thus pointing to continued expansion in activity. At the same time, global consumer confidence, despite recovering from the trough recorded in the second quarter of 2020, remains below pre-crisis levels, suggesting a rather subdued recovery in consumption.

### Chart 1

#### Global composite output PMI and consumer confidence

(diffusion indices)



Sources: Markit and ECB calculations.

Note: The latest observations are for November 2020 (PMI) and September 2020 (consumer confidence).

**A number of headwinds, not least the renewed containment measures in response to rising numbers of COVID-19 infections, cloud the near-term economic outlook.** The resurgence in COVID-19 infections weighs on the global economic recovery. Compared with governments' responses to COVID-19 in the spring, containment measures during the second wave, while heterogeneous across countries, tend to be more targeted and less disruptive to economic activity. However, the resurgence of the virus is expected to weigh on agents' behaviour, particularly in the most contact-intensive sectors. Moreover, the unwinding of the temporary support extended by governments in the course of 2020 may lead to a "fiscal cliff" in 2021, particularly across advanced economies, unless additional fiscal stimulus is provided for in their 2021 budgetary plans. Finally, the elevated uncertainty as to the nature of post-transition trading relations between the EU and the United Kingdom, including those for services, is assumed to weigh on the growth outlook.

**Global financial conditions continued to ease in recent months amid some volatility.** The recovery in risky assets, which had started in late March, came to a temporary halt in September on the back of rising global cases of COVID-19, heightened uncertainty related to the US presidential elections on 3 November and the deteriorating odds of a fiscal deal ahead of the election. Subsequently, the news of

imminently available vaccines sparked a rally in equity prices around the globe, while corporate and sovereign spreads declined and investors lost some appetite for safe haven assets such as gold and US dollar-denominated assets, which also led to a broad-based depreciation of the US dollar. The outcome of the US election also helped to reduce uncertainty and support investors' risk appetite. This optimism was tempered as COVID-19 cases continued to surge and lockdowns were re-imposed. Global financial conditions now stand at highly accommodative levels in both advanced and emerging market economies. Yet they remain highly dependent on monetary policy support and are sensitive to global risk.

**After contracting by 3.0% in 2020, global real GDP (excluding the euro area) is projected to rebound in 2021, before moderating in 2022 and 2023.** Compared with the September 2020 ECB staff macroeconomic projections, global real GDP growth (excluding the euro area) for 2020 has been revised upwards (+0.7 percentage points) on account of the stronger than envisaged rebound in the third quarter. The forecast for 2021 assumes a gradual relaxation of the containment measures as medical solutions, such as effective vaccines, become increasingly available and are deployed across the population. However, the pace of the recovery differs across regions, with emerging market economies projected to make the largest contribution to the rebound in global GDP growth over the projection horizon. China accounts for about half of the post-pandemic recovery. It was effective in containing the spread of the virus early on and provided significant policy stimulus, such that growth had already returned to pre-pandemic levels by mid-2020. China is the only large economy expected to record positive growth in 2020. Compared with the September 2020 ECB staff macroeconomic projections, global real GDP (excluding the euro area) is projected to expand at a rate of 5.8% and 3.9% in 2021 and 2022 respectively (revised by -0.4 percentage points and +0.1 percentage points respectively). Given the complex nature of the COVID-19 shock, its long-term effects on the global economy remain an open question. In particular, given that the pandemic hit labour-intensive sectors harder, long-term scars may initially materialise via lower labour supply, but also via the capital stock, as was the case in past financial crises (see Box 1).

**In the United States, the resurgence of COVID-19 infections and fading fiscal stimulus cloud the near-term outlook.** Real GDP increased by 33.1% annualised (7.4% quarter on quarter) in the third quarter. This was driven by a strong recovery in consumption and investment, which was in turn reflected in a sharp recovery in real imports. Despite the exceptionally strong rebound, US activity remains below its pre-pandemic level. As the number of new COVID-19 infections and hospitalisations has risen above previous peaks, new restrictions on mobility have been implemented across states. The waning effects of fiscal stimulus on households' income, amid the failure to agree on a new stimulus package, were only partly offset by the unwinding of savings accumulated in previous quarters. As a result, consumption is expected to slow in the current quarter, as also suggested by high-frequency indicators on credit and debit card data. Labour market conditions have improved, but the recovery remains incomplete. The unemployment rate has fallen amid a decline in temporary layoffs, but the number of new job postings remains subdued, suggesting weak employment gains in the near term. Annual headline consumer price index (CPI) inflation decreased to 1.2% in October from 1.4% in September, reflecting falling

energy prices, while food prices remained unchanged. Core inflation declined marginally to 1.6%, from 1.7% in September, as a further increase in core goods inflation, particularly in used cars and trucks, was more than offset by a decline in core services, mainly in medical services.

**In China, the economic recovery has been swift and has broadened to the service sector.** After the sharp rebound in the second quarter (+11.7% quarter on quarter), China's GDP continued to expand in the third quarter, albeit at a more moderate pace (+2.7% quarter on quarter). Final consumption contributed positively to growth, while investment has been more resilient, also owing to government support for infrastructure spending, which helped jump-start the recovery after the initial sharp contraction. Net exports contributed positively to growth, partly reflecting China's role in supplying medical and technology goods worldwide. Monthly data point to continued robust growth in the fourth quarter. PMIs for both manufacturing and services output point to further improvements in activity in November. Industrial production has recovered robustly, and retail sales strengthened further in October. Annual headline inflation decreased in October to 0.5%, from 1.7% in the previous month, mainly owing to a decline in food prices.

**In Japan, domestic and external demand supported the economic recovery, but the pace of expansion is set to decelerate amid an increase in COVID-19 infections.** Real GDP in the third quarter expanded by 5.3% (quarter on quarter). In particular, the easing of domestic containment measures, a strong policy response, and a recovery in external demand supported private consumption and exports, while investment activity remained subdued amid still elevated uncertainty. The recovery is expected to continue, albeit at a moderate pace. To some extent, this reflects growing concerns related to a recent surge in new infections. The Bank of Japan announced a special deposit facility to enhance the resilience of the regional financial system, while the government recently announced a third supplementary budget for the fiscal year 2020, which should both provide some support to activity in coming quarters. Annual headline CPI inflation declined further in October to -0.4%, from 0% in September, albeit mostly reflecting idiosyncratic factors, such as the fading impact of the VAT hike introduced in October 2019.

**In the United Kingdom, the economic recovery is faltering amid renewed lockdown measures.** The economy rebounded in the third quarter (+15.5% quarter on quarter), supported by a strong recovery in consumption, while the contribution of net exports was negative. However, the growth momentum is set to reverse. Incoming surveys suggest a significant slowdown in growth momentum since August, even ahead of the month-long national lockdown imposed in November on the non-essential retail, food, accommodation and leisure sectors (accounting for around 12% of value added in the economy). Although these measures constrain activity less compared with the strict lockdown introduced in the spring, the composite PMI fell back into contractionary territory in November. Meanwhile, subdued labour market prospects constrain consumption, and uncertainty relating to the post-transition trading relations, including services, continue to restrain private investment. Given that the December 2020 Eurosystem staff macroeconomic projections were finalised before the recent Brexit agreement, the baseline for the United Kingdom rests on the

technical assumption that the trading relationship between the United Kingdom and the EU will default to WTO/MFN terms on 1 January 2021. In particular, some stockpiling of imports in the United Kingdom is assumed in the fourth quarter of 2020, which would then unwind in early 2021. Inflation picked up in October, slightly ahead of expectations, with annual headline consumer price inflation increasing to 0.7% from 0.5% in the previous month. The rise was driven by a rebound from negative territory in goods' prices, while annual service price inflation remained flat at 1.4%. Core CPI inflation also increased slightly to 1.5%.

**In central and eastern European countries, the economic recovery is expected to come to a temporary halt as the pandemic situation deteriorates.** Real GDP in the region rebounded sharply in the third quarter as production normalised amid the easing of containment measures. However, the pandemic has been re-intensifying across the region, with daily new infections rising above the levels recorded in the first wave. As stringency indicators have been tightening in most central and eastern European countries, the recovery is expected to stall until early 2021. Thereafter, the easing of restrictions and health-related concerns is expected to revive growth, also supported by robust fiscal and monetary measures. Looking ahead, activity is expected to remain below its end-2019 levels until early 2022.

**In large commodity-exporting countries, the pace of recovery is set to slow amid a still high number of infections and reduced room for further fiscal support.** In Russia, the economy is expected to recover in the third quarter owing to policy support and improved infection control. Moreover, the temporary easing of OPEC+<sup>1</sup> production cuts supported recent oil production, and the recovery in growth of key trading partners has further supported energy exports. However, as the number of infections is again on the rise, growth is set to slow again in the fourth quarter. In Brazil, the economy has rebounded, helped by strong monetary and fiscal policy support measures that were among the largest in Latin America. However, the number of COVID-19 cases remains high. While limited adoption of containment measures has reduced the economic repercussions of the initial shock, it has intensified the severity of the pandemic itself. Elevated infection rates together with limited fiscal space going forward will also drag on investment and consumption, and ultimately on the economic recovery path, with moderate growth rates forecast in the short and medium term.

**In Turkey, the economic impact of COVID-19 was sharp but short-lived, and the rebound in manufacturing activity is driving the economic recovery.** The sharp upturn in the third quarter (+15.6% quarter on quarter) reflects strong private consumption and investment in view of the very favourable financing conditions. The manufacturing sector is driving the recovery, although services have also picked up significantly from the deep slump at the peak of the crisis. Overall, economic activity in Turkey has recovered to pre-pandemic levels. However, as the policy stimulus is gradually reduced, growth is expected to moderate, particularly in credit-driven personal consumption.

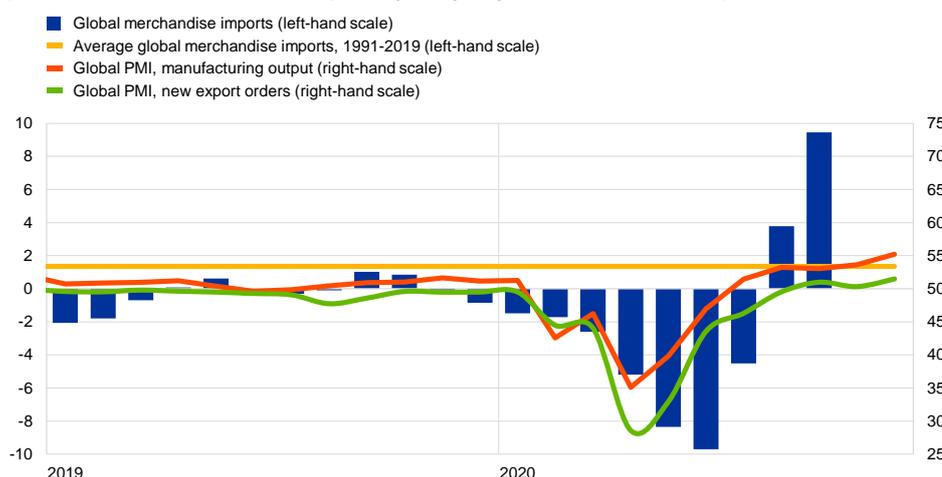
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<sup>1</sup> OPEC+ is a coalition of oil producers led by the Organization of Petroleum Exporting Countries (OPEC) and Russia.

**Global trade (excluding the euro area) also rebounded vigorously in the third quarter and is expected to moderate in the fourth.** World merchandise imports (excluding the euro area) continued to expand in September (3.4% month on month) after recording a 1.9% increase in August. Overall, these data confirm a solid recovery of world trade in the third quarter (+9.4% quarter on quarter), after the strong contraction registered in the second quarter (-9.7% quarter on quarter) (see Chart 2). The strong rebound in the third quarter reflects the composition of the economic recovery and the more orderly functioning of global value chains, but trade in services is still seen to weigh on global trade, as some sectors (for example, tourism) collapsed as a result of the COVID-19 shock. Survey data point to a continued, but moderating, pace of growth in the fourth quarter. The global PMI (excluding the euro area) for manufacturing new export orders, which correlates well with global trade, rose in November to 51.5, up from 50.3 in October.

**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 indices)



Sources: Markit, CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations.

Notes: The latest observations are for November 2020 for the PMI data and September 2020 for global merchandise imports. The indices and data refer to the global aggregate excluding the euro area.

**After contracting by 9.2% in 2020, global trade (excluding the euro area) is projected to rebound in 2021 and to expand at a more moderate pace over 2022-23.** The sharp fall in global imports (excluding the euro area) in 2020 compared with economic activity reflects their strong procyclicality, in particular during economic downturns. Temporary disruptions in global supply chains and increased trade costs as a result of the COVID-19 containment measures also took a toll on global trade in the first half of 2020. Compared with the September 2020 ECB staff projections, the growth rate of global trade (excluding the euro area) in 2020 has been revised upwards (+4.5 percentage points), mainly reflecting the strong rebound in the third quarter. This lifts the level of global imports compared with the path forecast in the September 2020 ECB staff macroeconomic projections, implying a smaller gap vis-à-vis the pre-COVID baseline trajectory, but still pointing to an incomplete recovery. According to the December 2020 Eurosystem staff macroeconomic projections, global trade is projected to expand by 7.1% in 2021, 3.9% in 2022 and

3.4% in 2023. Euro area foreign demand is projected to decline by 10.7% in 2020 and to grow by 6.6% in 2021, 4.1% in 2022 and 3.4% in 2023.

**Global economic prospects remain subject to a number of risks, although the balance of risks surrounding the outlook is assessed as more benign.**

As uncertainty about the timing of a full resolution of the health crisis continues to surround the global economy, in the December 2020 Eurosystem staff macroeconomic projections, the baseline is complemented by two alternative scenarios,<sup>2</sup> namely a mild and a severe scenario. These scenarios can be seen as providing an illustrative range around the baseline projection. News about the development of effective vaccines has boosted confidence that the pandemic may be successfully contained and has made the materialisation of a severe scenario less likely. Furthermore, as the COVID-19 pandemic has exposed the dependence of several countries on external suppliers, this may result in efforts to diversify global suppliers (potentially increasing resilience) and/or to re-shore production (negatively affecting complex global value chains).

## Global price developments

**Oil prices have increased by almost 25% since mid-September.** After the strong rebound over the summer, oil prices stalled in September and October. Since early November oil prices have risen, following positive trends in global financial markets as increasing prospects for the delivery of several vaccines raise the odds of a return to normality in 2021. Nonetheless, neither the International Energy Agency (IEA) nor OPEC anticipate a significant rise in oil demand until late 2021. Indeed, the IEA expects the recovery in oil demand to slow in the fourth quarter of 2020 amid the increase in new COVID-19 cases around the world. After having remained in contango (i.e. oil prices for delivery in the future are higher) since March, the futures curve again moved into backwardation (i.e. oil prices for delivery in the future are lower) in early December.

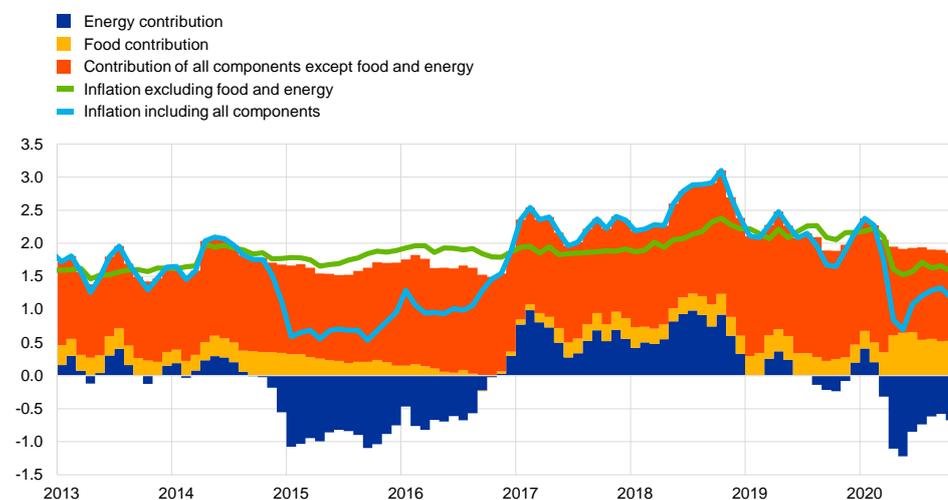
**Global inflation remains subdued amid weak global demand.** Annual consumer price inflation in member countries of the Organisation for Economic Co-operation and Development (OECD) eased slightly to 1.2% in October. Food price inflation remained steady at 3.6%, while the negative contribution of energy prices to headline inflation increased further. Annual OECD CPI excluding food and energy ticked downwards by 0.1 percentage points to 1.6% in October. Across advanced economies, headline annual consumer price inflation fell in the United States and turned negative in Japan (-0.4%) in October, but rose in the United Kingdom and Canada. Among major non-OECD emerging market economies, annual headline inflation increased in October in Russia, India and, more markedly, in Brazil, while it decreased in China.

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<sup>2</sup> For further details, see the box entitled “Alternative scenarios for the euro area economic outlook” in the Eurosystem staff macroeconomic projections for the euro area, December 2020.

**Chart 3**  
**OECD consumer price inflation**

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



Sources: OECD and ECB calculations.  
 Note: The latest observations are for October 2020.

**The outlook for global inflation is expected to remain weak, although a recovery in demand may support prices going forward.** The composition of the recovery will be a key determinant in the outlook for global inflation. While pent-up demand may support the recovery and push inflation higher, supply constraints could unwind quickly, creating disinflationary pressures. Euro area competitor export prices (in national currency) are expected to rebound at the start of 2021. It is foreseen that this will be driven by an improvement in the global environment and a recovery in commodity prices from the lows witnessed in April 2020, although producer price inflation is projected to contribute negatively, reflecting continued slack in the global economy. Euro area competitors' export price inflation is projected to return to its long-term average towards the beginning of 2022.

## 2 Financial developments

*Over the review period (10 September to 9 December 2020) the forward curve of the euro overnight index average (EONIA) fluctuated somewhat, but eventually remained broadly unchanged. This reflects concerns about the accelerated spread of coronavirus (COVID-19) in Europe set against positive vaccine news. As it continues to be inverted only mildly at the short end, the curve does not signal firm expectations of a rate cut in the very near term. Long-term sovereign bond spreads dropped significantly in the euro area amid further expectations of continued monetary and fiscal support together with a global improvement in risk sentiment, triggered in particular by the news of successful vaccine trials. The prices of risk assets increased accordingly. In foreign exchange markets, the euro depreciated slightly in trade-weighted terms.*

**The euro overnight index average (EONIA) and the new benchmark euro short-term rate (€STR) averaged -46 and -55 basis points respectively over the review period.**<sup>3</sup> Excess liquidity increased by €475 billion to around €3,456 billion. This change mainly reflects asset purchases under the pandemic emergency purchase programme (PEPP) and the asset purchase programme (APP), as well as the settlement of targeted longer-term refinancing operations (TLTRO III) in September.

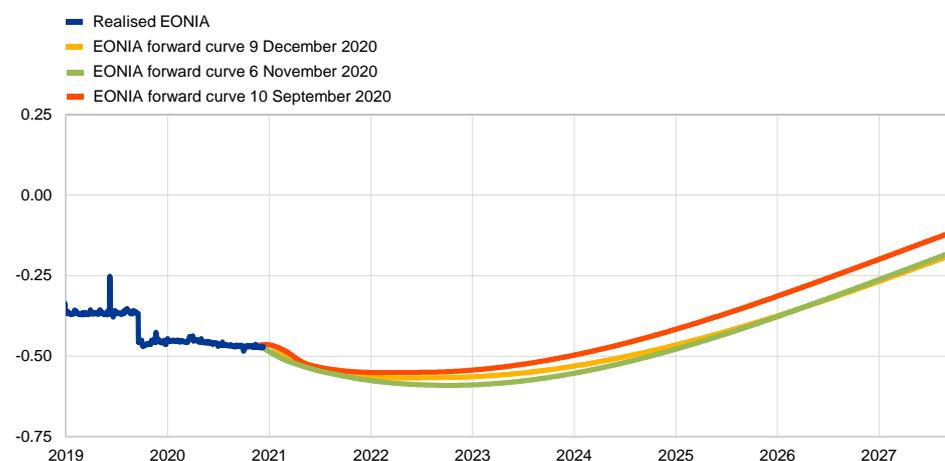
**The EONIA forward curve is broadly unchanged compared with the start of the review period (see Chart 4).** At the same time, the forward curve displayed discernible intra-period fluctuations. The inversion of the curve in the first part of the review period reflected concerns about the accelerated spread of COVID-19 in Europe, but the curve then flattened on 9 November when the first in a string of positive announcements about vaccines was made. Since then, the curve has remained broadly unchanged. The trough of the curve, which is 10 basis points below the current EONIA level of -47 basis points, corresponds to April 2022. The curve thus indicates that financial markets are not pricing in an imminent rate cut. Furthermore, surveys and model-based evidence suggest that short-term risk-free rates are expected to remain stable over the coming months.

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<sup>3</sup> The methodology for calculating the EONIA changed on 2 October 2019; it is now 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.

**Chart 4**  
EONIA forward rates

(percentages per annum)



Sources: Refinitiv and ECB calculations.

**Long-term sovereign bond yields dropped significantly in the euro area, while they increased markedly in the United States (see Chart 5).** Specifically, the GDP-weighted euro area ten-year sovereign bond yield turned negative as it declined by 27 basis points to reach -0.25%. By contrast, the ten-year sovereign bond yield increased by 26 basis points in the United States, to 0.94%. The divergent developments across jurisdictions reflect heightened expectations that the ECB would increase its asset purchases under the PEPP. Furthermore, the Next Generation EU (NGEU) and Support to mitigate Unemployment Risks in an Emergency (SURE) programmes are likely to have contributed to a decline in euro area sovereign yields by compressing spreads via an improvement in Member States' growth and fiscal prospects as well as in risk sentiment<sup>4</sup>.

<sup>4</sup> Within the review period, the first five issuances under SURE by the European Commission took place, ranging from five to 30 years of maturity and amounting to €39.5 billion. The issuances met historically large demand with more than ten times oversubscription in the order book.

## Chart 5

### Ten-year sovereign bond yields

(percentages per annum)



Sources: Refinitiv and ECB calculations.

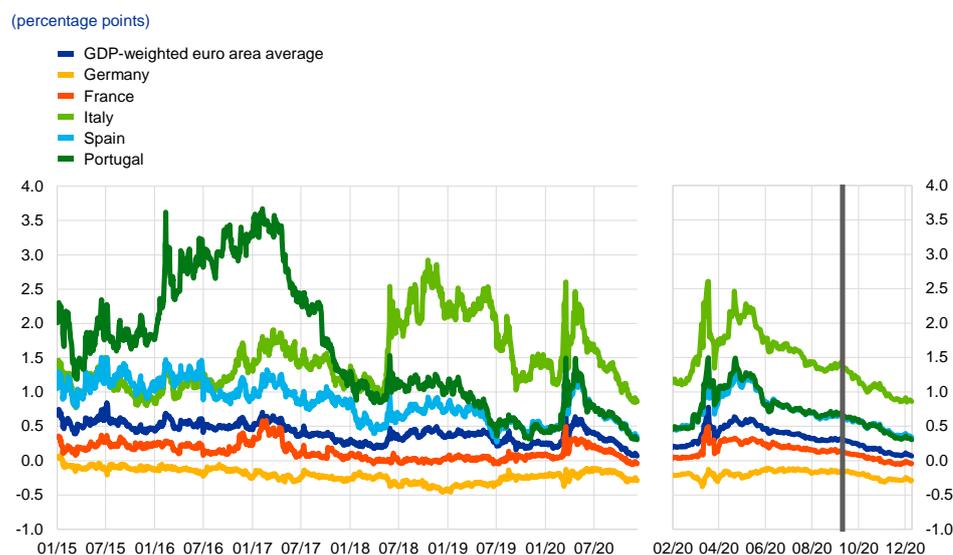
Notes: The vertical grey line denotes the start of the review period on 10 September 2020. The latest observations are for 9 December 2020.

**The long-term spreads of euro area sovereign bonds relative to overnight index swap rates narrowed further amid expectations of continued monetary and fiscal support as well as a global improvement in risk sentiment (see Chart 6).**

The GDP-weighted euro area ten-year sovereign bond spread declined by 24 basis points to reach 0.07%, taking it below its pre-pandemic level. The decrease was especially pronounced in Italy, Portugal and Spain where the ten-year spreads narrowed by 50, 36 and 30 basis points respectively to 0.86%, 0.30% and 0.34%. The French and German ten-year spreads decreased more modestly, by 19 and 15 basis points respectively, to stand at -0.05% and -0.29%.

## Chart 6

### Ten-year euro area sovereign bond spreads vis-à-vis the overnight index swap rate



Sources: Refinitiv and ECB calculations.

Notes: The spread is calculated by subtracting the ten-year overnight index swap rate from the ten-year sovereign bond yield. The vertical grey line denotes the start of the review period on 10 September 2020. The latest observations are for 9 December 2020.

**Euro area and US equity prices traded in a stable range for large parts of the review period in spite of the intensification of the pandemic, before increasing significantly on the back of the vaccine news (see Chart 7).** Stock prices were supported by a continued improvement in short-term earnings growth expectations, while longer-term earnings expectations were revised down, signalling downside macroeconomic risks and the potential for longer-term economic scars from the pandemic. At the same time, risk sentiment improved upon the vaccine news that started to emerge in early November, reducing the equity risk premium and supporting equity prices. Overall, the stock prices of euro area and US non-financial corporations (NFCs) increased by 9.2% and 10.0% respectively. The equity prices of euro area and US banks benefited to a larger extent from the news of successful vaccine trials, with indices increasing by 23.1% and 21.9% respectively, partly recovering the greater losses (compared to NFCs) recorded since the beginning of the pandemic.

## Chart 7

### Euro area and US equity price indices

(index: 1 January 2015 = 100)



Sources: Refinitiv and ECB calculations.

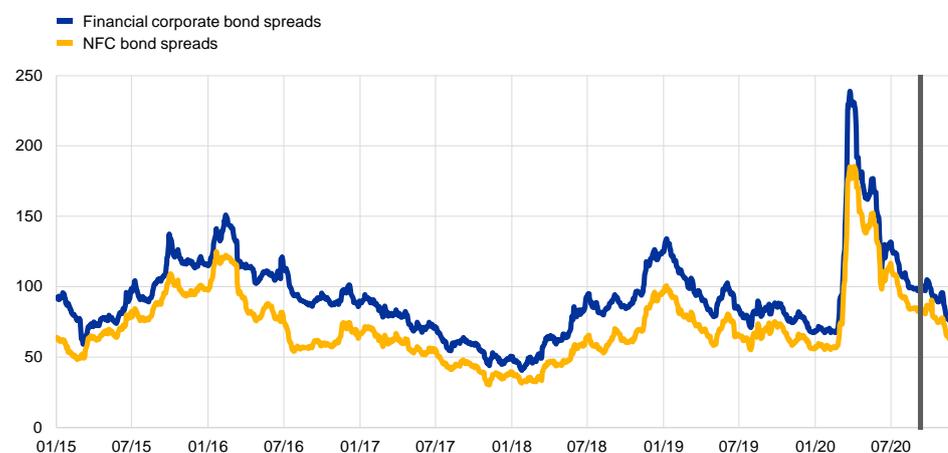
Notes: The vertical grey line denotes the start of the review period on 10 September 2020. The latest observations are for 9 December 2020.

**Investment-grade corporate bond spreads decreased over the review period, including a significant drop upon the news of the first successful vaccine trials (see Chart 8).** Spreads on investment-grade NFC bonds and financial sector bonds (relative to the risk-free rate) narrowed by 25 and 30 basis points respectively, and in particular decreased by about 5 basis points on 9 November, when the news of successful vaccine trials first reached the market. The overall decrease mainly reflects a decline in the excess bond premium, i.e. the component of corporate bond spreads that is not explained by credit fundamentals (as measured by ratings and expected default frequencies), which have remained broadly stable. Despite the further significant compression, corporate bond spreads remain slightly above pre-pandemic levels. High-yield corporate bond spreads also decreased significantly over the review period.

## Chart 8

### Euro area corporate bond spreads

(basis points)



Sources: Markit iBoxx indices and ECB calculations.

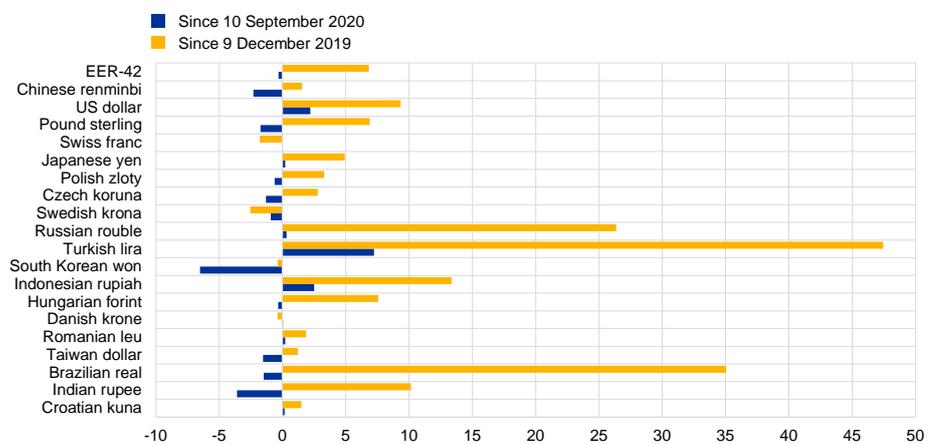
Notes: Spreads are calculated as asset swap spreads to the risk-free rate. The indices comprise bonds of different maturities (with at least one year remaining) with an investment-grade rating. The vertical grey line denotes the start of the review period on 10 September 2020. The latest observations are for 9 December 2020.

**In foreign exchange markets, the euro depreciated slightly in trade-weighted terms (see Chart 9).** 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% over the review period, despite remaining only 1.9% below the historic high reached in December 2008. Regarding bilateral exchange rate developments, the euro continued to appreciate markedly against the US dollar (by 2.2%), reflecting the further broad weakening of the US dollar amid improving risk sentiment. In this context, the euro also appreciated slightly against the Japanese yen (by 0.2%) but remained broadly unchanged against the Swiss franc. At the same time, the euro weakened against the pound sterling (by 1.7%) as well as against the currencies of most major emerging markets, in particular the Chinese renminbi (by 2.3%) and the Korean won (by 6.5%).

## Chart 9

### 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 9 December 2020.

### 3 Economic activity

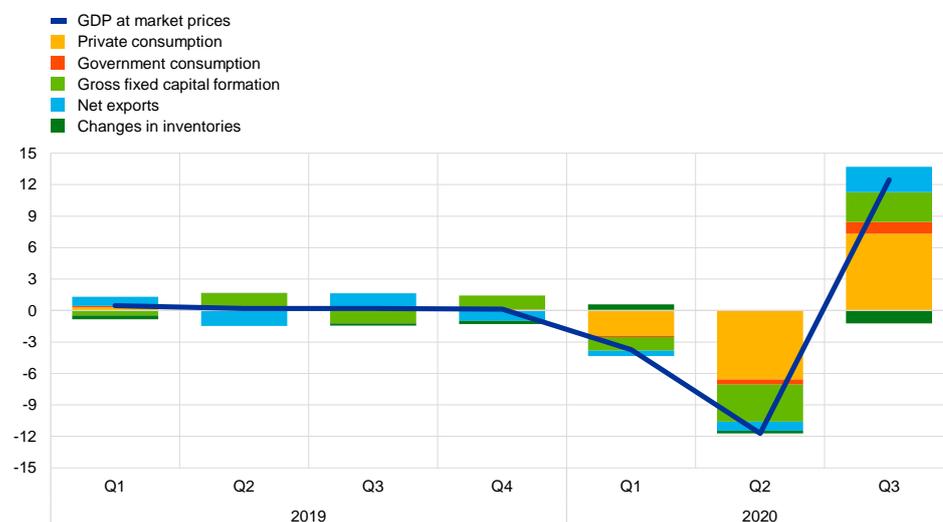
*Euro area real GDP grew strongly, by 12.5% quarter on quarter, in the third quarter of 2020. Economic activity in the euro area was underpinned by a sharp rebound in all demand components, as coronavirus (COVID-19) pandemic containment measures began to be lifted as of May 2020. This was reflected in positive contributions to GDP growth from private consumption, investment and net trade. Nonetheless, the level of GDP in the third quarter of 2020 remained 4.4% below its pre-pandemic level in the fourth quarter of 2019. Incoming information about the economy, including from surveys and high-frequency indicators, is consistent with a significant decline in activity in the final quarter of 2020, although to a much lesser extent than observed in the second quarter of this year, as a result of the sharp resurgence of the pandemic and the necessary reintroduction of containment measures since mid-October, primarily affecting the services sector. While real GDP is estimated to have contracted in the fourth quarter of 2020, the outlook for 2021 and beyond remains tightly linked to the evolution of the pandemic and the roll-out of COVID-19 vaccines. The December 2020 Eurosystem staff macroeconomic projections for the euro area foresee annual real GDP decreasing by 7.3% in 2020, and increasing by 3.9% in 2021, 4.2% in 2022 and 2.1% 2023. Compared with the September 2020 projections, real GDP growth has been revised upwards by 0.7 percentage points for 2020, downwards by 1.1 percentage points for 2021 and upwards by 1.0 percentage points for 2022, thereby broadly recovering to the level projected in the September baseline scenario over the medium term. Although downside risks to the outlook have become less pronounced owing to the news about the prospects for vaccine roll-outs in the near future, they remain tilted to the downside on account of the implications of the pandemic for economic and financial conditions.*

**Growth in the euro area rebounded strongly in the third quarter of 2020, but it is estimated to have receded again in the final quarter of the year.** Real GDP bounced back by 12.5%, quarter on quarter, in the third quarter of 2020, partially recovering from the sharp and deep cumulative fall of 15.0% in the first half of the year (see Chart 10). Overall, the level of GDP in the third quarter of 2020 remained 4.4% below the level in the last quarter of 2019. Domestic demand made a positive contribution to growth in the third quarter of 2020, while changes in inventories made a small negative contribution. Developments in the external sector also supported euro area growth, as reflected in a positive contribution from net trade. When accounting for the import intensity of each demand component, external factors made a particularly strong contribution to growth dynamics in 2020 (see Box 4). On the production side, the rebound in the third quarter was driven by both manufacturing and services. However, developments varied markedly across sectors. This was particularly the case for services, where production remained significantly below its pre-pandemic level.

## Chart 10

### Euro area real GDP and its components

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



Source: Eurostat.

Note: The latest observations are for the third quarter of 2020.

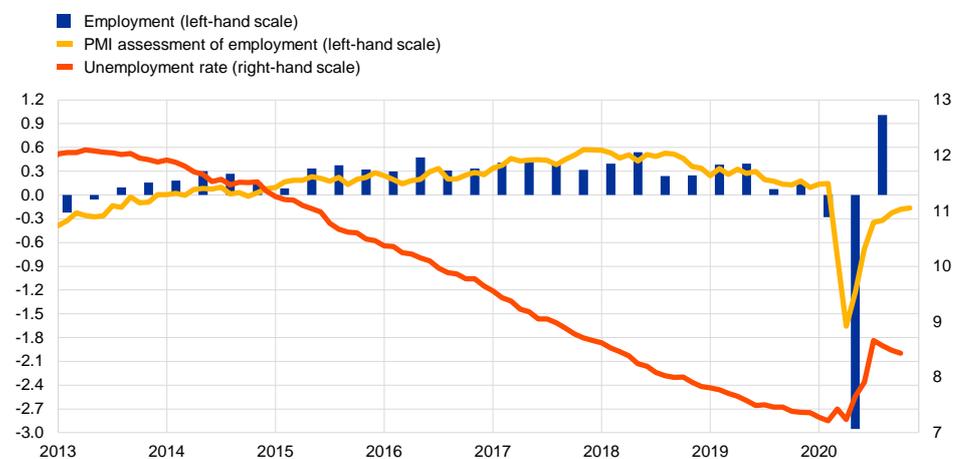
**The labour market situation improved somewhat in the third quarter, given the strong rebound in activity.** Employment increased by 1.0% in the third quarter of 2020, after a decrease of 3.0% in the second quarter (see Chart 11). Despite this improvement, employment was 2.2% lower in the third quarter of 2020 than in the fourth quarter of 2019. Hours worked continue to play an important role in the adjustment of the labour market in the euro area. Total hours worked increased by 14.8% in the third quarter, after a decline of 13.6% in the second quarter, but remained 4.6% lower than in the fourth quarter of 2019. The unemployment rate was 8.4% in October, after having reached 8.7% in July, and remained about 1.2 percentage points higher than in February, before the pandemic. Job retention schemes continue to support the labour market. Workers in job retention schemes were estimated at about 5% of the labour force in October, down from about 18% in April, but the numbers are starting to rise again in some countries in response to the latest lockdown measures.<sup>5</sup>

**Short-term labour market indicators have partially recovered, but continue to signal contractionary developments.** The Purchasing Managers' Index (PMI) for employment increased marginally to 48.3 in November from 48.2 in October. It has recovered significantly since April, when it reached its lowest level on record. 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.

<sup>5</sup> See the article entitled "The impact of the COVID-19 pandemic on the euro area labour market" in this issue of the Economic Bulletin.

**Chart 11****Euro area employment, PMI assessment of employment and unemployment**

(quarter-on-quarter percentage changes; diffusion index; 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 third quarter of 2020 for employment, November 2020 for the PMI and October 2020 for the unemployment rate.

**Following a substantial rebound in the third quarter, by 14.0% quarter on quarter, consumer spending started to falter again in the fourth quarter.** While car registrations hovered close to their pre-pandemic level (down 4.1% year on year) in October, in the same month retail trade increased by 1.5%, month on month. It is likely that these do not yet capture the impact of the reintroduction of containment measures as of mid-October. By contrast, consumer confidence continued to decline in November, standing at -17.6, compared to -14.5 on average in the third quarter. In some euro area countries, consumption of durables already exceeded pre-pandemic levels by a small margin in the third quarter. However, this was overshadowed by the negative impact of services consumption, which is still far below historical trends. Households have become increasingly worried that their financial situation is deteriorating, so intentions to make major purchases have remained at their lowest level since the sovereign debt crisis. Owing to precautionary behaviour by consumers and tighter lockdown measures, the saving rate is expected to rise again in the fourth quarter.

**Business investment (proxied by non-construction investment) increased strongly, by 13.6% quarter on quarter, in the third quarter of 2020, but the recovery faltered in the fourth quarter.** Notwithstanding the sharp rebound, the level of non-construction investment remains 15.7% below the pre-crisis level. Despite a positive reading from the October and November PMI for capital goods (55.6 in November, up from 54.7 in September), investment is expected to decline in the fourth quarter, as the second wave of the pandemic is expected to have also had an impact on corporate profits. Moreover, business investment confidence further declined in November, while capacity utilisation remains well below its pre-crisis level, implying room to expand production with existing capital stock. At the same time, the relative resilience of the manufacturing sector to the new lockdowns may be seen as a positive sign for the investment outlook in the short term. However, looking further ahead, an

increased debt burden, as reflected in higher corporate leverage ratios, poses downside risks to the recovery in investment.

**Household investment (proxied by residential construction investment) also bounced back strongly, by 12.3% quarter on quarter, in the third quarter of 2020, but the short-term outlook remains uncertain.** The strong rebound in the third quarter of 2020 fell short of a full recovery, as investment in residential construction still stood 3.8% below its end-2019 level. The pronounced cross-country diversity in housing dynamics during the first three quarters of 2020 should subside over the short term, as prospects are looking dim for all of the largest euro area countries, despite some positive signals at the start of the fourth quarter. The latest data on the issuance of building permits show a marked deceleration in the first half of the year, hinting at fewer construction plans in the pipeline. In October, the PMI for construction output and real estate services fell deeper into contractionary territory. After a small uptick in October, confidence among construction and real estate firms declined in November as the new round of measures to contain the second wave of the coronavirus since mid-October took a toll on business. Over the same period, companies in the construction and real estate sectors reported increasing supply-side constraints on their production, especially related to their financial conditions. On the demand side, according to the European Commission's consumer survey, the new restrictions and the heightened uncertainty related to the resurgence of the pandemic discouraged households from spending on major items, including on new and existing housing stock, in November.

**Euro area trade rebounded strongly and provided a positive contribution to GDP growth in the third quarter of 2020, but its recovery is set to slow down in the months ahead.** While euro area real exports of goods more than regained the ground lost in the previous quarter, increasing by 20.1% quarter on quarter, euro area real exports of services only rebounded by 9.2%, following a decrease of 21.0%. The net trade contribution to GDP growth was markedly positive (2.4 percentage points). Data on trade in goods reveal that exports expanded across the board in September. Non-chemical manufactured goods exports, especially of machinery and transport equipment, had a stronger quarterly rebound in relative terms in the third quarter of 2020. This was particularly true for car exports. However, renewed lockdown measures are likely to disrupt the recovery pattern of euro area trade in the months ahead. Although still pointing to further improvement for trade in goods, the euro area PMI for new manufacturing export orders decreased to 53 in November, while the European Commission's assessment of export order book levels improved only marginally in negative territory. On the other hand, the new COVID-19 restrictions are weighing on the already impaired trade in services, and the PMI for services new export orders declined further to 39.2.

**High-frequency indicators and the latest survey results are consistent with a fall in GDP in the final quarter of 2020.** There has been a clear downward trend in high-frequency mobility indicators for euro area countries in recent months, moving in tandem with a composite stringency index that has remained around half-way between its peak in April and subsequent trough in July. Survey indicators point to a renewed contraction in activity primarily affecting the services sector. In the case of

tourism in particular, renewed travel restrictions in October are likely to reinforce the substitution of foreign tourism by domestic tourism seen during the first wave of the pandemic, suggesting an overall deterioration of tourism services in the last quarter of the year (see Box 5). The flash PMI composite output index decreased strongly from 50.0 in October to 45.3 in November, largely driven by a substantial decline in the index for services (from 46.9 to 41.7). Meanwhile, the index for manufacturing output also declined, but by much less, from 58.4 to 55.3, remaining consistent with expanding activity. However, the short-term outlook remains surrounded by elevated uncertainty, not least in view of the unusual changes in statistical and economic relationships during the COVID-19 pandemic (see Box 3 for a description of innovations in the ECB's analytical toolkit to assess the short-term impact of the pandemic).

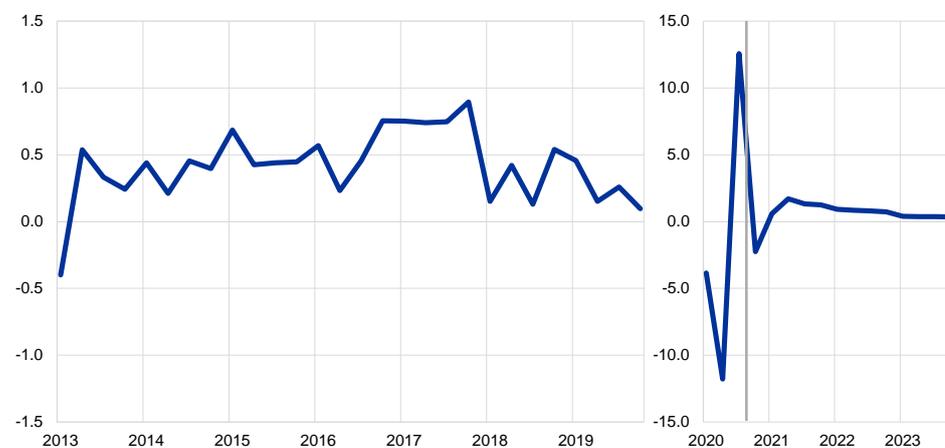
**Looking ahead, expectations for growth in the medium term remain tightly linked to the gradual evolution of the pandemic and the successful roll-out of COVID-19 vaccines.** While the early start to the distribution of vaccines is a key factor supporting the expectations of a rapid recovery, it will take time before widespread immunity is reached and the euro area and the global economy is able to return to “normality”. According to a survey of large corporations conducted to test what “normality” might look like in the long term, the pandemic is expected to lead to greater digitalisation and more teleworking, with the expectation of persistent higher productivity but at the same time also persistent lower demand (see Box 6). In this uncertain environment, and to reduce hysteresis risks, the ECB's accommodative monetary conditions will continue to support domestic demand, while ongoing fiscal and employment measures should continue to support private consumption.

**The December 2020 Eurosystem staff macroeconomic projections for the euro area foresee annual real GDP decreasing by 7.3% in 2020, and increasing by 3.9% in 2021, 4.2% in 2022 and 2.1% 2023 (see Chart 12).** Compared with the September 2020 projections, real GDP growth has been revised upwards by 0.7 percentage points for 2020, downwards by 1.1 percentage points for 2021 and upwards by 1.0 percentage points for 2022, thereby broadly recovering to the level projected in the September baseline scenario over the medium term. Although downside risks to the outlook have become less pronounced owing to the news about the prospects for vaccine roll-outs in the near future, they remain tilted to the downside on account of the implications of the pandemic for economic and financial conditions.

## Chart 12

### Euro area real GDP (including projections)

(quarter-on-quarter percentage changes)



Sources: Eurostat and the article entitled "Eurosysteem staff macroeconomic projections for the euro area, December 2020", published on the ECB's website on 10 December 2020.

Notes: In view of the unprecedented volatility in real GDP in the course of 2020, the chart uses a different scale from early 2020 onwards. The vertical line indicates the start of the projection horizon. The chart does not show ranges around the projections. This reflects the fact that, in the present circumstances, the standard computation of the ranges (based on historical projection errors) would not provide a reliable indication of the unprecedented uncertainty surrounding the current projections.

## 4 Prices and costs

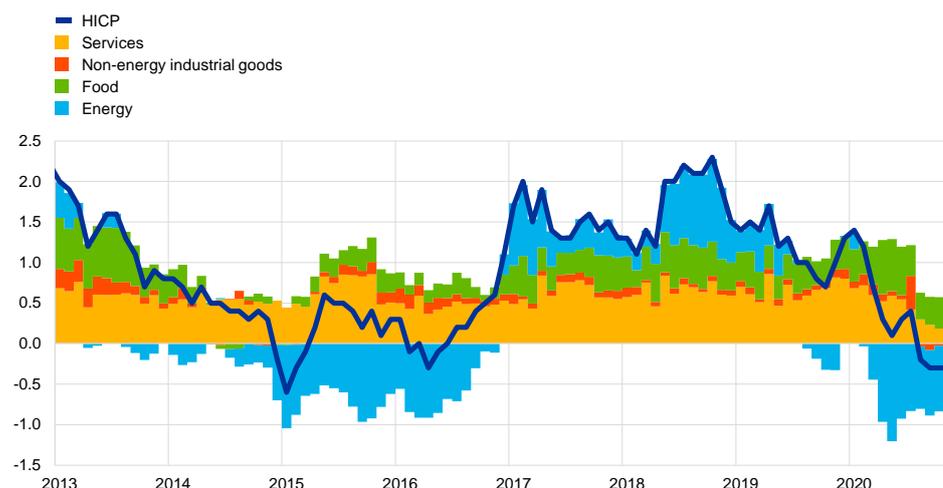
According to Eurostat's flash estimate, euro area annual inflation remained unchanged at -0.3 % in November. On the basis of oil price dynamics and taking into account the temporary reduction in the German VAT rate, headline inflation is likely to remain negative until early 2021. Thereafter, it is expected to increase owing to the end of the temporary VAT reduction in Germany and upward base effects in energy price inflation. At the same time, underlying price pressures are expected to remain subdued owing to weak demand, notably in the tourism and travel-related sectors, as well as to low wage pressures and the appreciation of the euro exchange rate. Once the impact of the pandemic fades, a recovery in demand, supported by accommodative fiscal and monetary policies, will put upward pressure on inflation over the medium term. Market-based indicators and survey-based measures of longer-term inflation expectations remain at low levels. This assessment is broadly reflected in the baseline scenario of the December 2020 Eurosystem staff macroeconomic projections for the euro area, which foresees annual inflation at 0.2% in 2020, 1.0% in 2021, 1.1% in 2022 and 1.4% in 2023. Compared with the September 2020 ECB staff macroeconomic projections, the outlook for inflation has been revised down for 2020 and 2022.

**Headline inflation remained unchanged in November 2020.** The unchanged inflation rate of -0.3% masked small movements in the main components: slightly more negative energy inflation and marginally lower food inflation and non-energy industrial goods inflation on the one hand, and an increase in services inflation on the other (see Chart 13).

### Chart 13

#### Contributions of components of euro area headline HICP inflation

(annual percentage changes; percentage point contributions)



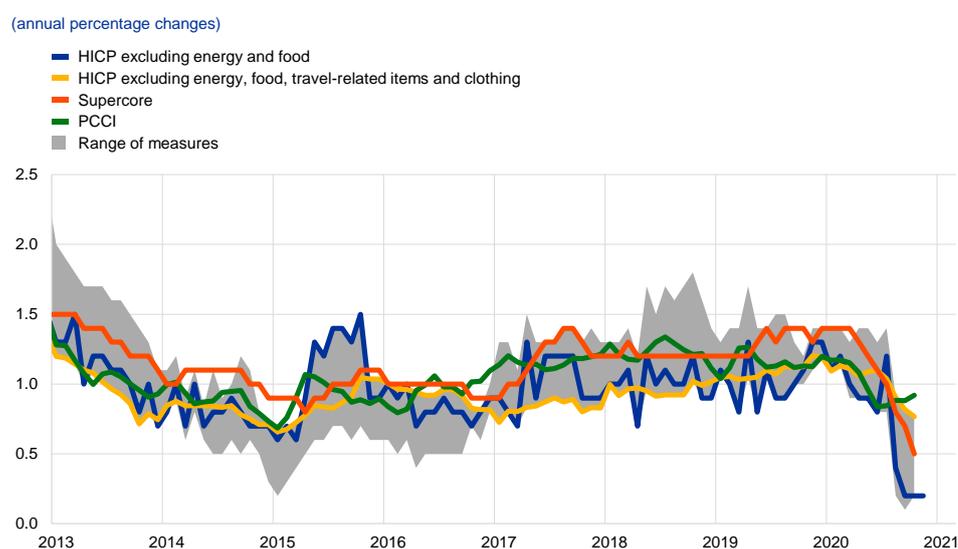
Sources: Eurostat and ECB calculations.

Notes: The latest observations are for November 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 stabilised at low levels.** HICP inflation excluding energy and food (HICPX) remained unchanged for the third month in a row at the

historical low of 0.2% in November. The unchanged inflation masks an increase in services inflation which rose to 0.6% in November from 0.4% in October, while non-energy industrial goods inflation fell to -0.3% in November from -0.1% in October. Other measures of underlying inflation, which are available up to October, stabilised at low levels. HICP inflation excluding energy, food, travel related items and clothing and the Persistent and Common Component of Inflation (PCCI) remained unchanged in October at 0.8% and 0.9%, respectively, while the Supercore indicator was down from 0.7% in September to 0.5% in October (see Chart 14).<sup>6</sup> Recent low readings in underlying inflation measures also reflect the temporary reduction in German VAT rates since July 2020.

**Chart 14**  
Measures of underlying inflation



Sources: Eurostat and ECB calculations.

Notes: The latest observations are for November 2020 for HICP excluding energy and food and for October 2020 for all other measures. 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 strengthened slightly.** Inflation for imported non-food consumer goods increased to -1.2% in October, from -1.9% in September. Domestic producer price inflation for non-food consumer goods was unchanged at 0.7% in October, the same as in September and remaining close to its longer-term average. At the earlier input stages, the annual rate of change in producer prices for intermediate goods rose slightly from -1.6% in September to -1.3% in October, while the annual rate of change in import prices for intermediate goods recovered from -3.0% in September to -2.5% in October. Developments in import price inflation for both, non-food consumer goods and intermediate goods, could potentially reflect, at least in part, the fact that the appreciation of the euro exchange rate compared to one year ago did not continue in October.

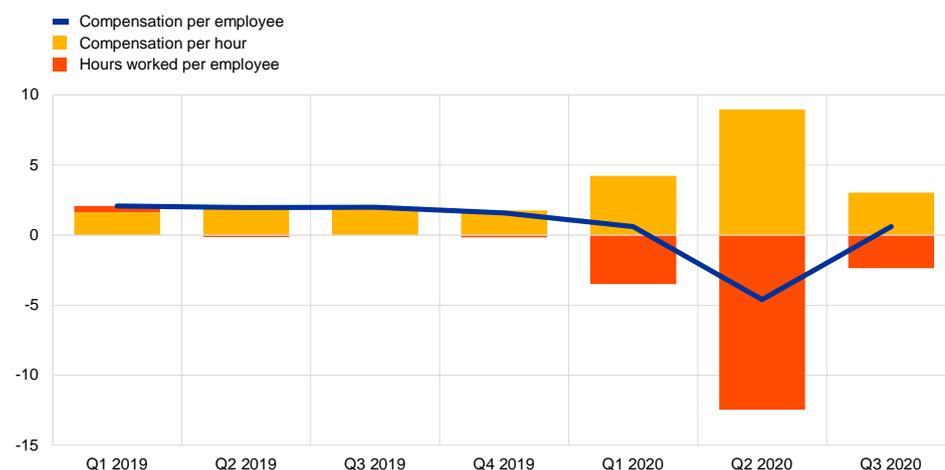
<sup>6</sup> For further information on this and other measures of underlying inflation, see Boxes 2 and 3 in the article entitled "Measures of underlying inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2018.

**Wage pressures are blurred by the impact of government support measures on compensation.** Developments in compensation per employee and compensation per hour showed significant volatility and divergence between the two measures during the first three quarters of 2020. Annual growth in compensation per employee increased to 0.6% in the third quarter, after falling to -4.7% in the second quarter, from 0.6% in the first quarter and 1.7% in the fourth quarter of 2019. Annual growth in compensation per hour, on the other hand, rose from 2.0% in the fourth quarter of 2019 to 4.3% in the first quarter of 2020, and further to 9.3% in the second quarter, before falling to 3.0% in the third quarter of 2020 (see Chart 15). These divergent developments reflect the impact of short-time work and temporary lay-off schemes, under which workers maintained their employment status but only received part of their usual compensation, while actual hours worked per person declined sharply. This effect was partly reversed in the third quarter, in line with the rebound in activity. 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.<sup>7</sup> Negotiated wages, which are not directly affected by developments in hours worked and the recording of benefits from job retention schemes, declined to 1.6% in the third quarter of 2020, from 1.7% in the second quarter, after 1.9% in the first quarter. While this implies only a slow weakening, the data still include agreements concluded before the onset of the pandemic.<sup>8</sup>

### Chart 15

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

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: The latest observations are for the third quarter of 2020.

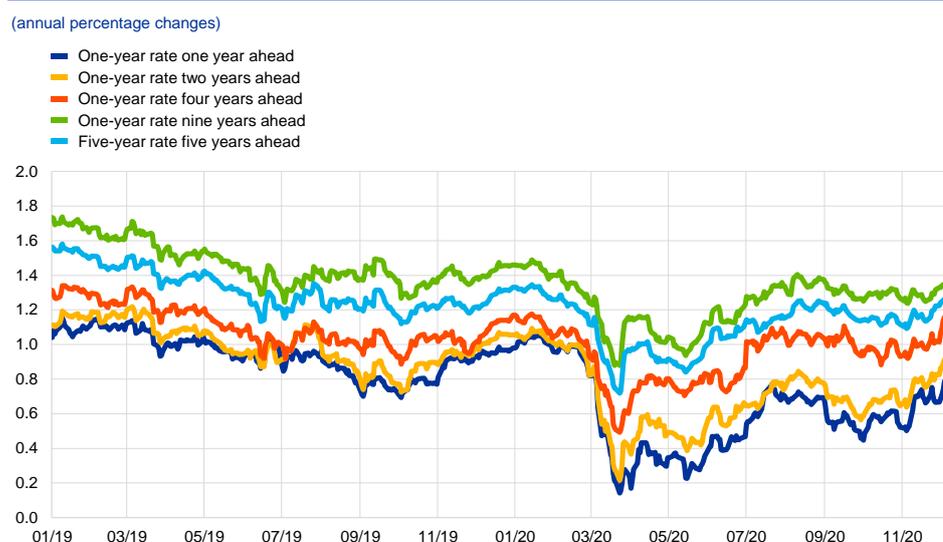
#### Market-based indicators of inflation expectations increased somewhat following positive news of successful coronavirus (COVID-19) vaccine trials

<sup>7</sup> 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.

<sup>8</sup> For more information, see the box entitled “Assessing wage dynamics during the COVID-19 pandemic: can data on negotiated wages help?” in this issue of the *Economic Bulletin*.

that have lifted global risk sentiment, but nevertheless remained at very subdued levels (10 September to 9 December). After starting to edge down in late October in the face of renewed lockdowns, market-based measures of inflation expectations increased notably following the first of a series of announcements of successful COVID-19 vaccine trials in early November. For instance, the five-year forward inflation-linked swap (ILS) rate five years ahead – at 1.25% on 9 December – was quoted broadly within the range observed between mid-2019 and the onset of the pandemic. Even though shorter-term market-based indicators of inflation expectations have so far proved to be somewhat more resilient than in the first wave of the pandemic, the entire forward profile of market-based indicators of inflation expectations continues to point to a prolonged period of low inflation. Survey-based indicators of inflation expectations remained at historically low levels. According to the ECB Survey of Professional Forecasters for the fourth quarter of 2020, conducted in the first week of October 2020, as well as the latest releases from Consensus Economics and the Euro Zone Barometer in October, survey-based longer-term inflation expectations remained at or close to historically low levels.

**Chart 16**  
Market-based indicators of inflation expectations



Sources: Thomson Reuters and ECB calculations.  
Notes: The latest observations are for 9 December 2020.

**The December 2020 Eurosystem staff macroeconomic projections foresee a gradual increase in headline inflation over the projection horizon.** The baseline projections point to headline HICP inflation averaging 0.2% in 2020, 1.0% in 2021, 1.1% in 2022 and 1.4% in 2023 (see Chart 17). Compared with the September 2020 ECB staff projections, the projection for HICP inflation is revised down by 0.1 percentage points for 2020, unchanged for 2021 and revised downwards by 0.2 percentage points in 2022, on account of weaker incoming data for HICP inflation excluding energy and food and a downward reassessment of inflationary pressures since the previous projections in the context of abundant but diminishing slack in the goods and labour markets. The bounceback in 2021 reflects, to a large extent, base effects in HICP energy inflation related to the sharp fall in oil prices at the onset of the

global COVID-19 outbreak, as well as the reversal of the VAT tax cut in Germany. Over the medium-term headline inflation is expected to gradually increase, mainly reflecting a slight rise in the contribution of HICP inflation excluding energy and food which, however, is seen to remain rather subdued. HICP inflation excluding energy and food is expected to be 0.7% in 2020, 0.8% in 2021 and 1.0% in 2022, before increasing to 1.2% in 2023.

### Chart 17

#### Euro area HICP inflation (including projections)

(annual percentage changes)



Sources: Eurostat and the article entitled "Eurosysteem staff macroeconomic projections for the euro area, December 2020", published on the ECB's website on 10 December 2020.

Notes: The vertical line indicates the start of the projection horizon. The latest observations are for the third quarter of 2020 (data) and the fourth quarter of 2023 (projection). The cut-off date for data included in the *Eurosysteem staff macroeconomic projections for the euro area, December 2020*, was 25 November 2020.

## 5 Money and credit

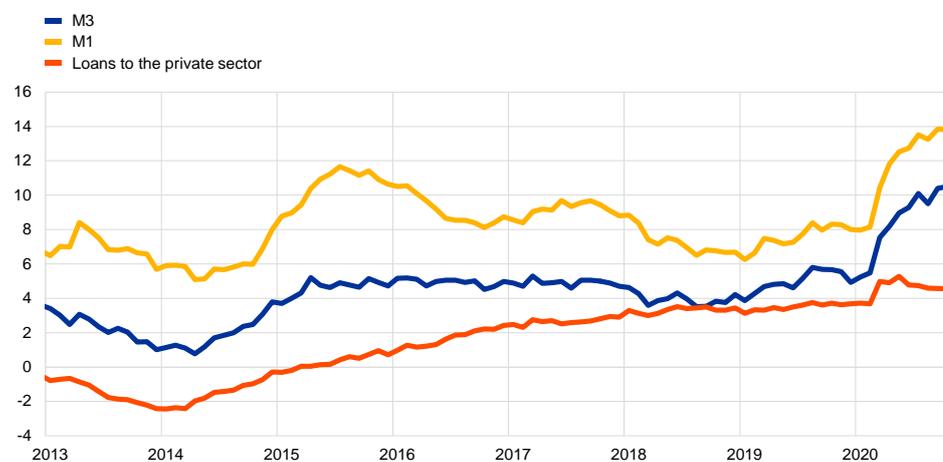
*Monetary dynamics in the euro area continued to reflect the impact of the coronavirus (COVID-19) pandemic. In October money growth stabilised at rates that were twice as high as before the pandemic, owing to the implementation of monetary policy measures and the preference for liquid assets. Domestic credit remained the main source of money creation, driven by loans to non-financial corporations (NFCs) and the Eurosystem's net purchases of government bonds. The timely and sizeable measures taken by monetary, fiscal and supervisory authorities have ensured the flow of credit to the euro area economy at favourable terms. Firms' total external financing levelled off in the third quarter of 2020. Small and medium-sized enterprises (SMEs), which depend critically on banks for financing, reported some slight improvements in their access to external finance in the period from April to October but expect a deterioration in coming months. Firms' overall cost of debt financing is now close to the pre-pandemic level, as the cost of market-based debt moderated again, and bank lending rates remained close to historical lows. However, upward pressure on bank lending rates is expected, as the deteriorating credit risk environment is denting bank balance sheets and profitability.*

**Broad money growth was broadly unchanged in October.** Monetary dynamics continued to suffer the effects of the COVID-19 pandemic, which has triggered an exceptional preference for liquidity. The annual growth rate of the broad monetary aggregate (M3) edged up slightly in October, to 10.5%, from 10.4% in September, stabilising at a level twice as high as before the onset of the pandemic (see Chart 18). The annual growth rate of the most liquid monetary aggregate, M1, which comprises overnight deposits and currency in circulation, remained stable at an elevated level of 13.8% in October, thus strongly contributing to M3 growth. These developments reflect the liquidity being built up by firms and households amid increased uncertainty, but also – in the case of households – some forced savings owing to reduced opportunities to consume. The strong growth in money was also the result of sizeable support measures taken by the ECB and supervisory authorities, as well as national governments, to ensure sufficient liquidity is provided to the economy to address the economic consequences of the pandemic.

## Chart 18

### M3, M1 and loans to the private sector

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



Source: ECB.

Notes: Loans are adjusted for loan sales, securitisation and notional cash pooling. The latest observations are for October 2020.

#### **Strong growth in overnight deposits continues to reflect high uncertainty.**

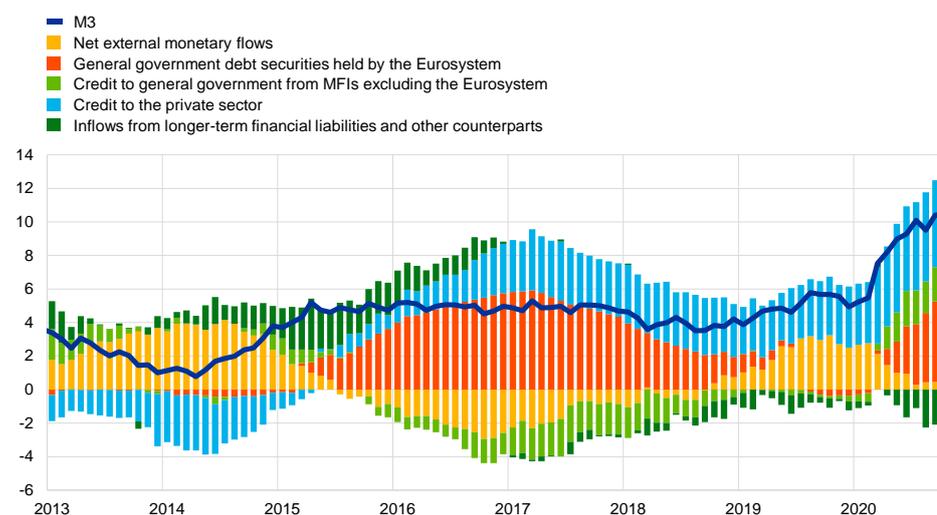
Overnight deposits, which have been the main contributor to growth in M3, continued to expand at a relatively stable, yet very high, annual rate of 14.3% in October. Money holders' preference for overnight deposits continued to reflect precautionary motives and the very low level of interest rates, which reduces the opportunity cost of holding such instruments, especially when compared with other, less liquid ones. The growth in deposits was mainly driven by holdings of firms and households. In the case of firms, growth in deposit holdings varied across jurisdictions, reflecting differences in the extent to which the liquidity needs of firms materialised and in the form and size of support measures across countries. Furthermore, currency in circulation grew at a broadly stable annual rate of 10.7% in October. By comparison, other short-term deposits and marketable instruments continued to make a small contribution to annual M3 growth, mirroring the low level of interest rates and the search-for-yield behaviour of investors.

**Domestic credit has remained the main source of money creation as the contribution of the Eurosystem's net asset purchases increased.** From the start of 2018 to September 2020 credit growth to the private sector had been the main driver of M3 growth from the counterpart perspective (see the blue portion of the bars in Chart 19). In October 2020, however, the Eurosystem's net purchases of government securities under the ECB's asset purchase programme (APP) and the pandemic emergency purchase programme (PEPP) took over as the largest contributor to M3 growth (see the red portion of the bars in Chart 19). At the same time, the flow of credit from the banking sector (excluding the Eurosystem) to the public sector has moderated over recent months (see the light green portion of the bars in Chart 19). Net external monetary flows were broadly balanced in the 12 months to October (see the yellow portion of the bars in Chart 19), while longer-term financial liabilities and other counterparts exerted a negative impact on money growth (see the dark green portion of the bars in Chart 19). This was mainly due to the

developments in other counterparts (in particular repurchase agreements), while favourable TLTRO conditions continued to support banks' funding substitution, resulting in net redemptions in long-term bank bonds.

**Chart 19**  
M3 and its counterparts

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



Source: ECB.

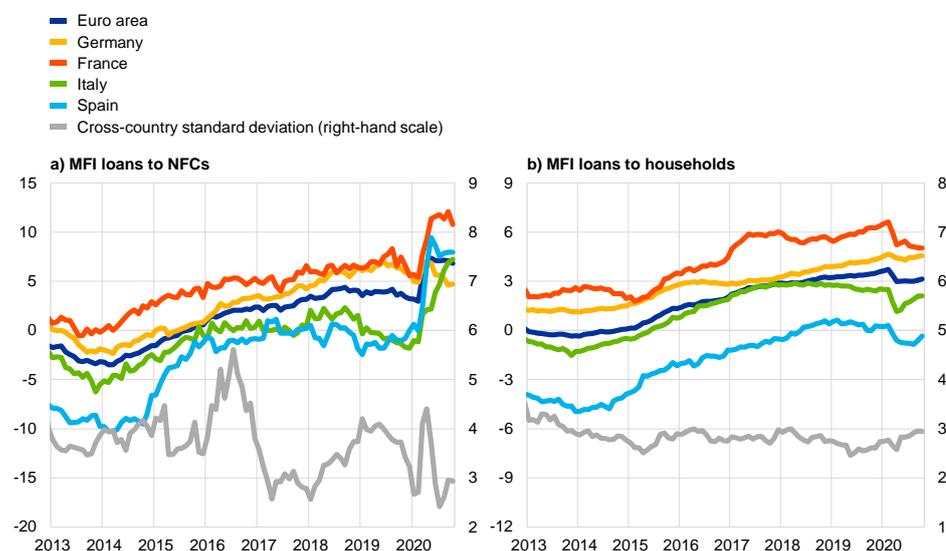
Notes: Credit to the private sector includes MFI loans to the private sector and MFI holdings of debt securities issued by the euro area private non-MFI sector. As such, it also covers purchases by the Eurosystem of non-MFI debt securities under the corporate sector purchase programme and the PEPP. The latest observations are for October 2020.

**Loan flows to the private sector have moderated.** The annual growth rate of monetary financial institutions' (MFI) loans to the private sector was unchanged at 4.6% in October, one percentage point higher than before the outbreak of the pandemic (see Chart 18). Shorter-term dynamics, however, point to a slowdown, as evidenced by the markedly lower monthly loan flows since June. Credit growth has continued to be driven mainly by loans to firms, with an annual growth rate of 6.8% in October, after 7.1% in September, while growth in loans to households remained stable at 3.1% (see Chart 20). The deceleration in the annual growth rate of loans to firms occurred in the context of abating emergency liquidity needs, weak investment and tighter credit conditions. Firms' reliance on longer-term loans has continued to increase at the expense of shorter-term loans. The divergence in the dynamics of loans to firms and loans to households reflects the specific nature of the COVID-19 crisis, which has led to a collapse in corporate cash flows and has forced firms to increase their reliance on external financing.

## Chart 20

### MFI loans in selected euro area countries

(annual percentage changes)

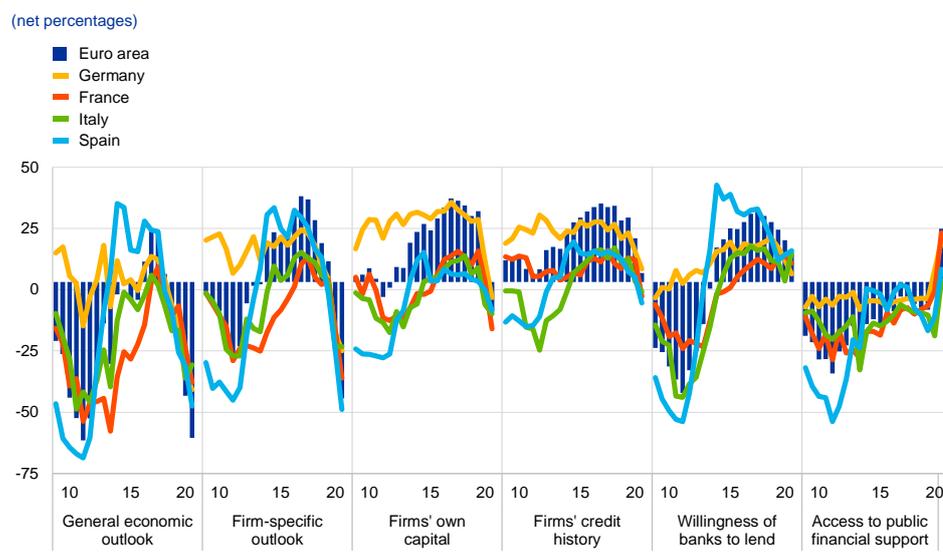


Source: ECB.

Notes: Loans are adjusted for loan sales and securitisation; in the case of NFCs, loans are also adjusted for notional cash pooling. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for October 2020.

### Small and medium-sized enterprises (SMEs) reported some slight improvements in their access to external finance over the past six months in comparison with early 2020, but they expect a deterioration going forward.

According to the November 2020 [survey on the access to finance of enterprises \(SAFE\)](#), SMEs reported an improvement in access to public financial support for the first time since 2009, which suggests that the initiatives by a number of governments to provide public guarantees for bank loans during the COVID-19 pandemic have fed through to these enterprises (see Chart 21). At the same time, enterprises perceived their access to finance as being negatively affected by the general economic outlook, but also by their firm-specific outlook and capital position. Euro area firms also reported a marked deterioration in their turnover and profits, which was widespread across countries and sectors. Since the demand for external funds to bridge liquidity gaps increased markedly, the financing gap (the difference between the demand for and the availability of external financing) rose slightly further. Moreover, the SAFE results also showed that SMEs, and to a lesser extent large firms, expected a deterioration in the availability of most sources of external financing, in particular, bank loans and credit lines.

**Chart 21****Factors affecting the availability of external financing to SMEs**

Source: ECB (SAFE).

Note: Data refer to rounds 3 (March-September 2010) to 23 (April 2020-October 2020) of SAFE.

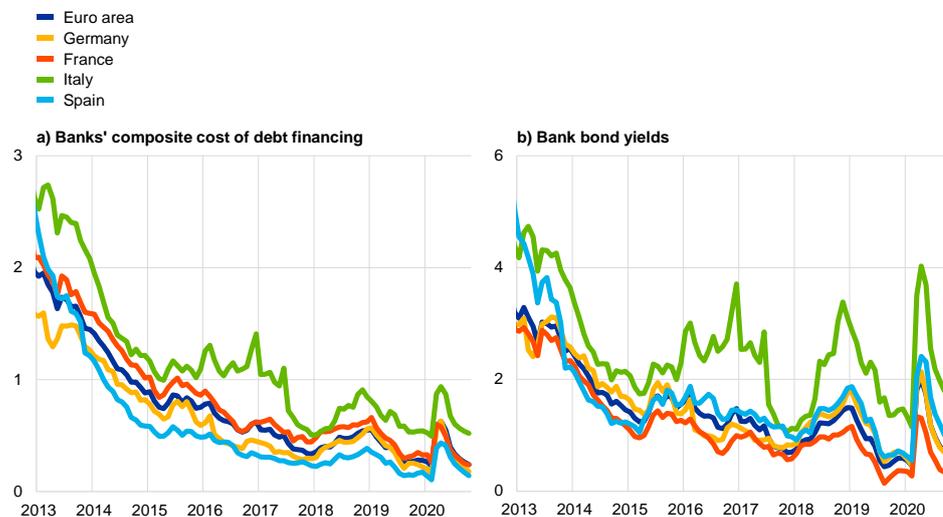
**Banks face favourable funding conditions but credit risk weighs on their balance sheets and profitability.**

The composite cost of debt financing for euro area banks, which had risen after the COVID-19 outbreak, has fallen back close to its pre-pandemic historical low of February 2020 (see Chart 22). This was due mainly to lower bond yields, supported by the ECB's monetary policy measures. The ECB's APP and PEPP are having a favourable impact on bond yields, which is also benefiting the pricing of securities issued by banks. Moreover, banks partly replaced market-based funding with TLTROs, thereby placing downward pressure on bank bond yields. Finally, prices for covered bank bonds are being directly supported by the ECB's third covered bond purchase programme (CBPP3). In addition, deposit rates of euro area banks, which account for the bulk of bank funding, remained at historical lows in October 2020, thereby contributing to favourable bank debt funding conditions. Euro area banks have increasingly charged negative interest rates on NFC deposits held with them since the onset of the COVID-19 crisis. At the same time, a large part of banks' deposit funding, in particular retail deposits, still has a zero-interest floor, which compresses banks' net interest rate margins. Although banks are benefiting from favourable funding conditions, the deterioration in borrower creditworthiness owing to the pandemic is having a negative impact on their profitability and capital positions. As shown by the October 2020 [euro area bank lending survey](#), banks tightened their credit standards in the third quarter of 2020, reflecting their heightened risk perception as a result of the pandemic.

## Chart 22

### Banks' composite cost of debt financing

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



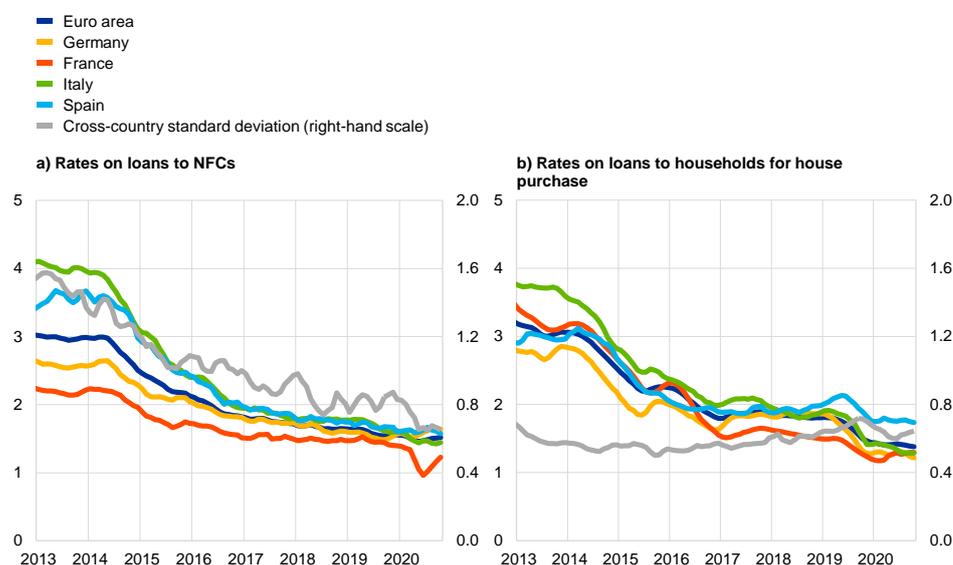
Sources: ECB, Markit iBoxx and ECB calculations.

Notes: The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their corresponding outstanding amounts. Bank bond yields refer to monthly averages of senior-tranche bonds. The latest observations are for October 2020.

**Bank lending rates remain very favourable but upward pressure is expected.** In October composite bank lending rates for loans to firms remained close to their historical lows at 1.53%, while those for loans to households for house purchase fell to a new historical low of 1.36% (see Chart 23). This development was widespread across euro area countries. Moreover, the spread between bank lending rates on very small loans and those on large loans stabilised at levels below those observed before the pandemic. At the same time, the severe economic impact of the pandemic on firms' revenues, households' employment prospects and overall borrower creditworthiness continued to put upward pressure on bank lending rates. The benign reaction of bank lending rates to the pandemic thus far appears to reflect two factors. First, the effectiveness of the measures taken by the ECB, bank supervisors and governments to offset the procyclical impact of the pandemic shock on credit supply. In this respect, the extension of government guarantee schemes for loans in some countries, at least until June 2021, will continue to shield bank lending rates from adverse developments in borrower credit risk. Second, the relative stickiness of bank lending rates in the short term as banks temporarily absorb some fluctuations in their cost components in an effort to maintain client relationships.

**Chart 23****Composite bank lending rates in selected euro area countries**

(percentages per annum; three-month moving averages)



Source: ECB.

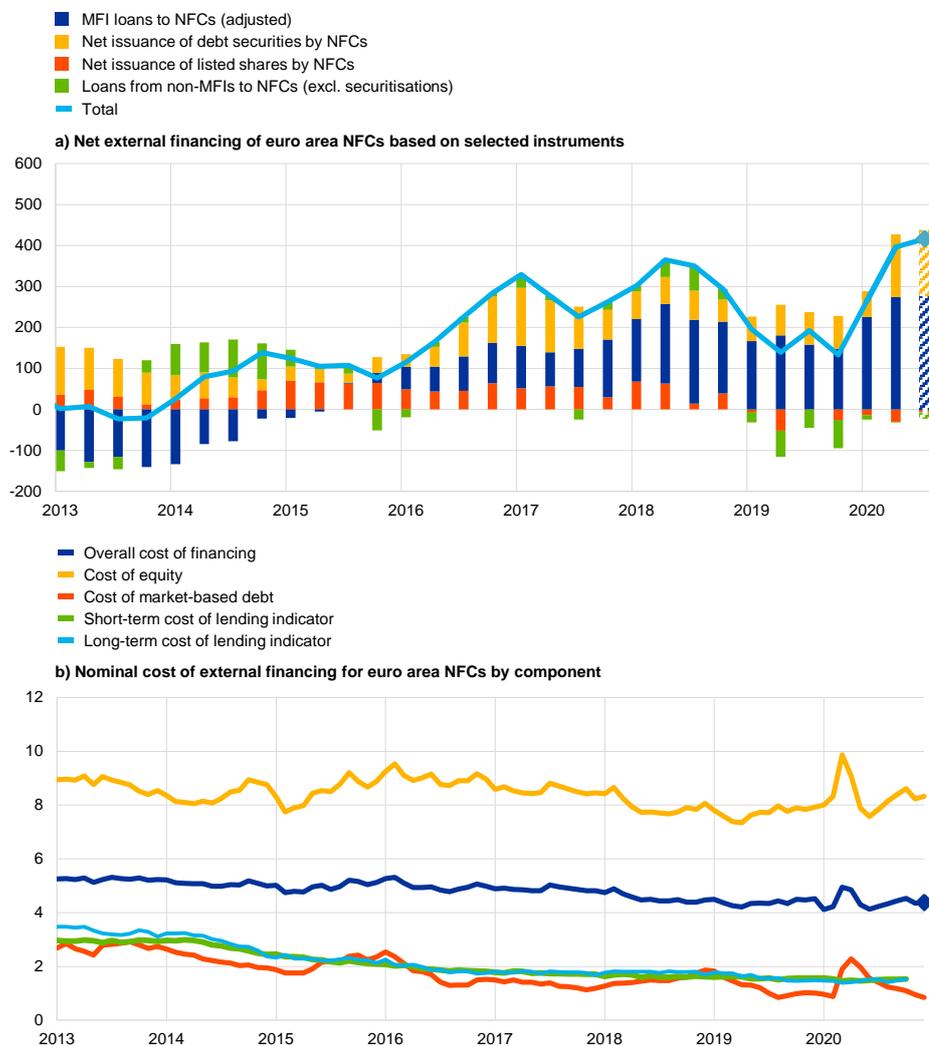
Notes: The indicator for the total cost of bank borrowing is calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for October 2020.

**The annual flow of total external financing to euro area NFCs is estimated to have levelled off in the third quarter of 2020.** This stabilisation reflects a slowdown in borrowing from banks and in net issuance of debt securities over the same quarter, having reached record highs in the second quarter (see panel (a) of Chart 24). The deterioration in firms' operating cash flows and the resulting high financing needs were temporarily mitigated as a result of the relaxation of lockdown measures in the third quarter, given lower COVID-19 infection rates. The slowdown in external financing was also related to firms building up liquidity buffers earlier in the year (from March to June), leading to lower demand for credit in the third quarter. At the same time, the third quarter saw a surge in net issuance of listed shares, but this was concentrated in a few firms, mainly in the technology sector. Loan volumes from non-banks (non-MFIs) remained subdued in the third quarter. Overall, total external financing flows were still higher in the third quarter of 2020 than the quarterly average observed between 2016 and 2019, on the back of favourable financing conditions. The overall nominal cost of external financing for NFCs, comprising bank lending, debt issuance in the market and equity finance, stood at 4.5% at the end of October (see panel (b) of Chart 24). This level was around 40 basis points lower than the March 2020 local peak and 40 basis points higher than the historical low in June 2020. The decline between March and June was due to the sharp drop in the cost of equity and market-based debt. Between the end of October and the end of the reference period (9 December 2020), the overall cost of financing is estimated to have declined by around 15 basis points, to 4.4%, on account of a lower cost of both market-based debt and equity.

## Chart 24

### External financing of euro area NFCs

(annual flows in EUR billions – panel (a); percentages per annum – panel (b))



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

Notes: Panel (a) – Net external financing is the sum of MFI loans, net issuance of debt securities, net issuance of listed shares and non-MFI loans. MFI loans are adjusted for sales, securitisation and cash pooling activities. Loans from non-MFIs include loans from other financial institutions and insurance corporations and pension funds net of securitised loans. The striped bar and light blue diamond indicate the nowcast for the third quarter of 2020. Panel (b) – The overall cost of financing for NFCs is calculated as a weighted average of the costs of bank borrowing, market-based debt and equity, based on their respective amounts outstanding. The dark blue diamond indicates the nowcast of the overall cost of financing for November 2020, assuming that bank lending rates remain unchanged at their October 2020 levels. The latest observations for panel (a) are for the second quarter of 2020 for euro area accounts data; estimates for the third quarter of 2020 are based on ECB balance sheet items (BSI) and securities (SEC) data and Dealogic. The latest observations for panel (b) are for 9 December 2020 for the cost of market-based debt (monthly average of daily data), 4 December 2020 for the cost of equity (weekly data) and October 2020 for the cost of lending (monthly data).

## 6 Fiscal developments

*Substantial fiscal support, through both automatic stabilisers and discretionary measures by euro area governments, has mitigated the significant negative impact on the real economy from the coronavirus (COVID-19) pandemic. The fiscal cost of this support has been very substantial for all euro area countries, although it varies markedly across countries. As a result of the economic downturn and the fiscal support, the general government budget deficit in the euro area is projected to increase significantly to 8.0% of GDP in 2020, according to the December 2020 staff macroeconomic projections, from 0.6% in 2019. Thereafter, the deficit ratio is expected to decline to 6.1% of GDP in 2021 and to 3.9% and 3.0% in the subsequent two years. The improvement is expected to be led by the phasing-out of the emergency measures, while the cyclical component will only improve significantly from 2022 onwards. Reflecting the fiscal measures and the deteriorating economic situation, the euro area aggregate debt ratio is estimated to have risen sharply in 2020 and to peak in 2021, declining only very slowly thereafter. An ambitious and coordinated fiscal stance remains critical, in view of the sharp contraction in the euro area economy although fiscal measures taken in response to the pandemic emergency should, as much as possible, be targeted and temporary in nature. At the same time, weak demand from firms and households and the heightened risk of a delayed recovery in the light of the new lockdowns owing to the second wave of the pandemic warrant continued support from national fiscal policies. The Next Generation EU (NGEU) fund, which complements the fiscal measures at the national level, will contribute to a faster, stronger and more uniform recovery and will increase economic resilience and the growth potential of EU Member States' economies, particularly if the funds are deployed for productive public spending and accompanied by productivity-enhancing structural policies.*

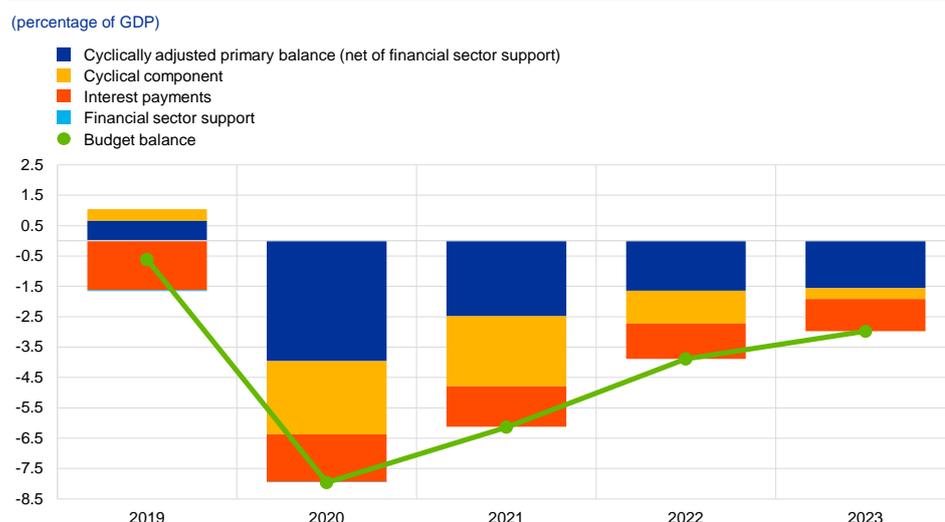
**According to the December 2020 Eurosystem staff macroeconomic projections, the euro area general government budget balance is projected to decline strongly in 2020 and to recover gradually thereafter.**<sup>9</sup> Based on these projections, the general government deficit ratio for the euro area is expected to increase from 0.6% of GDP in 2019 to 8.0% of GDP in 2020, before declining to 6.1% in 2021 and further to 3.9% and 3.0% in 2022 and 2023 respectively (see Chart 25). The decline in the budget balance in 2020 is to a large extent attributable to a deterioration in the cyclically adjusted primary balance on the back of economic support measures amounting to around 4.5% of GDP, of which the largest part is additional spending, particularly in the form of transfers and subsidies to firms and households, including through short-time work or furlough schemes. This decline is also the result of a large negative cyclical component, in line with a sharp deterioration of output in the euro area.<sup>10</sup> The subsequent improvement in the budget balance is initially projected to be driven by a recovery in the cyclically adjusted primary balance as part of the emergency measures is phased out from 2021. The contribution from the economic cycle is expected to improve significantly only from 2022 and remains negative

<sup>9</sup> See the “[Eurosystem staff macroeconomic projections for the euro area, December 2020](#)”, published on the ECB’s website on 10 December 2020.

<sup>10</sup> It should be noted that there is an unusually high degree of uncertainty surrounding the decomposition of cycle and trend at the current juncture.

throughout the projection horizon. These fiscal projections are, however, surrounded by exceptional uncertainty, not least as regards the size, timing and composition of NGEU spending but also more generally, as economic policies necessarily have to react as the pandemic evolves.

**Chart 25**  
Budget balance and its components



Sources: ECB and December 2020 Eurosystem staff macroeconomic projections.  
Note: The data refer to the aggregate general government sector of the euro area.

**In addition to the fiscal support for their economies, euro area countries have provided sizeable loan guarantee envelopes to bolster the liquidity position of firms.** In total, these guarantees amount to around 17% of GDP for the euro area as a whole, but the size of the envelopes differs substantially across countries. The loan guarantees are contingent liabilities for governments and any amount of guarantees called on will therefore constitute additional public spending that raises government debt.

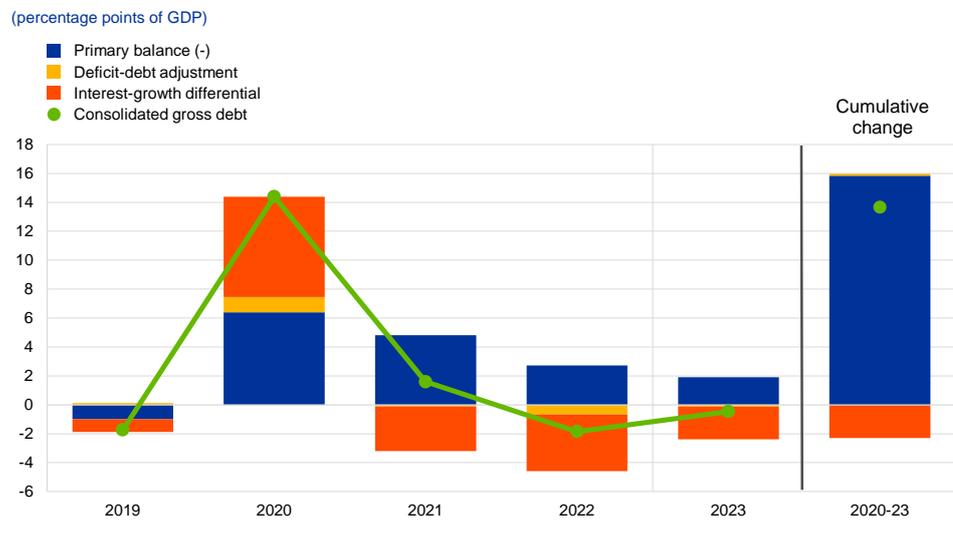
**Compared with the September 2020 ECB staff macroeconomic projections, the euro area fiscal outlook is projected to be less negative in 2020 but more negative in both 2021 and 2022.** The euro area general government budget balance as a share of GDP has been revised up by 0.8 percentage points for 2020 and down by 1.2 and 0.3 percentage points for 2021 and 2022 respectively. The lower fiscal deficit in 2020 is due mainly to a less negative cyclically adjusted balance but also to a slightly less negative cyclical component. This picture is expected to reverse over the next two years, when both the cyclically adjusted balance and the cyclical component should be more negative than previously expected.

**The aggregate fiscal stance has been highly expansionary in 2020 but a moderate reduction in support is expected in 2021-22 as emergency measures**

**are gradually phased out.**<sup>11</sup> The fiscal stance is estimated to have been mildly expansionary in 2019 but is expected to be highly accommodative at 4.8% of GDP in 2020. By contrast, in 2021 and 2022 it is projected to tighten moderately by 1.5% and 0.8% of GDP, respectively, and in 2023 to be broadly neutral. This path reflects a gradual phasing-out of exceptional pandemic emergency measures from 2021 onwards. Notwithstanding the gradual tightening, the overall fiscal balance will remain substantially negative, with fiscal instruments continuing to support the economic recovery over the whole forecast horizon.

**The euro area aggregate public debt-to-GDP ratio increased strongly in 2020 and is projected to peak at around 100% in 2021, before declining very gradually.** Debt ratio increases of 14.5 and 1.5 percentage points in 2020 and 2021, respectively, largely reflect high primary deficits and, in 2020, very adverse interest-growth differentials. In 2020, the increase is also attributable to a significant deficit-debt adjustment due to policy measures related to the pandemic, such as liquidity support to firms and households. In 2022 and 2023, declining but still significant primary deficits will be more than offset by favourable contributions from improving interest-growth differentials, as economic activity is projected to recover, and also by a negative deficit-debt adjustment in 2022 (see Chart 26). As a result, the debt-to-GDP ratio is expected to stand at 97.8% at the end of the projection horizon in 2023.

**Chart 26**  
Drivers of change in public debt



Sources: ECB and December 2020 Eurosystem staff macroeconomic projections.  
Note: The data refer to the aggregate general government sector of the euro area.

**It will take significant time to restore balance sheets to pre-crisis levels.** The reduction of budgetary imbalances rests, inter alia, on the pace of the recovery in 2021, especially after positive news about several COVID-19 vaccines. Moreover, the

<sup>11</sup> The fiscal stance reflects the direction and size of the stimulus from fiscal policies to the economy, beyond the automatic reaction of public finances to the business cycle. It is measured here as the change in the cyclically adjusted primary balance ratio net of government support to the financial sector. For more details on the concept of the euro area fiscal stance, see the article entitled “The euro area fiscal stance”, *Economic Bulletin*, Issue 4, ECB, 2016.

coordinated fiscal action taken in the European Union should provide an impetus to economic growth. At the same time, favourable financing conditions continue to contain debt servicing costs. Going forward, it is still important that EU Member States return to sound fiscal positions, including lower levels of government debt, once economic activity has recovered<sup>12</sup>.

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<sup>12</sup> For more details on draft budgetary plans for 2021 and the opinions of the European Commission, see the box entitled "[Draft budgetary plans for 2021: a review in times of the COVID-19 crisis](#)" in this issue of the Economic Bulletin.

# Boxes

## 1 The scarring effects of past crises on the global economy

Prepared by Natalia Martín Fuentes and Isabella Moder

**The coronavirus (COVID-19) pandemic is an unparalleled shock to the global economy.** First, the shock is multilayered, with the public health emergency compounded by an induced supply shock (i.e. following the adoption of stringent lockdown measures) and a demand shock as a consequence of increased unemployment and heightened uncertainty. Second, it has triggered a multifaceted and sizeable policy response, which has alleviated the adverse effects on economic activity but could exacerbate existing imbalances in the global economy and raise concerns about public and private debt overhangs and future deleveraging needs. Finally, certain sectors have been hit particularly hard by the lockdown measures and behavioural changes on the part of consumers, which are likely to remain in place at least until an effective medical solution has been implemented.

**Given the complex nature of the COVID-19 shock, the implications for the long-term growth potential of the global economy must be considered.** This box reviews past crises and the transmission channels through which potential output is affected.<sup>13</sup> The analysis is subject to high uncertainty, because potential output is an unobserved variable. Furthermore, the COVID-19 crisis is in many respects unique, and therefore past crises may not be reliable indicators of the lasting effects it may have on the global economy, not least because its length, one of the key parameters for assessing potential scarring effects, remains unknown.

**The traditional view that business cycle fluctuations do not influence long-term growth has been disputed in the economic literature.** For example, the existence of labour market hysteresis effects (i.e. a persistent effect of shocks on unemployment) is a phenomenon that has been widely examined and discussed.<sup>14</sup> Furthermore, recent literature contributions, motivated by the sluggish recovery after the global financial crisis, have shown that recessions cause persistent or “scarring” effects on the level of GDP,<sup>15</sup> as cyclical events affect the supply side of the economy through several channels, thereby shaping the long-term trend.

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<sup>13</sup> See also the article entitled “[The impact of COVID-19 on potential output in the euro area](#)”, *Economic Bulletin*, Issue 7, ECB, 2020.

<sup>14</sup> See for example Blanchard, O.J. and Summers, L.H., “[Hysteresis and the European Unemployment Problem](#)”, *NBER Working Papers*, No 1950, National Bureau of Economic Research, 1986.

<sup>15</sup> See for example Cerra, V., Fatás, A. and Saxena, S.C., “[Hysteresis and Business Cycles](#)”, *CEPR Discussion Papers*, No DP14531, 2020; Jordà, O., Schularick, M. and Taylor, A.M., “[Disasters Everywhere: The Costs of Business Cycles Reconsidered](#)”, *Federal Reserve Bank of San Francisco Working Papers*, No 2020-11, 2020; and Bluedorn, J. and Leigh, D., “[Is the Cycle the Trend? Evidence from the Views of International Forecasters](#)”, *IMF Working Papers*, No 18/163, 2018.

**Assessing the scarring effects of past crises does provide some indication as to how the COVID-19 shock may affect potential output.**<sup>16</sup> A local projections analysis of past epidemics suggests that the initial impact on the level of potential output is relatively short-lived, tending to dissipate two years after the end of the epidemic (see Chart A, upper left panel).<sup>17</sup> However, it should be noted that the past epidemics considered in the analysis were mostly localised events which are not comparable to a major global pandemic.<sup>18</sup> Thus, the impact of two additional exogenous types of crisis on potential output is assessed, namely the 1973-74 oil embargo imposed by the Organization of the Petroleum Exporting Countries (OPEC), which can be regarded as an exogenous negative supply shock for the targeted countries,<sup>19</sup> and the effect of major wars<sup>20</sup>. Results suggest that the oil embargo only had a negative effect on potential output in the first year after the shock (upper right panel). In turn, the results for major wars (lower left panel) suggest that following a severe initial impact, post-war economic recoveries tend to be steep with no longer-lasting scarring effects (i.e. beyond four years). However, the very wide confidence intervals point to sizeable heterogeneity in the long-term impact of wars.

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<sup>16</sup> The following results are based on local projections from a panel data model covering 117 countries from 1970 to 2017. The independent variables represent cumulative potential output growth in each year. Regressors include autoregressive terms of four lags, dummies for the respective events as well as country-fixed effects. Data sources are the Penn World Tables for potential output and its respective sub-components, and Laeven, L. and Valencia, F., “[Systemic Banking Crises Revisited](#)”, *IMF Working Papers*, No 18/206, 2018, for financial crises.

<sup>17</sup> Past epidemics include SARS (2003), swine flu (2009-10), MERS (2013), the Ebola virus (2014-15) and the Zika virus (2016). Countries are treated as affected if they registered at least ten cases.

<sup>18</sup> See also Jordà, Ò., Singh, S.R. and Taylor, A.M., “[Longer-Run Economic Consequences of Pandemics](#)”, *Federal Reserve Bank of San Francisco Working Papers*, No 2020-09, 2020, who find significant long-lasting macroeconomic consequences from 15 major pandemics since the 14th century.

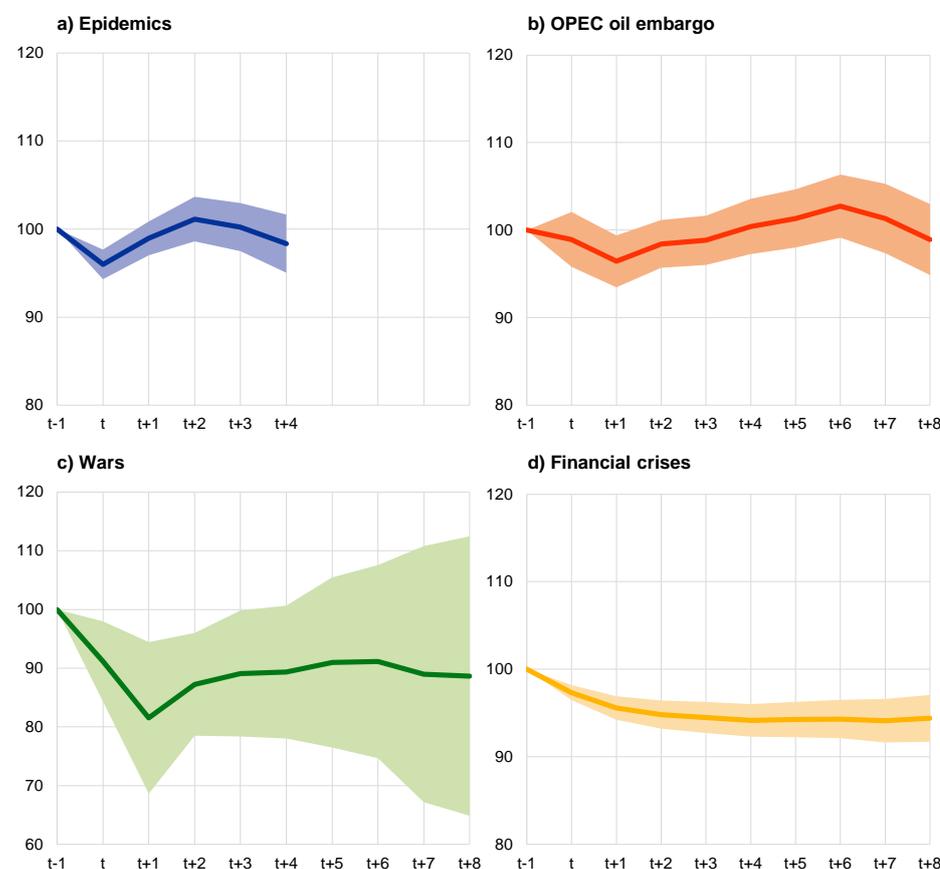
<sup>19</sup> The estimation sample includes the following countries targeted by the OPEC oil embargo: Canada, Japan, the Netherlands, Portugal, South Africa, the United Kingdom and the United States. While the OPEC oil embargo had only a short-lived effect on the embargoed countries compared with the countries not subject to the embargo, the permanent rise in oil prices due to the oil price shocks in the 1970s, particularly the second oil price shock, may have had a more permanent effect on global potential output. See also the article entitled “[The impact of COVID-19 on potential output in the euro area](#)”, *Economic Bulletin*, Issue 7, ECB, 2020.

<sup>20</sup> The following wars are included in the sample: the Lebanese Civil War (1975-90), the Gulf War in Iraq (1990-91), the Yugoslav Wars (1991-99), the Sierra Leone Civil War (1991-2002), the Second Congo War (1999-2003), the Iraq War (2003-11), the Syrian Civil War (2011-present) and the Iraq Civil War (2014-17).

## Chart A

### Scarring effects of past epidemics and other crises on potential output levels

(indices)



Sources: ECB calculations based on Penn World Tables and Laeven and Valencia (see footnote 16).

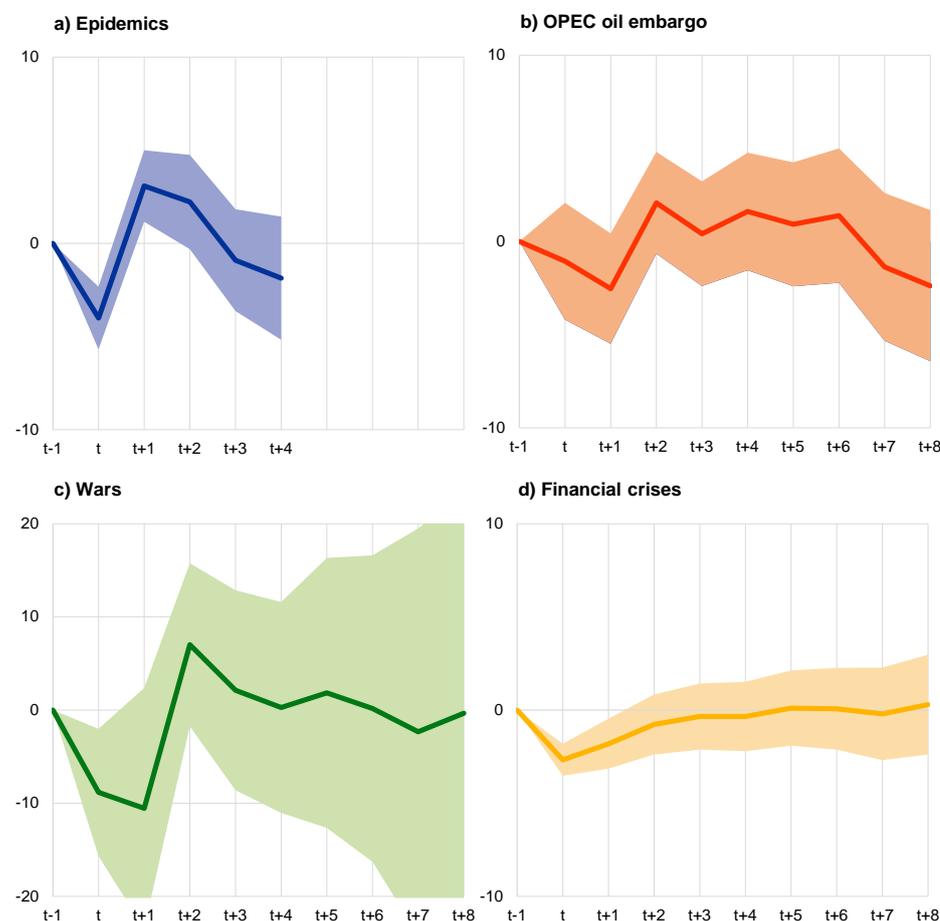
Note: The continuous lines indicate the impact of the respective event in year t on the level of potential output up to the period t+8, i.e. eight years after the end of the event, and the shaded areas depict the 95% confidence interval. The impact on potential output is estimated with a local projections approach, based on a global panel that includes all events simultaneously, four lags of potential output growth to control for endogeneity, and country-fixed effects. As most of the epidemics considered in the analysis are relatively recent, the sample only allows their impact to be calculated until four years after the end of the epidemic. Potential output is defined as the level of output that is consistent with the productive capacity of an economy.

**In contrast, financial crises are associated with a very persistent downward shift in potential output.** The results for past financial crises (as examples of endogenous crises, i.e. those triggered by the accumulation of economic imbalances) suggest a loss of around 5% even after eight years, in line with the recent literature discussed above. This is supported by the fact that, for recessions caused by financial crises, no overshooting in growth rates can be observed after the end of the recession, pointing to long-lasting scarring effects on the level of potential output (see Chart B). This is different from the exogenous crises (i.e. epidemics, the OPEC embargo and wars), where the initial contraction is followed by above-normal growth rates, bringing the economy's potential output back to its long-term trend path.

## Chart B

### Impact of past epidemics and other crises on potential output growth

(percentage growth rates)



Sources: ECB calculations based on Penn World Tables and Laeven and Valencia (see footnote 16).

Note: The continuous lines indicate the impact of the respective event in year t on the growth rate of potential output up to the period t+8, i.e. eight years after the end of the event, and the shaded areas depict the 95% confidence interval. The impact on potential output is estimated with a local projections approach, based on a global panel that includes all events simultaneously, four lags of potential output growth to control for endogeneity, and country-fixed effects. As most of the epidemics considered in the analysis are relatively recent, the sample only allows their impact to be calculated until four years after the end of the epidemic. Potential output is defined as the level of output that is consistent with the productive capacity of an economy.

**Evidence shows that in recessions following financial crises, the impact of the crisis was particularly persistent for the capital stock.**<sup>21</sup> It is useful to assess the impact of past financial crises on the individual components of potential output. All three supply-side components of the production function are initially affected by a financial crisis (see Chart C). While the negative impact on total factor productivity and labour input starts to subside after approximately three years, there are adverse and persistent effects on the capital stock, which is the main source of the long-term scarring effects of financial crises.

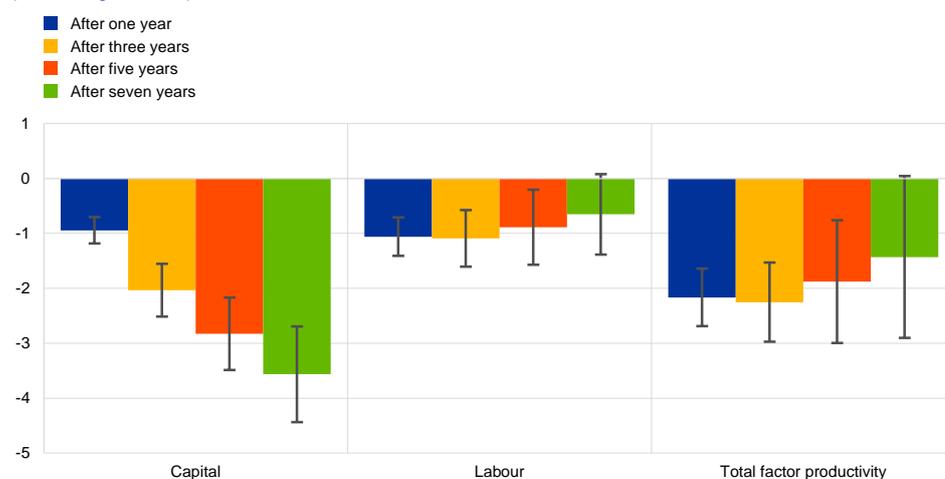
<sup>21</sup> In line with the short-lived impact on potential growth discussed above, the impact of epidemics, the OPEC embargo and wars on the individual components of the supply side is either short-lived or not significant at all and is therefore not discussed further here. The only exception is the adverse impact of epidemics on labour supply (including human capital), which intensifies over time. The results for epidemics are broadly similar to the results of recent research by the World Bank. See Dieppe, A. (ed.), "Global Productivity: Trends, Drivers, and Policies", World Bank, 2020.

**COVID-19 could negatively affect the capital stock, as was observed in past financial crises.** Capital depreciation is likely to have increased as a result of COVID-19, especially in capital-intensive sectors hit by the crisis such as the airline industry, where parts of the capital stock could become obsolete, as well as in other sectors that are struggling as a result of the demand shock. Furthermore, post-crisis public finance consolidation needs combined with difficult economic prospects for companies may contribute to a period of protracted under-investment.<sup>22</sup>

### Chart C

#### Impact of financial crises on supply-side components of potential output

(cumulative growth rates)



Sources: ECB calculations based on Penn World Tables and Laeven and Valencia (see footnote 16).

Notes: The bars indicate the impact of financial crises on the respective supply-side components after the number of years shown since the end of the crisis. The error bars represent a 95% confidence interval. The impact on potential output is estimated using a local projections approach, based on a global panel that includes all events simultaneously, four lags of potential output growth to control for endogeneity, and country-fixed effects. Potential output is defined as the level of output that is consistent with the productive capacity of an economy.

#### **As the COVID-19 shock has above all hit labour-intensive sectors, the initial impact on labour supply could be stronger compared with past financial crises.**

With the exception of transport, the sectors most affected by the COVID-19 containment measures (i.e. retail trade, accommodation and food services, entertainment and recreation) tend to be more labour than capital-intensive (see Chart D). At the same time, even sectors not targeted by the lockdown measures may have been hit indirectly through reduced sales of intermediate goods to affected sectors.<sup>23</sup> Whether those employment losses will become more permanent will depend on the speed of the reallocation of workers across sectors and firms. Pandemic-related labour market consequences, such as a reduction in the labour force due to an increase in the number of discouraged workers or more limited global migration flows to advanced economies, might lead to a sustained contraction in the labour force. This

<sup>22</sup> In the first half of 2020 global investment (excluding the euro area) dropped by around 11%, which is more than after the global financial crisis: between the third quarter of 2008 and the first quarter of 2009, global investment decreased by a cumulative 8%. According to OECD projections, global investment will still be 4% lower in the fourth quarter of 2021 than in the fourth quarter of 2019 (the numbers are based on an unweighted average of Australia, Canada, Japan, Korea, the United Kingdom and the United States). See “[OECD Economic Outlook No 107 - Single-hit scenario - Edition 2020/1](#)”, *OECD Economic Outlook: Statistics and Projections* (database), OECD, 2020.

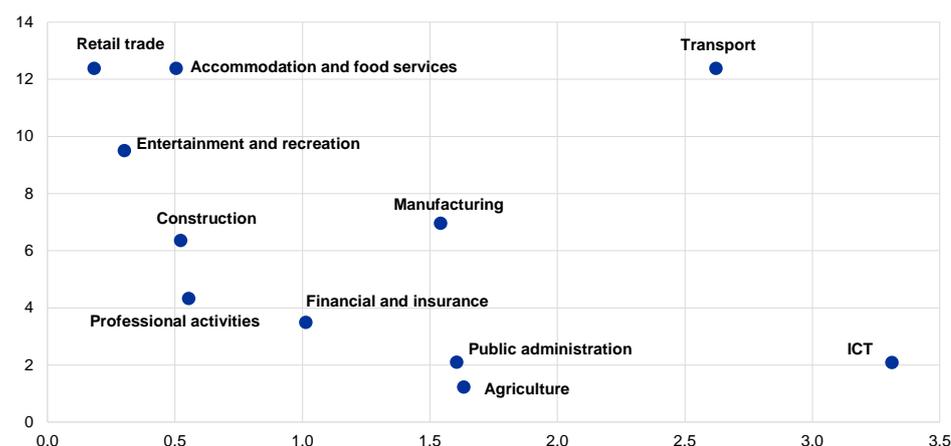
<sup>23</sup> See Laeven, L., “[Pandemics, Intermediate Goods, and Corporate Valuation](#)”, *CEPR Discussion Papers, No DP15022*, 2020.

contraction, combined with the impact on the accumulation of human capital from widespread school closures, could exacerbate the loss in labour supply.<sup>24</sup> At the same time, it should be recognised that the losses depend on the policy response and the success of labour market policies in mitigating these effects.<sup>25</sup>

#### Chart D

#### Sectoral losses as a result of the COVID-19 containment measures and capital/labour intensity ratio

(x-axis: fixed capital stock per employee; y-axis: percentage estimated losses in value added)



Sources: ECB calculations and the EU KLEMS database.

Notes: Sectoral losses as a result of the COVID-19 lockdown measures are based on an ECB staff assessment for a sample of globally systemic countries and calculated as an unweighted average. The capital/labour intensity ratio is calculated as the fixed capital stock (in 2017) divided by the labour input (in number of employees in 2017) for each sector, based on the unweighted average of a sample of 19 countries.

**Finally, while the COVID-19 crisis could also have a negative impact on productivity, the push towards digital technologies might be positive in the longer term.** The COVID-19 crisis could affect total factor productivity in several ways. First, the impact of COVID-19 could temporarily lock resources in unproductive sectors, with the reallocation of productive resources towards fast-growing industries likely to take time.<sup>26</sup> In addition, innovation could be impaired through lower spending on research and development, both in the public sector on account of consolidation needs and in the private sector owing to elevated uncertainty. Furthermore, reshoring of global value chains in the aftermath of the COVID-19 crisis could hamper innovation and knowledge spillovers across countries. At the same time, the increased use of digital technologies spurred by the COVID-19 crisis has the potential to accelerate the

<sup>24</sup> See Burgess, S. and Sievertsen, H.H., “Schools, skills, and learning: The impact of COVID-19 on education”, *VoxEU*, 2020, which argues that “even a relatively short period of missed school will have consequences for skill growth”.

<sup>25</sup> See the box entitled “A preliminary assessment of the impact of the COVID-19 pandemic on the euro area labour market”, *Economic Bulletin*, Issue 5, ECB, 2020.

<sup>26</sup> Once this has taken place, however, aggregate productivity might benefit from such a reallocation of resources towards more productive sectors. Additionally, the COVID-19 shock might have a stronger impact on low-productivity firms, which could in principle have a positive effect on aggregate productivity. See Box 2 in the article entitled “The impact of COVID-19 on potential output in the euro area”, *Economic Bulletin*, Issue 7, ECB, 2020.

digital transformation of the global economy and therefore contribute positively to total factor productivity.<sup>27</sup>

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<sup>27</sup> In fact, in a recent survey of leading companies in the euro area, more remote working and an acceleration of digitalisation were the most frequently cited long-term supply-side effects of the pandemic (see the box entitled "[The long-term effects of the pandemic: insights from a survey of leading companies](#)" in this issue of the Economic Bulletin).

## 2 Liquidity conditions and monetary policy operations in the period from 22 July to 3 November 2020

Prepared by Simon Forsyth and Ross Murphy

**This box describes the ECB’s monetary policy operations and liquidity developments during the fifth and sixth reserve maintenance periods of 2020, which ran from 22 July to 15 September and from 16 September to 3 November 2020, respectively.** During this period, there was a stabilisation of the market volatility associated with the coronavirus (COVID-19) crisis earlier in the year. Measures announced by central banks continued to underpin market functioning over the summer.

**The levels of central bank liquidity in the banking system continued to rise during the fifth and sixth maintenance periods of 2020.** This was largely due to the settlement of the third series of targeted longer-term refinancing operations (TLTRO III) and asset purchases conducted under the asset purchase programme (APP) and the pandemic emergency purchase programme (PEPP).

### Liquidity needs

**The banking system’s average daily liquidity needs, defined as the sum of net autonomous factors and reserve requirements, stood at €2,044.5 billion in the period under review.** This was €109.8 billion higher than the average in the third and fourth maintenance periods of 2020 (see the section of Table A entitled “Other liquidity-based information”). Net autonomous factors increased by €107.3 billion to €1,901.6 billion, while minimum reserve requirements increased by €2.6 billion to €142.9 billion.

**In the period under review, government deposits remained by far the main liquidity absorbing factor.** Government deposits continued their upward trend, although the pace of increase slowed compared with the previous period. They increased on average by €146.7 billion to €727.9 billion. Euro area government deposits stood at record highs, making up more than 11% of the Eurosystem’s balance sheet on average during the review period, compared with around 9% during the previous review period and 6% in the first two maintenance periods of the year. Liquidity providing factors increased by €41.6 billion, offsetting only partially the effect of increased government deposits. In particular, net assets denominated in euro increased by €83.7 billion, which was partly offset by a €42.1 billion reduction in net foreign assets (see the section of Table A entitled “Assets”).

On the whole, during the period under review, the overall supply of liquidity through monetary policy operations continued to be well in excess of the liquidity absorption induced by net autonomous factors.

**Table A**  
Eurosystem liquidity conditions

**Liabilities**

(averages; EUR billions)

	Current review period: 22 July 2020 to 3 November 2020						Previous review period: 6 May 2020 to 21 July 2020	
	Fifth and sixth maintenance periods		Fifth maintenance period: 22 July to 15 September		Sixth maintenance period: 16 September to 3 November		Third and fourth maintenance periods	
<b>Autonomous liquidity factors</b>	<b>2,998.3</b>	<b>(+149.0)</b>	<b>2,976.9</b>	<b>(+37.5)</b>	<b>3,022.9</b>	<b>(+46.0)</b>	<b>2,849.3</b>	<b>(+339.1)</b>
Banknotes in circulation	1,384.9	(+27.3)	1,381.2	(+15.6)	1,389.1	(+7.9)	1,357.6	(+58.1)
Government deposits	729.7	(+146.7)	712.9	(+41.7)	749.0	(+36.0)	583.0	(+261.5)
Other autonomous factors <sup>1</sup>	883.7	(-25.1)	882.8	(-19.7)	884.8	(+2.0)	908.8	(+19.5)
<b>Current accounts above minimum reserve requirements</b>	<b>2,562.7</b>	<b>(+529.6)</b>	<b>2,483.3</b>	<b>(+278.6)</b>	<b>2,653.5</b>	<b>(+170.2)</b>	<b>2,033.1</b>	<b>(+437.5)</b>
<b>Minimum reserve requirements<sup>2</sup></b>	<b>142.9</b>	<b>(+2.6)</b>	<b>142.4</b>	<b>(+1.2)</b>	<b>143.6</b>	<b>(+1.2)</b>	<b>140.4</b>	<b>(+4.7)</b>
<b>Deposit facility</b>	<b>435.4</b>	<b>(+104.8)</b>	<b>413.2</b>	<b>(+57.2)</b>	<b>460.7</b>	<b>(+47.5)</b>	<b>330.5</b>	<b>(+72.3)</b>
<b>Liquidity-absorbing fine-tuning operations</b>	<b>0.0</b>	<b>(+0.0)</b>	<b>0.0</b>	<b>(+0.0)</b>	<b>0.0</b>	<b>(+0.0)</b>	<b>0.0</b>	<b>(+0.0)</b>

Source: ECB.

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

1) Computed as the sum of the revaluation accounts, other claims and liabilities of euro area residents, capital and reserves.

2) "Minimum reserve requirements" is a memo item that does not appear on the Eurosystem balance sheet and therefore should not be included in the calculation of total liabilities.

## Assets

(averages; EUR billions)

	Current review period: 22 July 2020 to 3 November 2020						Previous review period: 6 May 2020 to 21 July 2020	
	Fifth and sixth maintenance periods		Fifth maintenance period: 22 July to 15 September		Sixth maintenance period: 16 September to 3 November		Third and fourth maintenance periods	
<b>Autonomous liquidity factors</b>	<b>1,097.0</b>	<b>(+41.6)</b>	<b>1,097.9</b>	<b>(+26.9)</b>	<b>1,096.0</b>	<b>(-1.9)</b>	<b>1,055.4</b>	<b>(+22.6)</b>
Net foreign assets	865.2	(-42.1)	865.9	(-5.3)	864.4	(-1.6)	907.3	(+60.5)
Net assets denominated in euro	231.8	(+83.7)	232.0	(+32.2)	231.6	(-0.4)	148.2	(-37.9)
<b>Monetary policy instruments</b>	<b>5,020.5</b>	<b>(+728.6)</b>	<b>4,897.3</b>	<b>(+338.0)</b>	<b>5,161.4</b>	<b>(+264.1)</b>	<b>4,291.9</b>	<b>(+824.7)</b>
<b>Open market operations</b>	<b>5,020.5</b>	<b>(+728.6)</b>	<b>4,897.3</b>	<b>(+338.0)</b>	<b>5,161.4</b>	<b>(+264.1)</b>	<b>4,291.9</b>	<b>(+824.7)</b>
Tender operations	1,625.9	(+419.8)	1,573.7	(+182.6)	1,685.6	(+111.9)	1,206.1	(+464.3)
MROs	1.3	(+0.7)	1.3	(+0.5)	1.3	(-0.0)	0.6	(-0.4)
Three-month LTROs	1.6	(-0.6)	2.0	(-0.3)	1.1	(-0.8)	2.2	(-0.9)
TLTRO II operations	40.4	(-242.4)	45.9	(-124.1)	34.0	(-11.9)	282.8	(-188.3)
TLTRO III operations	1,582.7	(+890.8)	1,524.5	(+436.1)	1,649.1	(+124.6)	691.9	(+541.5)
Bridge LTROs	-	(-228.6)	-	(-129.6)	-	(+0.0)	228.6	(+112.4)
Outright portfolios	3,394.6	(+308.8)	3,323.6	(+155.3)	3,475.8	(+152.2)	3,085.8	(+360.4)
First covered bond purchase programme	0.5	(-0.2)	0.5	(-0.1)	0.5	(-0.0)	0.6	(-0.5)
Second covered bond purchase programme	2.8	(-0.1)	2.8	(-0.0)	2.8	(-0.1)	2.9	(-0.0)
Third covered bond purchase programme	285.8	(+3.5)	285.0	(+1.2)	286.8	(+1.9)	282.3	(+9.3)
Securities Markets Programme	33.1	(-3.6)	34.0	(-1.1)	32.0	(-2.0)	36.7	(-5.5)
Asset-backed securities purchase programme	29.6	(-1.2)	29.9	(-0.8)	29.3	(-0.6)	30.8	(+0.9)
Public sector purchase programme	2,283.2	(+53.1)	2,268.6	(+24.0)	2,299.9	(+31.4)	2,230.2	(+79.4)
Corporate sector purchase programme	232.3	(+15.3)	227.2	(+6.3)	238.2	(+11.0)	217.0	(+18.0)
Pandemic emergency purchase programme	527.3	(+242.0)	475.6	(+125.8)	586.3	(+110.7)	285.3	(+258.7)
Marginal lending facility	0.0	(-0.0)	0.0	(+0.0)	0.0	(-0.0)	0.0	(-0.0)

Source: ECB.

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

## Other liquidity-based information

(averages; EUR billions)

	Current review period: 22 July 2020 to 3 November 2020						Previous review period: 6 May 2020 to 21 July 2020	
	Fifth and sixth maintenance periods		Fifth maintenance period: 22 July to 15 September		Sixth maintenance period: 16 September to 3 November		Third and fourth maintenance periods	
Aggregate liquidity needs <sup>1</sup>	2,044.5	(+109.8)	2,021.6	(+11.6)	2,070.7	(+49.2)	1,934.7	(+321.3)
Net autonomous factors <sup>2</sup>	1,901.6	(+107.3)	1,879.2	(+10.4)	1,927.2	(+48.0)	1,794.3	(+316.6)
Excess liquidity <sup>3</sup>	2,998.0	(+634.5)	2,896.5	(+335.8)	3,114.1	(+217.6)	2,363.6	(+509.8)

Source: ECB.

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

1) Computed as the sum of net autonomous factors and minimum reserve requirements.

2) Computed as the difference between autonomous liquidity factors on the liability side and autonomous liquidity factors on the asset side. For the purpose of this table, items in course of settlement are also added to net autonomous factors.

3) Computed as the sum of current accounts above minimum reserve requirements and the recourse to the deposit facility minus the recourse to the marginal lending facility.

## Interest rate developments

(averages; percentages)

	Current review period: 22 July 2020 to 3 November 2020						Previous review period: 6 May 2020 to 21 July 2020	
	Fifth and sixth maintenance periods		Fifth maintenance period: 22 July to 15 September		Sixth maintenance period: 16 September to 3 November		Third and fourth maintenance periods	
MRO	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)
Marginal lending facility	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)
Deposit facility	-0.50	(+0.00)	-0.50	(+0.00)	-0.50	(+0.00)	-0.50	(+0.00)
EONIA <sup>1</sup>	-0.468	(-0.01)	-0.467	(-0.00)	-0.469	(-0.00)	-0.460	(-0.01)
€STR	-0.553	(-0.01)	-0.552	(+0.00)	-0.554	(-0.00)	-0.545	(-0.01)

Source: ECB.

Notes: Figures in brackets denote the change from the previous review or maintenance period.

1) Computed as the euro short-term rate (€STR) plus 8.5 basis points since 1 October 2019. Differences in the changes shown for the euro overnight index average (EONIA) and the €STR are due to rounding.

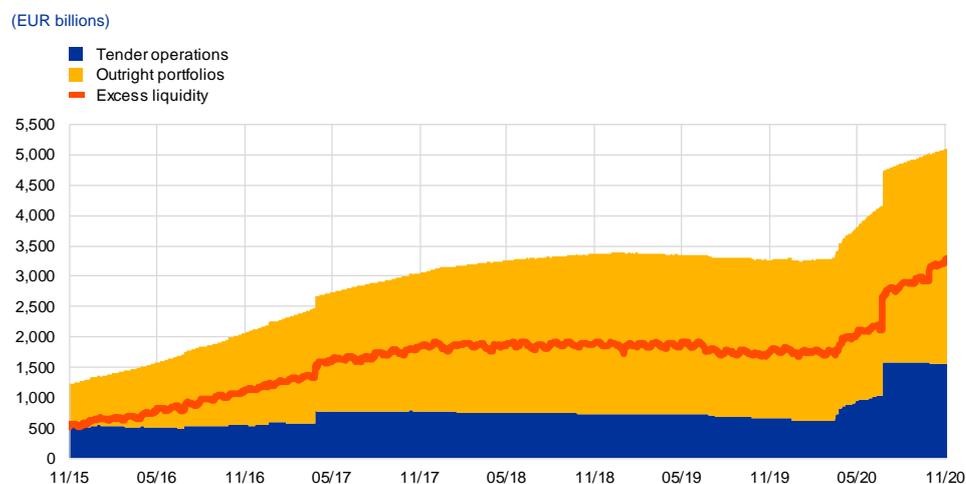
## Liquidity provided through monetary policy instruments

**The average amount of liquidity provided through monetary policy instruments increased by €28.6 billion to €5,050.5 billion (see Chart A).** More than half (58%)

of this increase in liquidity was the result of credit operations in connection with the allotment of TLTRO III; the remaining 42% was the effect of outright asset purchases.

## Chart A

### Evolution of liquidity provided through open market operations and excess liquidity



Source: ECB.

Note: The latest observation is for 3 November 2020.

#### **The average amount of liquidity provided through Eurosystem credit operations increased by €419.8 billion during the review period, largely as a result of the settlement of the fourth and fifth operations in TLTRO III.**

The average increase of €890.8 billion provided through TLTRO III was partially offset by maturity and/or voluntary repayments under TLTRO II, as counterparties shifted to TLTRO III, the terms of which are more financially convenient, and the maturing of the bridge longer-term refinancing operations (LTROs). On average, repayments under the TLTRO II programme amounted to €242.4 billion. The bridge LTROs, introduced on 12 March 2020 as a transition instrument to provide immediate access to funding at particularly favourable conditions, while allowing for a smoother rollover of funds into TLTRO III, also matured as counterparties transitioned to TLTRO III, contributing an overall amount of €228.6 billion. During the review period, the ECB also conducted the third, fourth and fifth (out of a total of seven) new pandemic emergency longer-term refinancing operations (PELTROs), which were announced in April 2020. These operations are aimed at supporting the smooth functioning of money markets by providing an effective backstop to money market rates. The PELTROs added €7.5 billion in liquidity. The main refinancing operations (MROs) and three-month LTROs played only a marginal role, recording an average aggregate increase of €0.1 billion compared with the previous review period.

#### **At the same time, outright portfolios increased by €308.8 billion to €3,394.6 billion, owing to the continuation of net purchases under the APP and the PEPP.**

Average holdings in the PEPP amounted to €527.3 billion, representing an increase of €242.0 billion relative to the previous review period. Purchases under the PEPP represented the largest increase by far across all asset purchase programmes, followed by the public sector purchase programme (PSPP) and the corporate sector purchase programme (CSPP), with average increases of €53.1 billion to €2,283.2 billion and €15.3 billion to €232.3 billion, respectively.

## Excess liquidity

**Average excess liquidity increased by €34.5 billion to €2,998.0 billion (see Chart A).** Banks' current account holdings in excess of minimum reserve requirements grew by €529.6 billion to €2,562.7 billion, while the average recourse to the deposit facility grew by €104.8 billion to €435.4 billion. The partial exemption of excess liquidity holdings from negative remuneration at the deposit facility rate applies only to balances held in the current accounts. Banks therefore have an economic incentive to hold reserves in their current account instead of the deposit facility.

## Interest rate developments

**The €STR fell on average by 0.8 basis points (bps) compared with the previous review period owing to rising excess liquidity.** The €STR stood on average at -55.3 bps during the review period, compared with an average of -54.5 bps during the previous review period.<sup>28</sup> The ECB's key policy rates, including the rates on the deposit facility, the main refinancing operation and the marginal lending facility, were unchanged during the review period.

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<sup>28</sup> The EONIA, which since October 2019 has been calculated as the €STR plus a fixed spread of 8.5 bps, moved in parallel with the €STR.

### 3 Assessing short-term economic developments in times of COVID-19

Prepared by Niccolò Battistini, Gabe de Bondt, Roberto A. De Santis and Lorena Saiz

**The sudden and deep recession triggered by the outbreak of the coronavirus (COVID-19) has warranted adjusting the standard tools used for forecasting euro area real GDP growth in real time.** The severe economic consequences of COVID-19 have played havoc with established statistical and economic relationships.<sup>29</sup> Hence, standard short-term forecasting models have been able to capture neither the extent of the contraction observed in the first two quarters of 2020 – with quarter-on-quarter declines of 3.7% and 11.7% in the first and the second quarters, respectively – nor the rebound in the third quarter – with an increase of 12.5%. These exceptional dynamics have required an update of the set of tools typically used to forecast euro area real GDP growth in real time. This box describes four approaches developed by ECB staff to account for the specific characteristics and implications of the COVID-19 pandemic.

**The first approach exploits the information content of the different containment measures implemented across countries.** A simple methodology assesses the economic impact of the restrictions on people's behaviour imposed in several countries to contain the pandemic.<sup>30</sup> A pooled panel regression, the so-called "pandemic cross-country model", gauges the relationship between containment measures, as measured by the Oxford Stringency Index (OSI), and real GDP.<sup>31</sup> Based on data for the first three quarters of 2020 across all euro area countries, a linear model seems to fit reasonably well the cross-country heterogeneity in the relationship between real GDP and the OSI (see Chart A). Real-time estimates of the pandemic cross-country model indicated a quarterly contraction in euro area real GDP of 7.9% in the second quarter and a pick-up of 6.3% in the third quarter of 2020 (see Chart B).

<sup>29</sup> See also Lenza, M. and Primiceri, G.E., "How to estimate a VAR after March 2020", *Working Paper Series*, No 2461, ECB, August 2020.

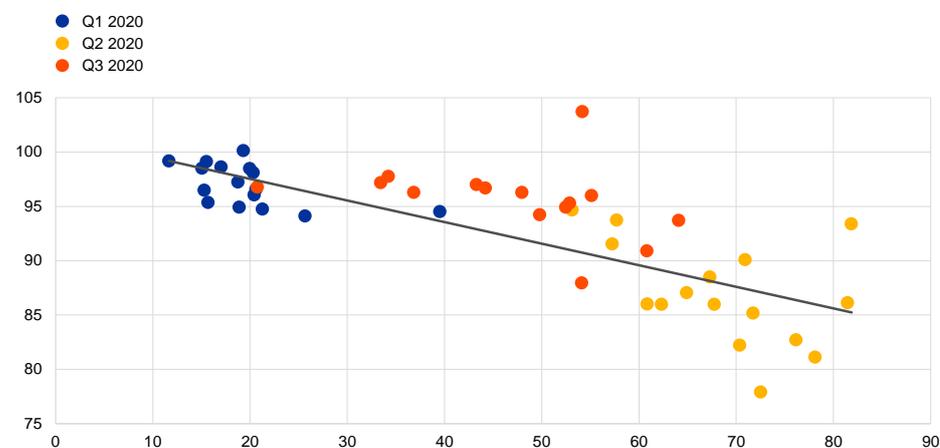
<sup>30</sup> For further details, see also Battistini, N. and Stoevsky, G., "Alternative scenarios for the impact of the COVID-19 pandemic on economic activity in the euro area", *Economic Bulletin*, Issue 3, ECB, 2020.

<sup>31</sup> See also Hale, T., Angrist, N., Cameron-Blake, E., Hallas, L., Kira, B., Majumdar, S., Petherick, A., Phillips, T., Tatlow, H., and Webster, S., "Oxford COVID-19 Government Response Tracker," Blavatnik School of Government, 2020.

## Chart A

### Real GDP and Oxford Stringency Index across euro area countries in 2020

(x-axis: index, Q4 2019 real GDP = 100; y-axis: index, max. = 100)



Sources: Eurostat, Hale et al. (2020), ECB staff calculations.

Notes: The line in the chart indicates the linear trend (i.e. the fitted values) of the pooled panel regression based on data for the 19 euro area countries in the first three quarters of the year. The slope coefficient provides the estimated elasticity of the OSI on real GDP.

### The second approach exploits the information content of high-frequency indicators, as these indicators are able to quickly capture sudden changes in economic conditions.

While monthly indicators are very informative about the current economic juncture, they are released with some delay. Non-standard daily or weekly data (e.g. credit card payments, electricity consumption and mobility indicators) have provided a timelier picture of the economic impact of the pandemic. However, as these data can be noisy, only available for a limited period of time and subject to complex seasonal patterns, they need to be viewed with caution.<sup>32</sup> Taking into account these measurement challenges, the standard toolkit for short-term forecasting of euro area real GDP has been expanded to include information on weekly credit card payments.<sup>33</sup> This additional information, partly capturing real-time developments in the two GDP components that are more severely affected by the pandemic (i.e. production in the services sector on the supply side and private consumption on the expenditure side), has improved the forecast performance of the standard short-term forecast models. Unlike the mild contraction and recovery suggested by the standard models, the adjusted short-term forecast models pointed to an average contraction in euro area real GDP of 7.0% in the second quarter of 2020 and to a swift rebound of 8.4% in the third quarter (see Chart B).

<sup>32</sup> See Hinge, D., “COVID-19 policy-making and the need for high-speed data”, centralbanking.com, August 2020.

<sup>33</sup> See Bańbura, M. and Saiz, L., “Short-term forecasting of euro area economic activity at the ECB”, *Economic Bulletin*, Issue 2, ECB, 2020.

## Chart B

### Forecasts of euro area real GDP growth using non-standard models

(percentages; quarter-on-quarter growth rate)



Sources: Eurostat, Hale et al. (2020), IHS Markit, ECB, ECB staff calculations.

Notes: The adjusted short-term forecast model includes information from weekly credit card payments and other standard indicators which were available 15 days before the release of the preliminary flash estimate of GDP. The adjusted PMI GDP tracker refers to a non-linear PMI composite output-based rule, which takes into account both the quarterly change in this index and previous GDP growth. The GDP-at-risk model uses the 5% left tail of the conditional distribution for the second quarter of 2020 and, given the expected sharp rebound, the 1% right tail of the conditional distribution for the third quarter of 2020. All of the reported real GDP forecasts are real-time estimates.

#### The third approach consists of adjusting the linear relationship between GDP and the Purchasing Manager's Index (PMI).

The survey-based PMI composite output is a monthly diffusion index bounded between 0 and 100, with 50 indicating no output change over the previous month for firms in the manufacturing and services sectors. Prior to the pandemic, a PMI linear rule (i.e. a so-called “real GDP tracker”) had worked reasonably well for forecasting quarter-on-quarter euro area real GDP growth.<sup>34</sup> However, this relationship has become dysfunctional since the start of the COVID-19 crisis. Two types of adjustments were implemented to extract all possible information content from the PMI. The first adjustment consisted of considering only the left tail of the distribution of real GDP growth for the first two quarters of 2020. The resulting adjusted PMI-based tracker rule forecasted, in real time, a decline in euro area real GDP of 2.7% in the first quarter and of 9.8% in the second quarter. The PMI linear rule was also expected to fail in terms of estimating the expected elastic rebound in the third quarter. Therefore, the second adjustment made consisted of also extracting information from the change in the PMI and taking GDP growth from the previous quarter as the starting point.<sup>35</sup> This adjustment implied an estimated rebound of 6.1% in the third quarter of 2020 (see Chart B).

<sup>34</sup> The linear PMI rule means that real GDP growth equals 10% of the (quarterly average of the) difference of the PMI from 50. For further details on this PMI-based GDP tracker rule, see de Bondt, G.J., “A PMI-based real GDP tracker for the euro area”, *Journal of Business Cycle Research*, Springer, Centre for International Research on Economic Tendency Surveys (CIRET), Vol. 15(2), December 2019, pp. 147-170.

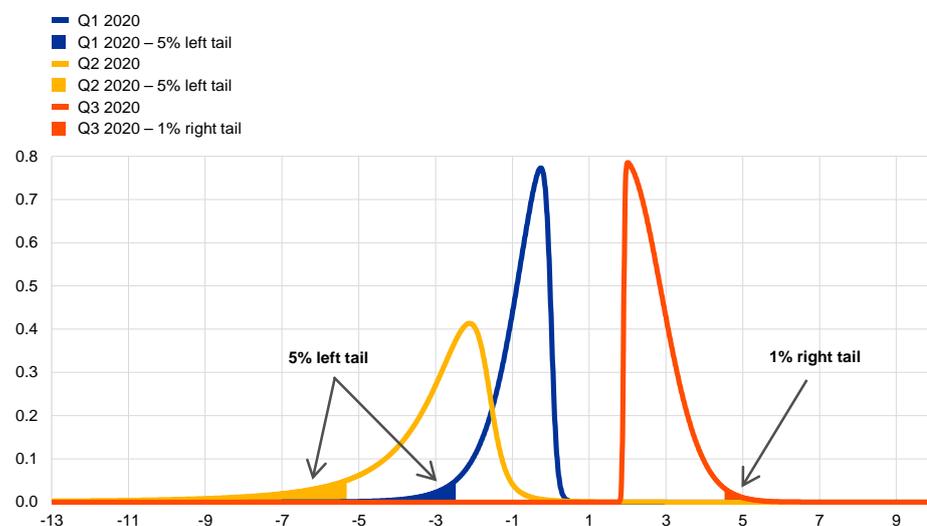
<sup>35</sup> A PMI non-linear rule, applied to monthly data, adds the quadratic PMI composite output to the linear rule, with the latter adjusted from 10% to 15%, all of which based on pre-COVID-19 quantile regression estimations using the 10% lowest growth observations. A PMI non-linear rule using a ratio approach means that real GDP growth equals real GDP growth in the previous quarter multiplied by the ratio of a PMI-based measure in the current quarter to its value in the previous quarter. This PMI-based measure is equal to 15% of the (quarterly average of) the difference of the PMI from 50, less 5% of the same difference in the previous quarter.

**The final approach extracts information from tail events using a non-linear model.** Economic variables react heterogeneously in periods of recessions and expansions. To address the non-linearity of the response, we used the GDP-at-risk model, which employs quantile regressions to link each real GDP growth quantile (e.g. the 5th percentile) to selected macro (e.g. the PMI composite output) and financial variables.<sup>36</sup> With regard to the latter, the Composite Indicator of Systemic Stress (CISS) and corporate spreads serve as proxy measures of financial stress and risk premia. The expected value of real GDP growth at the 5% left tail of the conditional distribution was used to forecast the exceptional contraction of activity in the first two quarters of 2020. Conversely, the expected value at the 1% right tail of the conditional distribution was employed to map the unprecedented rebound in real GDP growth in the third quarter. In line with the nature of tail events, the dynamics of economic activity in the first three quarters of 2020 were reasonably well captured in real time by the extreme quantiles of the distribution of real GDP growth (see Chart C). The expected values of these densities computed under the said tails characterise the forecasts by the GDP-at-risk model. These values indicated dramatic declines in euro area real GDP of 2.9% and 11.8% in the first and the second quarters of 2020, respectively, followed by a marked rise of 7.6% in the third quarter (see Chart B).<sup>37</sup>

### Chart C

#### Euro area real GDP growth-at-risk in 2020

(y-axis: probability density; x-axis: percentages, quarter-on-quarter real GDP growth rate)



Sources: Eurostat and ECB staff calculations.

**Overall, given the exceptionally high level of uncertainty, the four approaches capture some of the specific features of the pandemic reasonably well.** The first two approaches led to real-time forecasts still below the actual very steep V-shaped

<sup>36</sup> See Adrian, T., Boyarchenko, N. and D. Giannone, "Vulnerable Growth", *American Economic Review*, 109 (4), 2019, pp.1263-89. For application to the pandemic in a panel setting, see De Santis, R.A. and W. Van der Veken, "Macroeconomic risks across the globe due to the Spanish Flu", *Working Paper Series*, No 2466, ECB, November 2020. For application to the euro area, see also Figueres, J.M. and M. Jarociński, "Vulnerable growth in the euro area: Measuring the financial conditions", *Economic Letters*, Vol. 191, June 2020.

<sup>37</sup> The 5% right tail of the conditional distribution forecasts real GDP growth at 5.6% in the third quarter of 2020.

pattern, however, they captured more effectively the symmetry of the developments in the second and the third quarters of 2020. The second two approaches reflected the extent of the collapse in activity in the second quarter rather well, albeit they did not completely account for the robust rebound in the third quarter, likely owing to the asymmetric reaction by the PMI.

**The use of non-standard approaches for the assessment of short-term economic developments in the euro area in the context of COVID-19 warrants**

**caution.** On the one hand, some of the tools share the ad hoc nature of the assessment (e.g. selection of extreme quantiles) and of the adjustments to the model specifications (e.g. PMI GDP tracker) to capture the effects of the crisis. On the other hand, some of the non-standard data (e.g. high-frequency indicators, Oxford Stringency Index) are characterised by complex seasonal patterns or very short samples. This implies that the use of each individual tool is subject to a considerable degree of judgment, particularly as to the type of adjustment needed. Some of these tools are specifically tailored to the pandemic shock and may become redundant as economic dynamics normalise. Despite their shortcomings, these tools have significantly improved upon the standard toolkit used for the assessment of euro area real GDP in real time and will continue to be employed to inform the judgment exercised and included in the ECB staff macroeconomic projections and needed to assess the impact of the second wave of the pandemic on the economy. Since a return to “normality” appears unlikely over the short term, the COVID-19-adjusted approaches described are expected to remain insightful for real GDP growth until reaching the stage of widespread immunity.

## 4 Understanding the impact of the COVID-19 pandemic through an import-adjusted breakdown of euro area aggregate demand

Prepared by Malin Andersson, Leyla Beck and Yiqiao Sun

**This box presents an alternative method for breaking down GDP, accounting for the fact that each demand component contains goods and services which are imported.** The standard breakdown of GDP into domestic expenditure components and net exports enables an assessment to be made of the domestic versus foreign drivers of growth. Such a breakdown traditionally subtracts the contribution of total imports as a stand-alone aggregate from total exports to compute net exports. In reality, however, imports contribute to all individual components of GDP, i.e. also to changes in inventories and to domestic demand, and more so to investment than to private and government consumption. This standard national accounting practice therefore has a limitation in that it magnifies the purely domestic demand contribution to GDP growth while shrinking the influence of foreign factors on domestic economic activity.

**With an import-adjusted GDP measure, imports are allocated to each expenditure component and deducted separately from it on the basis of its respective import intensity.** This alternative method can shed light on two, otherwise hidden, propagation mechanisms at play during the coronavirus (COVID-19) shock. First, it takes account of the impact of direct and intermediate extra-euro area imports on domestic demand – which has also suffered from global lockdown measures – by considering actual import intensities at the component level. Second, it highlights the role of external factors in exports, which becomes more visible when only the share of extra-euro area imports associated with exports is netted out from total extra-euro area exports. This box presents evidence for the importance of import intensities in the decomposition of euro area economic growth dynamics during the pandemic. It then describes an extended analysis based on sectoral proxies to adjust for possible changes in import intensities across expenditure components in the pandemic period.

**A breakdown of euro area GDP adjusted for extra-euro area import intensities<sup>38</sup> shows that the import content of domestic demand has been an important factor amplifying domestic demand dynamics in 2020.** On the basis of the traditional national accounting definition of GDP, euro area domestic demand contributed 14.0 percentage points to the cumulated 15.0% decline in euro area output in the first half of 2020 and 11.3 percentage points to the 12.5% quarter-on-quarter increase in the third quarter of 2020 (see Chart A, panel a). An adjustment of expenditure components in 2020 for the import intensities prevailing in 2019 shows a more limited contribution to the economic losses in the first half of the

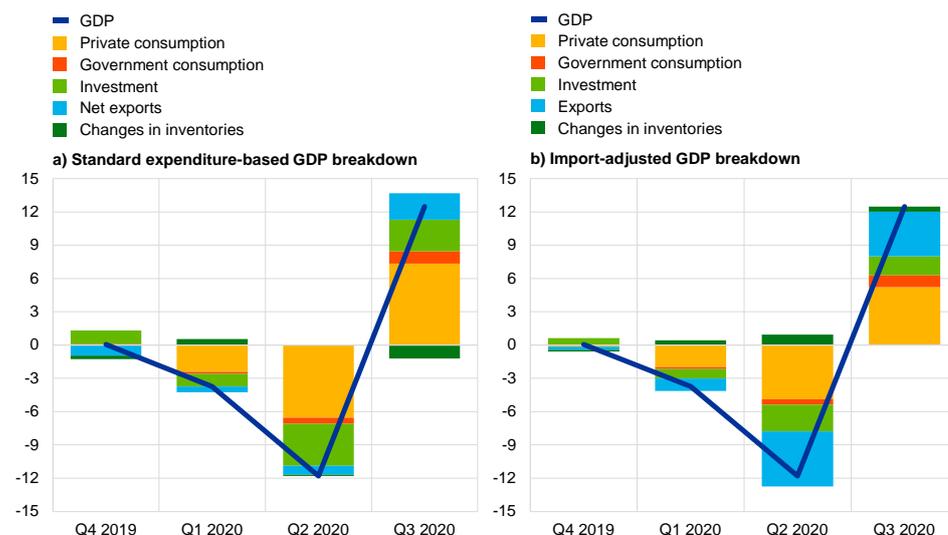
<sup>38</sup> The import-adjusted GDP expenditure breakdown shows the importance of extra-euro area exports in the recovery from 2013, see “[The importance of external and domestic stimuli for the economic upturn in the euro area](#)”, *Monthly Report*, Deutsche Bundesbank, Frankfurt am Main, August 2017. The import-adjusted composition of demand also played a key role in trade dynamics during the global financial crisis, according to Bussière, M., Callegari, G., Ghironi, F., Sestieri, G. and Yamano, N., “[Estimating Trade Elasticities: Demand Composition and the Trade Collapse of 2008-2009](#)”, *American Economic Journal*, Vol. 5, No 3, pp. 118-151.

year for the purely domestic demand component, and a larger contribution for exports (see Chart A, panel b). In the subsequent rebound, domestic demand surged less on this basis than according to the traditional breakdown. Overall, the comparison reveals that, owing to input-output linkages, the euro area economy has been more heavily exposed to external shocks during the pandemic than suggested by the traditional breakdown.<sup>39</sup> This is because, through global value chains, imports are intrinsically dependent on domestic production patterns. Moreover, external shocks can propagate and be magnified because of complementarities across sectors that may arise from the presence of input-output linkages.<sup>40</sup> The direct and intermediate import intensities of GDP components can be calculated on the basis of Eurostat’s annual input-output data<sup>41</sup> for the euro area, available for the period from 2005 to 2019. The resulting estimates show that the import intensity has been particularly high for exports and investment, somewhat lower for private consumption and particularly low for government consumption expenditure (see Chart B, panel a). It is also considerably higher for manufacturing than for services.

### Chart A

#### Euro area real GDP growth and its components since the fourth quarter of 2019

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



Sources: Eurostat and ECB calculations.

Notes: Panel a): the standard expenditure-based GDP breakdown method is the method used in national accounts data. Total extra-euro area imports are deducted from extra-euro area exports to calculate the net export contribution to GDP growth. Panel b): the import-adjusted GDP breakdown is calculated in three steps. First, the yearly import intensity for each expenditure component is calculated using Eurostat’s symmetric input-output product-by-product data for the euro area. Second, the import intensities are used as weights to estimate the true nominal extra-euro area import flows for total private consumption, government consumption, investment and exports. As the import share in changes in inventories cannot be calculated, an import share of 50% is assumed. Third, the estimated import flows are deducted separately from each expenditure component, both in nominal and real terms, and the import-adjusted contribution of each component to growth is computed. Note that total nominal import flows calculated from input-output data are not always consistent with total import flows from national accounts. This means that additional assumptions have to be made to calculate the final import-adjusted GDP decomposition.

<sup>39</sup> This is consistent with earlier findings on the importance of global value chains for the performance of global trade during the pandemic, see the box entitled “The great trade collapse of 2020 and the amplification role of global value chains”, *Economic Bulletin*, Issue 5, ECB, 2020.

<sup>40</sup> See, for instance, Guerrieri, V., Lorenzoni, G., Straub, L. and Werning, I., “Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?”, *NBER Working Paper Series*, No w26918, National Bureau of Economic Research, 2020; and Acemoğlu, D., Akcigit, U. and Kerr, W. “Networks and macroeconomic shocks”, *VoxEU*, 2016.

<sup>41</sup> Eurostat’s symmetric input-output product-by-product data for 2005-19 allow import intensity to be calculated both by demand component and by sector.

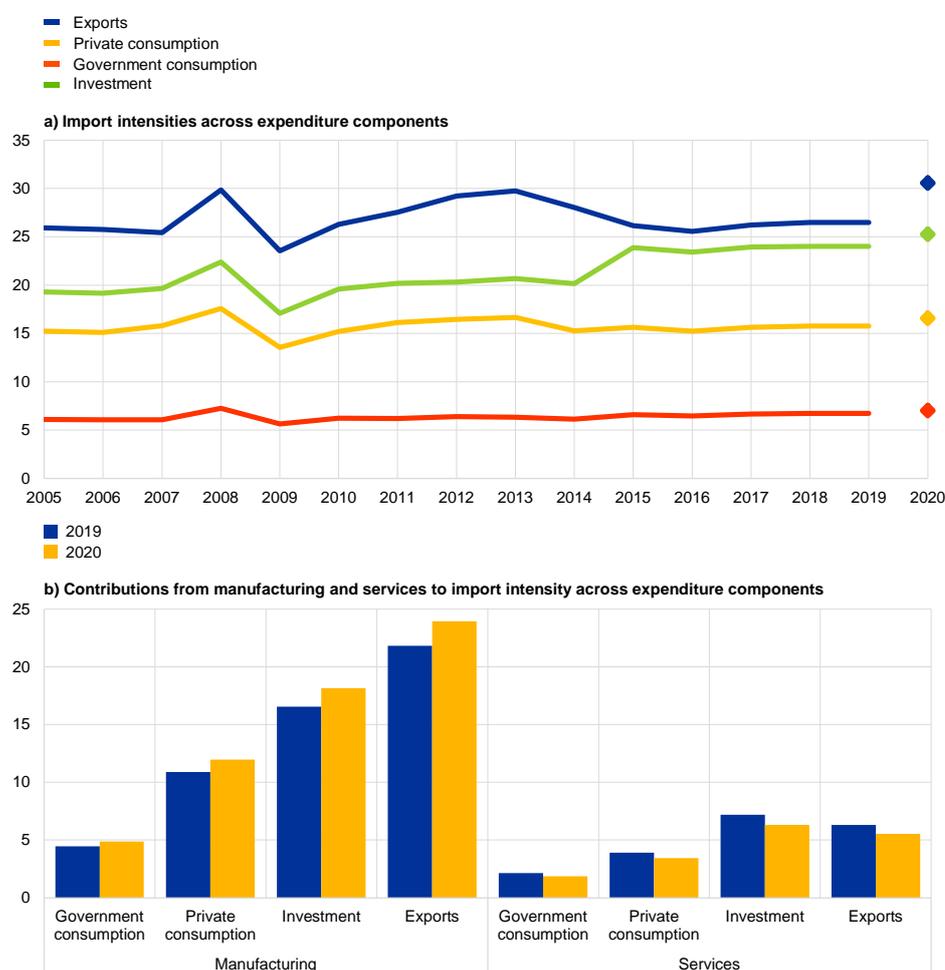
**It is likely that extra-euro area import intensities have changed during the pandemic.**

The import adjustment shown in Chart A, panel b is based on pre-crisis import intensities and the assumption that the import intensity of domestic demand is unaffected by the pandemic. However, while they have been relatively stable in normal times, import intensities tend to change more markedly in recessions (see Chart B, panel a).<sup>42</sup> A gradual upward trend in normal times would reflect increased globalisation, extended global value chains and international specialisation leading to trade growth rates exceeding growth of domestic demand.<sup>43</sup>

**Chart B**

**Import intensities across GDP expenditure components and main sectors**

(percentages; percentage point contributions)



Sources: Eurostat and ECB calculations.

Notes: In panel a) import intensities are expressed as the sum of direct and intermediate intensities. Import intensities for 2020, marked with diamonds, are an approximation, calculated on the basis of the change in the ratio of imports to value added across expenditure components, as observed in actual trade and value added data for the first three quarters of 2020. The values for 2020 in panel b) are proxies of the contributions of the manufacturing and services sectors, respectively, to the overall import intensities across expenditure components. Data for 2020 are based on the average for the first three quarters of 2020. The size of and change in the contribution of the agricultural and construction sectors to import intensities across expenditure components are significantly smaller and were omitted.

<sup>42</sup> See Bems, R., Johnson, R.C. and Yi, K.-M., "Demand Spillovers and the Collapse of Trade in the Global Recession", *IMF Working Papers*, No WP/10/142, June 2010.

<sup>43</sup> See Kranendonk, H. and Verbruggen, J., "Decomposition of GDP Growth in Some European Countries and the United States", *De Economist*, Vol. 156, No 3, Springer, 2008, pp. 295-306.

**During the COVID-19 pandemic the extra-euro area import intensity of manufacturing appears to have increased somewhat, while that of services has fallen.** As Eurostat's input and output data are not yet available for 2020, we use instead the ratio of sector-level extra-euro area imports to value added in the main sectors as a proxy for the respective import intensities in order to evaluate the possible impact of the pandemic up to the third quarter of 2020.<sup>44</sup> Interestingly, these data show that, overall during the pandemic, i.e. including the third-quarter rebound, the manufacturing sector saw a pronounced loss in value added following the supply shock from economy-wide lockdowns, while the reduction in imports was smaller. This implies that import intensity rose in the manufacturing sector (see Chart B, panel b). For the services sector, by contrast, the overall loss in extra-euro area imports for the period exceeded the loss in value added, as tourism and travel<sup>45</sup> had a particularly adverse impact on imports. Since the manufacturing sector accounts for a much larger share than the services sector of the import content across all expenditure components, overall import intensities increased during the first three quarters of 2020. However, this possible rise in import content would not have a significant impact on the outcome of the import-adjusted GDP breakdown compared with that shown in Chart A, panel b.

**To conclude, using import intensities to disentangle domestic and external contributions to euro area growth suggests that the external contribution in the first three quarters of 2020 was larger in absolute terms than suggested by the traditional breakdown, while the role of domestic demand was smaller.** A proxy based on recent data capturing changes in the contributions from the manufacturing and services sectors during the pandemic suggests that import intensities could have risen in aggregate during the crisis. However, this change in import content would not have a significant impact on the import-adjusted breakdown.

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<sup>44</sup> More will be known on the evolution of import intensities when Eurostat's input-output tables for 2020 are published, possibly in summer 2021.

<sup>45</sup> See the boxes entitled "[Impact of the COVID-19 lockdown on trade in travel services](#)", *Economic Bulletin*, Issue 4, ECB, 2020, and "[Developments in the tourism sector during the COVID-19 pandemic](#)" in this issue of the Economic Bulletin.

## 5 Developments in the tourism sector during the COVID-19 pandemic

Prepared by Vanessa Gunnella, Georgi Krustev and Tobias Schuler

**A salient feature of the coronavirus (COVID-19) pandemic has been the sharp and deep decline in mobility, which has caused a slump in tourism, trade in travel services and consumption by non-residents.** Lockdowns and social distancing measures led to strong declines in otherwise stable services consumption. This box takes stock of developments in the tourism sector, discusses how the impact of these developments on consumption has varied across countries and reviews the near-term prospects for a recovery in tourism and travel.

**The slump in tourism and travel, reflecting restrictions and uncertainties related to people’s movement across borders (e.g. owing to quarantine measures), led to a collapse in consumption by non-residents.** The effects of this collapse can be seen by looking at the difference between domestic consumption and national consumption (see panel (a) of Chart A). The former includes consumption of non-residents, whereas the latter only includes that of residents.<sup>46</sup> For example, in Italy and Spain, domestic consumption by non-residents plummeted by more than 90% year on year in the second quarter of 2020, and similar declines were recorded in consumption expenditure of residents of these countries abroad, significantly exceeding the fall in national consumption.

**Because of the decline in cross-border travel, consumption gaps – the excess of domestic consumption over national consumption owing to net expenditures by non-residents – almost closed in the second quarter of 2020 (see panel (b) of Chart A).**<sup>47</sup> In other words, tourism has worked as a shock amplification channel during the COVID-19 pandemic in countries which are net exporters of travel services (i.e. countries which receive a lot of tourists, such as Spain, Greece and Portugal), as they experienced a sharp contraction of domestic private consumption, and as a shock cushioning channel in countries which are net importers of travel services (e.g. Germany).<sup>48</sup> More specifically, in net creditors of travel services, the collapse of non-resident consumption expenditure caused domestic consumption to fall by more than national consumption, whereas the opposite occurred in countries which were net debtors of travel services before the onset of the COVID-19 pandemic. This pattern is also reflected in the sharp deterioration of the travel trade balance of the countries which are net exporters of travel services and in the improvement of the balance of net importers (see panel (a) of Chart A). Available data for the third quarter

<sup>46</sup> The national concept of private consumption expenditure (PCE) captures private consumption expenditure of the residents of a country, irrespective of whether such expenditure occurs domestically or abroad. National PCE is the concept used to report households’ total private consumption on the expenditure side of GDP in the national accounts. Domestic PCE augments the national PCE concept by the net balance of foreign residents’ expenditure domestically minus domestic residents’ expenditure abroad. For further information on the differences between these concepts, see Box 1 of the article entitled “Consumption of durable goods in the euro area”, *Economic Bulletin*, Issue 5, ECB, 2020.

<sup>47</sup> Consumption gaps as defined in this box – i.e. the difference between domestic PCE and national PCE – include, in addition to tourist spending, other cross-border trade in services, such as expenditure on education and health.

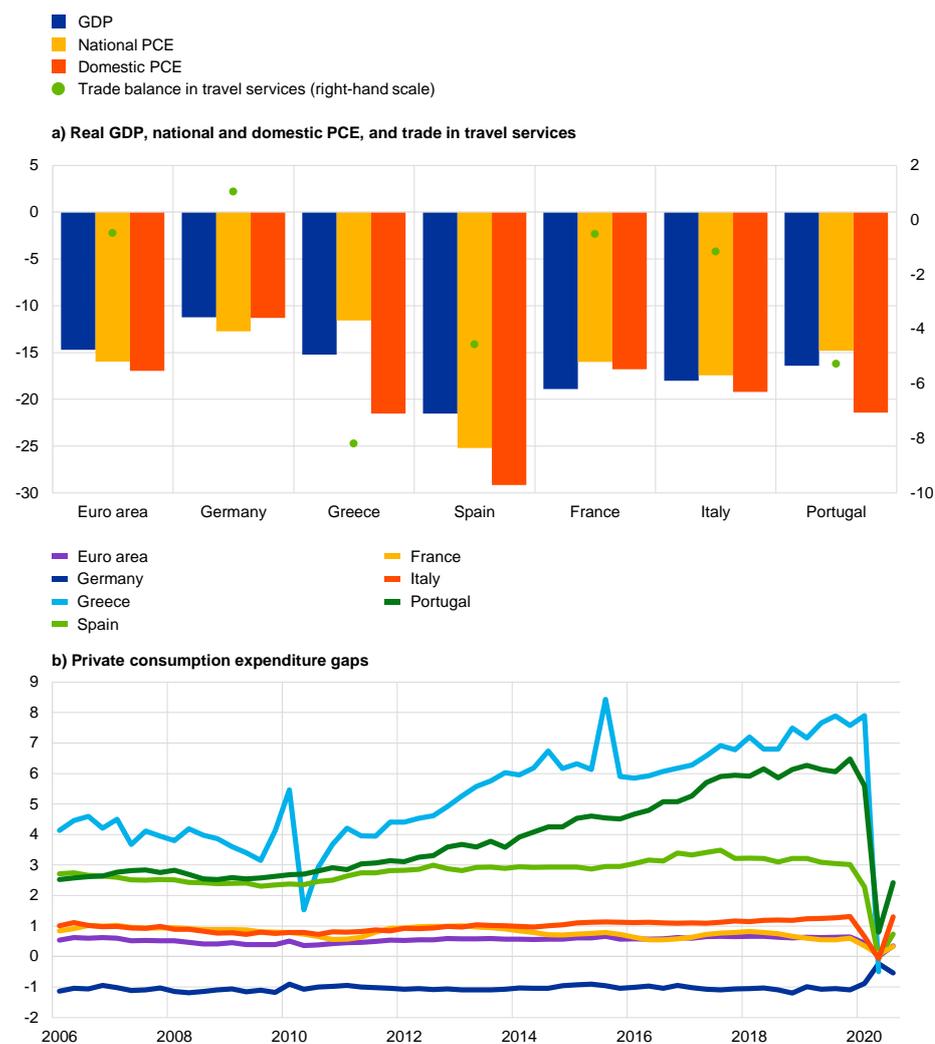
<sup>48</sup> For further details on travel and tourism as part of euro area trade in services, see the box entitled “Impact of the COVID-19 lockdown on trade in travel services”, *Economic Bulletin*, Issue 4, ECB, 2020.

of 2020 show a partial and incomplete return of consumption gaps to the levels seen before the pandemic.

### Chart A

#### National and domestic private consumption expenditure (PCE) and trade in travel services

(panel (a): year-on-year changes as a percentage (left-hand scale) and as a share of GDP (right-hand scale) in the second quarter of 2020; panel (b): share of GDP)



Sources: Eurostat and ECB staff calculations.

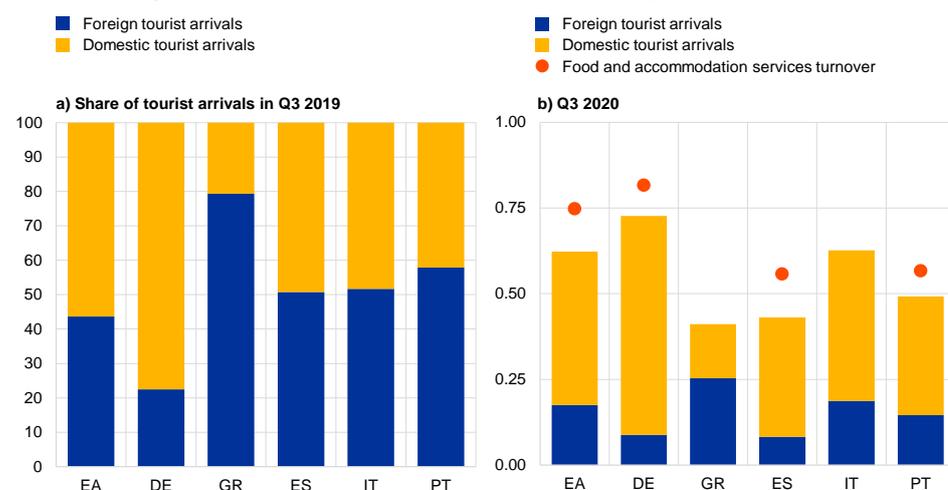
Notes: Euro area represents the euro area aggregate. In panel (a) the trade balance in travel services is shown as a share of GDP. In panel (b) PCE gaps are computed as the difference between domestic PCE and national PCE, which corresponds to the net balance of foreign residents' expenditure domestically minus domestic residents' expenditure abroad. In panel (b) the latest observations are for the third quarter of 2020, with the exception of Greece. For the euro area the third quarter of 2020 has been estimated based on partially available information for euro area countries, which does not include data for Greece and Luxembourg.

**A partial rebound notwithstanding, the data show that the foreign tourism sector remained depressed in the third quarter of 2020.** Data on tourist arrivals continued to show significantly low figures for foreign arrivals when compared with the situation before the outbreak of COVID-19 (see panel (b) of Chart B). By contrast, domestic tourism remained relatively resilient and was able to partially compensate for the loss of foreign tourism, despite remaining below the levels seen in 2019. During the summer, short-haul destinations were more in demand and several governments

launched promotional initiatives.<sup>49</sup> However, the latest available data suggest a fragile and incomplete recovery. In the euro area, tourist arrivals were less than two-thirds of the levels seen a year earlier. Tourism in countries relying on foreign arrivals, such as Greece and Portugal (see panel (a) of Chart B), still remains far below normal levels. Likewise, turnover in restaurants, and less so in accommodation, recovered but still stood at very low levels, supported by domestic tourists and locals.

### Chart B Tourist arrivals and services turnover

(panel (a): percentage of total; panel (b): ratio relative to the same quarter in the previous year)



Source: Eurostat.

Notes: Owing to data availability, the ratios for tourist arrivals refer to August and September for Greece. Ratios for food and accommodation services turnover are not available for Greece or Italy.

**Following the widespread resurgence of COVID-19 cases, since October 2020 most euro area countries have been reimposing restrictions.** Visitors are currently subject to testing or quarantine in most countries, and entry for visitors from non-EU countries is only allowed for countries considered safe.<sup>50</sup> In most euro area countries, governments reimposed curfews and closed tourist attractions and recreational facilities such as museums, theatres, bars and restaurants. The reintroduction of travel restrictions since October will likely imply that the substitution of foreign tourism with domestic tourism will continue to affect the dynamics of tourism services in the near term. The latest restrictions may also alter the geographical impact of the crisis on the sector, as winter tourism destinations will be more severely affected this time.

**Forward-looking indicators point to a renewed deterioration of the tourism sector as restrictions are reintroduced (see Chart C).** Owing to travel bans, restrictions and renewed lockdown measures (shown by the green line), travel decreased after the summer and confidence effects are weighing strongly on

<sup>49</sup> Financial incentives were introduced in Italy and Greece to promote domestic tourism, whereas other governments launched advertisement campaigns. See World Tourism Organization, “[Understanding Domestic Tourism and Seizing its Opportunities](#)”, *UNWTO Briefing Note – Tourism and COVID-19*, No 3, Madrid, September 2020.

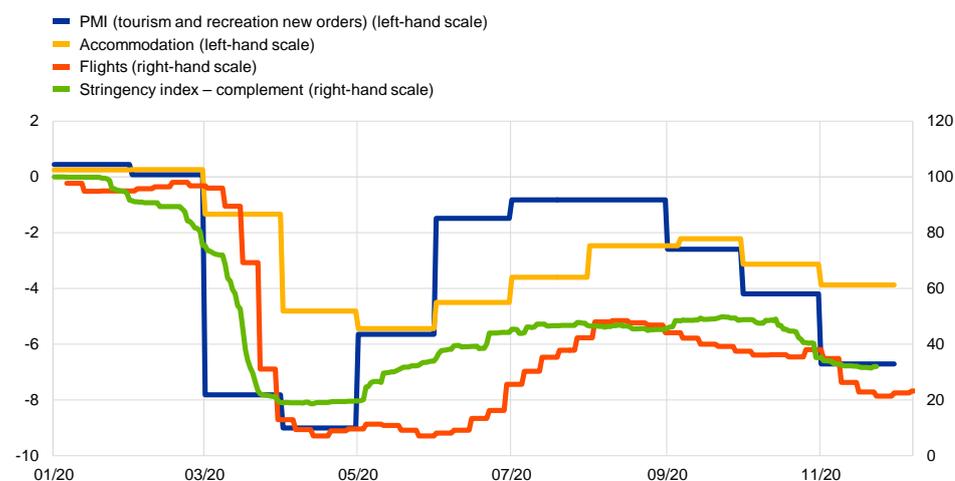
<sup>50</sup> The Council of the European Union has published a [list](#) of epidemiologically safe non-EU countries as guidance. The list is regularly reviewed and, if necessary, updated. Many euro area countries have lifted restrictions for countries on the list.

bookings. This is shown by a reversal in the recovery of flight capacity (red line) which occurred across euro area countries. According to the latest data, flight capacity currently stands at about 25% of pre-COVID-19 levels. Forward-looking indicators such as PMI new orders in the tourism and recreation sectors declined again in November, staying in contractionary territory. Confidence in the accommodation industry also remains depressed and well below its historical average, as suggested by the respective European Commission confidence indicator.

### Chart C

#### Latest developments in tourism

(left-hand scale: standardised index; right-hand scale: percentage relative to the same period in the previous year)



Sources: Markit, HAVER, European Commission, OAG, Eurostat and Oxford COVID-19 Government Response Tracker.

Notes: The PMI is for the EU. Accommodation is measured by the European confidence indicator. The data on flights are for Germany, Spain, France and Italy only. The stringency index is an average across euro area countries weighted by the share of tourist arrivals in 2019. Complements (100-value, where 100 is maximum stringency) of the stringency index are reported so that an increase in the series corresponds to easing and a decrease to higher stringency.

## 6 The long-term effects of the pandemic: insights from a survey of leading companies

Prepared by Eduardo Maqui and Richard Morris

**This box summarises the findings of an ad hoc ECB survey of leading euro area companies that looks at the long-term effects of the coronavirus (COVID-19) pandemic on the economy.** While precipitating the largest short-term decline in economic activity for centuries, the COVID-19 pandemic has also brought about changes in the way businesses operate and consumers behave, some of which are likely to outlive the present crisis. These may in turn influence aggregates such as output, employment and prices – and the relationship between them – in the long term.<sup>51</sup>

**The main aim of the survey was to find out how leading euro area firms perceive the long-term impact of the COVID-19 pandemic on their business.** For the purpose of the survey, we defined long term as “a new normal when, owing – for example – to the development of a vaccine and/or more effective treatment, the economy will no longer be subject to significant disruption and/or abrupt change due to the virus or the measures needed to contain it”. The survey was split into three parts. The first part asked what long-term effects, if any, the COVID-19 pandemic was expected to have on the respondents’ business, e.g. in terms of business organisation or the markets they operate in. The second part asked respondents to indicate whether they agreed or disagreed with a set of statements on narratives for the pandemic-induced “new normal”. The third part asked about the expected long-term impact on aggregates such as sales, employment and prices. Responses were received from 72 leading non-financial companies, split around 60% to 40% between “industrials” and “services”. When interpreting the results, it should be borne in mind that the size and distribution of the activities of these firms most likely makes them better able to respond to the challenges posed by the pandemic than other firms.

**More remote working and an acceleration of digitalisation were the most frequently cited long-term supply-side effects of the pandemic.** Respondents were asked to briefly explain, in order of importance, up to three ways in which the pandemic would have a long-term impact on their business, for example in relation to business organisation or the markets they operate in. Chart A summarises the responses received to this open question. More than 40% of respondents cited increased use of the “home office”, while almost as many said that the pandemic had led their company to accelerate the adoption of digital technologies, which will change the way they operate in the long term. Around one-fifth of respondents cited a more permanent reduction in business travel and/or increase in virtual meetings, and a similar number pointed to increased e-commerce or – in business-to-business segments – “virtual selling”. Around one-fifth highlighted the fact that actions taken in response to the pandemic would make their business more resilient and/or more flexible in the long term.

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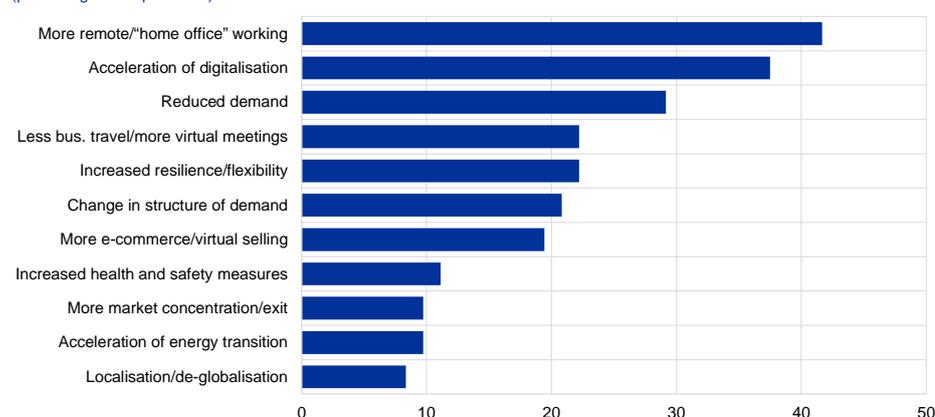
<sup>51</sup> For a recent study of the long-term effects of past pandemics and how these compare to wars, see Jordà, Ó., Singh, S.R. and Taylor, A.M., “The Longer-Run Economic Consequences of Pandemics”, Federal Reserve Bank of San Francisco, *Working Paper Series*, No 9, 2020.

**A significant share of respondents cited reduced demand and/or changes in the structure of demand as particular concerns.** Almost 30% cited reduced demand for their products or services as one of the main long-term consequences of the pandemic for their business, while more than 20% pointed to lasting changes in the structure of demand. To a large extent, this seems to reflect a view that some changes in living and working habits brought about by the pandemic, especially the increased conduct of business and consumption online and a consequent reduction in travel, will become embedded.

### Chart A

Main long-term effects of the pandemic reported by leading companies

(percentage of respondents)



Notes: The survey question put to respondents was as follows – “What long-term effects, if any, do you expect the COVID-19 pandemic to have on your business (for example, in terms of business organisation or the markets you operate in)? Please list up to three impacts in order of importance.” The replies were subsequently grouped by category.

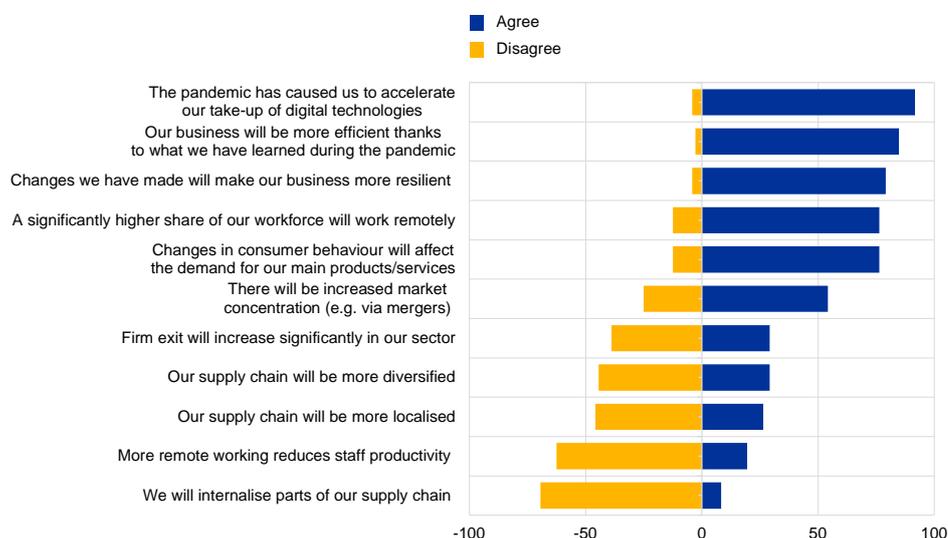
**More than three-quarters of respondents agreed that their business would be more efficient and more resilient following the pandemic.** Chart B summarises what respondents replied when they were asked to agree or disagree with a set of statements intended to test certain narratives about the pandemic-induced “new normal”. More than 75% agreed that what had been learned during the pandemic would make their business more efficient and that changes made would make their business more resilient. Nine out of ten confirmed that they had accelerated their take-up of digital technologies and/or automation, while more than three-quarters agreed that a significantly higher share of their workforce would continue to work remotely. Around 60% disagreed when asked if more remote working reduced productivity, compared with just 20% who agreed with the statement. In this regard, while reduced informal, personal interaction was seen as a downside, many advantages were also perceived, including the reduction in lost time due to commuting, the possibility to better juggle home and work commitments, and increased connectivity.<sup>52</sup>

<sup>52</sup> It was noted, for example, that as a result of remote working, staff were now nearly always accessible, whereas in the past this was not the case owing to commuting or business trips. It was also noted how some functions, such as sales, had become much more productive when conducted virtually.

## Chart B

### Testing narratives in relation to the long-term effects of the pandemic

(percentage of respondents)



Notes: The survey question put to respondents was as follows – “Please indicate whether you agree or disagree with the following statements in relation to the long-term effects of the COVID-19 pandemic.” Respondents could answer (i) agree, (ii) disagree or (iii) not sure or not relevant. In the chart, “agree” is assigned a score of 1 and “disagree” a score of -1.

### The pandemic was seen as changing consumer behaviour in the long term and likely leading to increased market concentration, while having much less impact on supply chains.

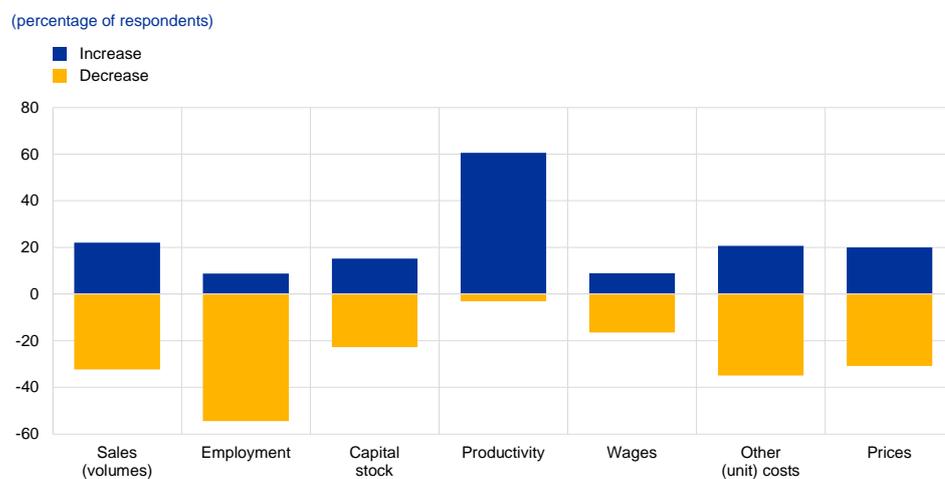
Three-quarters of respondents agreed that changes in consumer behaviour as a result of the pandemic would affect demand for their main product or service in the long term. More than half thought that there would be increased market concentration in their sector (compared with one-quarter who disagreed with this statement), with mergers expected to play a greater role than firms exiting the market. When asked about the long-term effect of the pandemic on supply chains, among those firms for whom these questions were relevant, a majority disagreed that their supply chain would become more diversified or localised; an overwhelming majority did not see their business seeking to internalise more parts of the supply chain.

### Most respondents considered that the pandemic would have a positive long-term impact on productivity but a negative impact on employment.

When asked to assess the overall long-term effect on selected aggregates, 60% said that productivity in their business or sector would increase, while hardly any saw productivity decreasing as a long-term consequence of the pandemic. Conversely, 55% anticipated a negative long-term impact on employment, compared with around 10% who saw a positive effect. This would seem to reflect how businesses have learned to maintain production in spite of restrictions on labour inputs due to social distancing and the identification of related efficiency gains. Meanwhile, relatively few saw the pandemic having any long-term effect on their company’s capital stock. The anticipated long-term effect of the pandemic on sales (volumes), prices and costs was slightly negative on balance, but most respondents indicated that they did not anticipate – or were unsure about – any long-term effects.

### Chart C

#### How respondents saw the long-term effect of the pandemic on business aggregates



Notes: The survey question put to respondents was as follows – “Focusing on your own business/sector, how would you assess the overall long-term effects of the COVID-19 pandemic on the following?” Respondents could answer (i) increase, (ii) decrease, (iii) no change or (iv) don’t know. In the chart, “increase” is assigned a score of 1 and “decrease” a score of -1.

## Assessing wage dynamics during the COVID-19 pandemic: can data on negotiated wages help?

Prepared by Gerrit Koester, Nicola Benatti and Aurelian Vlad

**The confluence of the economic consequences of and policy responses to the coronavirus (COVID-19) pandemic poses challenges for interpreting labour market developments – including wage developments.** For instance, the substantial changes observed in recent quarters in hours worked per person employed, together with the widespread application of short-time work schemes and issues related to their statistical recording, complicate the interpretation of wage indicators such as “compensation per hour” or “compensation per employee”.<sup>53</sup> The ECB indicator of negotiated wage rates captures the outcome of collective bargaining processes and is not directly affected by these special factors.<sup>54</sup> It also tends to be published around one month earlier than wage indicators based on quarterly national accounts. It should be noted, however, that the pandemic may also have had an impact on the indicator properties of negotiated wages, as it has led to fewer wage agreements being concluded than under normal circumstances. This box considers what role the indicator of negotiated wage rates can play in assessing and forecasting wage developments at the current juncture.

**While the data on negotiated wages are available on a more timely basis, negotiated wage growth tends to only react with some lag to changes in labour market conditions.** It usually takes time for changes in unemployment reflecting tightness in the labour market to be reflected in wage negotiations. The indicator of negotiated wage rates therefore tends to respond to cyclical labour market developments with a time lag of several quarters (see Chart A). This is a result of bargaining processes in large euro area countries (which mostly take place at the sectoral level), with a variety of start dates and durations, that often set wages for periods longer than one year. In line with this institutional feature, recent developments in negotiated wage growth do not point to the pandemic-related labour market upheavals having had a major impact as yet. While year-on-year growth decreased to 1.9%, 1.7% and 1.6% in the first, second and third quarters of 2020 respectively, this in part reflects base effects – meaning that, for example, the low reading in the third quarter of 2020 is in part related to the upward impact in the third quarter of 2019 associated with special payments in Germany at that time.<sup>55</sup>

<sup>53</sup> These issues have been discussed in past issues of the ECB’s Economic Bulletin. See the box entitled “[Short-time work schemes and their effects on wages and disposable income](#)”, *Economic Bulletin*, Issue 4, ECB, 2020 and the box entitled “Developments in compensation per hour and per employee since the start of the COVID-19 pandemic” in the article entitled “The impact of the COVID-19 pandemic on the euro area labour market” in this issue of the Economic Bulletin.

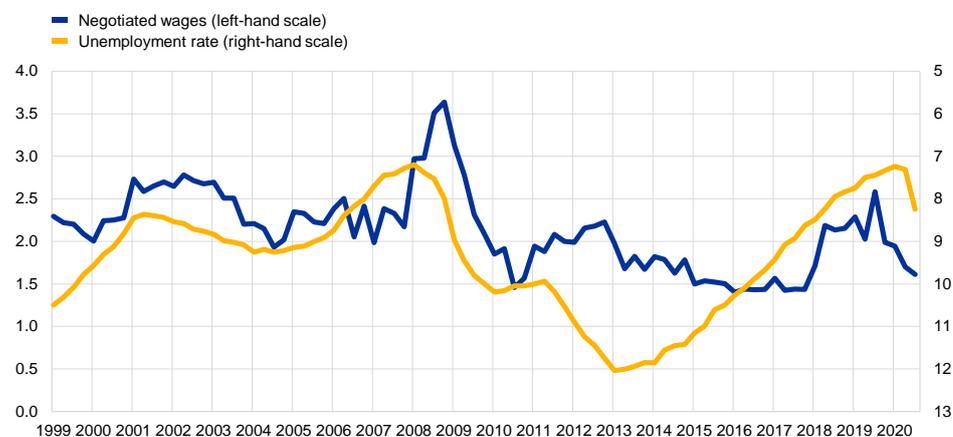
<sup>54</sup> The indicator of negotiated wage rates has been compiled by the ECB since 2001 based on non-harmonised country data as an indicator of possible wage pressures. For details, see the box entitled “[Monitoring wage developments: an indicator of negotiated wages](#)”, *Monthly Bulletin*, ECB, September 2002.

<sup>55</sup> For more details, see [Monthly Report](#), Vol. 71, No 11, Deutsche Bundesbank, November 2019, p. 8.

## Chart A

### Developments in negotiated wage growth and the unemployment rate

(left-hand scale: annual percentage changes; right-hand scale: percentages)



Sources: Eurostat and ECB calculations.

Notes: The latest observation is for the third quarter of 2020. The right-hand scale is inverted.

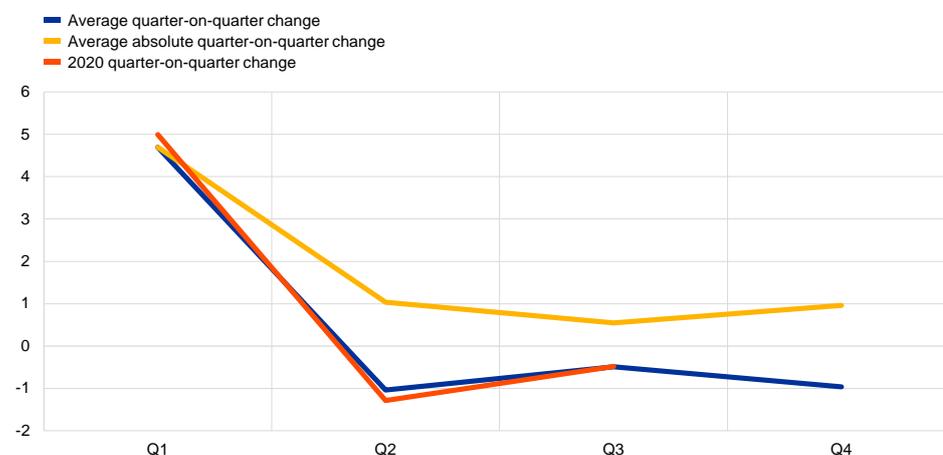
#### **Wage agreements concluded before the outbreak of the pandemic still play a dominant role in the latest developments in the indicator of negotiated wage rates.**

Quarter-on-quarter changes in the indicator show that negotiated wage dynamics in 2020 have so far been very much in line with the profile observed on average since 1999 (see Chart B). Changes to negotiated wages tend to occur mainly in the first quarter of each year. This holds true both for average changes in the indicator of negotiated wage rates and for average absolute changes. The fact that average absolute changes in the indicator of negotiated wages, which reflect the average absolute amount of increases as well as decreases, are also concentrated in the first quarter shows that changes to negotiated wages do indeed occur mainly at the beginning of each year. More granular information suggests that nearly all of the increase in negotiated wages in the first quarter of 2020 was attributable to wage increases in January, i.e. before the pandemic hit. The dominant role of wage agreements at the start of each year implies that the main effects of the pandemic on negotiated wages might only start to become visible in early 2021, when a large share of wage contracts is due for renegotiation in several euro area countries.

## Chart B

### Seasonal pattern of changes in negotiated wages

(quarter-on-quarter percentage changes; period analysed: 1999-2020 unless otherwise indicated)



Sources: ECB internal estimates and ECB calculations.

Notes: The latest observation is for the third quarter 2020. Absolute changes are derived by adding up the absolute amounts of increases and decreases.

**At this juncture, some forward-looking information may be embedded in the wage drift.** The wage drift can be derived as the difference between growth rates of actual pay, as measured by gross wages and salaries per employee, and growth rates of negotiated wages.<sup>56</sup> Based on this approach, the negative wage drift in the first three quarters of 2020 (see Chart C) captures the fact that firms' actual wage bill was generally lower owing to the government support measures and also fewer bonuses and promotions, among other factors. However, this calculation of the wage drift is inevitably affected by shifts in the composition of employment and in the average hours worked per person employed – and these shifts are very substantial at the current juncture. The composition of employment is likely to have changed, as the pandemic has caused job losses in the service sector in particular, which has relatively more lower-paying jobs, thereby mechanically increasing the average pay and partly offsetting the otherwise negative impacts on the aggregate wage drift.<sup>57</sup> The wage drift signals the downward pressure that may emerge for negotiated wages should the situation in the labour market deteriorate, with workers who are currently on reduced hours instead becoming unemployed.

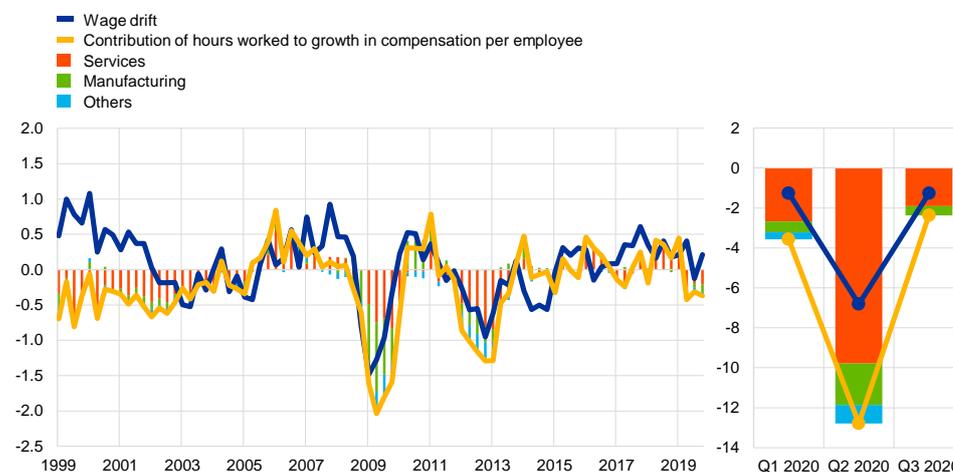
<sup>56</sup> This implies that headline wage growth as measured by compensation per employee can be broken down into negotiated wage growth, the wage drift and the impact of changes in social security contributions, where the latter is defined as the difference between the annual rate of growth in compensation per employee and the annual rate of growth in gross wages and salaries per employee.

<sup>57</sup> For details of such compositional effects, see, for example, Crust, E.E., Daly, M.C. and Hobjin, B., [The Illusion of Wage Growth](#), FRBSF Economic Letter, Federal Reserve Bank of San Francisco, August 2020, and the article entitled "[The effects of changes in the composition of employment on euro area wage growth](#)", *Economic Bulletin*, Issue 8, ECB, 2019.

### Chart C

#### Wage drift and the contribution of hours worked to growth in compensation per employee

(percentage point contributions)



Sources: Eurostat, ECB and ECB calculations.

Notes: The latest observation is for the third quarter of 2020. "Others" refers to all other sectors. The columns represent the contributions of services, manufacturing and other sectors to the overall contribution of hours worked to growth in compensation per employee.

**Current growth in negotiated wages continues to be driven by pre-pandemic wage agreements, limiting its informational value for predicting future actual wage growth.** The main effects of the pandemic on negotiated wage growth are likely to become visible only from 2021, when a substantial share of wage contracts in euro area countries is due to be renegotiated. Wage drift developments, in conjunction with information on hours worked and unemployment, can provide some indications regarding the environment in which these negotiations take place. The availability of more granular data, for example on negotiated wage growth in different sectors, would be very helpful in analysing euro area wage developments in more detail.

## 8 Draft budgetary plans for 2021: a review in times of the COVID-19 crisis

Prepared by Stephan Haroutunian, Sebastian Hauptmeier and Steffen Osterloh

**On 18 November 2020 the European Commission released its opinions on the draft budgetary plans of euro area governments for 2021.** In contrast to previous years and in the context of the coronavirus (COVID-19) pandemic, this year's European Commission assessment was of a qualitative nature and did not focus on numerical compliance with the fiscal rules. This was due to the activation of the general escape clause<sup>58</sup> which allows Member States to deviate from the adjustment requirements of the Stability and Growth Pact in certain specific, defined situations, such as a severe economic downturn for the euro area or the Union as a whole. Instead the Commission's assessment was based on the fiscal country-specific recommendations adopted by the Council on 20 July 2020 as well as its guidance issued in September in the form of letters sent to all Member States indicating that the general escape clause would remain active also in 2021 to ensure the needed support from fiscal policies. The Commission also clarified in its assessment that when economic conditions allow, Member States should pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment. In order to reconcile the need to provide macroeconomic stabilisation while ensuring medium-term fiscal sustainability, the Commission stated that support measures should be targeted and temporary, as permanent measures which are not financed by compensatory measures may affect fiscal sustainability in the medium term.

**The draft budgetary plans point to a shift in the composition of measures from emergency to recovery measures in 2021, but do not yet fully reflect support from the Next Generation EU (NGEU).** According to the European Commission, Member States have taken sizeable fiscal measures in response to the pandemic amounting to 4.2% of GDP in 2020 and 2.4% of GDP in 2021. The composition of fiscal packages in 2020 largely consisted of emergency measures aimed at alleviating the immediate effects of the crisis, namely to address the public health situation and limit economic scarring. According to the Commission's assessment, such emergency measures amounted to approximately 80% of 2020 fiscal packages at the aggregate euro area level. From 2021 onwards, the measures related to the provision of emergency support are projected to expire gradually and there is a shift towards measures supporting the recovery. The European Commission's assessment of the draft budgetary plans points to recovery measures, such as indirect tax cuts and increased government investment, accounting for over 60% of the fiscal measures in 2021. The NGEU, and in particular its central pillar the Recovery and Resilience Facility, is expected to start being implemented in 2021. However, given the state of

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<sup>58</sup> The clause was introduced as part of the "Six-Pack" reform of the Stability and Growth Pact in 2011. The clause can be activated in the case of an unusual event outside the control of the Member State concerned, which has a major impact on the financial position of the general government or in periods of severe economic downturn for the euro area or the Union as a whole. When activated it allows Member States to temporarily depart from the fiscal adjustment requirements under both the preventive and corrective arms of the Pact provided this does not endanger fiscal sustainability in the medium term.

preparations, especially with respect to national recovery and resilience plans, only minor parts of the revenue and expenditure related to the facility are reflected in the European Commission's autumn forecast and in some of the draft budgetary plans.

**The European Commission indicated that the draft budgetary plans for 2021 are overall in line with the fiscal policy recommendation adopted by the Council, but highlighted risks where measures are planned to be permanent.** It assessed that in the majority of the euro area countries the measures for 2021 are (mostly) temporary with only the plans of France, Italy, Lithuania<sup>59</sup> and Slovakia pointing to measures that do not appear to be temporary or matched by offsetting measures. For Belgium, Greece, Spain, France, Italy and Portugal, the European Commission highlighted that "given the level of their government debt and high sustainability challenges in the medium term ... it is important to ensure that, when taking supporting budgetary measures, fiscal sustainability in the medium term is preserved". The large prevailing uncertainty makes it difficult to assess measures, all the more so as temporary and more structural measures cannot always be distinguished, given that countries are adopting measures in response to the evolution of crisis waves.

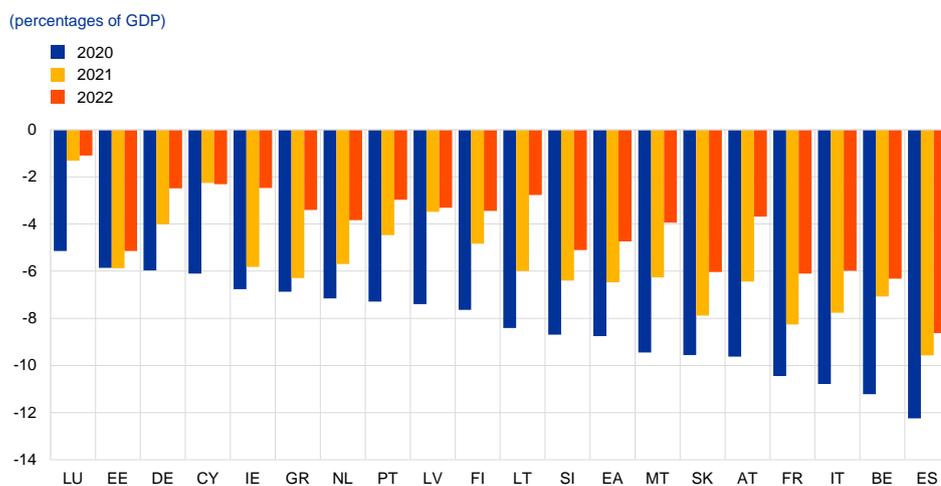
**The Commission's assessment has to be seen in light of the significant and divergent impact that the severity of the COVID-19 shock and the fiscal support measures are having on public finances, but also the prevailing large uncertainty.** On average around 30% of the budgetary deterioration projected in 2020 is expected to be reversed in 2021 with deficit ratios remaining above the 3% of GDP threshold in all euro area countries except Luxembourg and Cyprus (see Chart A). Spain, France, Italy and Slovakia are projected to have the highest deficits of more than 7.5% of GDP in 2021. Based on a no-policy-change assumption, deficits would remain above the 3% threshold in thirteen euro area Member States in 2022. Moreover, many countries that entered the crisis with high debt ratios of around 100% and above are projected to be hit strongest by the COVID-19 shock in terms of increasing indebtedness (see Chart B). Only five euro area countries are expected to maintain debt ratios below the Maastricht 60% of GDP reference value in 2022, i.e. Estonia, Latvia, Lithuania, Luxembourg and Malta.

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<sup>59</sup> Lithuania submitted a no-policy-change scenario draft budgetary plan.

### Chart A

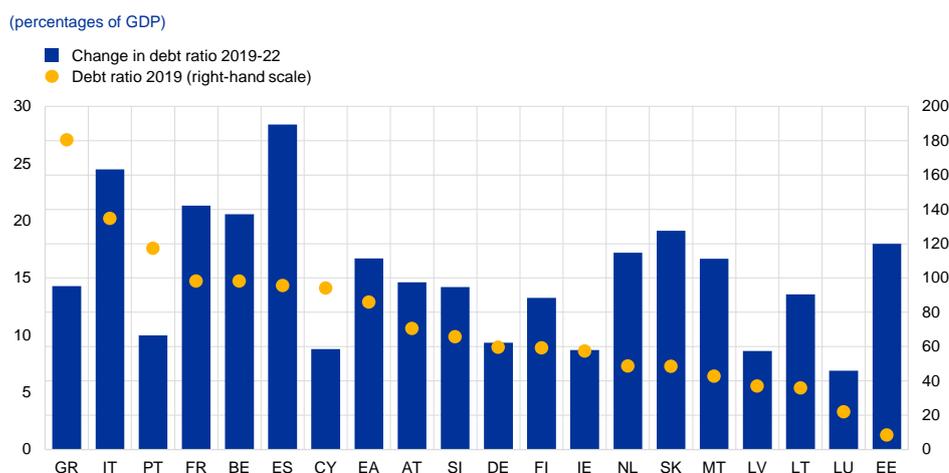
#### General government budget balances, 2020-22



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

### Chart B

#### General government gross debt, 2019-22



Sources: European Commission (AMECO database) and ECB calculations

### The European Commission does not intend to trigger excessive deficit procedures at the current stage in response to breaches of the 3% of GDP deficit reference value and the debt rule.

Currently, only Romania is subject to an excessive deficit procedure (EDP) – since April 2020. In its November package, the Commission stated that in light of the “exceptional uncertainty created by the outbreak of COVID-19 and its extraordinary macroeconomic and fiscal impact, including for designing a credible path for fiscal policy ... a decision on whether to place Member States under the Excessive Deficit Procedure should not be taken”. With the same reasoning, the European Commission indicated that no decision on further steps in Romania’s EDP, which had been launched in April 2020 based on the 2019 budgetary deficit, could be taken at this juncture. It assessed, however, that in Romania, “Important underlying drivers of the fiscal situation that were already present before

the pandemic struck in 2020, have not been modified". The European Commission will reconsider the opening of additional EDPs in spring 2021, on the basis of validated data for 2020 and its 2021 spring forecast.

**In view of the sharp contraction in the euro area economy, an ambitious and coordinated fiscal stance remains critical until a durable recovery is in place that will allow the rebuilding of prudent medium-term fiscal positions.** Following a highly expansionary fiscal stance in 2020, the European Commission's 2020 autumn forecast points to a phasing-out of emergency measures, however fiscal support is still projected to remain substantial with the adoption of new measures targeted at supporting the recovery. As long as the health emergency persists and the recovery has not become self-sustained, it will be important that temporary measures are extended to avoid cliff-edge effects. This notwithstanding, it is crucial that measures are timely, temporary and targeted so as to deliver fiscal support in the most effective manner while not creating persistent effects on budgetary positions in the post-crisis period and thus ensuring fiscal sustainability. When epidemiological and economic conditions allow, attention should shift to pursuing fiscal policies aimed at achieving prudent medium-term fiscal positions, while enhancing investment. In this respect, the NGEU provides an opportunity to support investment and contribute to a sustainable recovery.

# Articles

## 1 The European exchange rate mechanism (ERM II) as a preparatory phase on the path towards euro adoption – the cases of Bulgaria and Croatia

Prepared by Ettore Dorrucci, Michael Fidora, Christine Gartner and Tina Zumer

Following the completion of a roadmap agreed over the past few years among all relevant EU stakeholders, the Bulgarian lev and the Croatian kuna were included in the European exchange rate mechanism (ERM II) on 10 July 2020. Their inclusion marks a milestone towards future enlargement of the euro area, given the important role that ERM II plays as a preparatory phase for euro adoption. Participation in ERM II may lead to a regime shift in the country concerned, i.e. it may alter the incentives of international and local investors and of the national authorities.

We provide evidence that a regime shift indeed occurred in the central and eastern European countries (CEECs) that joined the mechanism in 2004 and 2005. If supported by sound economic policies, this shift may have positive consequences, such as accelerating the convergence process. Conversely, the implementation of ill-advised policy measures may contribute to a build-up of economic imbalances. The article also looks at ERM II from a historical perspective, reviews its main features and procedures and explains the new roadmap towards participation in ERM II – and, simultaneously, European banking union – that was established and successfully implemented for Bulgaria and Croatia.

The main conclusion of the article is that in order to fully reap the benefits of monetary integration and ensure their own smooth participation in the mechanism, countries need sound policies, governance and institutions which allow them to address risks with adequate macroeconomic, macroprudential, supervisory and structural measures.

### 1 Introduction

**Two EU Member States, Bulgaria and Croatia, joined ERM II on 10 July 2020.** The process began in 2017 along a roadmap that reflected lessons learned from other countries' experiences, the advent of European banking union and a careful assessment of country-specific strengths and vulnerabilities.<sup>60</sup> The roadmap was agreed between the Bulgarian and Croatian authorities and the ERM II parties – the finance ministers of the euro area countries, the ECB, Denmark's Finance Minister

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<sup>60</sup> See the box entitled "[The Bulgarian lev and the Croatian kuna in the exchange rate mechanism \(ERM II\)](#)", *Economic Bulletin*, Issue 6, ECB, 2020.

and the Governor of Danmarks Nationalbank.<sup>61</sup> These stakeholders took their decisions following a common procedure involving the European Commission and consultation of the Economic and Financial Committee in its euro area format, known as the Eurogroup Working Group (EWG).

**The inclusion of the Bulgarian lev and the Croatian kuna in ERM II is a milestone towards further enlargement of the euro area.** Bulgaria and Croatia are expected to adopt the euro once they have fulfilled the necessary requirements (the “Maastricht” convergence criteria) as assessed in the Convergence Reports of the European Commission and the ECB.<sup>62</sup>

**For Bulgaria and Croatia, ERM II will therefore serve not only as an exchange rate arrangement, but also as a preparatory phase for euro adoption.** ERM II has two main purposes. The first is to act as an arrangement for managing exchange rates between the participating currencies, thus also contributing to the smooth functioning of the single European market by fostering exchange rate stability. The second is to assist the convergence assessment provided for in the Treaty on the Functioning of the European Union (TFEU) with regard to the adoption of the euro by non-euro area EU Member States, with the exception of Denmark, which has a special status.<sup>63</sup> In this way, ERM II offers a testing ground before the adoption of the euro, as the economies of the participating Member States operate under a regime of stable exchange rates vis-à-vis the euro (market test) and are expected to further strengthen their macroeconomic, macroprudential, supervisory and structural policies (policy test), with the support of ever-evolving economic governance from the European Union.

**This article looks at the participation of the Bulgarian lev and the Croatian kuna in ERM II, focusing on the mechanism’s role as a bridge from domestic currencies towards the euro.** Specifically, Section 2 briefly reviews the history, main features and procedures of ERM II. Section 3 argues on the basis of quantitative evidence that ERM II may lead to a regime shift in participating countries on the path to euro adoption. Section 4 explains the roadmap towards ERM II participation that was established and implemented for Bulgaria and Croatia. Finally, Section 5 concludes by highlighting the way ahead and the key challenges faced by Bulgaria and Croatia on the path towards euro adoption.

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<sup>61</sup> Until 10 July 2020 Denmark was the only non-euro area EU Member State participating in the mechanism. Since then the ERM II parties have also included Bulgaria and Croatia.

<sup>62</sup> Article 140 and Protocol 13 TFEU state that euro adoption by a given Member State is subject to the fulfilment of several economic and legal (Maastricht) convergence criteria. In their biennial Convergence Reports, the ECB and the European Commission examine whether (i) the countries concerned have achieved a high degree of sustainable economic convergence, (ii) the national legislations are compatible with the Treaty and the Statute of the European System of Central Banks and of the ECB, and (iii) the statutory requirements are fulfilled for the relevant national central banks to become an integral part of the Eurosystem.

<sup>63</sup> With regard to exchange rate stability, the ECB and the European Commission examine whether the country has participated in ERM II for a period of at least two years without severe tensions being observed in the normal fluctuation margins of the exchange rate mechanism. In particular, this means that the country should not devalue the bilateral central rate against the euro on its own initiative during this period. Protocol 16 TFEU grants an exemption to Denmark from participation in Stage Three of EMU. Denmark is, therefore, the only non-euro area EU Member State to participate in ERM II without pursuing the objective of euro adoption.

## 2 The history, main features and procedures of ERM II

### 2.1 History

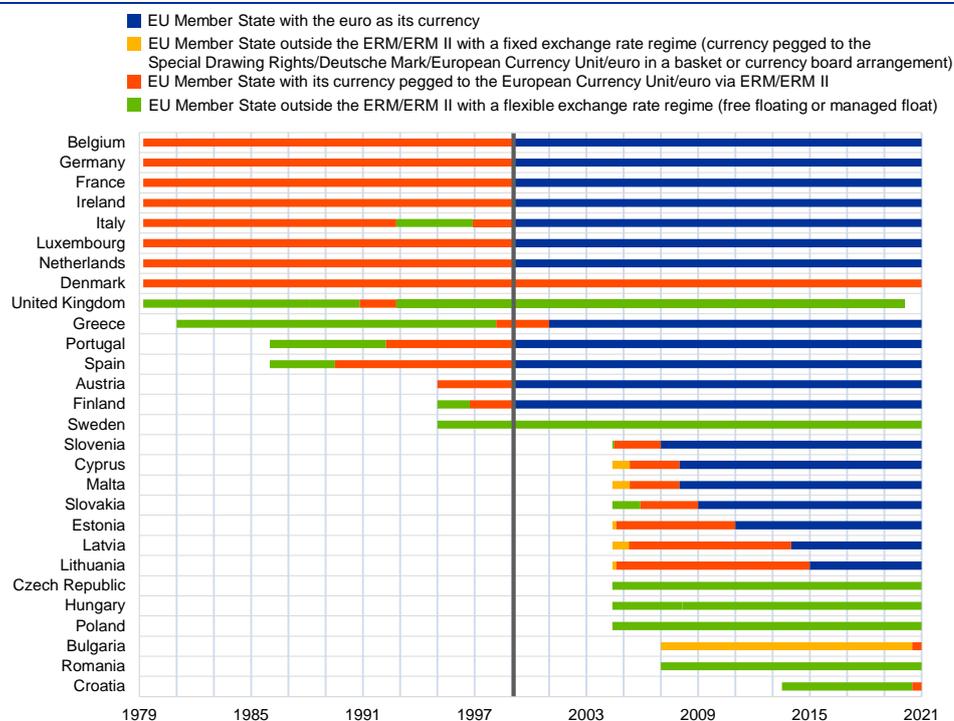
**With the introduction of the euro on 1 January 1999, ERM II replaced the original exchange rate mechanism, which was one of the components of the European Monetary System (EMS) in place since 13 March 1979.**<sup>64</sup> The original ERM, a core element of the EMS, was aimed at reducing exchange rate variability and fostering monetary stability among the currencies of an initial eight Member States. With the introduction of the euro, the Danish krone and the Greek drachma were included in the new mechanism, ERM II. After Greece adopted the euro in 2001, Denmark was the only non-euro area EU Member State participating in the mechanism until 2004 (see Chart 1).

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<sup>64</sup> More generally, on 1 January 1999 EMS was replaced by Stage Three of EMU.

**Chart 1**

**Exchange rate regimes of EU Member States since the start of the European Monetary System**



Source: ECB.

Notes:

- 1) The ERM, which was one element of the European Monetary System, became operational on 13 March 1979 and ended with the start of Stage Three of Economic and Monetary Union (EMU) on 1 January 1999. On the same day the ERM was succeeded by ERM II.
- 2) Belgium and Luxembourg were in a monetary association until the adoption of the euro in 1999.
- 3) The standard fluctuation band around the central rates in the ERM was  $\pm 2.25\%$ , except for the Italian lira, the Spanish peseta, the Portuguese escudo and the UK pound sterling, for which it was  $\pm 6\%$ . From 8 January 1990 until 16 September 1992 the Italian lira (previously in the wide band of the ERM) was in the narrow band.
- 4) In August 1993 the ERM fluctuation band was widened temporarily to  $\pm 15\%$  for all ERM participants.
- 5) In September 1992 the participation of the Italian lira and the UK pound sterling in the ERM was suspended. The Italian lira resumed full participation in the ERM in November 1996.
- 6) Greece participated in ERM II in the period 1999-2000 with the new standard  $\pm 15\%$  fluctuation band. Denmark kept the  $\pm 2.25\%$  fluctuation band within both the ERM and ERM II. While the nominal band was standard, nearly all subsequent ERM II members unilaterally committed to a narrower actual fluctuation band upon joining ERM II. These commitments do not involve any obligations on the part of the other ERM II parties.
- 7) The Czech Republic introduced a one-sided exchange rate floor towards the euro from November 2013 to April 2017.
- 8) The United Kingdom withdrew from the EU on 31 January 2020.

**On 1 May 2004 ten new Member States joined the European Union and their national central banks (NCBs) became part of the ERM II Central Bank Agreement.**

On 28 June 2004, soon after EU enlargement, the Estonian kroon, the Lithuanian litas and the Slovenian tolar were added to ERM II. On 2 May 2005 the Cyprus pound, the Latvian lats and the Maltese lira joined the mechanism, followed by the Slovak koruna on 28 November 2005. Since then, all these countries have adopted the euro after “fulfilling their obligations regarding the achievement of economic and monetary union” (Article 140 of the TFEU), which included receiving positive convergence assessments from the ECB and the European Commission (see Chart 1).

## 2.2 Main features

**ERM II was established by the European Council Resolution of 16 June 1997<sup>65</sup>, which stipulated that “The euro will be the centre of the new mechanism.”** The main features of ERM II are (i) a central rate against the euro, (ii) a fluctuation band with a standard width of  $\pm 15\%$  around the central rate, (iii) interventions at the margins of the agreed fluctuation band, and (iv) the availability of very short-term financing from the participating central banks. Participating NCBs may unilaterally commit themselves to tighter fluctuation bands (including currency board regimes) than those provided for by ERM II, without imposing any additional obligations on the other participating NCBs or the ECB.<sup>66</sup> Interventions at the margins of the fluctuation bands are in principle automatic and unlimited, although the ECB and the participating NCBs can suspend them at any time if they conflict with the primary objective of maintaining price stability. During ERM II participation, realignments of the central rate or adjustments to the width of the fluctuation band may occur, for example if equilibrium exchange rates change over time. Such developments may take place not only during a process of real convergence, but also in the case of significant changes in external competitiveness or in the presence of inconsistent economic policies.

## 2.3 Main procedures

**While ERM II is referred to in the Treaty as an integral part of the Maastricht exchange rate convergence criteria, the ERM II procedures and agreements are not based on the Treaty, since they are intergovernmental in nature.** According to Article 2.3 of the European Council Resolution of 1997, the decisions regarding participation in ERM II – in particular, whether the currency of a country can be included in the mechanism with a certain central rate and fluctuation band – are taken by mutual agreement of the finance ministers of euro area countries, the ECB and the finance ministers and central bank governors of the non-euro area Member States participating in ERM II at any given time. The decisions are taken at the end of a process involving consultation of the EWG. The European Commission is also involved in this process; it participates in the relevant meetings, can be mandated particular tasks and is kept informed by the ERM II parties. As participation in ERM II is a precondition for the eventual introduction of the euro, all EU Member States with a derogation from the obligation to adopt the euro, i.e. all non-euro area Member States except Denmark, are expected to join the mechanism at some stage.

**In the interests of all stakeholders, decisions regarding participation in ERM II are to be mutually agreed on the basis of a sound and thorough economic assessment conducted by the relevant parties, and in consultation with the European Commission, through a candid, in-depth exchange of views.** The requirement for mutual agreement on ERM II participation means that there must be a consensus that the Member State concerned is pursuing effective stability-oriented

<sup>65</sup> [Resolution of the European Council on the establishment of an exchange-rate mechanism in the third stage of economic and monetary union, Amsterdam, 16 June 1997](#) (OJ C 236, 2.8.1997, p.5).

<sup>66</sup> While narrower bands are as a rule adopted on a unilateral basis, i.e. without imposing any additional obligations on the remaining participating NCBs or the ECB, they can be multilaterally agreed in the case of economies at a sufficiently advanced stage of economic convergence, as was the case with Denmark.

policies consistent with smooth participation in the mechanism. All parties take part in the search for consensus in a positive spirit, and negotiations continue until there is an agreement acceptable to all. This is reflected in the policy position on ERM II adopted by the ECB's Governing Council in 2003, which emphasises the need to take a holistic approach and to carry out a comprehensive analysis in the economic assessment.<sup>67</sup>

### 3 The “regime shift” effect of ERM II on investor and policymaker behaviour

#### 3.1 Motivation

**The full benefits of euro adoption can only be enjoyed if adequate policy measures are in place, including at the national level.**<sup>68</sup> Attaining “a high degree of sustainable convergence” (Article 140 of the TFEU) is the most important precondition for the successful adoption of the euro. To this end, sound policies and an adequate level of institutional quality are of the essence. They are therefore given due consideration when assessing the readiness of a non-euro area EU Member State to participate in ERM II.

**This is all the more important as participation in ERM II may affect the expectations and economic incentives of international and local investors, as well as those of the local policy authorities, in a regime shift that may in turn trigger various positive or negative dynamics.** Progress in the process of monetary integration, as well as the prospect of adopting the euro, may improve international investor sentiment towards Member States joining ERM II. This may result in an acceleration of gross international financial inflows and, in turn, stronger domestic credit growth coupled with a significant improvement in financing conditions. While this may fuel a sustainable catching-up process, it may also provide the wrong sort of incentives if coupled with a weak institutional and business environment, potentially leading to misallocation of capital, postponement of necessary reforms and deterioration in the country's adjustment capacity, for example. The ensuing build-up of imbalances might eventually exacerbate a possible international financial flow reversal.<sup>69</sup>

**Against this backdrop, several insights can be gained from the analysis of developments in international financial flows and credit growth in the countries**

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<sup>67</sup> See “[Policy position of the Governing Council of the European Central Bank on exchange rate issues relating to the acceding countries](#)”, ECB, 18 December 2003.

<sup>68</sup> For recent reviews of the benefits of euro adoption, see the speech by Mario Draghi entitled “Europe and the euro 20 years on”, on accepting the Laurea Honoris Causa in Economics from the University of Sant'Anna, Pisa, 15 December 2018, and Brans, P., Clemens, U., Kattami, C. and Meyermans, E., “Economic benefits of the euro”, *Quarterly Report on the Euro Area*, Vol. 19, No 3, European Commission, forthcoming.

<sup>69</sup> Despite increasing evidence that global “push” factors, rather than country-specific “pull” factors, are the main driving forces of international capital flows, the interaction of country-specific characteristics with global trends may play an important role in determining the dynamics of international capital flows. See, for example, Rey, H., “[Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence](#),” speech at the *Jackson Hole Symposium of the Federal Reserve Bank of Kansas City*, 2013.

**which have joined ERM II in the past.** The analysis focuses on the CEECs that joined ERM II in 2004 and 2005 and subsequently adopted the euro: Estonia, Latvia, Lithuania, Slovenia and Slovakia. Section 3.2 compares their experiences with those of the EU Member States in the same region which have not yet participated in ERM II (the Czech Republic, Hungary, Poland and Romania) or which joined the mechanism only very recently (Bulgaria and Croatia). Section 3.3 discusses some policy implications arising from this analysis.

### 3.2 Evidence

**Following the accession of the above CEECs to the European Union, countries that participated in ERM II experienced a more pronounced international financial flow cycle than those which did not participate.** Gross financial inflows as a share of GDP accelerated ahead of EU accession, which for some countries also coincided with the start of their participation in ERM II.<sup>70</sup> However, countries that joined ERM II experienced a much stronger surge (see Charts 2 and 3). Gross financial inflows in ERM II countries peaked about three years after they joined ERM II, at an average of around 30% of GDP (see Chart 2). Conversely, gross financial inflows were more stable in the non-ERM II countries, remaining at between 5% and 10% of GDP following EU accession (see Chart 3). With the onset of the global financial crisis in 2007-08, which materialised in most of the observed countries about three to four years after EU accession, ERM II participants experienced a sharper financial flow reversal (see Charts 2 and 3).<sup>71</sup> Supporting the quantitative evidence, internal econometric analysis on a sample of emerging market and (former) transition economies shows that the degree of flexibility of the exchange rate regime does not affect financial inflows to these countries, whereas ERM II participation is found to increase the magnitude of gross financial inflows. At the same time, the results suggest that EU accession is not relevant in explaining the financial inflows recorded.<sup>72</sup>

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<sup>70</sup> As the countries under consideration joined both the European Union and ERM II in 2004-05 (except for Bulgaria, Romania and Croatia), these developments also reflected business cycle synchronisation to some extent.

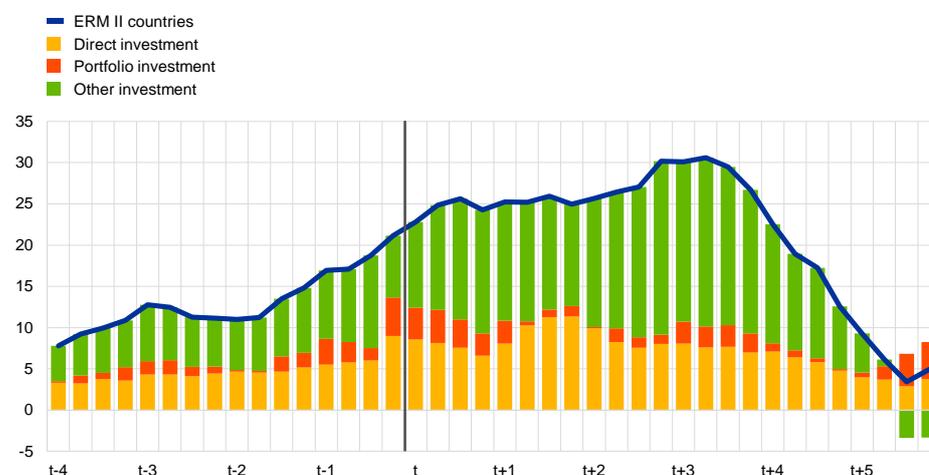
<sup>71</sup> Countries participating in ERM II also experienced larger international financial inflows than the other CEECs in net terms.

<sup>72</sup> The insignificance of EU accession for international financial inflows holds true if the ERM II participation dummy is dropped from the specification.

## Chart 2

### Gross international financial inflows of CEECs before and after joining ERM II

(as a percentage share of GDP; unweighted averages)



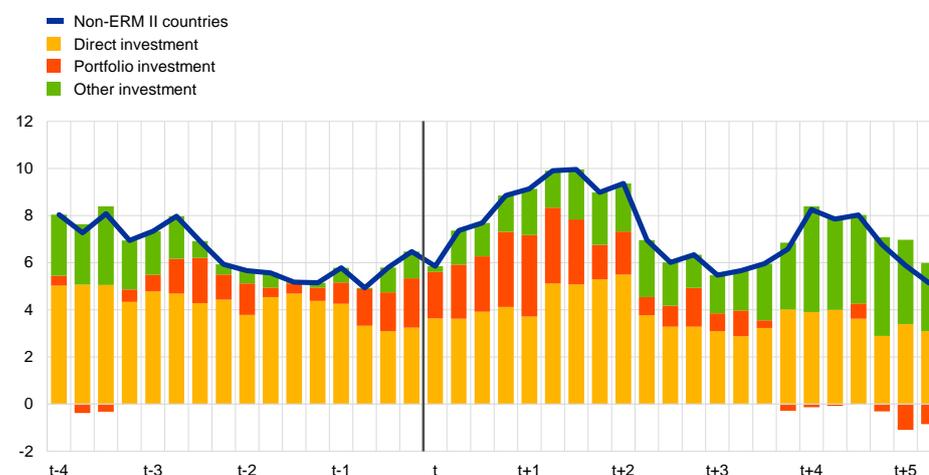
Source: ECB staff calculations.

Notes: The countries covered are Estonia, Latvia, Lithuania, Slovenia and Slovakia. Period "t" is a country-specific event and identifies the year in which the country joined ERM II: 2004 for Estonia, Lithuania and Slovenia, and 2005 for Latvia and Slovakia.

## Chart 3

### Gross international financial inflows of CEECs not participating in ERM II before and after joining the European Union

(as a percentage share of GDP; unweighted averages)



Source: ECB staff calculations.

Notes: The countries covered are Bulgaria, the Czech Republic, Croatia, Hungary, Poland, and Romania. Period "t" is a country-specific event and identifies the year of the country's accession to the European Union: 2004 for the Czech Republic, Hungary and Poland, 2007 for Bulgaria and Romania, and 2013 for Croatia.

**The differences in gross international financial inflows between the CEECs participating in ERM II and other CEECs were driven largely by bank lending and, to a lesser extent, by inward foreign direct investment (FDI).** The largest share of financial flows to ERM II CEECs took the form of "other investment", consisting mainly of bank lending to firms and households and flows within banking groups. While this may reflect the strong presence of foreign (mostly EU-based) banks in ERM II CEECs during that period, it was a common feature across the whole region.

Conversely, the composition of international financial flows to non-ERM II CEECs was much more evenly distributed between FDI and other investment (see Charts 2 and 3).

**After joining the mechanism, ERM II participants also experienced a stronger expansion in domestic credit and lower real interest rates than CEECs that did not join ERM II after their accession to the EU.** Large international financial inflows, particularly in the form of bank credit and other interbank flows, can exacerbate the domestic credit cycle, for example by supporting funding for banks.<sup>73</sup> Credit to the private sector as a share of GDP nearly doubled in ERM II countries in the five years after they joined the mechanism, while in the other CEECs the increase in credit stock was more gradual (see Chart 4). At the same time, ERM II countries experienced negative average short-term real interest rates in the three to four-year period after joining ERM II. In addition, the drop in long-term real interest rates was much stronger in ERM II countries than in non-ERM II countries (see Chart 5). While financially less-developed economies usually have lower domestic savings and therefore need financing from abroad in order to support economic growth and the overall catching-up process, this may pose a challenge for certain countries joining ERM II, as large international financial inflows are likely to fuel credit booms and busts.<sup>74</sup> Moreover, credit booms can turn out to be more severe and difficult to contain in countries with fixed exchange rates, as the rising inflation typically associated with strong domestic demand lowers real interest rates further and this in turn triggers additional credit demand.

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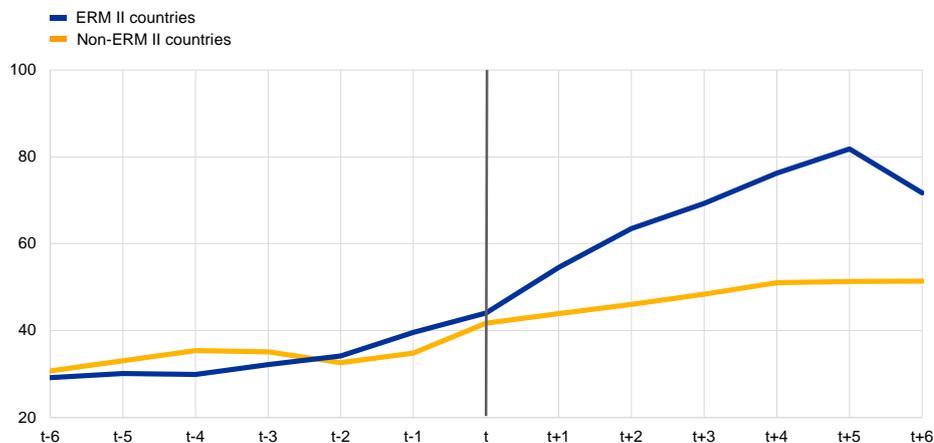
<sup>73</sup> See, for example, Lane, P.R. and McQuade, P., "Domestic Credit Growth and International Capital Flows", *Scandinavian Journal of Economics*, Vol. 116, No 1, 2014, pp. 218-252, who also find that domestic credit growth in European countries before 2008 was strongly related to net debt inflows but not to net equity inflows.

<sup>74</sup> The experience of credit booms in the new EU Member States during the 2000s has been widely discussed. See, for example, Backé, P. and Wójcik, C., "Credit booms, monetary integration and the new neoclassical synthesis", *Journal of Banking and Finance*, Vol. 32, No 3, pp. 458-470, and Bakker, B.B. and Gulde, A-M., "The Credit Boom in the EU New Member States: Bad Luck or Bad Policies?", *Working Paper Series*, No 10/130, IMF, 2010.

## Chart 4

### Domestic credit to the private sector in ERM II and non-ERM II CEECs

(as a percentage share of GDP; unweighted averages)



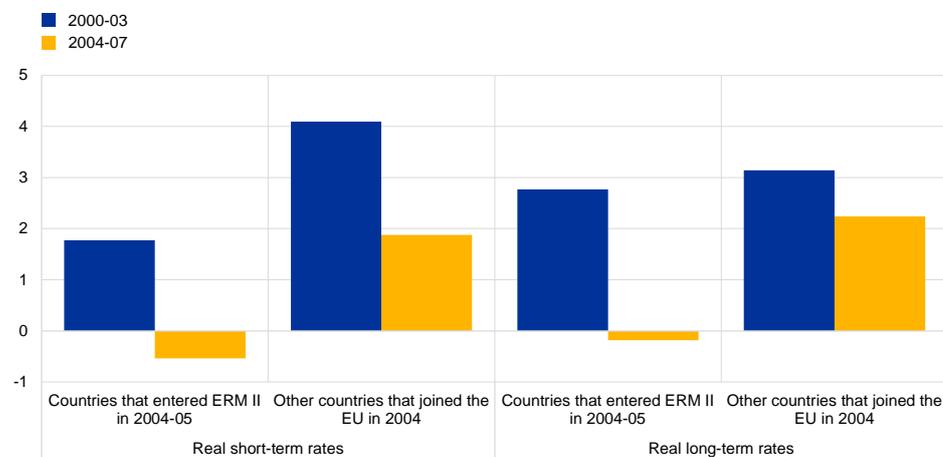
Source: ECB staff calculations.

Notes: The ERM II countries covered are Estonia, Latvia, Lithuania, Slovenia and Slovakia. Period "t" is a country-specific event and identifies the year in which the country joined ERM II: 2004 for Estonia, Lithuania and Slovenia, and 2005 for Latvia and Slovakia. The non-ERM II countries covered are Bulgaria, the Czech Republic, Croatia, Hungary, Poland, and Romania. Period "t" is a country-specific event and identifies the year of the country's accession to the European Union: 2004 for the Czech Republic, Hungary and Poland, 2007 for Bulgaria and Romania, and 2013 for Croatia.

## Chart 5

### Real interest rates in ERM II and non-ERM II CEECs

(percentages)



Sources: DataStream, ECB, Eurostat, OECD, Reuters, and ECB staff calculations.

Notes: Nominal three-month money market rates and nominal long-term (10-year maturity) interest rates for convergence purposes are adjusted using the Harmonised Index of Consumer Prices (HICP). Aggregates are simple averages across countries. The countries that entered ERM II in 2004-05 are Estonia, Lithuania and Slovenia (all in 2004), and Latvia and Slovakia (both in 2005). The other countries that entered the European Union in 2004 are the Czech Republic, Hungary, and Poland. Data for real long-term rates are missing in 2000. Data for Slovenia are available from 2002 onwards. Estonia is excluded from the aggregate of real long-term rates owing to missing data.

### 3.3 Policy implications

**Although the period following EU accession in 2004-05 fell within the environment of “Great Moderation”<sup>75</sup>, which is very different from the conditions prevailing today, the empirical findings discussed in the previous subsection nevertheless carry some general policy implications that may be of relevance for Bulgaria and Croatia, as well as for other EU Member States that seek ERM II participation in the future.** ERM II participants may benefit from increased availability of capital, but they may also face an increased risk of a build-up of macroeconomic imbalances. Countries with large international financial inflows are indeed more likely to experience credit booms and busts as foreign financial inflows increase the available funds of the banking system, of which a significant share is often foreign-owned in central and eastern Europe.

**Historical experience suggests that factors such as resilient economic structures<sup>76</sup> and the quality of institutions and governance reduce the risk of economic imbalances and enhance the capacity of a country to cope with shocks.** While the economic literature on this topic has mainly focused on the phase following euro adoption,<sup>77</sup> the evidence discussed in the previous subsection suggests that similar dynamics might also materialise during the run-up to euro adoption.

**Resilient economic structures create the preconditions for allocating capital to productive firms, thus supporting the catching-up process rather than the formation of bubbles.** This also allows policymakers to resist pressures of vested interests against the implementation of necessary reforms, build up fiscal buffers during upturns and implement other countercyclical measures, including on the macroprudential side. Developments such as a surge in the most volatile components of international financial flows may provide the wrong sort of incentives in a weak institutional context, thus leading to the postponement of reforms and deterioration in the country’s adjustment capacity. This is not to deny that developing economies need to attract capital. However, if institutions are weak, such financial inflows are more likely to eventually become a disadvantage more than a benefit.

**The smooth participation of a given currency in ERM II therefore requires the proper framework conditions to be in place at the national level.** The prospect of

<sup>75</sup> See Bernanke, B.S., “The Great Moderation”, remarks at the *meetings of the Eastern Economic Association*, Washington, DC, February 20 2004.

<sup>76</sup> The expression “resilient economic structures” is used in Juncker, J.-C., Tusk, D., Dijsselbloem, J., Draghi, M. and Schulz, M., “The Five Presidents’ Report: Completing Europe’s Economic and Monetary Union”, *Background Documents on Economic and Monetary Union*, European Commission, 2015. In Brinkmann, H., Harendt, C., Heinemann, F. and Nover, J., “Economic Resilience: A new concept for policy making?”, Bertelsmann Stiftung, 2017, economic resilience is defined as “*the capability of a national economy to take preparatory crisis-management measures, mitigate the direct consequences of crises, and adapt to changing circumstances. In this regard, the degree of resilience will be determined by how well the actions and interplay of the political, economic and societal spheres can safeguard the performance of the economy – as measured against the societal objective function – also after a crisis*”.

<sup>77</sup> See Fernández-Villaverde, Garicano, J.L. and Santos, T., “Political Credit Cycles: The Case of the Euro Zone”, *NBER Working Paper*, No 18899, 2013; Challe, E., Lopez, J and Mengus, E., “Southern Europe’s institutional decline,” *HEC Research Papers Series*, No 1148, HEC Paris, 2016; Masuch, K., Moshhammer, E. and Pierluigi, B., “Institutions, public debt and growth in Europe”, *Working Paper Series*, No 1963, ECB, September 2016; and Diaz del Hoyo, J.L., Dorrucchi, E., Heinz, F.F and Muzikarova, S., “Real convergence in the euro area: a long-term perspective”, *Occasional Paper Series*, No 203, ECB, December 2017.

joining ERM II and then the euro area should serve as an important incentive to improve policies, governance and institutions in order to attain convergence on a sustainable basis – in a similar manner to the incorporation of European law when joining the EU. If these improvements do not take place, excessive ease of financing after joining ERM II – and later after adopting the euro – risks reducing the incentives to make necessary reforms.

## 4 The Bulgarian lev and the Croatian kuna in ERM II

**In the summers of 2018 and 2019 respectively, following discussions with the ERM II parties, the Bulgarian and Croatian authorities made a number of policy commitments in areas of high relevance for a smooth transition process and subsequent participation in ERM II.** After fulfilment of these so-called prior policy commitments, as well as the announcement of post-entry policy commitments to be completed after joining ERM II, the two countries entered ERM II and European banking union simultaneously on 10 July 2020. This section explains the rationale for ERM II participation and the roadmap towards it that was implemented for these two EU Member States.

**When Bulgaria and Croatia first expressed their interest in joining the mechanism, ERM II parties took account of three fundamental considerations.**

**First, it would be the first time a country had joined ERM II since the financial crisis, from which important lessons had been learned.** As a result, the European institutional framework had been substantially overhauled over the previous decade and it was crucial not to overlook the lessons learned in future ERM II decisions. The resilience of economic structures, financial stability and the quality of institutions and governance had moved to the forefront of discussions, given their importance for the longer-term sustainability of euro adoption. In particular, the experiences of former ERM II participants had confirmed that these features needed to be in place to ensure smooth participation in the mechanism.

**Second, it would also be the first time a Member State had joined ERM II since the start of European banking union.** In banking union, the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism have direct powers over the banking system of the Member State concerned. Each Member State is required to enter banking union at the latest by the time it introduces the euro. Given that ERM II is a preparatory phase for euro adoption, joining ERM II today also means preparing for banking union. To this end, it was considered advisable for countries aiming to adopt the euro to enter into close cooperation with the ECB (see Box 1) at the same time as joining ERM II.<sup>78</sup>

**Third, there was also a need to take account of country-specific considerations.** While both Bulgaria and Croatia had made significant progress in addressing macroeconomic imbalances and both countries had a track record of adjusting to

<sup>78</sup> At the same time, entering into close supervisory cooperation *without* joining ERM II is also a possible course of action for EU Member States that are currently outside the euro area, i.e. the two processes do not necessarily need to be synchronised.

adverse shocks under their own exchange rate regimes, there were concerns about their smooth participation in ERM II, owing to a number of remaining vulnerabilities.

**In this context, the question arose as to how the aforementioned considerations could best be accommodated within the existing institutional and legal framework.** EU Member States must be treated equally at any given stage of EMU, which implies that no preconditions or new rules can be imposed before a Member State applies for ERM II participation. Any Member State is, therefore, free to request the inclusion of its currency in ERM II at any time and make its policy commitments, as other Member States have done in the past. At the same time and in line with the procedure recalled in Section 2.3, ERM II parties may decide not to agree to that Member State's ERM II participation in the event that the policy commitments and related actions taken by its national authorities do not sufficiently address the identified developments, concerns and risks. This approach is fully consistent with the ERM II framework.

**During the informal phase of the roadmap towards ERM II participation, a dialogue was held between the ERM II parties and the Bulgarian and Croatian authorities on the risks that had been identified and how they could be mitigated.** This dialogue clarified the policy commitments that the Bulgarian and Croatian authorities would have to make and fulfil when moving forward with the roadmap. Once this phase was completed, the last step in the roadmap was marked by the formal requests for the inclusion of the Bulgarian lev and the Croatian kuna in ERM II, which were sent the day before the decision was taken.

**Some policy commitments were completed by the time Bulgaria and Croatia formally entered ERM II (“prior commitments”) and, in line with past practices, other commitments have to be completed after joining ERM II (“post-entry commitments”), with the aim of achieving a high degree of sustainable economic convergence by the time of euro adoption.** Both prior and post-entry commitments needed to be reasonable, proportional and motivated. They also had to be specific, realistic and verifiable in nature. Finally, it was agreed that they had to be implemented, monitored and verified in a relatively short period of time.

**In the meantime, adequate monitoring was established by the ECB and the European Commission within their respective remits in order to verify compliance with both prior and post-entry commitments.** In particular, the ECB focused on commitments related to the banking sector, including both banking supervision and macroprudential issues. Following a mandate issued by the ERM II parties, the Commission focused on commitments concerning structural policies. In order to forestall overlap with other procedures, it was also noted that fiscal policies are governed by the Stability and Growth Pact, and that the judicial reforms and the fight against corruption and organised crime in Bulgaria were monitored by the Commission under the Cooperation and Verification Mechanism (CVM).

**Prior commitments were made by Bulgaria in the summer of 2018 and by Croatia in the summer of 2019, and completed by both countries before they joined ERM II on 10 July 2020.** Three of these commitments were in the same policy areas for both Bulgaria and Croatia: (i) establishing close cooperation between ECB

Banking Supervision and the national competent authorities (NCAs) under the legal framework of the SSM; (ii) strengthening the macroprudential toolkit by empowering NCAs to adopt so-called borrower-based measures, such as imposing limits on the debt service burden of borrowers relative to their income; and (iii) transposing EU anti-money laundering directives into national legislation. The other three commitments were country-specific and pertained to structural policies. Box 1 discusses these commitments in greater detail and describes the process of implementing and assessing the prior commitments falling under the ECB's remit (i.e. those in the banking supervision and macroprudential fields), which were completed by the time the two countries joined ERM II. It also briefly explains how the supervision of non-euro area EU banks under close cooperation works in practice and how it differs from the supervision of euro area banks. Box 2 lists the structural policy-related prior commitments made by the Bulgarian and Croatian authorities, which fall under the remit of the Commission.

## Box 1

### Completion of ERM II prior policy commitments related to banking supervision and the macroprudential toolkit

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Prepared by Maximilian Fandl, Jaime Serra Goya and Kalina Paula Tylko-Tylczynska

The European Central Bank was mandated by the exchange rate mechanism (ERM II) parties to monitor the implementation of the two prior commitments related to banking supervision and financial stability, which the Bulgarian and Croatian authorities had to complete by the time they joined ERM II. The two commitments were: (i) to establish close cooperation between ECB Banking Supervision and the national competent authority (NCA) under the legal framework of the Single Supervisory Mechanism (SSM); and (ii) to strengthen the macroprudential toolkit by establishing a clear legal basis on which to adopt macroprudential borrower-based measures, such as imposing limits on the debt service burden of borrowers relative to their income.

Bulgaria and Croatia submitted requests to establish close cooperation between their NCAs and the ECB in July 2018 and May 2019 respectively. Based on these requests, the ECB assessed whether the conditions for establishing close cooperation had been met. In accordance with the legal framework, the assessment consisted of two main parts: (i) a legal assessment of the relevant national law adopted by the requesting Member State, and (ii) a comprehensive assessment of credit institutions established in the Member State. To properly verify whether all conditions had been met, the ECB developed a standard assessment framework based on Article 7 of the SSM Regulation<sup>79</sup> and the procedural aspects specified in Decision ECB/2014/5 on close cooperation<sup>80</sup>.

With regard to the legal assessment, Bulgaria adopted relevant legislation in December 2018, putting in place a mechanism to ensure that Българска народна банка (Bulgarian National Bank, BNB) would adopt any measures required by the ECB in relation to credit institutions. The ECB assessed the new legislation, including whether the powers available to the BNB would be at least equivalent to those of ECB Banking Supervision. In order to comply with the requirements for close cooperation,

<sup>79</sup> See [Council Regulation \(EU\) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions](#) (OJ L 287, 29.10.2013, p. 63).

<sup>80</sup> [Decision 2014/434/EU of the European Central Bank of 31 January 2014 on the close cooperation with the national competent authorities of participating Member States whose currency is not the euro](#) (ECB/2014/5) (OJ L 198, 5.7.2014, p. 7).

the BNB introduced a draft law in January 2020 amending the Law on credit institutions<sup>81</sup> and the Law on the Bulgarian National Bank<sup>82</sup>. The new law amended the sanctioning powers of the BNB and extended the list of breaches which may be subject to sanctions.

Similarly, the Croatian authorities amended the Credit Institutions Act<sup>83</sup> and the Act on the Croatian National Bank<sup>84</sup> in order to create a legal basis for close cooperation with the ECB. The first amendments were adopted by the Croatian Parliament in July 2019 and entered into force in August 2019. Additional amendments were adopted in April 2020 and entered into force in the same month. The ECB assessed the national legal framework as compliant with the relevant conditions for establishing close cooperation. The amendments ensured that once close cooperation started, the ECB had all the powers necessary to carry out its supervisory tasks vis-à-vis Croatian banks.

The comprehensive assessment results for Bulgarian banks were published on 26 July 2019 and indicated capital shortfalls for two out of the six participating banks.<sup>85</sup> The two banks implemented their respective capital plans before close cooperation was established. With this final step, all supervisory and legislative prerequisites were fulfilled. On 10 July 2020 the ECB announced that its Governing Council had adopted a Decision establishing close cooperation with the BNB<sup>86</sup>.

The comprehensive assessment results for Croatian banks were published on 5 June 2020 and did not indicate any capital shortfalls for the five selected Croatian banks. On 10 July 2020 the ECB announced that its Governing Council had adopted a Decision establishing close cooperation with Hrvatska narodna banka (HNB)<sup>87</sup> following the latter's fulfilment of all supervisory and legislative prerequisites.

When Bulgaria and Croatia expressed their intent to join ERM II, their macroprudential framework did not include a legal basis for borrower-based measures. Instead, the framework mainly relied on capital instruments based on the Capital Requirements Directive<sup>88</sup> and the Capital Requirements Regulation<sup>89</sup>, such as the countercyclical capital buffer. Although both HNB and the BNB had broad powers to issue recommendations on new lending practices, these were not as legally binding and enforceable as borrower-based measures.

Against this background, both the Bulgarian and the Croatian authorities made commitments to broaden their macroprudential toolkit by providing the legal basis for borrower-based measures. This

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<sup>81</sup> [Law on Credit Institutions](#), adopted by the 40th National Assembly on 13 July 2006, published in the *Darjaven Vestnik*, issue 59 of 21 July 2006.

<sup>82</sup> [Law on the Bulgarian National Bank](#), adopted by the 38th National Assembly on 5 June 1997, published in the *Darjaven Vestnik*, issue 46 of 10 June 1997.

<sup>83</sup> [Credit Institutions Act](#), published in the *Narodne novine* No 159/13, 19/15, 102/15 and 15/18.

<sup>84</sup> [Act on the Croatian National Bank](#), published in the *Narodne novine* No 75/08 and 54/13.

<sup>85</sup> See “[ECB concludes comprehensive assessment of six Bulgarian banks](#)”, ECB Press release, 26 July 2019. The two banks with capital shortfalls in the comprehensive assessment were First Investment Bank AD and Investbank AD.

<sup>86</sup> [Decision \(EU\) 2020/1015 of the European Central Bank of 24 June 2020 on the establishment of close cooperation between the European Central Bank and Българска народна банка \(Bulgarian National Bank\) \(ECB/2020/30\)](#) (OJ L 224I, 13.7.2020, p. 1).

<sup>87</sup> [Decision \(EU\) 2020/1016 of the European Central Bank of 24 June 2020 on the establishment of close cooperation between the European Central Bank and Hrvatska Narodna Banka \(ECB/2020/31\)](#) (OJ L 224I, 13.7.2020, p. 4).

<sup>88</sup> [Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms](#) (OJ L 176, 27.6.2013, p. 338).

<sup>89</sup> [Regulation \(EU\) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms](#) (OJ L 176, 27.6.2013, p. 1).

was completed through the adoption of the relevant legislation in December 2018 and April 2020 respectively.

After the completion of their prior commitments, Bulgaria and Croatia joined ERM II and banking union. From 1 October 2020 the ECB started directly supervising significant Bulgarian and Croatian institutions, while the Single Resolution Board became the resolution authority for these and all cross-border groups. Credit institutions falling under close cooperation are subject to the same supervisory standards and procedures as their equivalents in the euro area.

A key difference between Member States that have adopted the euro and those under close cooperation is that ECB legal acts, including decisions on banks, do not have direct effect in the Member State in close cooperation. This means that the ECB does not adopt decisions addressed to banks in these Member States, but rather issues instructions to the respective NCA, which will in turn adopt the required administrative measures at the national level.

The establishment of close cooperation with the BNB and HNB marks an important milestone in the development of banking union. It is the first time that banking union has been enlarged with EU Member States outside the euro area.

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## Box 2

### Completion of ERM II prior policy commitments related to structural policies

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In their letters to the exchange rate mechanism (ERM II) parties, Bulgaria<sup>90</sup> and Croatia<sup>91</sup> committed themselves to implementing a number of policy measures related to structural policies before joining ERM II. The European Commission was mandated by the ERM II parties to monitor the implementation of these prior policy commitments, in line with its remit. The monitoring was facilitated by regular technical exchanges between the Commission and the Bulgarian and Croatian authorities. The European Commission provided regular progress updates to the ERM II parties. At the same time, the ECB was reporting on the implementation of policy measures related to banking supervision and the macroprudential toolkit (see Box 1).

Bulgaria and Croatia each tailored their prior policy commitments on structural policies to their own national conditions in order to avoid a build-up of macroeconomic imbalances and to improve institutional quality and governance. The Bulgarian authorities made commitments to implement measures in the following policy areas: (i) the supervision of the non-banking financial sector, (ii) the insolvency framework, (iii) the anti-money laundering framework, and (iv) the governance of state-owned enterprises. Meanwhile, the Croatian authorities made commitments related to: (i) the anti-money laundering framework, (ii) statistics, (iii) public sector governance, and (iv) the business environment.

The final assessment reports were published together with the ECB Decisions to include the Bulgarian lev<sup>92</sup> and Croatian kuna<sup>93</sup> in ERM II. On 8 June 2020 and 19 June 2020 respectively, the

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<sup>90</sup> See the [letter from Bulgaria on ERM II participation](#) of 13 July 2018.

<sup>91</sup> See the [letter from Croatia on ERM II participation](#) of 4 July 2019.

<sup>92</sup> See the [letter from the European Commission to ERM II parties on Bulgaria's participation in ERM II and the assessment of its prior commitments](#).

Croatian and the Bulgarian authorities informed the ERM II parties that their prior commitments had been completed, except for those relating to establishing close cooperation with the ECB, and asked the ERM II parties to invite the Commission and the ECB to assess their effectiveness. Both institutions confirmed that the policy commitments in their respective areas of competence had been fully implemented and welcomed the efforts of Bulgaria and Croatia to better prepare their economies for smooth participation in ERM II.

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### Post-entry commitments made by Bulgaria and Croatia on joining ERM II

- The Bulgarian authorities made commitments to implement additional measures on the non-banking financial sector, state-owned enterprises, the insolvency framework and the anti-money laundering framework. Furthermore, Bulgaria will continue implementing the extensive reforms under the CVM in the judiciary and in the fight against corruption and organised crime.
- The Croatian authorities made commitments to implement specific policy measures on the anti-money laundering framework, the business environment, state-owned enterprises and the insolvency framework.

**At the time of its inclusion in ERM II, the central rate of the Bulgarian lev against the euro was set at the prevailing market rate, which was the same as the fixed exchange rate under the currency board arrangement (CBA).** With the adoption of the standard fluctuation margins of  $\pm 15\%$  it was also determined, in line with past arrangements, that the Bulgarian CBA is a unilateral commitment borne exclusively by Българска народна банка (Bulgarian National Bank), which should place no obligation on the ECB or the other participants in ERM II.

**The central rate of the Croatian kuna against the euro within ERM II was set at the prevailing market rate at the time of its inclusion.** In line with past practice, the central rate was equal to the official ECB reference rate – published daily on the ECB’s website – of the Friday prior to the currency’s inclusion in ERM II. The inclusion of the Croatian kuna in ERM II is also subject to the standard fluctuation margins of  $\pm 15\%$ .

Box 3 summarises the economic assessment supporting these exchange rate decisions.

### Box 3

#### Assessing the central rates of the Bulgarian lev and the Croatian kuna within ERM II

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Bulgaria and Croatia have both maintained nominal exchange rate stability for more than two decades (see Chart A). Bulgaria adopted a currency board arrangement in July 1997 to address

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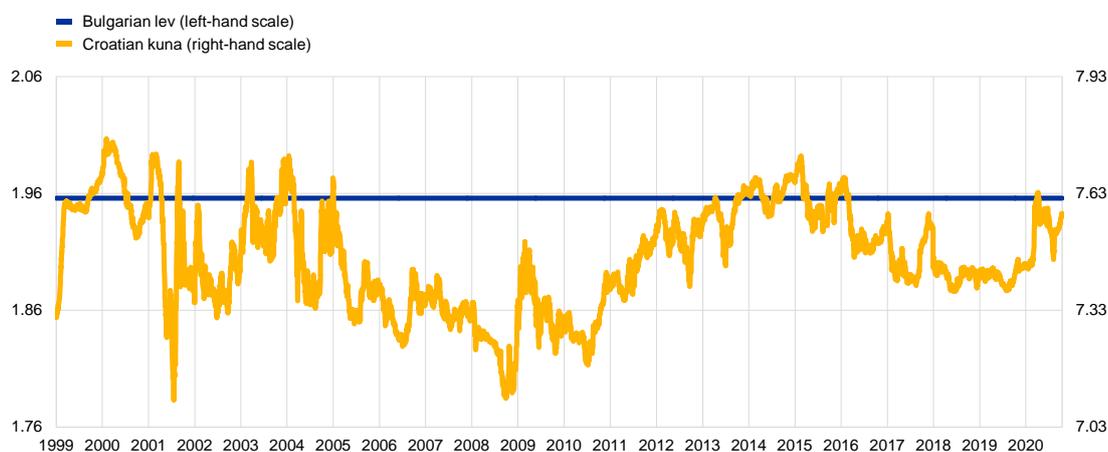
<sup>93</sup> See the [letter from the European Commission to ERM II parties on Croatia’s participation in ERM II and the assessment of its prior commitments](#).

hyperinflationary pressure. This was initially based on a legal obligation of Българска народна банка (Bulgarian National Bank, BNB), enshrined in the Law on the Bulgarian National Bank, to exchange domestic currency at the rate of 1,000 old Bulgarian leva per Deutsche Mark. Following a (purely nominal) redenomination of the Bulgarian lev in June 1999, the fixed exchange rate was realigned to 1 new Bulgarian lev per Deutsche Mark. When the Deutsche Mark lost its status as legal tender in Germany in 2002, the reference currency was changed to the euro and the fixed exchange rate set at 1.95583 leva per euro, equal to the irrevocable conversion rate between the Deutsche Mark and the euro. The Croatian kuna has been trading under a tightly managed floating exchange rate regime since its introduction in 1994, with no pre-announced level, path or band, and its exchange rate against the euro has been fluctuating within a narrow range of  $\pm 4.5\%$  around its average level since 1999.

### Chart A

#### Exchange rates of the Bulgarian lev and the Croatian kuna against the euro

(4 January 1999 to 14 October 2020; national currency units per euro)



Source: ECB.

In line with its currency board regime, BNB frequently exchanges Bulgarian leva for euro in operations with domestic banks, while Hrvatska narodna banka (HNB) only rarely intervenes in foreign exchange markets. As stipulated by the Law on BNB, the monetary liabilities of BNB are fully covered by its foreign reserves and BNB is obliged to exchange monetary liabilities and euro at the official exchange rate. Thus, the issuance of Bulgarian leva is not discretionary, but directly linked to the availability of international reserves. As a result, BNB does not need to undertake traditional foreign exchange interventions in order to maintain the exchange rate peg. Instead, it issues or absorbs national currency solely against reserve currency in transactions with the banking sector, referred to as “type II interventions”, such that the national currency supply automatically equates to the demand. In the case of the Croatian kuna, interventions have historically been carried out both to support and to weaken the currency, although more recently, until the coronavirus (COVID-19) shock, HNB has mostly intervened in order to counter appreciation pressures.

As a result of their credible commitments to maintaining exchange rate stability, both national central banks have accumulated comfortable buffers of foreign exchange reserves. Since the global financial crisis of 2007-08, BNB and HNB have significantly expanded their holdings of foreign exchange reserves. In 2019 the foreign exchange reserves of BNB and HNB stood at 47% of GDP and 38% of

GDP respectively and substantially exceeded all traditional metrics of foreign exchange reserve adequacy.

Equally, both countries have experienced significant improvements in their external balances since the global financial crisis, turning their current account balances from double-digit deficits into surpluses. Their net international investment positions have also changed significantly – from around -100% of GDP for both countries to -50% for Croatia and -30% for Bulgaria, making the latter one of the least vulnerable central and eastern European countries.

This rebalancing was also paired with significant adjustment of relative costs and prices, such that from a normative perspective the Bulgarian lev and the Croatian kuna were assessed to be in line with fundamentals. The assessment of both countries' external balances when they joined ERM II suggested that their current account balances were relatively close to their cyclically adjusted level, and if anything somewhat above their medium-term current account benchmarks, thus indicating that the currencies were not overvalued. At the same time, both countries' relative price levels were close to what their relative income levels would suggest based on a comparative econometric analysis. In 2019 Bulgaria's price level stood at 52% compared with the euro area, while its real per capita GDP was 49% of that of the euro area. Croatia's price level was 65% compared with the euro area, while its real per capita GDP was 60% of that of the euro area.

In the absence of any significant real exchange rate misalignment, the ERM II parties decided to set the central rates of the Bulgarian lev and the Croatian kuna at the level of their prevailing market rates. In the case of the Bulgarian lev, this was equal to its fixed exchange rate under the currency board arrangement. Thus, the Bulgarian lev was included with its central rate set as its fixed exchange rate of 1.95583 levs per euro. The Croatian kuna was included with its central rate set to 7.53450 kuna per euro, corresponding to the level of the reference exchange rate (as published by the ECB based on a daily consultation between European central banks) ahead of its inclusion.

Both countries were included in ERM II with a standard fluctuation margin of  $\pm 15\%$ . At the same time, it was accepted that Bulgaria would join with its existing currency board arrangement in place as a unilateral commitment imposing no additional obligations on the ECB.

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## 5 Conclusion: the way ahead and related challenges

**Joining ERM II is a necessary step towards euro adoption.** At present, 19 EU Member States have adopted a common monetary policy with the euro as a common currency. Under the Treaty, all other EU Member States except Denmark are expected to introduce the euro once the necessary requirements have been fulfilled.

**From a procedural angle, the decision on euro adoption is taken by the Council of the European Union in line with the relevant Treaty provisions, including the need to stay in ERM II for at least two years.** The process is defined in Article 140 and Protocol 13 of the Treaty and can be summarised as follows. After consulting the European Parliament and following discussion in the European Council, the Council shall, at the proposal of the European Commission, decide which Member States with a derogation fulfil the necessary conditions to adopt the euro. This decision is taken on

the basis of the Maastricht economic and legal criteria. The Convergence Reports on the fulfilment of these criteria are prepared by the European Commission and the ECB. The Council shall act – on the basis of the recommendation of a qualified majority of euro area EU Member States – at the latest six months after receiving the Commission’s proposal, which is based on the conclusions of the Convergence Reports. The next Convergence Reports are expected to be published in the course of 2022.

**From a policy standpoint, the adoption of the euro is an opportunity, albeit not a guarantee, for Member States to reap substantial benefits.** Most importantly, the adoption of a global currency as legal tender fosters monetary stability, which in turn manifests itself in a stable and low real interest rate environment. This benefit, however, may also expose a country to vulnerabilities if it considers monetary stability as a substitute for disciplined and sustainable economic policies.

**Article 140 of the TFEU states unambiguously that a country should achieve “a high degree of sustainable convergence” with the euro area before introducing the euro.** This means that the adoption of the euro should be sustainable over the long run. Factors such as resilient economic structures, financial stability, the quality of institutions and governance, and the progressive enhancement of EU architecture also play a very important role. The convergence process, therefore, is not automatic, and at country level should be seen rather as a by-product of relentless policy efforts before and after adoption of the euro, i.e. as a continuum. It is for these reasons that the ECB press releases of 10 July 2020 on the inclusion of the Bulgarian lev and Croatian kuna in ERM II also emphasised a “firm commitment” by the respective authorities “to pursue sound economic policies with the aim of preserving economic and financial stability, and achieving a high degree of sustainable economic convergence.”<sup>94</sup>

**The role of ERM II as a preparatory phase for euro adoption and the regime shift this entails raise policy challenges that need to be addressed.** The prior commitments made by the Bulgarian and Croatian authorities in recent years have spurred the introduction of important measures that will mitigate risks under ERM II. The additional, structural policy measures announced when they joined ERM II are therefore to be welcomed. However, while crucial steps have been taken in both countries to address macroeconomic imbalances, there is still significant progress to be made with regard to the overall quality of institutions and governance. In this regard, taking a long-term view on policymaking will be decisive going forward, especially in the light of the new divergence risks caused by the coronavirus (COVID-19) shock.

**Finally, these policy efforts will also need to include measures aimed at preventing the euro changeover from being used by firms and price-setters as an excuse for unwarranted price hikes that may harm the trust of the population in the single currency.** In this regard, the national authorities, in cooperation with the European Commission and the ECB, can benefit from past experiences with euro changeover in other countries, which have included measures such as public

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<sup>94</sup> See the ECB press releases “[Communiqué on Bulgaria](#)” and “[Communiqué on Croatia](#)” of 10 July 2020.

campaigns and the introduction of dual price display, as well as agreements with relevant associations. The ECB is fully committed, along with the Commission, to supporting the Bulgarian and the Croatian authorities in the promotion of campaigns to prevent the rounding up of prices.

## 2 The impact of the COVID-19 pandemic on the euro area labour market

Prepared by Robert Anderton, Vasco Botelho, Agostino Consolo, António Dias da Silva, Claudia Foroni, Matthias Mohr, Lara Vivian

### 1 Introduction

**The euro area labour market has been severely hit by the coronavirus (COVID-19) pandemic and associated containment measures.** Employment and total hours worked declined at the sharpest rates on record. Unemployment increased more slowly and to a lesser extent, reflecting the high take-up rate of job retention schemes and transitions into inactivity. The labour market adjustment occurred primarily via a strong decline in average hours worked. In addition, the labour force declined by about 5 million in the first half of 2020, which is half a million more than its increase between mid-2013 and the fourth quarter of 2019.

**Both labour supply and aggregate demand shocks help explain the decline in total hours worked.** An analysis via a sign-restricted structural vector-autoregressive model shows that labour supply and productivity shocks together account for about one-third of the total decline in hours worked in the second quarter of 2020. This reflects both the impact of lockdowns, which forced firms to temporarily close or reduce their operations, and the decline in the labour force, potentially also reflecting some discouragement in view of the pandemic situation. The negative aggregate demand shock is estimated to account for about one-quarter of the decline in total hours worked, reflecting both demand constraints and possible effects of uncertainty on consumption behaviour.

**The high take-up of job retention schemes in the euro area significantly affected labour market developments.** As euro area governments introduced containment measures to limit the spread of the virus they also devised policies to support the labour market, with a particular focus on job retention schemes in the form of short-time work and temporary lay-offs. These schemes help to explain the adjustment via average hours worked. They also help to explain why compensation per employee declined significantly in the euro area during the COVID-19 pandemic, while compensation per hour increased slightly over the same period.<sup>95</sup> High-frequency indicators of labour demand and new hires help to shed light on the impact of the crisis on the labour market. These indicators show that the labour market remained depressed in the fourth quarter of 2020, despite some recovery in employment and hours worked in the third quarter.

**A prominent feature of the pandemic was a shift from office work to teleworking.** While teleworkable jobs accounted for 33% of employees in 2019, fewer than 10% of potential teleworkers (3.3% of employees) reported working from home either usually or sometimes. That changed with the pandemic and associated

<sup>95</sup> The consequent decline in household income was buffered to some extent by fiscal subsidies, job retention schemes and other support measures.

lockdowns, during which more than a third of Europeans began to telework. In the first months after the onset of the pandemic, teleworking may have supported employment and hours worked in some sectors, in particular among workers with higher levels of education. Looking ahead, the pandemic is likely to accelerate the ongoing digital transformation of the euro area economy, with teleworking and the use of digital technology becoming more prominent.

## 2 Developments in employment, unemployment and hours worked

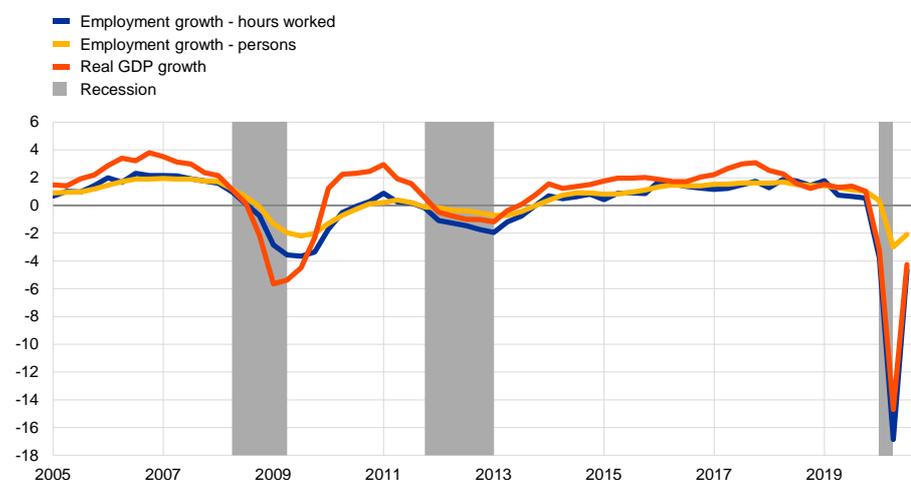
### The COVID-19 pandemic led to the sharpest contraction on record in employment and total hours worked in the second quarter of 2020.

There were 5.2 million fewer persons employed in the second quarter 2020 than at the end of 2019, a fall of 3.2%. The decline in the number of persons employed in the first half of 2020 corresponds to roughly 44% of the increase in the number of persons employed since the second quarter of 2013. Both employment and hours worked recovered somewhat in the third quarter, but remained substantially below their levels in the fourth quarter of 2019. Moreover, despite the record low employment growth observed in the first half of 2020, the quarter-on-quarter adjustments in employment remained relatively muted in comparison to the changes in GDP. Total hours worked changed substantially more than employment, and also more than GDP. In the second quarter of 2020, the quarter most affected by the containment measures, total hours worked declined by 16.8% and average hours worked declined by 14.3% in annual terms (see Chart 1). The adjustment via the “intensive margin” was facilitated by the high take-up of job retention schemes, which benefited from government efforts to implement new schemes or to considerably expand existing ones (see Section 3). Box 1 describes the nature of the shocks affecting total hours worked and labour force participation.

**Chart 1**

### Employment developments in the euro area

(annual percentage changes)



Sources: Eurostat and authors' calculations.

Notes: Annual changes are based on seasonally and working-day adjusted data. Shaded bars indicate euro area recessions, defined as two consecutive quarters of negative GDP growth. Latest observation: third quarter of 2020.

**Labour productivity per employee decreased markedly during the COVID-19 pandemic, while labour productivity per hour increased slightly.** In the first half of 2020, there was a sharp decline in labour productivity per employee, with a year-on-year change of -12.1% in the second quarter of 2020, as the sharp drop in GDP was accompanied by a more moderate fall in employment. By contrast, labour productivity per hour increased by 2.6% year-on-year in the second quarter of 2020, as hours worked dropped more than GDP (see Chart 1). This dichotomy between productivity per person and per hour worked is more marked than in previous recessions and reflects the very high take-up rate of job retention schemes. However, labour productivity per person recovered substantially in the third quarter.

**The reaction of the unemployment rate to the fall in activity was more muted than the reactions of employment and total hours worked.** Between February and October 2020, the unemployment rate in the euro area increased by only 1.2 percentage points to 8.4%, despite the large fall in employment. The unemployment rate reached 8.7% in July and thereafter declined. The limited increase in the unemployment rate in the euro area during the first months after the onset of the COVID-19 pandemic was in sharp contrast to developments in the United States, where part of the adjustment occurred via the temporary laying off of workers. These are considered unemployed in the United States, whereas in the euro area those affected by short-time work schemes or temporary lay-offs remain, in most cases, on the payroll and are thus not considered unemployed (see Box 2). The more muted response of euro area unemployment to the decline in activity can be attributed not only to the job retention schemes that aimed to protect employment and limit unemployment, but also to a high number of workers transitioning into inactivity, resulting in sharp contractions in labour force participation (see Chart 2). Lockdowns and other containment measures suppressed labour demand and discouraged the search efforts of some workers who lost their jobs and transited directly into inactivity.<sup>96</sup> The labour force recovered substantially in the third quarter, but remains smaller than in the fourth quarter of 2019.

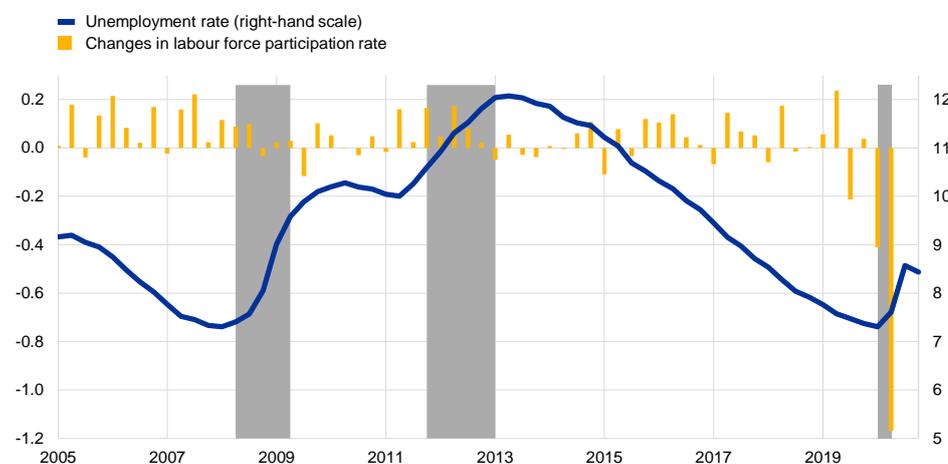
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<sup>96</sup> Persons available for but not seeking work increased by 3.2 million in the first half of 2020, which represents 86% of the total decline in the labour force as measured by the Labour Force Survey. A broad measure of labour underutilisation which includes the unemployed, persons available but not seeking, persons seeking but not available and part-time workers who wish to work more hours increased from 14.6% to 16.3% of the extended labour force between the fourth quarter of 2019 and the second quarter of 2020. The extended labour force includes persons available but not seeking and persons seeking but not available, in addition to the employed and unemployed.

## Chart 2

### Unemployment rate and labour force participation rate in the euro area

(left-hand scale: percentage points, quarter-on-quarter changes; right-hand scale: percentages)



Sources: Eurostat and authors' calculations.

Notes: All quarterly data are seasonally adjusted. Labour force measured as the sum of employment and unemployment. Shaded bars indicate euro area recessions, defined as two consecutive quarters of negative GDP growth. Latest observations: third quarter of 2020 for the labour force participation rate and October 2020 for the unemployment rate.

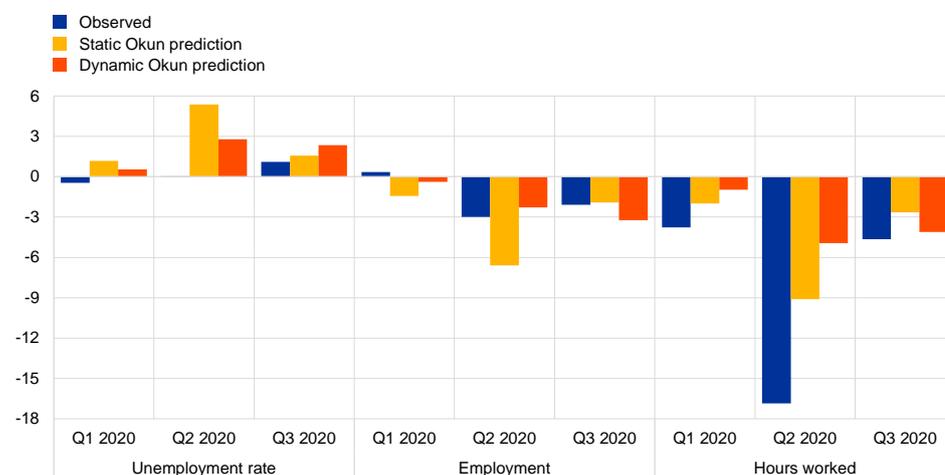
**The unemployment rate and total hours worked moved away from their long-term co-movements with GDP in the second quarter of 2020.**<sup>97</sup> Chart 3 contrasts the observed year-on-year growth rates for employment and total hours worked, and the observed year-on-year differences in the unemployment rate, with their expected responses if the long-term relationship between these labour market aggregates and GDP had remained stable over the first half of 2020. The response of employment appears broadly in line with the predictions of the dynamic approach to estimating its long-term relationship with GDP. However, the unemployment rate has not increased relative to the second quarter of 2019, while total hours worked has decreased by more than would have been expected when looking at its long-term relationship with GDP. In the third quarter 2020, the observed annual growth rates of employment and total hours worked appear to have been broadly in line with their long-term relationship with GDP growth, while the unemployment rate remains lower than would be expected given its historical co-movement with GDP.

<sup>97</sup> This long-term relationship between the main labour market aggregates and GDP can be estimated using either a static or a dynamic approach. The static approach ignores both the short-run and the long-run dynamics of the adjustment of the labour market to fluctuations in the business cycle, whereas a dynamic approach allows for a protracted response of the unemployment rate, employment and total hours worked to the observed changes in GDP. Independently of the estimation approach, this long-term relationship helps to quantify the observed decline in employment and total hours worked and the observed increase in the unemployment rate as a result of the fall in economic activity in the first half of 2020.

### Chart 3

#### Predictions based on the long-term relationship between selected labour market aggregates and GDP

(unemployment rate, percentage points; employment and hours worked, percentages)



Sources: Eurostat and authors' calculations.

Notes: The long-term relationship between each labour market variable and GDP is estimated on the basis of year-on-year growth rates or differences (in the case of the unemployment rate) up to the fourth quarter of 2019. The impacts are then calculated as the response of the labour market variables to the observed year-on-year decline in GDP in the first and second quarters of 2020 according to Okun's law. The dynamic Okun prediction is based on an autoregressive distributed lag model, and allows for a dynamic response of labour market aggregates to the decline in GDP.

### Box 1

#### Key drivers of labour market developments: an SVAR analysis

Prepared by Claudia Foroni and Matthias Mohr

This box assesses recent developments in total hours worked and the labour force in the euro area on the basis of a sign-restricted structural vector-autoregressive model (SVAR). This approach can be used to decompose the year-on-year changes in the four endogenous variables shown in Table A into the cumulative contributions of four specific economic shocks, comprising (i) a shock giving rise to an increase in the demand for labour; (ii) a technology or productivity shock, which can be thought of as a sudden change in the production technology of firms; (iii) a shock constituting an exogenous change in the labour supply (via a shock to labour force participation); and (iv) a wage bargaining shock, which can be thought of as a change in the bargaining power of workers. These shocks are unobservable and are identified by imposing restrictions on the direction in which the endogenous variables move in response to the impact of the shocks, as shown in Table A.<sup>98</sup>

<sup>98</sup> The restrictions on the impact of shocks on the endogenous variables can be derived from theoretical economic models. For a description of a similar model and an explanation of the restrictions, see Foroni, C., Furlanetto, F. and Lepetit, A., "Labor Supply Factors and Economic Fluctuations", *International Economic Review*, Vol. 59, Issue 3, 2018, pp. 1491-1510.

**Table A**

## Restrictions imposed on the impact of shocks on endogenous variables

Endogenous variable	Labour demand shock	Productivity shock	Labour supply shock	Wage bargaining shock
Hours worked	+	+	+	-
GDP deflator	+	-	-	+
Real wages		+	-	+
Labour force			+	+

Notes: The table shows the restrictions on the sign of the instantaneous impact of each shock (top row) on the quarter-on-quarter change in the respective endogenous variable (first column). A "+" ("−") indicates that the variable reacts positively (negatively) on impact to the shock, while an empty cell means that no restriction on the direction of the response on impact is imposed. The SVAR is estimated using quarter-on-quarter changes of the variables between the second quarter of 1995 and the fourth quarter of 2019. "Real wages" is defined as compensation per hour deflated by the GDP deflator.

From an economic point of view, these shocks can capture various events. An increase in wage bargaining power can be related to policy measures, such as an increase in the minimum wage. Likewise, structural reforms that aim to reduce labour costs and to make labour markets more flexible, such as a reduction in unemployment benefits or allowing opt-outs from collective wage agreements, can be considered examples of negative wage bargaining shocks. Positive labour supply shocks can be related to migration waves, changes in the preferences of workers, or institutional reforms that change the size of the labour force, such as an increase in the retirement age. Positive aggregate demand shocks comprise events giving rise to an increase in demand for goods and services in the domestic economy, such as an unexpected increase in foreign demand, or an increase in confidence which may incentivise people to spend more on investment or consumption goods. Such a shock would, in this context, also increase the demand for labour, so total hours worked would increase. Finally, positive productivity shocks can be technological innovations which ease the production or distribution of goods and services or give rise to new products, but they also cover the impact of economic reforms aimed at improving the supply side of the economy (e.g. increasing competition by abolishing inefficient regulations).

Chart A shows the cumulative effect of the identified shocks on the annual changes in total hours worked and the labour force up to the second quarter of 2020.<sup>99</sup> As shown in the upper left panel, the SVAR model interprets the large decline in total hours worked observed in the second quarter of 2020 as being induced primarily by supply-side and demand shocks.<sup>100</sup> On the supply side, labour supply and productivity shocks together are estimated to account for more than one-third of the total decline in hours worked. This reflects the impact of lockdown and containment measures introduced by national governments during the pandemic, which forced many shops and firms to temporarily close or reduce their operations. Furthermore, the negative impact of the labour supply shock captures workers who lost their jobs during the pandemic crisis and did not immediately search for new jobs. As these workers were registered as inactive, this gave rise to the large decline in the labour force recorded during the first two quarters of 2020. The impact of a negative demand shock is estimated to account for about one-quarter of the decline in total hours worked in the second quarter. This reflects constraints on the demand for services as a consequence of the lockdown measures as well as other

<sup>99</sup> The shocks are obtained by estimating an SVAR model with time-invariant parameters for the euro area, with the sign restrictions defined in Table A, from the second quarter of 1995 to the fourth quarter of 2019. The shocks for the first and second quarters of 2020 are obtained on the basis of the estimated past shocks, the estimated parameters and the available data for the four variables in this period. While the model is estimated using quarterly changes of the endogenous variables, the charts in this box show the decomposition of the changes transformed into annual rates of change. The residual component captures the unconditional mean of the variables.

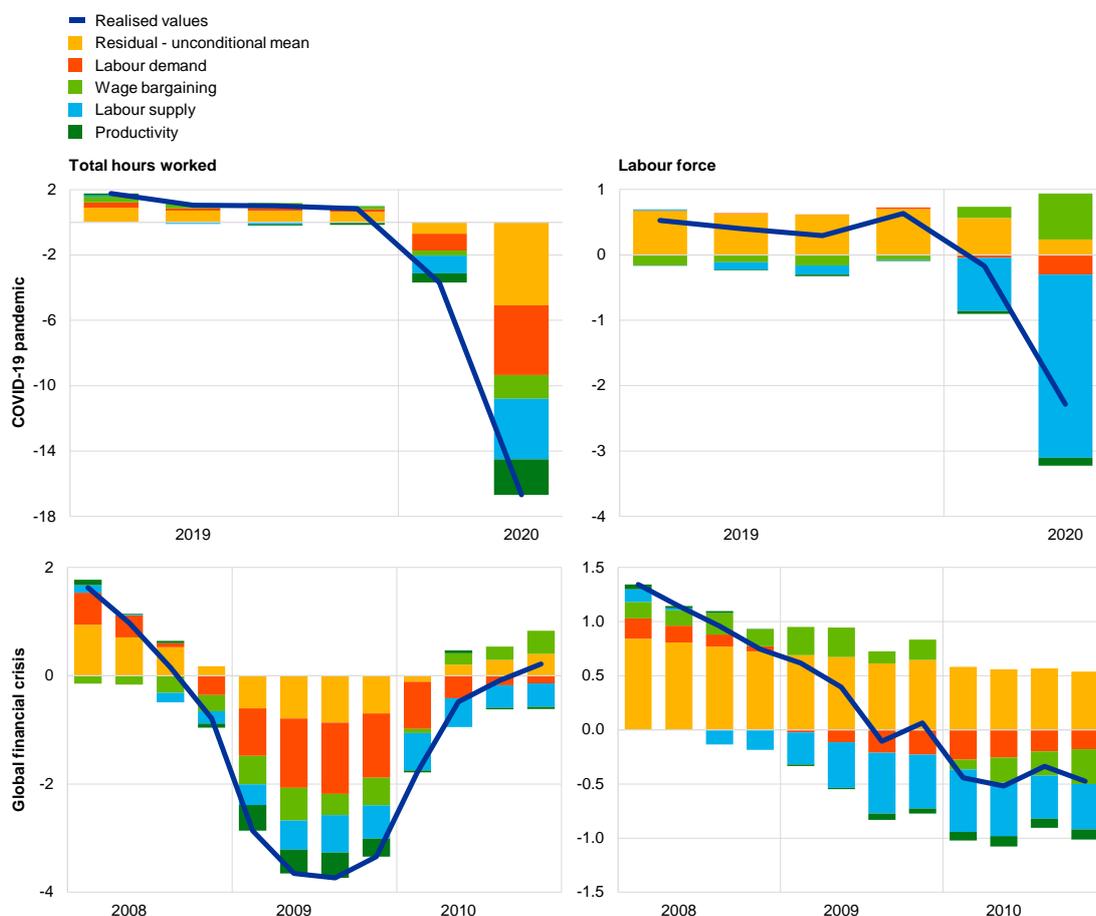
<sup>100</sup> In the first quarter, the pandemic impacted the economy primarily in the last month, March. Looking at the results for the first two quarters of 2020 provides a similar picture to the one described here for the second quarter of 2020.

factors, such as an increase in uncertainty during the pandemic, which restrained consumption. The impact of a positive wage mark-up shock is estimated to explain less than one-tenth of the observed decline in total hours worked in the second quarter, mainly on account of an observed strong increase in compensation per hour (see Box 3 for developments in compensation per hour). Unsurprisingly, the large decline in labour force participation is mostly explained by the impact of the labour supply shock, as shown in the upper right panel of Chart A. The residual component is estimated to account for less than one-third of the decline in total hours worked.

## Chart A

### Contributions of shocks to changes in total hours worked and the labour force in the euro area

(annual percentage changes; percentage point contributions)



Sources: Eurostat and authors' calculations.

While the responses of total hours worked and the size of the labour force have been significantly larger in the current COVID-19 pandemic than during the financial crisis, a comparison of the impacts of shocks in the two recessions highlights interesting similarities but also important differences. As in the current pandemic, the largest part of the decline in total hours worked during the financial crisis was also explained by labour supply, productivity and demand shocks (see Chart A, lower left panel). However, unlike in the current pandemic, the dominant shock during the trough of the financial crisis in 2009 was the demand shock, which accounted for a larger share of the decline in total hours worked than the two supply-side shocks. Finally, in both recessions, labour supply shocks were the main contributors to the decline in the labour force, which in both cases was accompanied by a decline in total hours worked.

## Box 2

### The impact of the COVID-19 crisis on the labour market in the United States

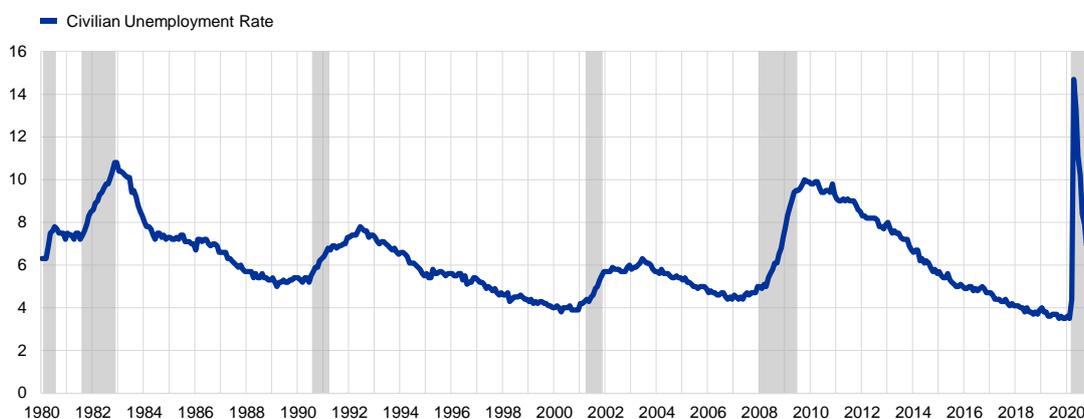
Prepared by Ramon Gomez Salvador

The broad-based shutdown of the US economy put in place to control the COVID-19 outbreak led to an unprecedented rise in unemployment and a fall in labour force participation. Between February and April 2020 around 25 million jobs were lost and the unemployment rate increased from 3.5% to 14.7% (see Chart A), with workers that were temporarily laid off accounting for 75% of the new unemployed.<sup>101</sup> In the first six weeks of the shutdown around 30 million people applied for unemployment benefit, while 8 million workers left the labour force in March and April.<sup>102</sup>

#### Chart A

##### Unemployment rate

(percentages of civilian labour force, seasonally adjusted)



Source: Bureau of Labor Statistics (BLS).

Notes: Labour force data are restricted to people 16 years of age and older. Shading indicates recession dates announced by the NBER Business Cycle Dating Committee. Latest observation: October 2020.

The decline in employment has been unprecedented compared to previous recessions. One relevant aspect for understanding the increase in unemployment is its link to the decline in employment related to developments in labour force participation. Chart B shows that in past recessions the bulk of the increase in unemployment was related to the decline in employment. By contrast, in the COVID-19 crisis, not only has the decline in employment been high compared to previous recessions, but the decline in participation has also limited the increase in unemployment to a greater extent than in the past. Hours worked per worker also showed a slightly more marked adjustment than in previous recessions (see Chart B).

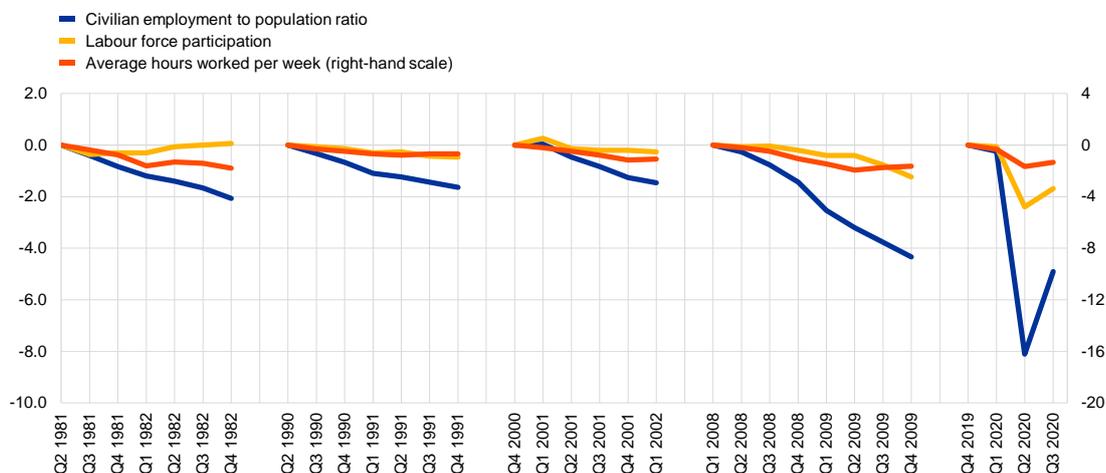
<sup>101</sup> In the United States, workers on temporary lay-offs are those classified as unemployed who have been given a date to return to work or who expect to return to work within six months.

<sup>102</sup> The severe adjustment took place despite the introduction of measures to contain unemployment, including: (i) the Paycheck Protection Program, which provides loans and guarantees to companies with up to 500 employees to cover payroll costs, mortgage or rent payments, utilities and health benefits, where the loans are eligible for partial or total forgiveness if the firm maintains most of its pre-crisis employees on the payroll; and (ii) the Employee Retention Tax Credit, a tax credit equal to 50% of the qualified wage paid by eligible employers until the end of 2020, provided businesses keep workers on their payroll.

## Chart B

### Employment rate, labour force participation and average hours worked per week during the COVID-19 crisis and past recessions

(left-hand scale: percentage points; right-hand scale: percentage changes)



Sources: Bureau of Labor Statistics (BLS) and authors' calculations.  
Note: The chart shows cumulative developments over the course of each recession.

Despite the rapid bounce back of the labour market, it will take time for the unemployment rate to fall back to pre-COVID-19 levels. The unemployment rate declined to 6.9% in October, 7.8 percentage points below its April high. Between April and October, the number of employed workers increased by 16.4 million owing to the re-insertion into the labour market of temporarily laid-off workers. The number of hours worked per week has also shown signs of recovery. Nonetheless, according to the Federal Open Market Committee forecast released in September 2020, the unemployment rate is not expected to return to pre-recession levels until 2023.

## 3 Job retention schemes

**Job retention schemes reached unprecedented levels in the first months after the onset of the COVID-19 pandemic and thus play an important role in explaining labour market developments in this period.** In April 2020, when lockdown measures to contain the spread of COVID-19 were in place in most euro area countries, including the four largest ones, 15% of all employees in Germany, 34% in France, 30% in Italy and 21% in Spain were on short-time work (see Chart 4). While these levels have since declined, they still remain elevated. In the fourth quarter of 2020 the number of workers in job retention schemes is expected to increase in response to the new lockdown measures. To put these numbers into perspective, in 2009 the average share of employees participating in short-time work schemes reached 3.2% in Germany, 0.8% in France, 3.3% in Italy and 1.0% in Spain.<sup>103</sup> These schemes help to explain the adjustment in the labour market via average hours worked. They also help to explain why compensation per employee declined

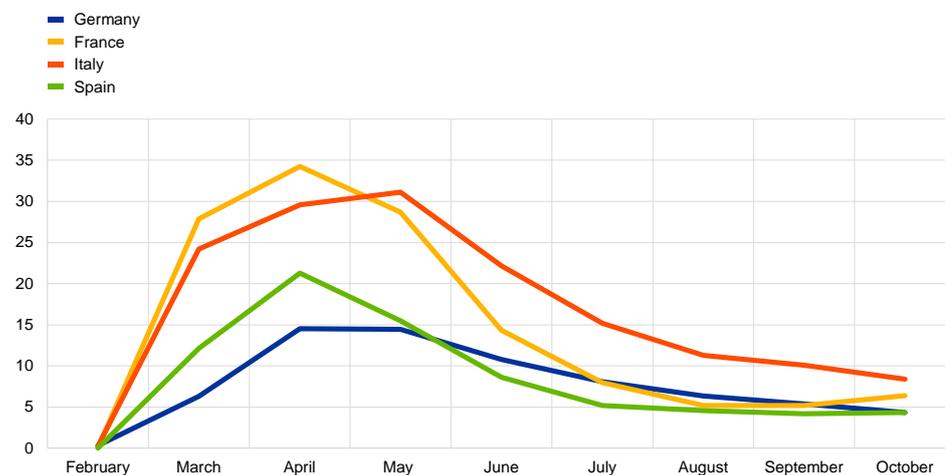
<sup>103</sup> See *OECD Employment outlook 2010: Moving beyond the Jobs Crisis*, OECD, 2010.

significantly in the euro area during the COVID-19 pandemic, while compensation per hour increased slightly over the same period (see Box 3).

#### Chart 4

##### Share of employees on job retention schemes

(percentages of employees)



Sources: Authors' estimates based on data from Eurostat, Institute for Employment Research (*Institut für Arbeitsmarkt- und Berufsforschung – IAB*), ifo Institute, Ministère du Travail, de l'Emploi et de l'Insertion, Instituto Nazionale Previdenza Sociale (INPS), and Ministerio de Inclusión, Seguridad Social y Migraciones.

**The large number of workers on job retention schemes benefited from rapid policy responses to support the labour market during the early stages of the pandemic.** National governments of euro area countries implemented extensive labour market policies at the onset of the COVID-19 pandemic. Job retention schemes featured prominently and were widely adopted across the euro area. These measures were designed to support workers' incomes and to protect jobs in firms during the COVID-19 pandemic.<sup>104</sup> Some countries introduced new short-time work schemes and others overhauled existing schemes by increasing their generosity, broadening eligibility and reducing the administrative burden of accessing the schemes. There was also support for these schemes at EU level.<sup>105</sup>

**Job retention schemes help to keep employment stable in the short term, but it is important to design them in a way that limits undesirable effects.** In particular, these schemes played an important role at the onset of the COVID-19 pandemic when firms faced a sudden contraction in their sales. They helped to reduce firms' liquidity needs, while allowing them to resume activity more swiftly after the lockdown by keeping employment relationships intact. Some studies have analysed the causal impact of short-time work on employment and concluded that these schemes helped to save jobs when firms faced a sharp drop in demand.<sup>106</sup> These effects could also be

<sup>104</sup> See the box entitled "[Short-time work schemes and their effects on wages and disposable income](#)", *Economic Bulletin*, Issue 4, ECB, 2020.

<sup>105</sup> In May 2020 the Council of the European Union adopted a European instrument for temporary support to mitigate unemployment risks in an emergency (SURE).

<sup>106</sup> See, for example, Hijzen, A. and Martin, S., "The role of short-time work schemes during the global financial crisis and early recovery: a cross-country analysis", *IZA Journal of Labor Policy*, Vol. 2:5, 2013; and Balleer, A., Gehrke, B., Lechthaler, W. and Merkl, C., "Does short-time work save jobs? A business cycle analysis", *European Economic Review*, Vol. 84, 2016, pp. 99-122.

potentially higher for highly leveraged firms.<sup>107</sup> However, job retention schemes also entail some degree of deadweight losses (when they subsidise jobs that would not have been lost) and displacement effects (when they subsidise unviable jobs). Some studies suggest that short-time work schemes may decrease the allocative efficiency of the economy when used on a large scale for an extended period of time.<sup>108</sup> For these reasons they should be limited in duration in order not to hinder necessary economic restructuring, while remaining in place long enough to preserve viable jobs that might otherwise be lost.<sup>109</sup> These risks are likely to be significantly lower during the COVID-19 crisis than in cyclical downturns. In addition, some countries adjusted the generosity of their job retention schemes when extending their duration after the first months of the pandemic.

**Structural features affect the margins of adjustment of the labour market, but the nature of the shock, in conjunction with the institutional frameworks of the labour market in Europe, led to widespread adoption of the intensive margin of adjustment.** A number of euro area countries are characterised by relatively strict employment protection legislation, making the use of short-time work schemes more attractive than dismissals when firms are faced with a temporary drop in demand. In some countries, high employment protection leads to segmented labour markets and temporary workers are used as a buffer against demand fluctuations. However, the nature and magnitude of the COVID-19 crisis, and the implementation of measures to ease access to short-time work, led to widespread use of the intensive margin of adjustment across most euro area countries. This high reliance on the intensive margin of adjustment may also be reflected in lower job creation in the recovery period.

### Box 3

#### Developments in compensation per hour and per employee since the start of the COVID-19 pandemic

Prepared by Gerrit Koester and Elke Hahn

Aggregate wage growth is mostly assessed in terms of compensation per employee or compensation per hour worked. For the euro area these two indicators tend to move broadly in tandem during normal times (see Chart A, panel a). However, at other times they can diverge substantially, reflecting, for instance, (temporary) reductions in hours worked per employee (the “intensive margin”) where employees are not forced to absorb these reduced hours in their monthly salaries. Developments during the global financial crisis of 2008-09 provide a historical example.

<sup>107</sup> See Cahuc, P., Kramarz, F. and Nevoux, S., “When Short-Time Work Works”, *IZA Discussion Papers*, No 11673, 2018.

<sup>108</sup> See, for example, Cooper, R., Meyer, M. and Schott, I., “The Employment and Output Effects of Short-Time Work in Germany”, *NBER Working Paper*, No 23688, 2017; and Giupponi, G. and Landais, C., “Subsidizing Labor Hoarding in Recessions: The Employment & Welfare Effects of Short Time Work”, *CEP Discussion Papers*, No 1585, Centre for Economic Performance, London School of Economics and Political Science, 2018.

<sup>109</sup> For a discussion, see Arpaia, A., Curci, N., Meyermans, E., Peschner, J. and Pierini, F., “Short time working arrangements as response to cyclical fluctuation”, *European Economy Occasional Papers*, No 64, European Commission, 2010; and Costa Dias, M., Joyce, R., Postel-Vinay, F. and Xu, X., “The Challenges for Labour Market Policy during the COVID-19 Pandemic”, *Fiscal Studies*, Vol. 41(2), 2020, pp. 371-382.

The COVID-19 pandemic has led to a substantial divergence between compensation per employee and compensation per hour. This has been visible since the start of the pandemic, especially in the second quarter of 2020, when compensation per employee declined at an annual rate of 4.7% and compensation per hour increased by 9.3%, although the differences moderated again in the third quarter of 2020 (see Chart A, panel b). The number of workers on job retention schemes, which has remained elevated since the start of the pandemic and peaked in the second quarter (see Chart 4 in the main text), played a decisive role in these developments, especially via the implications for hours worked per person. Such schemes tend to have a downward effect on compensation per employee, as employees usually retain their employment status but face pay cuts when enrolling in these schemes. At the same time, they have an upward effect on compensation per hour, as hours worked tend to be reduced far more strongly than pay.<sup>110</sup> A further factor complicating the assessment of underlying wage trends during the pandemic is compositional effects. As employment declined particularly strongly among low-skilled jobs and young workers (see Chart 9 in the main text), which tend to be in the lower wage groups, compositional effects may currently be having an upward effect on wage developments.<sup>111</sup>

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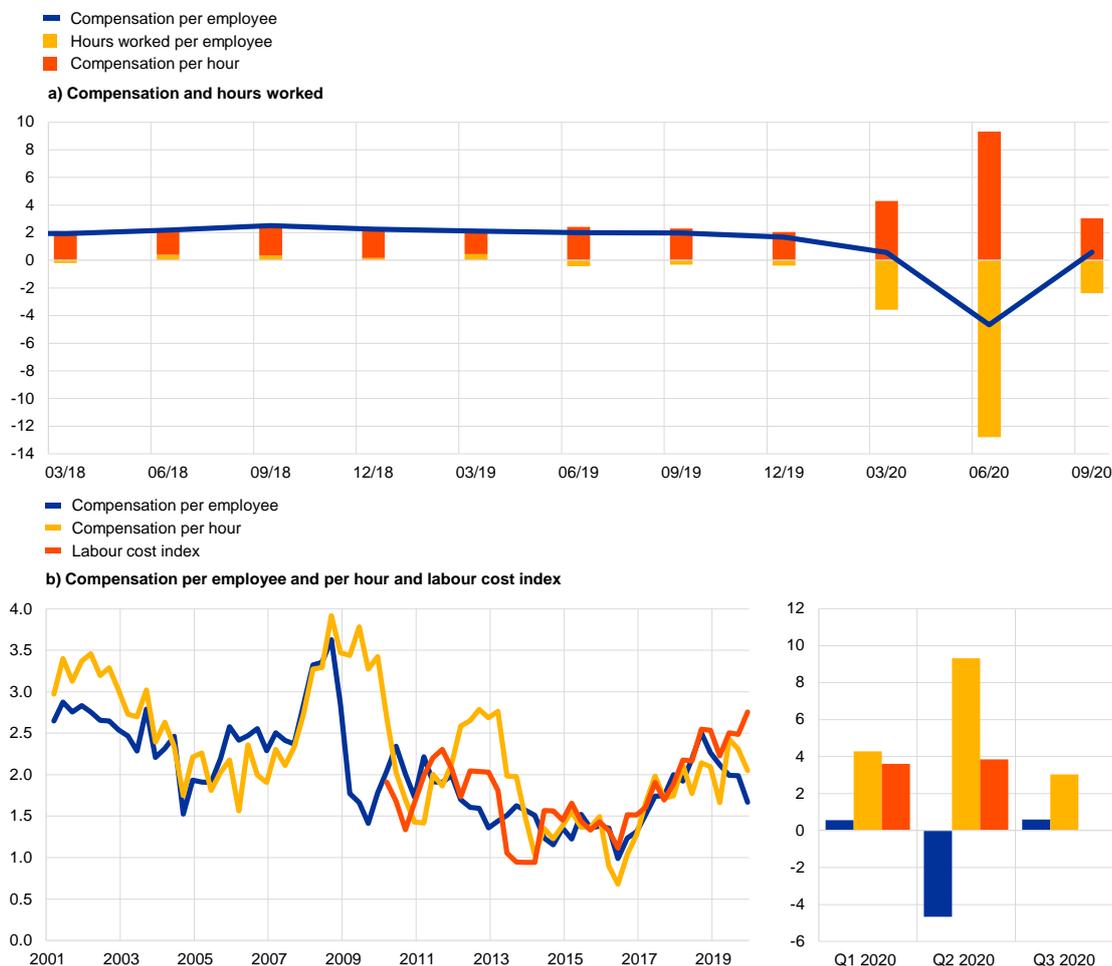
<sup>110</sup> See also the box entitled “[Short-time work schemes and their effects on wages and disposable income](#)”, op. cit.

<sup>111</sup> For a discussion of such compositional effects and their impact on euro area wage developments in previous crises, see the article entitled “[The effects of changes in the composition of employment on euro area wage growth](#)”, *Economic Bulletin*, Issue 8, ECB, 2019.

## Chart A

### Developments in selected wage indicators

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



Sources: ECB, national central banks and Eurostat.

Notes: Given the recent strong movements observed in compensation per employee and compensation per hour, the year-on-year rates for the last three quarters are shown on a separate scale in panel b. Latest observation: second quarter of 2020 for the labour cost index and third quarter of 2020 for the rest.

The operation of government support measures complicates the assessment of underlying wage trends during the pandemic. First, information on how much of the aggregate compensation and how many of the employees are attributable to job retention schemes requires detailed data on wage replacement rates and take-up rates, which are published only with a considerable time lag. Second, the statistical recording can differ across countries. While in most large euro area countries the benefits provided under the support schemes are paid directly to employees and are recorded as social transfers, in the Netherlands, for example, employers receive a subsidy to finance their payments to employees. If the benefits are paid directly to employees but are recorded as social transfers, then compensation relative to the number of hours worked decreases and the schemes will have a strong downward effect on compensation per employee, while compensation per hour should be affected much less strongly. By contrast, in countries where a scheme is based on a subsidy paid to employers, who then pay salaries for hours not worked, the schemes should not lead to a strong reduction in compensation per employee but mainly imply a higher compensation per hour.

Against the background of scheme-related distortions in compensation per employee and per hour, relevant signals for wage cost developments might be distilled from, inter alia, Eurostat's labour cost index (LCI), which effectively measures developments in compensation per hour, including employers' social security contributions and taxes paid but subtracting subsidies received by employers. According to the LCI, in the second quarter of 2020 hourly labour costs in the euro area rose by 4.2% compared with the same quarter in the previous year (see chart A, panel b), which was substantially lower than the increase in compensation per hour.<sup>112</sup> This indicates that the decrease in the number of hours worked due to the COVID-19 crisis was not fully matched by a corresponding increase in firms' costs, as in some cases firms received subsidies introduced by euro area governments to support job retention during the crisis.

Overall, wage developments are an important determinant of price pressures in the euro area.<sup>113</sup> The strong and unprecedented divergence in the development of different wage indicators in the COVID-19 crisis and the large and heterogeneous effects of job retention schemes across euro area countries complicate the assessment of underlying wage pressures and thus also their impact on prices. This highlights the importance of the availability of detailed and timely information on the impact of such schemes on indicators of wage growth.

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## 4 Using high-frequency indicators to assess labour market developments

**High-frequency indicators are a useful tool for gaining a timely understanding of labour market developments, particularly in periods of rapid and drastic changes in economic activity.** For example, Google Trends provides information about the interests of people using the Google search engine to search specific topics, such as job retention schemes and unemployment conditions. Two other sources that can be used as a more direct measure of demand conditions in the labour market are Indeed job postings and the LinkedIn hiring rate.<sup>114</sup> The number of job postings on Indeed can be used as a proxy for changes in labour demand, while the LinkedIn hiring rate provides complementary information about the number of job changes. These indicators are available well ahead of the publication of official labour market statistics and thus provide valuable timely information which can aid the early identification of changes in labour demand and job findings. However, they need to be used as a complement to official statistics as they do not follow the same sampling rules and may not represent developments in the population with the same accuracy as official labour market statistics.

### **The Google Trends high-frequency awareness indicator on job retention schemes and unemployment conditions peaked after the start of lockdown in**

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<sup>112</sup> The stronger increase in the LCI in 2019 was partly linked to a permanent reduction in employers' social security contributions in France, replacing the tax credit for employment and competitiveness (*crédit d'impôt pour la compétitivité et l'emploi* – CICE), from the first quarter of 2019.

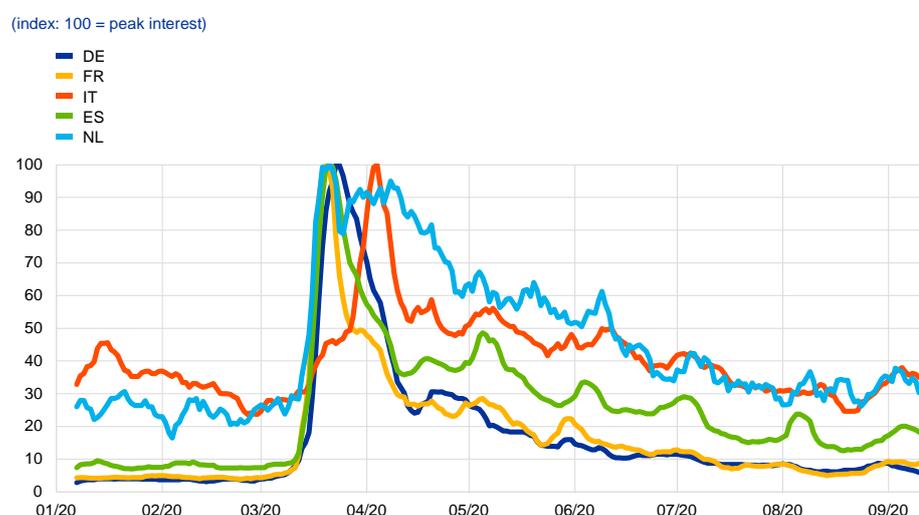
<sup>113</sup> See, for example, the box entitled "[The role of wages in the pick-up of inflation](#)", *Economic Bulletin*, Issue 5, ECB, 2018.

<sup>114</sup> See, for example, the box entitled "[High-frequency data developments in the euro area labour market](#)", *Economic Bulletin*, Issue 5, ECB, 2020.

**the five largest euro area countries (see Chart 5).** The awareness indicator on job retention schemes and unemployment conditions is based on Google Trends data and is constructed by looking at searches related to lay-offs, short-time working, furlough and unemployment. This indicator provides daily information on the level of interest of users in the labour market situation. In particular, Google searches related to job retention schemes and unemployment conditions skyrocketed in mid-March, with a relatively good match between peak interest in the labour market situation and the starting dates of the lockdowns implemented in the five largest euro area countries.<sup>115</sup> As containment measures eased, the awareness indicator reverted to its usual levels.<sup>116</sup>

### Chart 5

Awareness indicator on job retention schemes and unemployment conditions



Sources: Google Trends and authors' calculations.

Notes: The value of 100 represents the peak interest in the topic. The awareness indicator is constructed as a seven-day moving average of the daily Google Trends popularity of the terms "lay-off", "short-time working", "furlough" and "unemployment". Latest observation: 15 September 2020.

**The hiring rate and job postings indicators provide further evidence of the strong impact of the pandemic on the labour market.** The LinkedIn hiring rate indicator is more closely related to job-to-job transitions and the job-finding rate, while the Indeed job postings indicator reflects developments in labour demand and may be regarded as an indicator of vacancies. Both indicators declined sharply in March and April as the pandemic took hold and lockdown measures were implemented (see Chart 6). The hiring rate bottomed out in May and recovered substantially thereafter, but remains at much lower levels than in the previous year. Job postings followed the same declining pattern as the hiring rate, but have only started to recover at a slow pace and remain at broadly the same low levels as those reached in May. The

<sup>115</sup> The awareness indicator peaked one day after the lockdown started in Germany, three days after the lockdown started in France, seven days after the lockdown started in Spain, and six days after the lockdown started in the Netherlands. By contrast, in Italy the peak of the awareness of job retention schemes and unemployment conditions was slightly delayed relative to the start of the containment measures in that country.

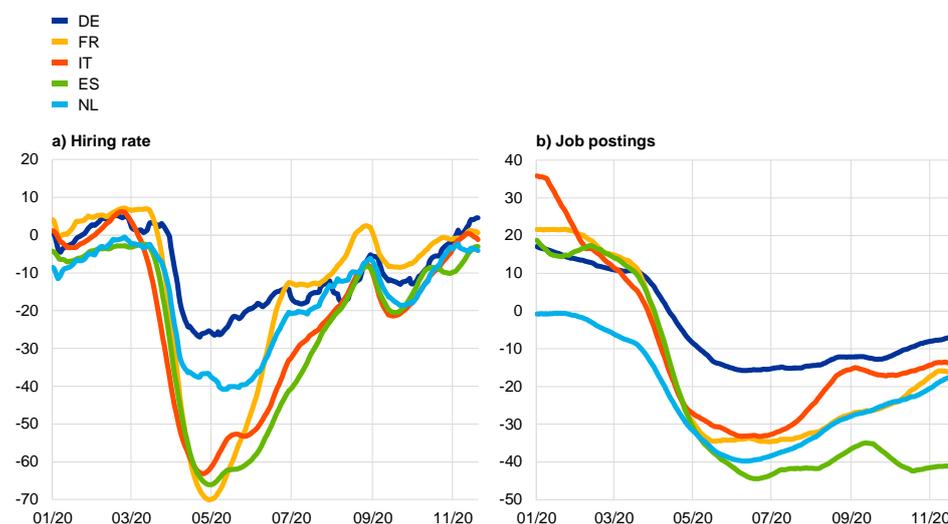
<sup>116</sup> This reflects not only the improvements observed in economic activity following the easing of containment measures and then the easing of the restrictions on travel within the euro area, but also a decrease in the uncertainty associated with the implementation and use of job retention schemes in the labour market and with their impact on labour market conditions in the five largest euro area countries.

difference between the two indicators may reflect the fact that some new hires are occurring on the basis of past vacancies or through referrals.

### Chart 6

#### High-frequency labour market indicators: hiring rate and job postings

(year-on-year growth rates, percentages)



Sources: *LinkedIn*, *Indeed* and authors' calculations.

Notes: The methodology behind the high-frequency indicators on new hires and job postings is documented in the box entitled "High-frequency data developments in the euro area labour market", *Economic Bulletin*, Issue 5, ECB, 2020. Latest observation: 20 November 2020.

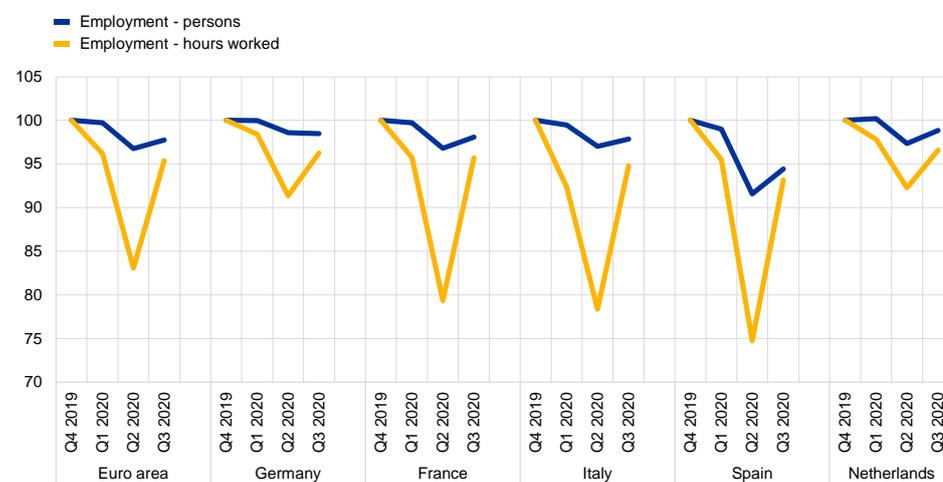
## 5 The impact of the crisis across countries, activity sectors, demographic groups and types of job

**The COVID-19 pandemic is having a heterogeneous impact on euro area labour markets across various dimensions.** This section analyses differences in the impact of the pandemic across euro area countries and across activity sectors, as some sectors are more exposed to changes in demand patterns than others. It also analyses the impact of the pandemic across demographic groups and types of employment contract. In addition, the section discusses the adoption of teleworking during the pandemic and the potential for its further use.

**The impact of the COVID-19 pandemic on the labour market is very negative and widespread across euro area countries.** Lockdown restrictions across the euro area began to be introduced at the end of February and began to be eased from mid-May. While the precise start and end dates of the lockdown restrictions varied, the bulk of the impact on economic activity and job losses materialised in the second quarter of 2020. Chart 7 shows the cumulative impact on the labour market of the pandemic in the first three quarters of 2020 across the five largest euro area countries. While the contraction in employment was substantial across all large countries, there is some cross-country heterogeneity, reflecting differences in the intensity of policy responses to the pandemic and in the sector compositions of the economies.

**Chart 7****Changes in employment and hours worked**

(index: Q4 2019 = 100)



Sources: Eurostat and authors' calculations.

**Total hours worked declined in all main sectors in the euro area in the second quarter of 2020.**

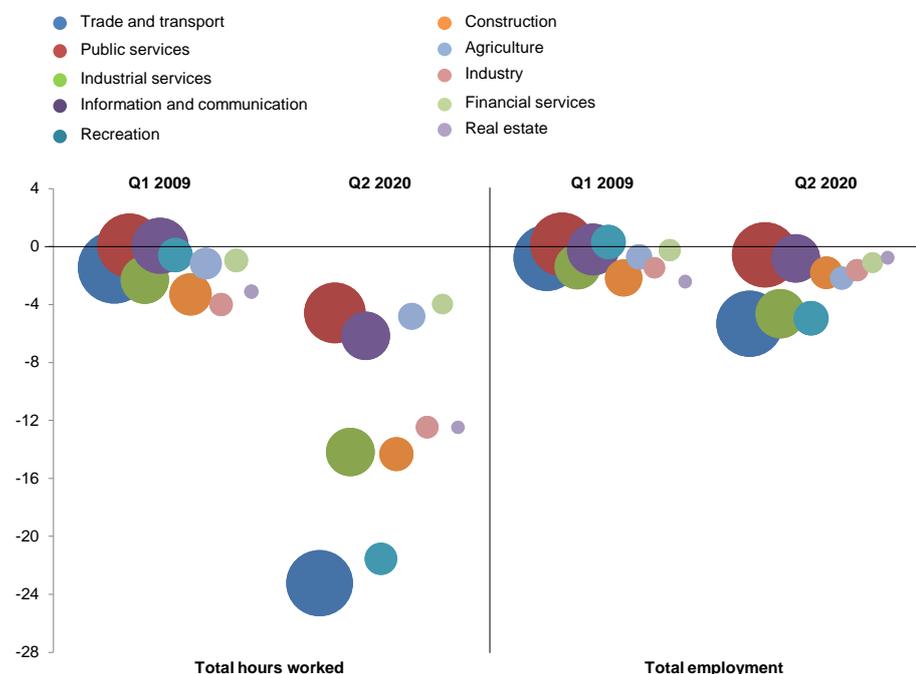
The extent of the decline was different across sectors, partly reflecting the strictness of the lockdown measures affecting each sector.<sup>117</sup> A comparison with the first quarter of 2009, when growth in employment and total hours worked reached a trough during the financial crisis, shows that the quarter-on-quarter decline in total hours worked was larger in all key sectors in the recent pandemic-related recession (see Chart 8). Quarter-on-quarter, the decline in total hours worked in recreation services in the second quarter of 2020 was 40 times larger than the corresponding decline recorded in the first quarter of 2009, while in the trade and transport sector, the decline was 15 times larger. Employment growth in the second quarter of 2020 was also more varied across key sectors than in the first quarter of 2009. Still, the sectoral pattern of the decline in total employment is more comparable than the sectoral pattern of the decline in total hours worked to the pattern observed during the financial crisis. This reflects the widespread use of job retention measures to stabilise employment in the current pandemic recession. While job retention schemes have helped to stabilise employment, such policies may also hinder the efficient reallocation of workers across sectors. Such reallocation is expected to be larger the longer the pandemic lasts.

<sup>117</sup> For a discussion on how various sectoral outcomes may be related to euro area macroeconomic projections, see the box entitled "Alternative scenarios for the impact of the COVID-19 pandemic on economic activity in the euro area", *Economic Bulletin*, Issue 3, ECB, 2020.

## Chart 8

### Total hours worked and total employment in the euro area across sectors

(quarter-on-quarter rates of change, percentages)



Sources: Eurostat and authors' calculations.

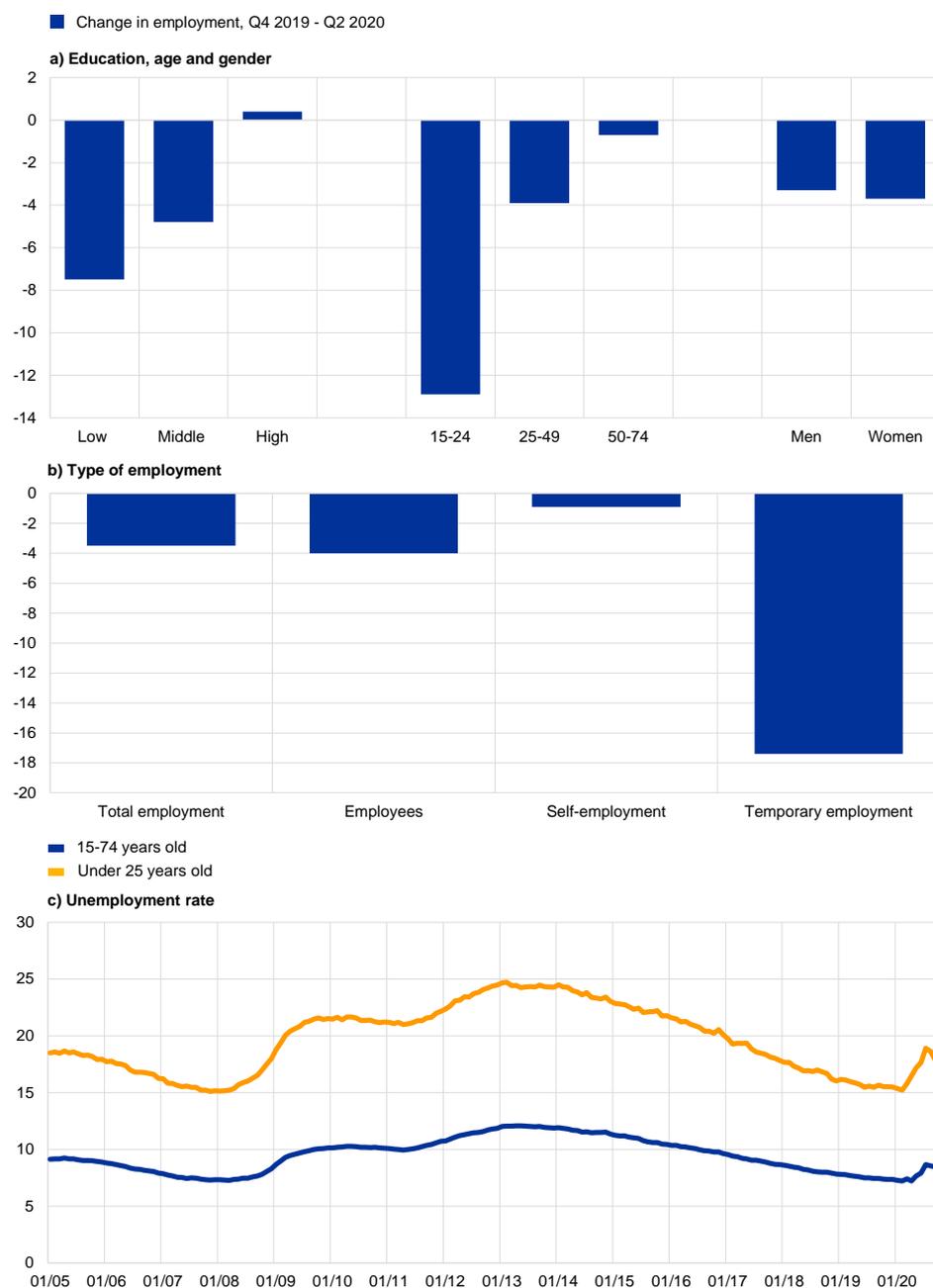
Note: The area of the bubbles reflects the share of the respective sector in the total economy.

**The decline in employment was strongest for temporary employees, the young and workers with low levels of education.** Chart 9, panel a, shows that employment of workers with a high level of education was virtually unaffected by the pandemic, whereas workers with a low level of education saw a sharp decline in their employment. Likewise, young workers were disproportionately affected when compared to older workers. Employment also declined more for women than for men, although the difference is relatively small. Across contract types, employment decreased most for temporary employees (see Chart 9, panel b). In line with the fall in employment, the youth unemployment rate increased significantly more than the overall unemployment rate (see Chart 9, panel c).

## Chart 9

### Change in the labour market in the euro area across demographic groups and types of employment in the first half of 2020

(panels a and b: percentage changes, cumulative growth, Q4 2019 to Q2 2020; panel c: percentages)



Sources: Eurostat and authors' calculations.

Notes: Calculation in panels a and b based on the aggregate of all euro area countries with the exception of Germany, for which no data were available. The latest observation for the unemployment rate is October 2020.

**Remote working has the potential to mitigate the economic costs of stay-at-home and social distancing policies.** The COVID-19 crisis and related policies have resulted in the more widespread adoption of teleworking. More than a third of workers in Europe began to telework as a result of the pandemic.<sup>118</sup> This is

<sup>118</sup> See "Living, working and COVID-19: First findings – April 2020", Eurofound, 2020.

likely to have supported employment and hours worked in some sectors and for some workers, in particular those with a high level of education. Among those who worked remotely during the pandemic, a large majority had previous teleworking experience, suggesting that investigating the pre-COVID-19 distribution of teleworkable jobs could provide insights into the dynamics of the European and euro area labour markets in the context of the pandemic (see Box 4).

## Box 4

### Teleworkable jobs

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Prepared by Colm Bates and Lara Vivian

This box analyses teleworking patterns in the EU and the United Kingdom. In order to disentangle occupations which can be performed from home from those which require presence in the workplace, we combine a teleworking index with individual-level data for 2019 for EU Member States and the United Kingdom.<sup>119</sup> Potentially teleworkable occupations include clerks, information and communication technicians, and most managers and professionals. On the other hand, some jobs in, for example, sales, cleaning and health rely on workplace attendance in order to be carried out.

In 2019 teleworkable jobs accounted for 33% of employees and 46% of annual earnings in the euro area, suggesting that remote working is more prevalent in highly-paid jobs (see Chart A). These shares each increase by one percentage point when also considering other EU countries and the United Kingdom. Despite methodological differences, the results are similar to those for the United States, where 37% of jobs and 46% of wages were identified as suitable for teleworking (Dingel and Neiman, 2020). In the euro area, the share of teleworkable jobs is highest in the information and communication sector and lowest in agriculture. Occupations which are conducive to teleworking account for 83% of employees and 87% of annual earnings in the information and communication sector. In agriculture, by contrast, teleworking is only possible for 7% of workers, but their earnings represent almost one fifth of total earnings in the industry. Sectors where more than 40% of jobs can be performed remotely, namely education, financial activities, public administration, real estate and other administrative activities, account for around 30% of total employees in the euro area. The remaining 70% of employees are spread across industries where remote working is an option for no more than 25% of workers. In addition, less than 10% of potential teleworkers in the euro area report working from home either usually or sometimes, meaning that two-thirds of workers might not be familiar with remote working.<sup>120</sup>

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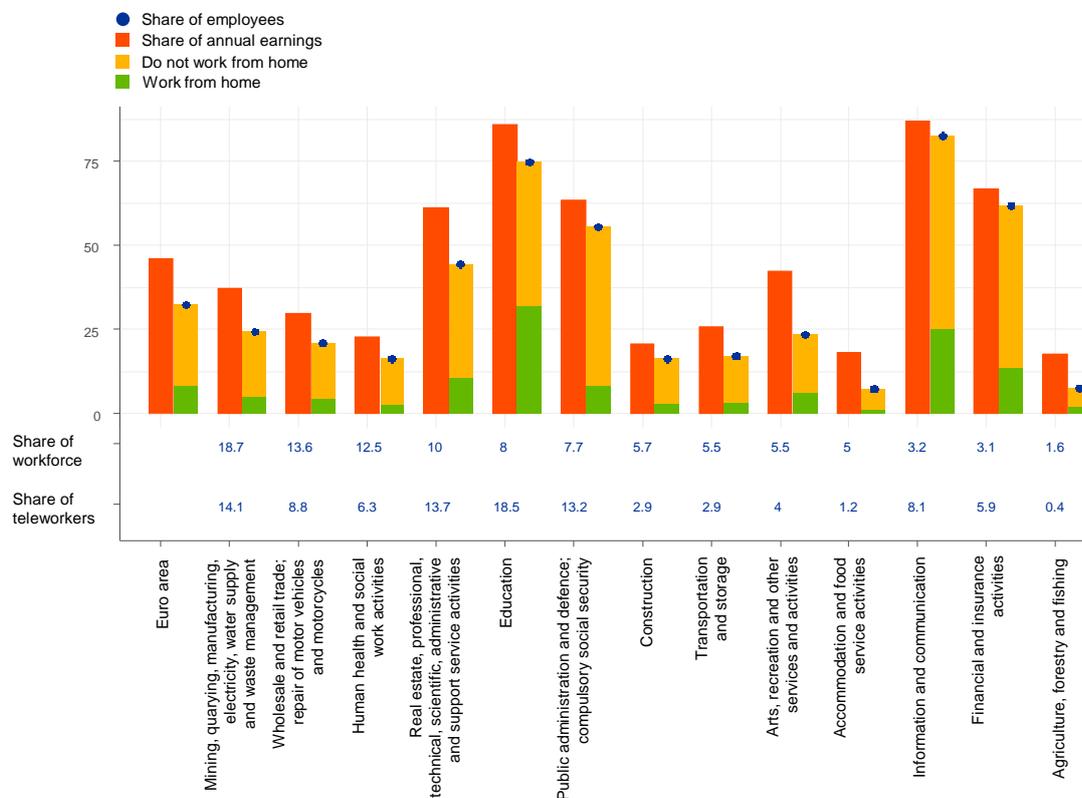
<sup>119</sup> The teleworking index is based on Dingel, J.I. and Neiman, B., “How many jobs can be done at home?”, *Journal of Public Economics*, Vol. 189, 2020, pp. 1-8. Dingel and Neiman assign to occupations a degree of teleworkability ranging from 0 to 1, where 0 implies that no jobs in that occupation can be performed via teleworking and 1 implies that all jobs in that occupation can be performed via teleworking. In this analysis, the classification is applied to the International Standard Classification of Occupations (ISCO-08) via a crosswalk table provided by the United States Bureau of Labor Statistics (see “Crosswalks between the 2010 SOC and systems used by other Federal and international statistical agencies”, Bureau of Labor Statistics, 2012). In addition, we use employee weights to match the index to a broader ISCO-08 aggregate. The purpose of this exercise is to combine the index with individual-level data, namely from the European Labour Force Survey (EU-LFS), European Statistics on Income and Living Conditions (EU-SILC) and the German Socio-Economic Panel (SOEP). For each data source, we consider the most recent survey available – 2019 for EU-LFS and 2018 for the EU-SILC and SOEP (see “Socio-Economic Panel (SOEP), data from 1984-2018”, version 35, SOEP, 2019). Occupations with a teleworkability score above 0.5 are identified as suitable for remote working.

<sup>120</sup> The Labour Force Survey asks respondents whether they work from home. However, an answer of “usually” or “sometimes” does not necessarily mean that the individual teleworks or that their job is entirely teleworkable. For instance, teachers might say that they work from home at times to prepare classes, but this does not necessarily mean that they have taught a class from home.

## Chart A

### Share of annual earnings and employees in potentially teleworkable jobs in the euro area by sector

(percentages)



Sources: Index: Dingel and Neiman (2020); data: EU-LFS 2019, EU-SILC 2018, SOEP (2019); and authors' calculations.

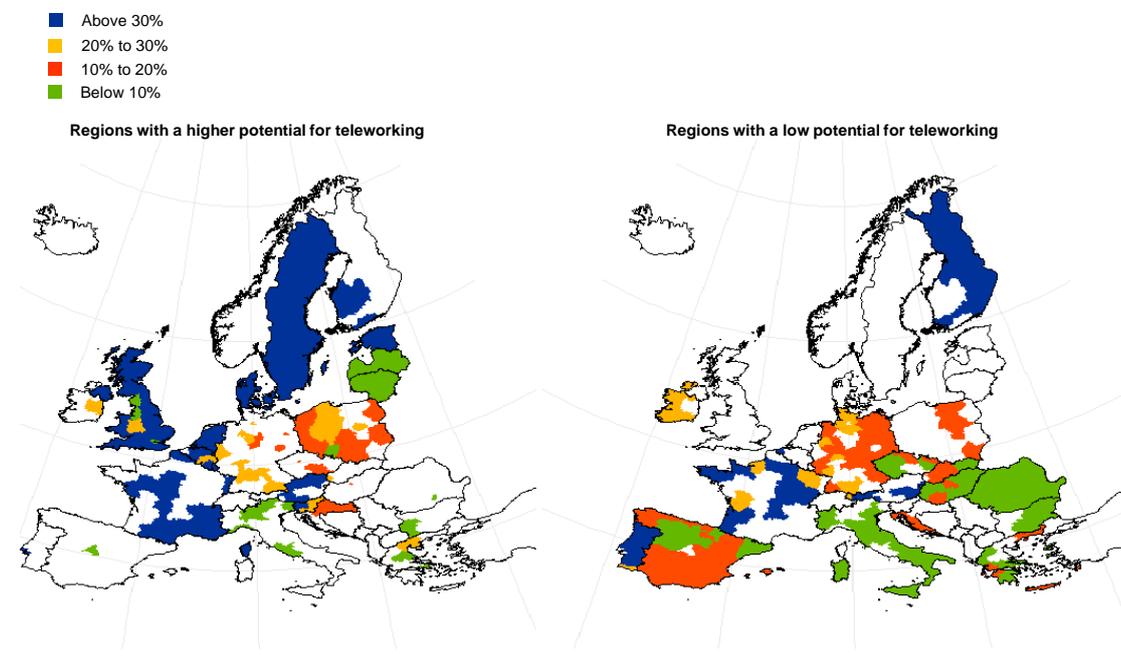
Notes: For the euro area and each sector, the chart shows the share of annual earnings generated by potential teleworking jobs (orange bar) and the share of employees in potential teleworking jobs (blue dot), including those who currently telework (green bar) and those who don't (yellow bar). The figures below the bars show the percentage of the total workforce and the percentage of all potential teleworkers in each sector. Teleworking index aggregated at the ISCO-08 2-digit level using employee weights. Slovakia, Slovenia and Malta are not included.

The share of employees in potentially teleworkable jobs is above 50% in the capital regions of the United Kingdom, Belgium, France, Luxembourg and Sweden, while it is around 20% in some regions of Spain, Greece and Romania (see Figure A). Similarly, the share of workers who work from home either regularly or occasionally varies substantially across regions. As many as 70% of potential teleworkers report working from home in Stockholm, while this share is around 45% in Paris and London. On the other hand, less than 10% of potential teleworkers engage in remote working in Italy. These pre-pandemic differences in potential and actual take-up rates for teleworking suggest that there were differing degrees of preparedness to promptly deploy remote working as a tool to cope with the pandemic across European regions. Such differences might arise, for instance, from heterogeneous social norms and stigma linked to working from home, as well as from limitations related to digital equipment and skills. The latter refers to a bundle of tools which would ease remote working, ranging from suitable broadband connections to training aimed at addressing the challenges of remote working environments. Looking ahead, the COVID-19 crisis could accelerate the adoption of teleworking and reduce the digital divide across European countries if countries that are lagging behind invest more in digital technologies.<sup>121</sup>

<sup>121</sup> See the article entitled "The digital economy and the euro area" in this issue of the Economic Bulletin.

**Figure A**

Share of potential teleworkers who work from home at least sometimes across EU regions



Sources: Index: Dingel and Neiman (2020); data: EU-LFS 2019; and authors' calculations.

Notes: A low potential for teleworking indicates that the share of potentially teleworkable jobs in the area is below 30%. Teleworking index aggregated at the ISCO-08 2-digit level using employee weights. NUTS level is NUTS2, except for the Netherlands (NUTS0) and the United Kingdom (NUTS1). Outermost regions and Malta are not included.

## 6 Concluding remarks

**The large government support in the form of job retention schemes alleviated the impact of the pandemic on the labour market.** It is estimated that in April the number of workers in these schemes reached 32 million, which was almost three times higher than the number of unemployed. The number of furloughed workers has since declined and was estimated at around 8 million in October 2020. Owing to the very large number of workers subject to temporary conditions, caution is required when interpreting official labour market statistics. In particular, job retention schemes have helped to contain a further increase in unemployment and a stronger decrease in employment. However, it remains unclear how many of these workers will successfully move back to their normal working hours and how many may be at risk of losing their jobs. The still large number of workers in job retention schemes and the sharp decline in labour market participation suggest that the slack in the labour market is substantially greater than captured by the unemployment rate. The reliance on job retention schemes was also complemented by the adoption of labour market policies at EU level, including the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE). This created a Union-wide solidarity toolkit to help national governments address sudden increases in public expenditure in order to preserve employment.

**The crisis is likely to lead to an increase in labour reallocation needs, and these are expected to be greater the longer the pandemic lasts.** The current set of

labour market policies was designed with a view to protecting workers from a temporary adverse shock to the economy. They have helped protect household income and limit negative feedback loops. Labour reallocation will crucially depend on the duration of the crisis and possible structural shifts in demand. However, the longer the shock lasts, the more job reallocation may be required. The COVID-19 shock is also boosting the automation and digitalisation process, and the skills content of existing jobs may need to be upgraded, which may increase the mismatch in the labour market.<sup>122</sup> In this context, job retention schemes could combine employment protection with training provision with a view to facilitating restructuring and supporting the upgrading of skills. In addition, the heterogeneous impact of the pandemic across countries may have scarring effects and lead to further divergence between euro area labour markets. Greater skills mismatches and more geographic dispersion in the unemployment rate were a persistent outcome of the previous crisis and led to an increase in the average duration of unemployment, which can eventually lead to higher structural unemployment.<sup>123</sup>

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<sup>122</sup> For a discussion of the implications of digitalisation for European labour markets, see “Virtually Everywhere? Digitalisation and jobs in the euro area” ([Part 1](#)) and ([Part 2](#)), *The ECB Podcast*, Episodes 9 and 10, ECB, September 2020; and Anderton, R., Jarvis, V., Labhard, V., Morgan, J., Petroulakis, F. and Vivian, L., “[Virtually Everywhere. Digitalisation and the euro area and EU economies](#)”, *Occasional Paper Series*, No 244, ECB, 2020.

<sup>123</sup> See the article entitled “[The impact of COVID-19 on potential output in the euro area](#)”, *Economic Bulletin*, Issue 7, ECB, 2020.

## 3 The digital economy and the euro area

Prepared by Robert Anderton, Valerie Jarvis, Vincent Labhard, Filippos Petroulakis, Ieva Rubene, Lara Vivian

### 1 Introduction

**Digitalisation – the diffusion of digital technologies leading to a digital economy – is “virtually everywhere”.** It transforms patterns of consumption and production, business models, preferences and relative prices, and thereby entire economies, making it an important issue from a central banking perspective. Some of the key effects of digitalisation relevant to monetary policy relate to output and productivity, labour markets, wages and prices.

**The impact of digitalisation on the economy is a function, inter alia, of national economic structure and economic policies, institutions and governance.**

However, it is not clear whether digitalisation is going to deepen differences between countries or reduce them. It is nevertheless interesting to note that the degree of digitalisation varies across the euro area and EU countries and only a few are as digitalised as the most digital countries in the world.

**This article mainly summarises and updates the evidence on the euro area and the EU digital economy, including international comparisons.**<sup>124</sup> It documents the growth of the digital economy, measured in terms of value added based on the System of National Accounts, the diffusion of digital technologies as captured by suitable indicators, and the impact of digital technologies on the economic environment in which monetary policy operates through their effects on productivity, labour markets and inflation.<sup>125</sup>

**This article also takes a closer look at the impact of the coronavirus (COVID-19) pandemic on the digital economy.** Since the start of the pandemic, both producers and consumers have become more accustomed to and more reliant on digital technologies. Greater take-up of digital technologies may lead to an acceleration of the structural change that it implies and provide both opportunities and challenges for countries in the euro area and the broader EU.

**It is important to note that digitalisation may have implications for the economy beyond those covered in this article.** It may affect market structure and competition, with repercussions on innovation and the role of intangibles, and cause distributional issues. Digitalisation may also affect choices around work and leisure and have further

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<sup>124</sup> The contents of this article build on Anderton, R., Jarvis, V., Labhard, V., Morgan, J., Petroulakis, F. and Vivian, L., “[Virtually everywhere? Digitalisation and the euro area and EU economies](#)”, *Occasional Paper Series*, No 244, ECB, Frankfurt am Main, June 2020.

<sup>125</sup> Digitalisation may also have welfare effects which are, however, not looked at in this article. Such welfare effects could stem from three broad sources: market products (with better quality, new varieties, or free services), non-market production (supported by digital products or information) and online shopping and the sharing economy (with lower prices and greater variety). Such aspects are being looked at in the context of a more people-focused approach to statistics on economic performance, as discussed for example in “Measuring Economic Welfare: What and How?”, IMF Staff Report, March 2020.

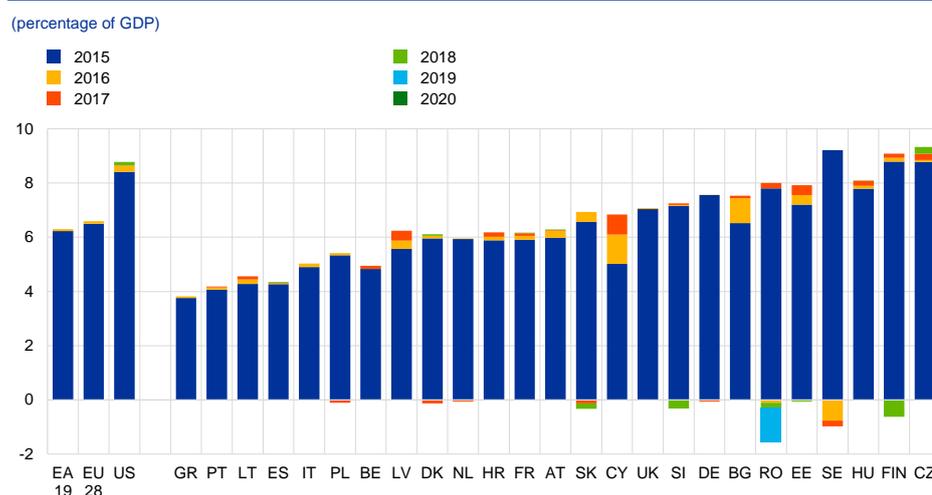
welfare implications, both positive and negative, that are not easily measured by the concepts that are the focus of this article.

**The remainder of this article is structured as follows.** Section 2 considers the effects of digitalisation on productivity and the supply side. Section 3 reviews the effects of digitalisation on labour markets and inflation. Section 4 looks at the likely impact of the COVID-19 pandemic on digitalisation and the repercussions for the broader economy in the short, medium and longer term. The conclusion provides key insights and draws out the article’s main messages.

## 2 The size and growth of the digital economy

**The digital economy is smaller in the euro area and EU than in the United States, and the gap has not changed dramatically in the past few years.** Most euro area countries have much smaller value added from digital sectors (as a percentage of GDP) than the United States, with the euro area digital economy about two-thirds the size of that of the United States (see Chart 1). In the United States, the digital service sector alone contributes as much as the entire digital economy in the euro area. The size of the IT manufacturing sector in the United States is around twice that of the euro area and larger even than in countries specialised in manufacturing activities, such as Germany.<sup>126</sup> For most countries in the euro area, the annual percentage point increase in the share of the digital economy has been less than 0.1, the same as in the United States, leaving the gap more or less unchanged.

**Chart 1**  
The digital economy, 2015-2020



Source: European Commission.

Notes: The entry for 2015 shows the data for that year. The entries for 2016-20 (where available) show the change implied by the data for those years.

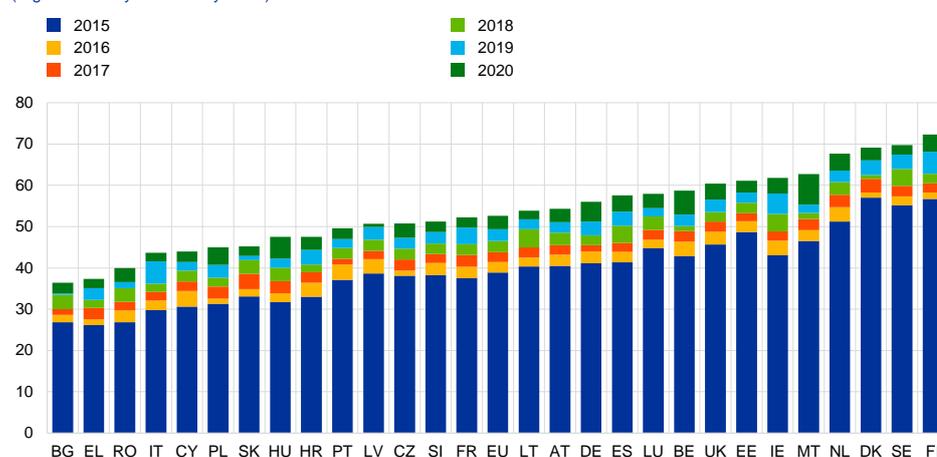
<sup>126</sup> It should be noted that there are certain caveats when comparing countries and interpreting the digital economy’s subsectors. For example, some countries may have a high share of value added in the IT manufacturing subsector, but this can sometimes correspond to the outsourcing of computer parts to that country; therefore, high country shares of value added in that sector do not necessarily indicate that the country is at the forefront of digitalisation.

**Digital adoption has increased notably since 2015, however.** The Digital Economy and Society Index has risen from below 40 in 2015 to above 60 in 2020, as shown in Chart 2. This masks some diversity between countries, however, with the index below or close to 40 for three countries and close to or above 70 for a further three. While connectivity (notably broadband) has reached comparable levels in most countries, differences in other dimensions persist, such as the levels of human capital and the integration of digital technologies into the business and public sectors.<sup>127</sup> These differences in digital adoption across countries imply that the impacts of digitalisation may also differ across the euro area and EU countries.

## Chart 2

### Digital adoption in the euro area and EU economies

(Digital Economy and Society Index)



Source: European Commission.

Notes: The entry for 2015 shows the data published that year; the entries labelled 2016-20 show the change implied by the data published for those years. The data are for the year prior to the year they are published. The category "connectivity" includes fixed, fast and ultrafast broadband coverage and take-up; "human capital" focuses on internet usage, digital and ICT skills, and science, technology, engineering, and mathematics graduates; "use of internet services" combines citizens' use of content, communication and online transactions including online banking; and "integration of digital technology" takes into account e-commerce and business digitalisation.

## 3 Productivity and the supply side

### Productivity

**The last two decades have seen a protracted slowdown in productivity across advanced economies.** Productivity growth in the euro area started to slow significantly in the mid-to-late 1990s, well before other advanced economies, but the slowdown eventually became widespread even before the financial crisis. It was driven primarily by lower growth in total factor productivity (TFP) in the pre-crisis era, but in later years also by lower levels of capital deepening (capital per unit of labour), a

<sup>127</sup> The public sector can play an important role in an economy's overall digital adoption. The transformation of public administration, the promotion of digital options in public education, and the use of digital technologies in the public health sector may serve as triggers for a broader spread, and broader acceptance, of digital technologies across the entire economy. Some of the most digital economies in the euro area score highly in this respect.

result of a pronounced investment slump during the recovery. While it may seem paradoxical that an era of rapid technological progress is not accompanied by great productivity improvements, the slowdown is in fact most pronounced in the sectors that rely most on information and communication technology (ICT). This finding, among others, lends credence to the view that we are still in the installation phase of ICT.<sup>128</sup>

**A consensus explanation for the pre-crisis slowdown of Europe relative to the United States is the lesser ability of European economies to reap the benefits of ICT, particularly in market services.** In the United States, the mid-1990s saw a surge in innovations in ICT, a large increase in TFP growth in ICT-producing industries and a large increase in ICT capital deepening and higher TFP in the sectors that use ICT most intensively.<sup>129</sup> By contrast, European economies were late to develop or use these technologies. One reason for that may be related to the nature of ICT relative to older technologies. Machines and equipment were traditionally complementary to any type of labour, so the mere accumulation of such capital was sufficient to generate growth. By contrast, ICT capital requires skilled labour and the adaptation and rethinking of organisational processes, along with other relevant changes, which poses challenges to existing firms. As such, ICT capital is complementary to a more complex set of other inputs and synthesising them efficiently can generate higher productivity returns from ICT investment.<sup>130</sup>

**Differences in management practices have emerged as a key explanation for why some countries are better at exploiting ICT.** Bloom et al.<sup>131</sup> show that UK-based firms owned by US firms are more productive, owing to higher ICT-related productivity. They attribute this to the more flexible and decentralised organisational structures of US firms.<sup>132</sup> Poor management may be especially problematic in relation to ICT given that the dispersion of firm-specific shocks has risen (Decker et al.<sup>133</sup>), possibly as a result of the higher pace of technological change, which amplifies the importance of agile and flexible management. The productivity of frontier firms has, in fact, been growing rapidly, but laggard firms have been slow to catch up, suggesting

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<sup>128</sup> Classification is based on the purchases of ICT assets and services over the value added of the sector. See van Ark, B., “[The Productivity Paradox of the New Digital Economy](#)”, *International Productivity Monitor*, Vol. 31, Centre for the Study of Living Standards, 2016, pp.3-18.

<sup>129</sup> van Ark, B., O’Mahoney, M. and Timmer, M.P. “[The Productivity Gap between Europe and the United States: Trends and Causes](#)”, *Journal of Economic Perspectives*, Vol. 22, No 1, American Economic Association, 2008, pp. 25-44; Jorgenson, D.W., Ho, M.S. and Stiroh, K.J., “[A Retrospective Look at the U.S. Productivity Growth Resurgence](#)”, *Journal of Economic Perspectives*, Vol. 22, No 1, American Economic Association, 2008, pp.3-24.

<sup>130</sup> See Bresnahan, T.F., Brynjolfsson, E. and Hitt, L.M., “[Information Technology, Workplace Organization, and the Demand for Skilled Labor: Firm-Level Evidence](#)”, *The Quarterly Journal of Economics*, Vol. 117, No 1, Oxford University Press, Oxford, February 2002, pp. 339-376 and DeLong, J.B. and Summers, L.H., “[Equipment Investment and Economic Growth: How Strong Is the Nexus?](#)”, *Brookings Papers on Economic Activity*, Vol. 23, No 2, Brookings Institution Press, Washington D.C., 1992, pp. 157-212.

<sup>131</sup> Bloom, N., Sadun, R. and Van Reenen, J., “[Americans Do IT Better: US Multinationals and the Productivity Miracle](#)”, *American Economic Review*, Vol. 102, No 1, American Economic Association, February 2012, pp.167-201.

<sup>132</sup> Even within the United States, Bloom et al. find huge differences in management practices: see Bloom, N., Brynjolfsson, E., Foster, L., Jarmin, R., Patnaik, M., Saporta-Eksten, I. and Van Reenen, J., “[What Drives Differences in Management Practices?](#)” *American Economic Review*, Vol. 109, No 5, American Economic Association, May 2019, pp. 1648-1683.

<sup>133</sup> Decker, R.A., Haltiwanger, J., Jarmin, R.S. and Miranda, J., “[Changing Business Dynamism and Productivity: Shocks versus Responsiveness](#)”, *American Economic Review*, Vol. 110, No 12, American Economic Association, December 2020, pp. 3952-3990.

bottlenecks in innovation diffusion (Andrews et al.<sup>134</sup>). Schivardi and Schmitz<sup>135</sup> show that countries whose firms had adopted good management practices achieved much faster productivity growth than others in the 1995-2008 period (when ICT-driven productivity growth in the United States took off) than the previous decade.

**Technology adoption can be also affected by policy.** Even if firms have the capabilities to exploit digital technologies, they will only adopt them if doing so is profitable; low levels of competition may lower such profits. Andrews et al.<sup>136</sup> show that the gap between laggard and frontier firms is higher for industries that are less affected by pro-competitive reforms (such as retail compared with telecommunications). At the same time, given that firms need to be able to attract skilled workers and respond to changing needs, rigid employment protection legislation (EPL) may make it harder for firms to attract these workers and adopt new technologies. Andrews et al.<sup>137</sup> provide evidence that higher EPL is associated with lower adoption of a set of digital technologies for sectors characterised by a high technological need for employee turnover. Cette et al.<sup>138</sup> show that higher EPL leads to (i) positive effects for non-ICT physical capital intensity and the share of high-skilled employment and (ii) negative effects for research and development capital intensity and the share of low-skilled employment. As such, EPL implies a high cost of low-skilled labour, which is substituted by non-ICT capital.<sup>139</sup>

**There are substantial differences between digital and non-digital companies in their productivity distribution and leadership persistence.** Using firm-level data for the “big four” euro area countries, the top panel in Chart 3 shows the relative productivity of digital, compared with non-digital, firms across the distribution.<sup>140</sup> For the most part, digital firms are less productive than their non-digital peers, but for firms at the top decile of their respective distributions, digital firms are substantially more productive. They are also younger and larger across the distribution. Moreover, productivity leadership persistence is higher for the digital sector. The bottom panel in Chart 3 shows the average ranking of the top 1% productive firms in their sector in any given year as time passes; while on average leaders remain highly productive, persistence in leadership is substantially higher for digital firms. At the same time, the rise of new leaders seems broadly similar across sectors.

<sup>134</sup> Andrews, D., Criscuolo, C. and Gal, P.N., “[The Best versus the Rest: Divergence across Firms during the Global Productivity Slowdown](#)”, mimeo, August 2019.

<sup>135</sup> Schivardi, F. and Schmitz, T., “[The IT Revolution and Southern Europe's Two Lost Decades](#)”, *Journal of the European Economic Association*, Vol. 18, No 5, Oxford University Press, Oxford, October 2020, pp. 2441-2486.

<sup>136</sup> Andrews, D. et al., “[The Best versus the Rest: Divergence across Firms during the Global Productivity Slowdown](#)”, op. cit.

<sup>137</sup> Andrews, D., Nicoletti, G. and Timiliotis, C., “[Digital technology diffusion: A matter of capabilities, incentives, or both?](#)”, *OECD Economics Department Working Papers*, No 1476, OECD Publishing, Paris, 2018.

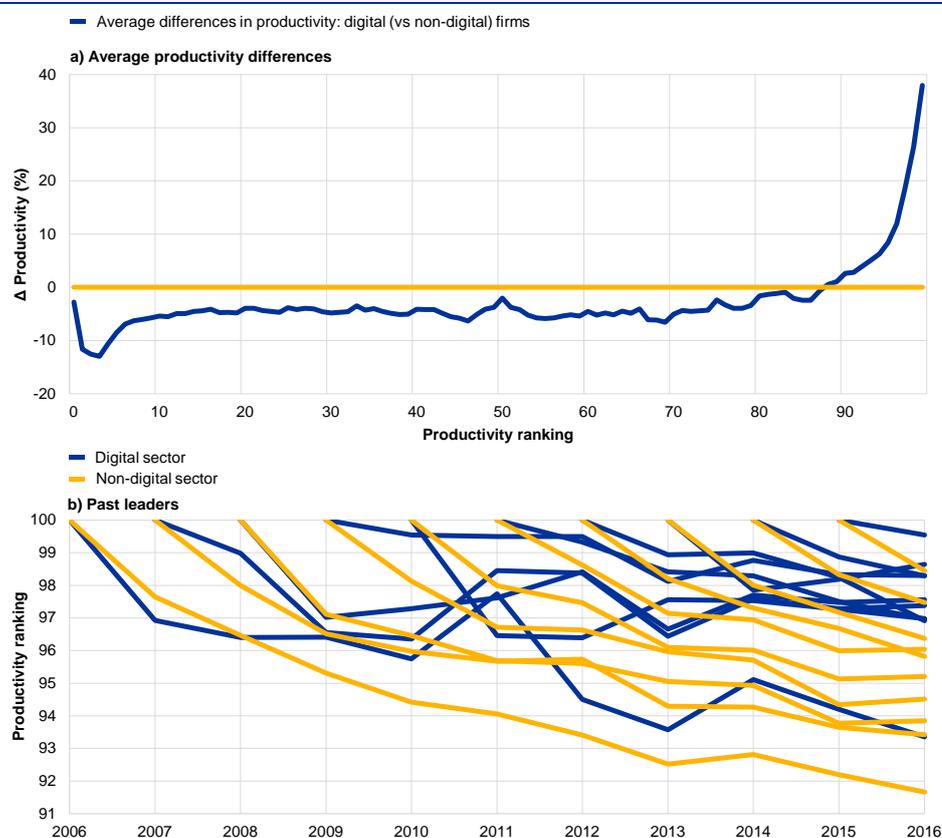
<sup>138</sup> Cette, G., Lopez, J. and Mairesse, J., “[Labour Market Regulations and Capital Intensity](#)”, *NBER Working Papers*, No 22603, National Bureau of Economic Research, Cambridge, Massachusetts, September 2016.

<sup>139</sup> Bloom, N. and Van Reenen, J., “[Measuring and Explaining Management Practices Across Firms and Countries](#)”, *The Quarterly Journal of Economics*, Vol. 122, No 4, Oxford University Press, Oxford, November 2007, pp. 1351-1408.

<sup>140</sup> At each percentile of the productivity distribution for each firm type, the chart shows the average productivity of digital versus non-digital firms. The digital sector is comprised of high-tech manufacturing (manufacture of computer, electronic and optical products and electrical equipment) and ICT services (publishing, audiovisual and broadcasting, telecommunications, IT and other information services).

**Chart 3**

**Productivity distribution and leadership persistence (Germany, Spain, France and Italy)**



Sources: Orbis Europe (Bureau van Dijk) and ECB staff calculations.

Notes: The digital sector comprises the manufacture of computer, electronic and optical products (C26), the manufacture of electrical equipment (C27), publishing activities (J58), audiovisual and broadcasting activities (J59, J60), telecommunications (J61), and IT and other information services (J62, J63). The non-digital sectors comprise the remaining manufacturing industries (C11-C25, C28-C33); utilities (D, E); construction (F); and market services (G-I, M-N). Average firm-level productivity is measured as real gross operating revenue per employee, for firms with at least ten employees in any given year between 2006 and 2016. The sample consists of firms in Germany, Spain, France and Italy.

**There is evidence that ICT's contribution to productivity growth has declined across advanced economies.** While the euro area performed substantially worse than its peers in terms of productivity growth in the 1995-2004 period, over the past decade, productivity gains from ICT capital have been muted across North America as well as the euro area. While some have suggested that the 1995-2004 gains were anomalous and the current period has seen a return to normal growth, the gains since 2005 have been much lower even than in the period before 1995.<sup>141</sup>

**Digitalisation, including more recently artificial intelligence and machine learning, is a form of general purpose technology (GPT) with wide-ranging impacts across the economy.** GPTs are pervasive, have inherent potential for technical improvement and spur complementary innovations (Bresnahan and

<sup>141</sup> See Cette, G. and de Pommerol, O.J., "Have the growth gains from ICT been exhausted?", *Eco Notepad, Banque de France*, 18 October, 2018. For further updated analysis, see Cette, G., Devillard, A. and Spiezza, V., "Growth factors in developed countries: a 1960-2019 growth decomposition", Banque de France Working Paper Series, No 783, October 2020.

Trajtenberg<sup>142</sup>). It is the combined effect of these three qualities that makes GPTs unique and leads to their singular productivity effects. At the same time, this implies that GPTs have very long implementation lags, of several decades for modern technologies such as the steam engine, electricity or ICT (Bresnahan and Trajtenberg<sup>143</sup>, Nordhaus<sup>144</sup>). Adapting production and managerial practices to a new technology can be a long process. Investment in physical capital is lumpy, given adjustment costs, while the production of technology itself becomes more efficient over time. Skilled workers may also be hard to come by, especially before the new technology has become sufficiently widespread for a large enough scholarly base to be created, so that the technology can be taught on a massive scale. Complementary capital from peripheral innovations needs to be accumulated, which also takes time.<sup>145, 146</sup>

## Supply side

**Digital investments are often investments in intangibles.** One of the defining features of the digital economy is the shift away from physical capital (building and equipment) towards intangible capital (for example: research and development, software, algorithms, databases and related analytics).<sup>147</sup> According to some estimates, between one-third (for the less digital economies) and two-thirds (for the more digital economies) of digital investments are in intangibles.

**An important aspect of digital intangible investment is big data.** The term refers not only to the size and complexity of a dataset, but also to its corresponding analytics. It is one of the digital technologies with the largest take-up across firms.<sup>148</sup> As with intangible assets in general, big data can take very different forms and are often highly firm-specific, i.e. not particularly valuable outside of the firm (an example of the “sunk” aspect of intangible assets).<sup>149</sup> Big data can be collected through online platforms and service providers and can be processed and analysed to generate revenues in many ways, e.g. through targeted advertising. The value of such data capital is difficult to

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<sup>142</sup> Bresnahan, T.F. and Trajtenberg, M., “General purpose technologies ‘Engines of growth’?”, *Journal of Econometrics*, Vol. 65, No 1, Elsevier, B.V., January 1995, pp.83-108.

<sup>143</sup> Ibid.

<sup>144</sup> Nordhaus, W., “Two Centuries of Productivity Growth in Computing”, *The Journal of Economic History*, Vol. 67, No 1, Cambridge University Press, Cambridge, March 2007, pp. 128-159.

<sup>145</sup> Jovanovic, B. and Rousseau, P., “General purpose technologies” in Aghion, P. and Durlauf, S.N. (eds.), *Handbook of Economic Growth*, Vol. 1b, 2005, pp.1181-1224.

<sup>146</sup> The delay in productivity growth from the fourth industrial revolution has called into question how we measure productivity. The consensus from this literature is that, while growth is likely mismeasured, this mismeasurement cannot account for the productivity slowdown. See the box entitled “Some measurement issues and the digital economy” in Anderton, R. et al., op. cit., for a general discussion as to how digitalisation may affect the measurement of various variables.

<sup>147</sup> See the section entitled “Supply side” in Anderton, R. et al., op. cit., for details on the definition of intangible investment for the European system of accounts as well as the additional categories classified as intangible investment in the INTAN-Invest database.

<sup>148</sup> See the box entitled “Investment in intangible assets in the euro area”, *Economic Bulletin*, Issue 7, ECB, 2018.

<sup>149</sup> See Haskel, J. and Westlake, S., *Capitalism without Capital: The Rise of Intangible Economy*, Princeton University Press, Princeton, New Jersey, 28 November 2017.

estimate, but is potentially very large. Recent estimates put the value of the data market in Europe at €324 billion in 2019.<sup>150</sup>

**Alternative sources of finance to traditional bank financing appear better suited to the financing of intangible investment, which is hard to collateralise.** This is because of the higher uncertainty and risk associated with intangibles (owing to their exploratory nature), combined with issues relating to their transferability, in comparison with the more physical nature of tangible investment. Traditional intermediaries, such as local banks, often lack the sophistication necessary to evaluate risky projects involving innovative ideas based on complex technologies, while small firms lack the internal funds and reputation required to signal their quality to investors. Equity financing and venture capital may be more suitable for funding intangible investment, hence the latter may be disadvantaged owing to the heavy reliance on bank lending in the euro area.<sup>151</sup>

**Digital technologies have some particular characteristics that make them conducive to higher concentration.** The increasing importance of intangible capital, which implies substantial fixed costs but low marginal costs, together with the ability to use cloud computing as a way of rapidly increasing the size of a company at low cost, means companies are able to achieve “scale without mass” and reproduce business processes at zero cost (Brynjolfsson et al.<sup>152</sup>). Even outside the technology sector, superstar firms with low mark-ups, especially in retail, are very intensive users of ICT (Decker et al.<sup>153</sup>), employing advanced automation technologies for warehousing and logistics. Many digital technologies are also associated with substantial network effects, so early movers have a sizeable advantage and dominate their markets. The high business dynamism associated with ICT firms in the 1990s (which pulled the entire US economy upwards) gave way to muted dynamism and a lower start-up rate in the 2000s (Decker et al.<sup>154</sup>), itself a potential sign of lower competition.

**There are signs of rising market power and concentration, particularly in the United States.** Although there is some debate on the extent of the rise of market power and the link between mark-ups and concentration, as firms may keep mark-ups low to attract a large market share, there is broad agreement that firm mark-ups and concentration ratios have increased in the United States (De Loecker et al.<sup>155</sup>, Autor et al.<sup>156</sup>). The literature for Europe is much slimmer – primarily as a result of sparser data

<sup>150</sup> See European Commission, European Data Market Study, 2020.

<sup>151</sup> See Ahn, J., Duval, R.A. and Sever, C., “[Macroeconomic Policy, Product Market Competition, and Growth: The Intangible Investment Channel](#)”, *IMF Working Paper*, No 20/25, International Monetary Fund, February 2020.

<sup>152</sup> Brynjolfsson, E., McAfee, A., Sorell, M. and Zhu, F., “Scale without mass: Business process replication and industry dynamics”, Harvard Business School Technology and Operations Management Unit Research Paper, No 07-016, 2008.

<sup>153</sup> Decker, R.A., Haltiwanger, J., Jarmin, R.S. and Miranda, J., “[Where has all the skewness gone? The decline in high-growth \(young\) firms in the U.S.](#)”, *European Economic Review*, Vol. 86, Elsevier, B.V., July 2016, pp. 4-23.

<sup>154</sup> Decker et al., “[Changing Business Dynamism and Productivity: Shocks versus Responsiveness](#)”, (see footnote 10 for more details).

<sup>155</sup> De Loecker, J., Eeckhout, J. and Unger, G., “[The Rise of Market Power and the Macroeconomic Implications](#)”, *The Quarterly Journal of Economics*, Vol. 135, No 2, Oxford University Press, Oxford, May 2020, pp. 561-644.

<sup>156</sup> See Autor, D., Dorn, D., Katz, L.F., Patterson, C. and Van Reenen, J., “[The Fall of the Labor Share and the Rise of Superstar Firms](#)”, *The Quarterly Journal of Economics*, Vol. 135, No 2, Oxford University Press, Oxford, May 2020, pp.645-709.

coverage – and conclusions are mixed.<sup>157</sup> While a number of factors are at play, technology likely matters. The high-mark-up, high-concentration firms that Autor et al. identify as superstars include some well-known technology giants. Bessen<sup>158</sup> finds that use of proprietary ICT software is strongly associated with the level and growth of industry concentration, operating margins, larger revenues and productivity of the top firms, accounting (together with intangibles) for most of the rise in concentration. Crouzet and Eberly<sup>159</sup> show that intangibles are associated with greater concentration in the United States, which could be either the result of changes in technology in a competitive environment or the result of market power. Calligaris et al.<sup>160</sup> show that mark-ups in economies of the Organisation for Economic Co-operation and Development (OECD) are higher in digitally intensive sectors and that this difference has increased significantly over time, particularly for the most digitally intensive sectors. To the extent that digital technologies are an important driver of concentration, the smaller presence of technology firms in Europe could explain why there is no clear consensus as regards the increase in concentration in Europe compared with the United States (Cavalleri et al.<sup>161</sup>).

## Box 1

### Online platforms and the collaborative economy

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Prepared by Lara Vivian

The collaborative or sharing economy relies on digital platforms to coordinate and supervise the matching between the supply and demand sides of the market. Online platforms tend to be heterogeneous in a number of respects, including the technology adopted and the services or goods provided. For instance, trading mediated by digital platforms includes transport, food delivery and cleaning services, as well as online tasks such as translations, transcriptions, data collection, and software development. In the area of finance, the collaborative economy allows the coordination of investors and borrowers and the organisation of collective project financing (crowdfunding), while platforms operating in the accommodation sector facilitate access to property. The definition of the collaborative economy includes financial services, goods trading and encompasses the concept of the “gig economy”, which is often used to single out platforms where the service provided is the paid labour necessary to complete a task or solve a problem.<sup>162</sup>

Although the collaborative economy is not a new phenomenon, its size is increasing. According to estimates, although the size of online platforms has grown rapidly, their contribution to the economy

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<sup>157</sup> See the section entitled “Supply side” in Anderton, R. et al., op. cit., and references therein, for a broader discussion.

<sup>158</sup> Bessen, J., “[Information Technology and Industry Concentration](#)”, *Working Paper*, Boston University School of Law, 12 January 2017.

<sup>159</sup> Crouzet, N. and Eberly, J., “[Understanding Weak Capital Investment: the Role of Market Concentration and Intangibles](#)”, *NBER Working Paper Series*, National Bureau of Economic Research, Cambridge, Massachusetts, May 2019.

<sup>160</sup> Calligaris, S., Criscuolo, C. and Marcolin, L., “[Mark-ups in the digital era](#)”, *OECD Science Technology and Industry Working Papers*, No 2018/10, OECD Publishing, Paris, 25 April 2018.

<sup>161</sup> Cavalleri, M., Eliet, A., McAdam, P., Petroulakis, F., Soares, A. and Vansteenkiste, I., “Concentration, market power and dynamism in the euro area”, *Working Paper Series*, No 2253, ECB, Frankfurt am Main, March 2019.

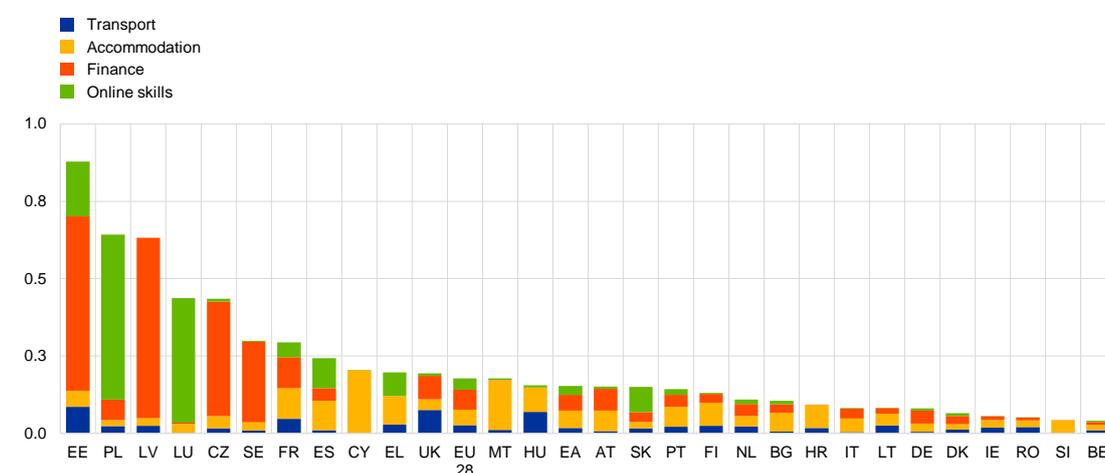
<sup>162</sup> See de Groen, W.P., Kilhoffer, Z., Lenaerts, K. and Mandl, I., “[Employment and working conditions of selected types of platform work](#)”, European Foundation for the Improvement of Living and Working Conditions, Publications Office of the European Union, Luxembourg, 2018 for an in-depth discussion of the terms used to group digital platforms.

remains relatively small. In 2016 they accounted for up to 1% of GDP and 3% of employment across EU countries, but with considerable cross-country heterogeneity (see Chart A). In terms of specialisation, financial sector platforms generate most of the revenues of the collaborative economy in Czech Republic, Estonia, Latvia and Sweden, while the online skills sector leads in Poland and Luxembourg. Meanwhile, for countries with smaller platform economies, the accommodation sector plays a larger role. Similarly to the size of the collaborative economy, platform employment has increased over time and accounted for 0.15% of overall employment in 2016 in the EU27 and the United Kingdom taken together.<sup>163</sup> Although surveys and studies often rely on different definitions of platform employment, other studies confirm similar magnitudes and cross-country heterogeneity. In 2018, for instance, as many as 2.6% of workers in Spain were engaged in platform work as a main job compared with as few as 0.6% of workers in Finland.<sup>164</sup>

## Chart A

### Size of the collaborative economy

(percentage of GDP (2016))



Source: Nunu, M. et al., (see footnote 41 below for more details).

Online platforms have the potential to be a significant source of innovation and competition, mainly by lowering the barriers to starting and operating small businesses. It is nevertheless important to make sure that differences in rules and regulations between platform and standard providers do not result in an uneven playing field. In addition, the relevance of large networks in the development of online platforms increases the risk of substantial disparities in market shares between big platform players and others. Therefore, policy questions arise in terms of how to promote fair competition and how to avoid the possible emergence of dominant platforms. This might require revising the legal framework in which they operate, including adapting taxation and monitoring mergers and acquisitions. Similarly, there are legal questions regarding the employment status of platform workers and whether online

<sup>163</sup> Nunu, M., Nausedaite, R., Eljas-Tall, K., Svatikova, K. and Porsch, L., “Study to Monitor the Economic Development of the Collaborative Economy at sector level in the 28 EU Member States. Final Report”, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (European Commission), Technopolis, Trinomics, VVA Consulting, Publications Office of the European Union, Luxembourg, 2018.

<sup>164</sup> Urzi Brancati, M.C., Pesole, A. and Fernández-Macías, E., “New evidence on platform workers in Europe”, JRC Science for Policy Report, Publications Office of the European Union, Luxembourg, 2020. For a review of the estimates on the platform economy in developed economies, see de Groen, W.P. et al., op. cit. For coverage of 75 countries around the world, see Berg, J., Furrer, M., Harmon, E., Rani, U., and Silberman, M.S., “Digital labour platforms and the future of work: Towards decent work in the online world”, International Labour Organization, Geneva, 20 September 2018.

platforms should be considered as employers, with the results of related court cases so far mixed.<sup>165</sup> In addition, digital platforms need to ensure the application of principles such as transparency and non-discrimination in their business models, which rely heavily on the use of data and data processing.

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## 4 Labour markets

**This section reviews the effects of digitalisation on the labour market.** It starts with a discussion on the phenomenon of job polarisation and then considers how digitalisation and automation may lead to the replacement, but also creation, of some jobs and tasks.<sup>166</sup>

**From the early 1990s, labour markets in advanced economies started to polarise, whereby the share of low and high-skilled jobs increased at the expense of middle-skilled jobs.** While employment and wage premiums for high skills rose, there was also a substantial increase in the employment share of low-skilled labour, albeit not always necessarily accompanied by rising wages. The increase in employment shares for high- and low-skilled workers therefore corresponded to a reduction in the share for middle-skilled employment, giving rise to job polarisation (or “hollowing out”), a phenomenon identified in virtually all advanced economies.<sup>167</sup> The principal explanation for polarisation is that the rise of digitalisation and automation has given rise to routine-biased technological change (RBTC); jobs characterised by a high content of routine and repetitive tasks (middle-skilled jobs, such as bank tellers, machine operators, office clerks) can eventually be performed more efficiently by machines or computers.<sup>168</sup>

**Automation tends to favour skills at both high and low wages.** On the one hand, RBTC favours jobs that require complex analytical skills with a certain level of abstraction (and hence limited automation potential) or a high level of interpersonal communication, which are naturally complemented by such technologies. On the other hand, automation and RBTC have not yet affected non-routine manual jobs, which typically require little to no specialised education but have a large content of tasks that require intuition, discretion, flexibility, adaptability or interpersonal interaction, which are also hard to automate. This category encompasses a very broad array of jobs mostly found in the service sector, such as cleaning, maintenance, personal care, security and food services.

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<sup>165</sup> For a detailed discussion on the employment and working conditions of platform workers in selected EU countries, see de Groen, W.P. et al., *op. cit.*

<sup>166</sup> Two ECB podcasts also discuss the implications of digitalisation for European labour markets: “[Virtually Everywhere? Digitalisation and jobs in the euro area \(Part 1\)](#)”, ECB, Frankfurt am Main, 2 September 2020, and “[Virtually Everywhere? Digitalisation and jobs in the euro area \(Part 2\)](#)”, ECB, Frankfurt am Main, 29 September 2020.

<sup>167</sup> See, for example, Goos, M., Manning, A. and Salomons, A., “[Job Polarization in Europe](#)”, *American Economic Review*, Vol. 99, No 2, American Economic Association, May 2009, pp. 58-63.

<sup>168</sup> It should be noted that “routine” does not imply trivial or mundane; instead the task at hand involves a high enough element of repetition that it can be readily codified.

**Automation and its impacts on different types of jobs can be analysed through the lens of a framework that views jobs as collections of different tasks, some of which are more readily automated than others.** In this framework, RBTC automates some tasks and creates new ones, destroying some existing jobs and creating new ones in the process.<sup>169</sup> Given that automation has a comparative advantage in middle-skilled tasks (routine-intensive with functions that can be relatively easily translated into computer code), automation can replace these jobs and middle-skilled workers shift away from these tasks.<sup>170</sup>

**The evolution of job polarisation by task content for selected European countries is shown in Chart 4.**<sup>171</sup> Non-routine cognitive tasks are split into analytical and personal (e.g. mathematicians and managers), routine tasks are split into cognitive and manual (e.g. clerks and machine operators), and non-routine manual tasks are split into physical and personal (e.g. cleaners and waiters). The chart shows the evolution of the task content of the mean job<sup>172</sup> and reveals the sharp reduction in its routine content and a corresponding increase in its non-routine cognitive content. The picture emerging from this chart is consistent with the view of polarisation as accompanied by a changing allocation of skills across occupations.<sup>173</sup> Furthermore, Dias da Silva et al.<sup>174</sup> find that declines in average hours worked over recent decades across a selection of EU countries have exacerbated job polarisation.<sup>175</sup>

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<sup>169</sup> The tasks framework is based on that of Autor, D.H., Levy, F. and Murnane, R.J., “[The Skill Content of Recent Technological Change: An Empirical Exploration](#)”, *The Quarterly Journal of Economics*, Vol. 118, No 4, Oxford University Press, Oxford, November 2003, pp. 1279-1333.

<sup>170</sup> Goos, M., “[The impact of technological progress on labour markets: policy challenges](#)”, *Oxford Review of Economic Policy*, Vol. 34, No 3, Oxford University Press, Oxford, July 2018, pp. 362-375.

<sup>171</sup> The chart is reproduced from Dias da Silva, A., Laws, A. and Petroulakis, F., “[Hours of work polarisation?](#)”, *Working Paper Series*, No 2324, ECB, Frankfurt am Main, October 2019. The chart uses the finer task representation of Acemoglu, D. and Autor, D., “[Skills, Tasks and Technologies: Implications for Employment and Earnings](#)”, in Ashenfelter, O. and Card, D. (eds.), *Handbook of Labor Economics*, Vol. 4b, Elsevier, B.V., 2011, pp. 1043-1171.

<sup>172</sup> All occupations or jobs are broken down into their tasks content according to the six task categories in Chart 4. Using this methodology, the task content of the mean job is derived.

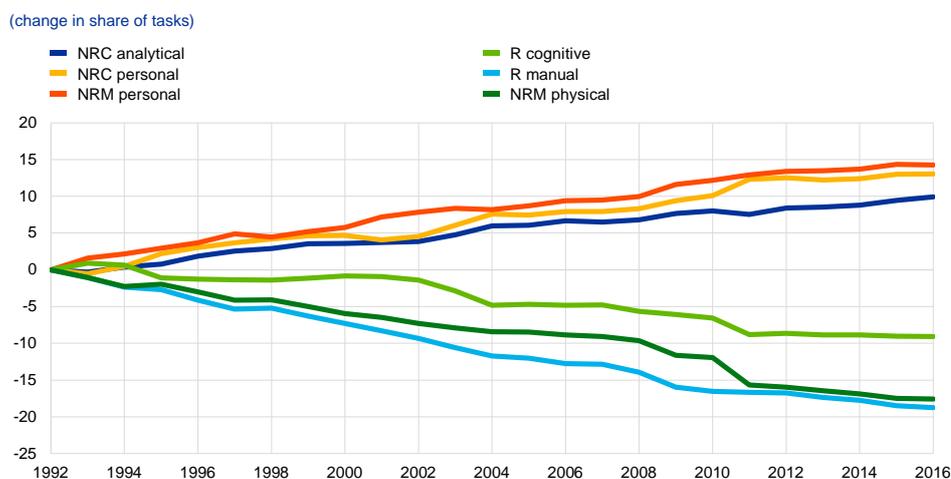
<sup>173</sup> See Acemoglu, D. and Autor, D., op. cit. Also, the precise nature of the effects on labour depends on the equilibrium interaction of technology, skills supply, and consumer demand. As workers abandon middling tasks for low and high-skilled tasks, then the effects on employment and wages in these groups will depend on the relative comparative advantages of the middling workers in these tasks.

<sup>174</sup> Dias da Silva et al., op. cit.

<sup>175</sup> In more detail, Dias da Silva et al., op. cit., find that hours worked have fallen more for some routine jobs compared with non-routine jobs, hence the decline in hours worked is exacerbating the impact of job polarisation at the top and middle parts of the skill distribution.

**Chart 4**

Evolution of the task content of the mean job in selected European countries



Source: Dias da Silva et al. (see footnote 48).

Notes: Jobs are broken down into their task content according to the six categories shown and each line therefore shows the task content of the mean job; NRC=non-routine cognitive; NRM=non-routine manual; R=routine. Sample normalised to 0 in 1992. The countries comprise Belgium, Denmark, Ireland, Greece, Spain, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden and the United Kingdom.

**A leading example of a modern automation technology with a high potential to displace labour is that of industrial robots.** Robots are currently primarily used to perform repetitive tasks in manufacturing and hence represent a prominent example of routine task replacement. Graetz and Michaels<sup>176</sup> show that robots raise TFP and labour productivity in Europe with no significant effects on employment except for a small shift in favour of high-skilled workers.<sup>177</sup> The relationship between digitalisation and employment is examined in further detail in Box 2 below, with a general finding that – at the aggregate level – digitalisation generally tends to be positively associated with employment.

**Box 2**

Digitalisation, employment and unemployment

Prepared by Valerie Jarvis

Measuring the reach of the digital economy is not straightforward, but a metric for gauging the degree of digitalisation across EU countries is the extent to which employment is related to digital activities. Two EU countries – Estonia and Sweden – consistently top the digital employment charts. A relatively wide definition of ICT-dependent employment can include all those working in ICT-intensive occupations, whether or not they are employed directly in ICT sectors, as well as those employed in broader ICT task-intensive occupations. Such a measure demonstrates the high degree of cross-country heterogeneity, with the share of total ICT-dependent employment ranging from around 22% in Luxembourg (surpassing even that of the United States) to around 7% in Greece, Italy and Slovakia. While barely reaching 11% in the euro area and the EU, this broader definition of

<sup>176</sup> Graetz, G. and Michaels, G., “Robots at Work”, *The Review of Economics and Statistics*, Vol. 100, No 5, MIT Press, Cambridge, Massachusetts, December 2018, pp. 753-68.

<sup>177</sup> Acemoglu, D. and Restrepo, P., “Robots and Jobs: Evidence from US Labor Markets”, *Journal of Political Economy*, Vol. 128, No 6, June 2020, pp. 2188-2244 show that local labour markets in the United States which were relatively more exposed to robots experienced broader negative effects on employment and wages.

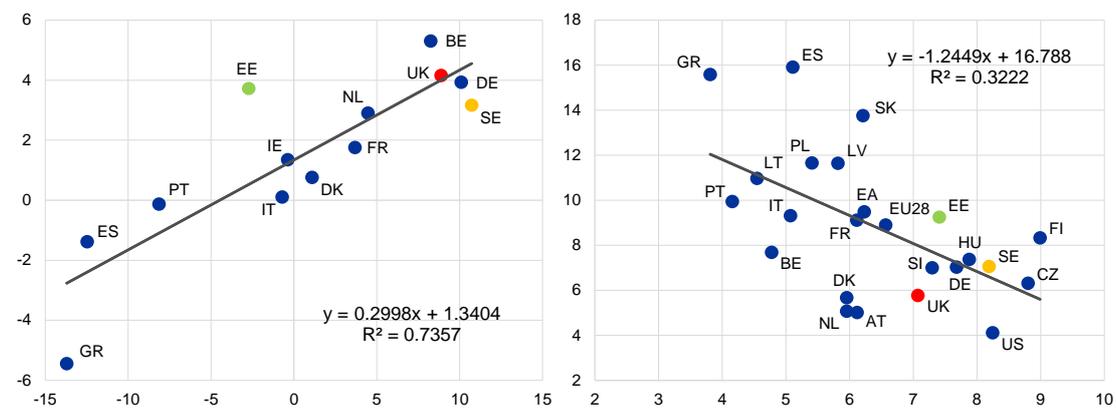
ICT-dependent employment amounts to roughly 17% of total employment in Sweden and Estonia, similar to the share seen in the United States.<sup>178</sup>

Sectors with higher digital intensity made substantial contributions to employment growth across advanced economies during the decade 2006-16 (see Chart A, left-hand panel). Looking at the relationship between total employment growth and the contribution of the digital-intensive sectors for selected European economies, Chart A (left-hand panel) suggests a strong contribution from digitally-intensive sectors to total employment growth between 2006-16. More heavily digitally dependent countries, i.e. Sweden and Estonia, appear to have been among the strongest performers in terms of the employment contribution of the digital-intensive sectors, outperforming many other EU economies.

Moreover, there is some evidence to suggest that economies with a higher digital economy share of total value added tend to be those with lower unemployment rates. Chart A (right-hand panel) shows a broadly negative correlation between aggregate unemployment rates and the shares of total value added accounted for by digital sectors for the EU economies and the United States over the period 2000-18. Although the chart does not imply causality, it seems to counter the notion that a higher degree of digitalisation leads to higher aggregate unemployment. That is not to say that digitalisation does not result in job displacement and job disruption, whereby some workers lose jobs and find it difficult to get back into employment for prolonged periods, but digitalisation also generates new jobs and tasks. The trends of those countries at the forefront of the digital transformation may hold lessons for others still in the catch-up phase.

**Chart A**  
Digitalisation, employment and unemployment

(left-hand panel: x-axis: percentage growth in total employment; y-axis: employment contribution of digital-intensive-sectors; right-hand panel, x-axis: digital sector as percentage of the whole economy value added; y-axis: average annual unemployment rate 2000-18)



Source: OECD (2019).

**How can labour markets still generate enough jobs after two centuries of incredible labour-saving technological advances?** Acemoglu and Restrepo<sup>179</sup> argue that technology has a “reinstatement effect”, which creates new tasks as it

<sup>178</sup> For the full definition of ICT-dependent employment, and relevant data sources, see the box entitled “Digitalisation and EU labour markets: a comparative approach” in Anderton, R. et al., op. cit.

<sup>179</sup> Acemoglu, D. and Restrepo, P., “The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment”, *American Economic Review*, Vol. 108, No 6, American Economic Association, June 2018, pp. 1488-1542; and Acemoglu, D. and Restrepo, P., “Automation and New Tasks: How Technology Displaces and Reinstates Labor”, *Journal of Economic Perspectives*, Vol. 33, No 2, American Economic Association, 2019, pp. 3-30.

destroys others. They argue for a reinterpretation of the relationship between technology and labour as a “race between automation and new labour-intensive tasks”, which reinstates labour and increases productivity. At the same time, these mechanisms may lead to greater inequality in the labour market.<sup>180</sup> In addition, the higher market power of large digital firms may also compress wages and be associated with a lower labour share.<sup>181</sup>

**Recent work has attempted to quantify the threat of automation to existing jobs more precisely.** Frey and Osborne<sup>182</sup> asked experts to give subjective views on whether specific occupations could be easily automated in the near future.<sup>183</sup> The results suggest that 47% of jobs in the United States are at a high risk (over 70%) of automation. Subsequent studies find smaller possible effects, such as Arntz et al.<sup>184</sup>, who estimate that only 9% of jobs in the United States face a high risk of automation. Overall, there is wide variation in the empirical estimates of how many jobs are at risk of some degree of automation. In addition, although automation seems to be related to trends such as job polarisation and may imply some job losses, automation also leads to “reinstatement effects” resulting in new tasks and job creation.<sup>185</sup>

**Precise numbers aside, there is undoubtedly a concern that task automation threatens a substantial number of jobs.** Even though technology has had a positive net effect on labour historically, there is a risk that the pace of automation may be too fast for some workers, who will not be able to quickly reskill and be redeployed to new tasks. While education and retraining policies have an important role to play, they may be more challenging for more mature workers. Structural framework conditions, including both labour and product market policies, may need to be further adapted to fully reap the potential gains from digitalisation while maintaining inclusiveness.

## 5 Digitalisation and consumer price inflation

**Digitalisation is often associated with a negative impact on the price of some goods and services and on overall inflation.** This impact can be examined separately by distinguishing two transmission channels. The first is the direct

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<sup>180</sup> See, for example, the section entitled “A general equilibrium perspective of how automation affects the labour market” in Anderton, R. et al., op. cit. Here, the impacts of an automation shock using a dynamic stochastic general equilibrium model show an increase in both low- and high-skilled jobs in the medium term, while increasing the wage premium of high-skilled workers relative to low-skilled ones.

<sup>181</sup> There is also some evidence that the large increase in teleworking during the COVID-19 pandemic may be associated with a further rise in inequality as jobs that can be performed remotely are often associated with higher wages (see the article entitled “The impact of the COVID-19 pandemic on the euro area labour market” in this issue of the Economic Bulletin).

<sup>182</sup> Frey, C.B. and Osborne, M.A., “[The future of employment: How susceptible are jobs to computerisation?](#)”, *Technological Forecasting and Social Change*, Vol. 114, Elsevier, B.V., January 2017, pp. 254-280.

<sup>183</sup> The specific question used in this study was: “Can the tasks of this job be sufficiently specified, conditional on the availability of big data, to be performed by state of the art computer-controlled equipment?”

<sup>184</sup> Arntz, M., Gregory, T. and Zierahn, U., “[The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis](#)”, *OECD Social, Employment and Migration Working Papers*, No 189, OECD Publishing, Paris, 14 May 2016.

<sup>185</sup> See the box entitled “Digitalisation, employment and unemployment” in this article, which suggests that – across countries at the aggregate level – higher degrees of digitalisation are associated with lower unemployment.

transmission channel to consumer prices that occurs via the prices of digital products in the euro area and its member countries. The second transmission channel is more indirect. It captures digitalisation, i.e. online retail, effects on inflation as cost savings, higher price transparency, intensified competition, and productivity gains – which are generally very difficult to disentangle empirically.<sup>186</sup> Finally, it is important to distinguish the impact of digitalisation on price level from the rate of change, i.e. inflation, and to examine if there is a bias in measuring inflation using the Harmonised Index of Consumer Prices (HICP) given the increasing importance of online retail for household consumption.

### The direct effects

**The direct impact channel of digitalisation on consumer prices functions via the prices of digital products purchased by consumers.** Because such products are part of the HICP for the euro area and its member countries, this will have a direct impact on inflation as measured by this index. It is difficult to clearly define what digital products are, but a proxy for an index of “digital products” can be constructed following the definition of an ICT index by Eurostat.<sup>187</sup> According to that proxy, declines in the prices of ICT products lowered the euro area annual HICP inflation rate by 0.15 percentage points on average each year in the period from 2002 to 2019 (see Chart 5). The impact was larger until around 2015 but decreased to some extent afterwards. Over the same period, the range of impacts for individual euro area countries was around 0.1 to 0.2 percentage points per year on average.<sup>188</sup>

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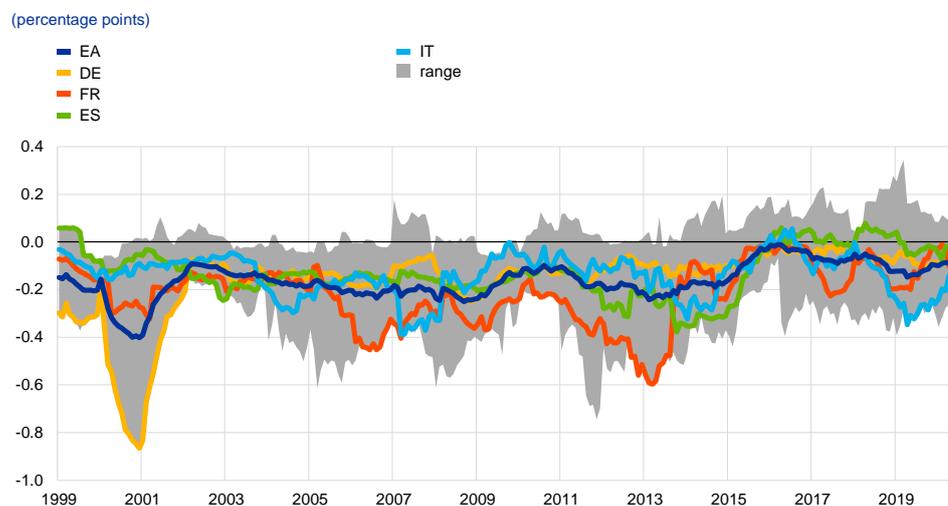
<sup>186</sup> A more thorough overview of these effects is available in the section entitled “Digitalisation and inflation” in Anderton, R., et al., op. cit.

<sup>187</sup> In line with the guidelines published in the “[Harmonised Index of Consumer Prices \(HICP\) Methodological Manual](#)”, Eurostat, Publications Office of the European Union, Luxembourg, November 2018, the ICT product index consists of ECOICOP categories 08.2.0 Telephone and telefax equipment and 09.1 Audio-visual, photographic and information processing equipment as goods of a predominantly electronic character. Additionally, it includes categories 08.3.0 Telephone and telefax services and 12.3.1.2 Clocks and watches. The total weight of these items in the HICP is around 4% in 2020 in the euro area.

<sup>188</sup> Differences across countries mainly reflect different inflation rates for telecommunication services – a sector that historically was very concentrated, but where market power has declined since 2003 (e.g., according to the OECD sector regulation indicators, overall regulation in the telecommunications sector in most euro area countries has declined since 2003). The inflation rates for audiovisual products and IT processing equipment and telephones were less diverse across the euro area countries.

## Chart 5

### ICT product contribution to headline HICP annual inflation rate across euro area countries



Sources: Eurostat, ECB calculations.

Notes: The latest data refer to July 2020. The range is defined by the minimum and maximum across the euro area countries (in changing composition). The ICT products comprise audiovisual, photographic and information processing equipment, telephone and telefax equipment and services, as well as clocks and watches. The country price indices for clocks and watches have different starting months, but the weight is very small (for the euro area it is less than 0.5% of headline HICP), therefore the comparison across countries and time is not distorted (the impact on the aggregate ICT product contribution is negligible). Inflation rates for 2000 and 2001 are distorted as they reflect the methodological impact of the inclusion of internet services in Germany's HICP.

#### **A number of caveats surround the estimates of the inflation rate for digital**

**items.** First, digital products in the consumer basket do not comprise only the four categories used for the reported index. Many other goods and services are also exposed to ICT developments to various degrees. Second, ICT products (or electronic goods) are subject to sudden and very fast technological upgrades and thus create challenges for their inclusion in the HICP basket in terms of proper quality adjustment, replacement or expansion of the basket. Failure to appropriately incorporate the prices of such products in the HICP basket can lead to a bias (upward or downward) in the respective price indices.

#### **The indirect effects**

##### **The indirect impact channels of digitalisation operate via cost savings and higher competition owing to increased price transparency.**

Digitalisation in the context of prices for final consumer goods is often associated with the narrower term “e-commerce”, which is typically used to describe the buying or selling of goods and services via the internet. Considering e-commerce between businesses and consumers, the inflation-lowering impact of growing e-commerce occurs in two ways. First, e-commerce can reduce costs compared with the standard offline distribution channels (e.g. online sales require lower expenditures than maintaining shops), which both traditional and online retailers may pass on to consumers. Second, e-commerce may lower prices (or constrain their increase following cost rises) because of higher transparency and intensified competition between suppliers. Customers search online for lower prices and bargains, forcing both traditional and online suppliers to contain

prices, potentially eroding their profit margins. Both effects can take place when the share of e-commerce retail in total retail trade is still low.

**Although e-commerce generally intensifies competition, the presence and wide use of internet-based trade technologies may also create opportunities for tacit collusion among suppliers or retailers, which may impair competition.**

While e-commerce enables consumers to compare the prices and quality of goods, it also facilitates opportunities for suppliers to check prices and possibly collude on pricing behaviour. Although such effects may be relevant for specific markets, the competition-enhancing impacts of e-commerce transaction technologies should dominate – notably as long as the technology is still relatively young and as long as online suppliers strive for market share in an effort to strengthen their position in the business.

**The extent to which the indirect effects described above have an impact on inflation partly depends on the prevalence of e-commerce in the euro area.**

Moreover, the opportunity to compare prices online may already be a competition-enhancing factor. Online sales to consumers comprised almost 14% of total retail sales (excluding cars and motorcycles) in the euro area in 2017 – a share that has almost doubled over the last ten years. The most frequently purchased items were clothing, accommodation and travel.<sup>189</sup> Consumers have also significantly increased their use of e-commerce. In 2019 the share of people using the internet to obtain information about goods and services reached 70%, with 60% using it to buy them – a significant increase over the last ten years (see Chart 6). Among euro area countries, Germany and the Netherlands take the lead, followed by Luxembourg and France, with southern economies (Greece, Italy, Cyprus and Portugal) somewhat lagging behind for actual purchases.

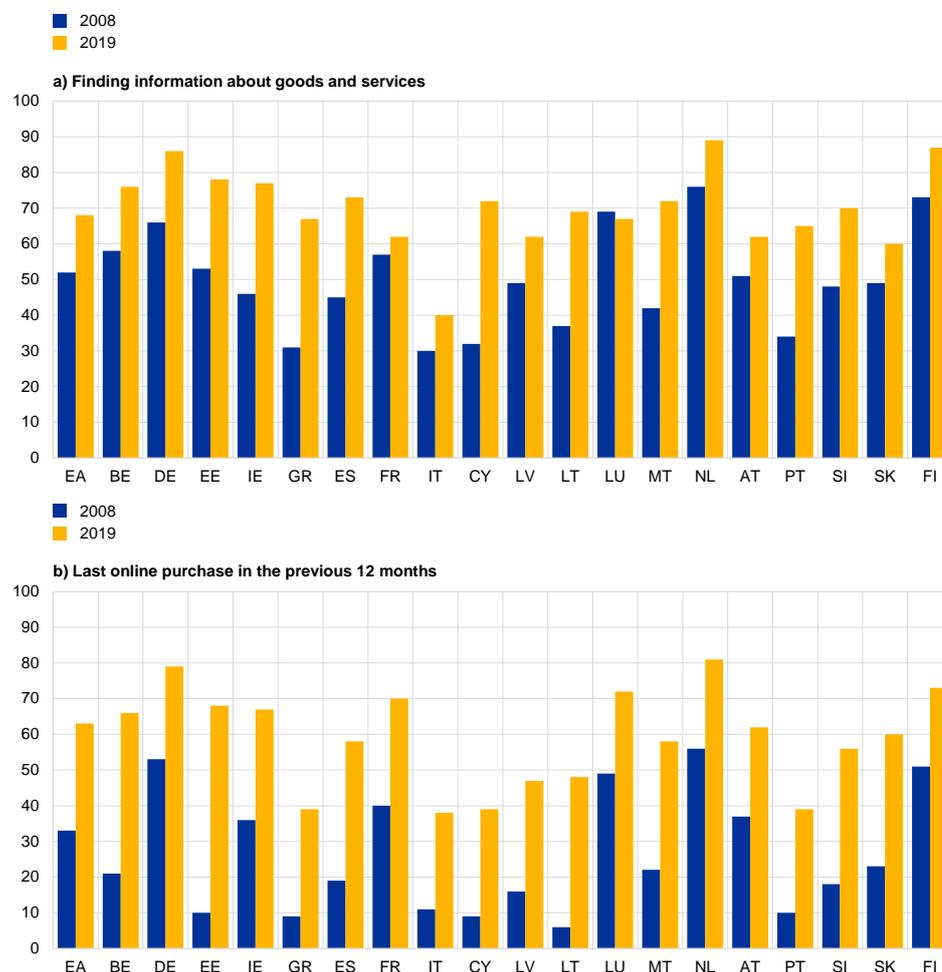
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<sup>189</sup> The estimate for the share of online retail sales is obtained from country level business-to-consumer online sales data from the [European Ecommerce Association](#) and Eurostat.

**Chart 6**

Household use of the internet for consumption and information gathering

(percentage share of all individuals)



Source: Eurostat.

**To the extent that e-commerce adoption continues to increase, it could impact inflation for a protracted period.** The empirical evidence on the effects of e-commerce penetration on inflation so far is scarce but points to a small negative effect. A number of studies, including internal ECB estimates, have used different approaches, compositions of countries (including euro area countries) and time periods (including the past ten years), and found that expansion of e-commerce (measured by various metrics) may have lowered the annual inflation rate by around 0.1 percentage points or.<sup>190</sup> Overall, however, price-lowering impacts from a more intensified use of e-commerce, if there are any, will only last until the diffusion of

<sup>190</sup> See, for example, Choi, C. and Yi, M.H., "The effect of the Internet on Inflation: Panel data evidence", *Journal of Policy Modelling*, Vol. 27, No 7, Elsevier, B.V., February 2005, pp. 885-889; Lorenzani, D. and Varga, J., "The Economic Impact of Digital Structural Reforms", *Economic Papers*, No 529, European Commission, 2014; and Csonto B., Huang, Y., and Tovar, C.E., "Is Digitalization Driving Domestic Inflation?", *IMF Working Paper*, No 19/271, International Monetary Fund, December 2019. More information on the internal ECB estimates can be found in the section entitled "Digitalisation and inflation" in Anderton, R. et al., op. cit.

e-commerce technologies through markets has levelled off.<sup>191</sup> Despite widespread agreement that online retail likely dampens inflation, a smaller strand of literature argues that the adoption of digital technologies may be associated with market concentration among a handful of superstar firms, which may result in some inflationary effects in the longer run – an aspect to be monitored in the future.<sup>192</sup>

**Changes in market power and digitalisation in general may have implications not only for inflation but also for the transmission of monetary policy.** However, the academic discussion on the channels of this impact is still open. Syverson<sup>193</sup> shows that a monetary expansion would lead to a larger output expansion under conditions of perfect competition than it would under a monopoly. Monetary policy affects firms directly by changing their cost of capital and indirectly by affecting demand. Companies with high market power in general respond less to changes in costs, and hence to monetary policy, than perfectly competitive firms. This does not mean, however, that less market power will necessarily result in a higher pass-through of cost shocks or higher transmission of monetary policy. The transmission of monetary policy will depend on how the pricing decisions of firms change as market power changes.<sup>194</sup> Korinek and Ng<sup>195</sup> analyse the role of digital innovation costs of superstar firms and find that, as innovation proceeds, factor costs will fluctuate less with demand, leading to a flatter Phillips Curve, i.e. more price stickiness.<sup>196</sup> A somewhat contrasting finding is reported by Cavallo<sup>197</sup>, who finds a decline in the degree of geographic price dispersion in the United States over the last ten years, which he attributes to the fact that online retailers have uniform pricing strategies limiting the opportunity for geographical price discrimination. As a result, the sensitivity of retail prices to global shocks, such as exchange rates and gas prices, has increased, which suggests a decline rather than an increase in price stickiness.<sup>198</sup> Overall, the impact of digitalisation on monetary policy needs further research, both to enrich structural models to capture its effects and to verify their empirical implications.<sup>199</sup>

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<sup>191</sup> See discussion by Meijers, H., “Diffusion of the Internet and low inflation in the information economy”, *Information Economics and Policy*, Vol. 18, No 1, March 2001, pp.1-23.

<sup>192</sup> See, for example, Haldane, A.G., “[Market Power and Monetary Policy](#)”, a speech at the Federal Reserve Bank of Kansas City Economic Policy Symposium, Jackson Hole, Wyoming, 24 August 2018 and Shapiro, C., “[Protecting Competition in the American Economy: Merger Control, Tech Titans, Labour Markets](#)”, *The Journal of Economic Perspectives*, Vol. 33, No 3, American Economic Association, 2019, pp. 69-93.

<sup>193</sup> Syverson, C., “[Changing market structures and implications for monetary policy](#)”, remarks made at the Federal Reserve Bank of Kansas City Economic Policy Symposium, Jackson Hole, Wyoming, 2018.

<sup>194</sup> It is important to note that this discussion relates to one aspect of firms’ costs and monetary policy transmission, while there are obviously many other factors and mechanisms involved in the monetary policy transmission process.

<sup>195</sup> Korinek, A. and Ng, D.X., “Digitization and the macro-economics of superstars”, mimeo, 2018.

<sup>196</sup> As superstar firms gain market share, and as long as their innovation involves fixed costs, they spend an increasing share of their factor demand on fixed costs, which respond less to aggregate demand changes.

<sup>197</sup> Cavallo, A., “[More Amazon effects: Online competition and pricing behaviors](#)”, *NBER Working Papers*, No 25138, National Bureau of Economic Research, 2018.

<sup>198</sup> In other words, less space for price discrimination, combined with little or no menu costs for online retailers, can reduce price stickiness.

<sup>199</sup> See Syverson, C., op. cit. and Cavallo, A., op. cit.

## Online retail and measurement of the HICP

**Last but not least it is important to distinguish the impact of digitalisation on price levels from its impact on inflation.** The inclusion of goods and services traded online in the HICP will have an impact on HICP inflation only if the prices of such products and services change at different rates than the prices of goods and services traded offline. The methodology for compiling the HICP implies that price-level differences between online and offline shop prices do not have a direct effect on the HICP. At the same time, increasing expenditure via the internet is reflected in adjustments to the weights of the respective HICP sub-items. Moreover, the statistical offices of the euro area countries continuously enhance their data collection methods and some online prices are already reflected in the HICP.<sup>200</sup>

**The available evidence on possible measurement error in the consumer price indices resulting from the incomplete incorporation of online sales is scarce and inconclusive.** While there is broad agreement in the literature that the frequency of price adjustment has increased over recent years in both retail channels, some studies document prices in online and brick-and-mortar shops changing with a similar frequency, whereas others find that price changes are more frequent for online stores.<sup>201</sup> The evidence on the average size of price changes is similarly inconclusive.<sup>202</sup> Overall, there is still not enough evidence to conclude that the partial exclusion of online sales leads to measurement error in price indices (upward or downward). If a bias does exist, its extent is even more unclear.

**Policymakers should monitor and analyse the impact of digitalisation on consumer prices and inflation.** It may have implications for price measurement and inflation trends as well as for the monetary policy transmission mechanism.<sup>203</sup>

## 6 Digitalisation and the COVID-19 pandemic

**Since the onset of the pandemic there has been an increase in the take-up of digital technologies, especially in connection with lockdowns restricting physical mobility within and across regions and countries.** The increase in

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<sup>200</sup> For example, Belgium's statistical office collects data on internet prices for student housing and accommodation services, the statistical office in the Netherlands collects data on prices for clothing, and the German statistical office collects data on prices for long-distance buses and railway tickets.

<sup>201</sup> Cavallo, A. documents a similar frequency of price changes: see Cavallo, A., "Are Online and Offline Prices Similar?: Evidence from Large Multi-channel Retailers", *American Economic Review*, Vol. 107, No 1, American Economic Association, January 2017, pp. 283-303 and Cavallo, A., "More Amazon Effects: Online Competition and Pricing Behaviors", op. cit., whereas Gorodnichenko, Y., Sheremirov, V. and Talavera, O., "Price Setting in Online Markets: Does IT Click?", *Journal of the European Economic Association*, Vol. 16, No 6, Oxford University Press, Oxford, December 2018, pp. 1764-1811, report a higher frequency of price changes for online stores.

<sup>202</sup> Lünemann P. and Wintr, L., "Price Stickiness in the US and Europe Revisited: Evidence from Internet Prices", *Oxford Bulletin of Economics and Statistics*, Vol. 73, No 5, Oxford University Press, Oxford, 3 August 2011, find changes in the prices of products traded online on average smaller, though more frequent, than those reported in the consumer price index data, whereas Cavallo, A., "Are Online and Offline Prices Similar?: Evidence from Large Multi-channel Retailers", op. cit. and Gorodnichenko, Y., et al., op. cit., report that prices adjust in online shops by similar amounts, on average, as those in the brick-and-mortar shops.

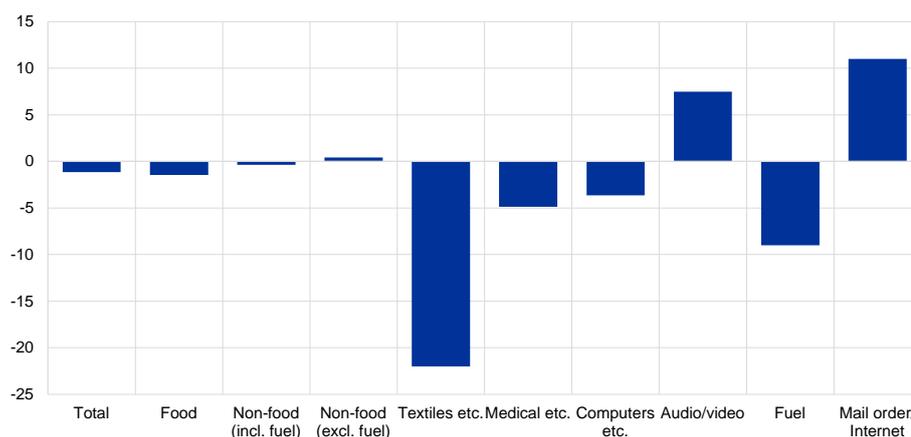
<sup>203</sup> For more discussion on policy implications for the United States, see Cavallo, A., "More Amazon Effects: Online Competition and Pricing Behaviors", op. cit.

take-up has affected digital services and goods alike, as reflected in the corresponding data, usage/subscription statistics in the case of digital services as available through online platforms<sup>204</sup>, and retail sales in the case of digital (or digitally-ordered) goods, as illustrated in Chart 7 below.

**Chart 7**

**Euro area retail trade – July 2020 compared with February 2020**

(percentage change)



Sources: Eurostat and ECB staff calculations.

Notes: "Total" corresponds to "Retail trade, except motor vehicles and motorcycles", "Food" to "Retail sale of food, beverages and tobacco", "Non-food" to "Retail sale of non-food products", "Textiles etc." to "Retail sale of textiles, clothing, footwear and leather goods in specialised stores", "Medical etc." to "Dispensing chemist; retail sale of medical and orthopaedic goods, cosmetic and toilet articles in specialised stores", "Computers etc." to "Retail sale of computers, peripheral units and software; telecommunications equipment, etc. in specialised stores", "Audio/video etc." to "Retail sale of audio and video equipment; hardware, paints and glass; electrical household appliances, etc. in specialised stores", "Fuel" to "Retail sale of automotive fuel in specialised stores", and "Mail order/internet" to "Retail sale via mail order houses or via the internet".

**The increase in digital take-up seems to be a result of both existing users who expand their usage as well as new users and uses**, as more households resort to online services and more businesses to digitally-enabled conferencing and supply-chaining, for example, thereby also triggering an increase in digital literacy and skills. This may be an important step towards a larger digital economy in the euro area and EU; whether this represents a permanent change will be a key factor for the likely medium to long-term impact of the COVID-19 pandemic on the digital and broader economy in the euro area, EU and elsewhere.

**As the COVID-19 pandemic is still unfolding, its impact on the digital economy remains uncertain, especially beyond the short term.** Its impact on the digital and broader economy depends both on digital supply and demand. The supply response would enhance productivity, ICT and possibly human capital and thereby boost capacity and potential, while the demand response would do so only if it were more permanent. Overall, it seems that the euro area and EU economies have a greater chance of catching up with their peers in the global digital economy if a strong digital supply-side response materialises.

<sup>204</sup> See, for example, Kemp, S., "Digital 2020: April Global Statshot", Data Reportal, 23 April 2020.

## 7 Conclusion

**The digitalisation revolution is “virtually everywhere” and is transforming all our economies.** The digital economy is increasing in importance, with a likely acceleration in the take-up of digital technologies during the COVID-19 pandemic, and is affecting monetary policy-relevant variables such as employment, productivity and inflation. There is considerable heterogeneity across the euro area and Europe in terms of the adoption of digital technologies and most of these countries are falling behind major competitors such as the United States. Structural policies, such as labour, product and financial market regulations, may have to be adapted in order to fully reap the potential gains from digital technologies while maintaining inclusiveness. In terms of digitalisation, the COVID-19 pandemic may create further challenges for EU countries, but it also provides important opportunities to catch up.

# Statistics

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## Further information

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

## Conventions used in the tables

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

# 1 External environment

## 1.1 Main trading partners, GDP and CPI

	GDP <sup>1)</sup> (period-on-period percentage changes)						CPI (annual percentage changes)						
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	OECD countries		United States	United Kingdom (HICP)	Japan	China	Memo item: euro area <sup>2)</sup> (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2017	3.8	2.3	1.7	1.7	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	0.6	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	0.3	6.1	1.3	2.1	2.2	1.8	1.8	0.5	2.9	1.2
2019 Q4	0.4	0.6	0.1	-1.9	1.6	0.1	1.9	2.1	2.0	1.4	0.5	4.3	1.0
2020 Q1	-3.5	-1.3	-2.5	-0.5	-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	-8.3	11.7	-11.7	0.9	1.6	0.4	0.6	0.1	2.7	0.2
Q3	.	7.4	15.5	5.3	2.7	12.5	1.3	1.7	1.2	0.6	0.2	2.3	0.0
2020 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.	.	.	.	.	.	.	1.3	1.6	1.3	0.2	0.2	2.4	-0.2
Sep.	.	.	.	.	.	.	1.3	1.7	1.4	0.5	0.0	1.7	-0.3
Oct.	.	.	.	.	.	.	.	.	1.2	0.7	-0.4	0.5	-0.3
Nov. <sup>3)</sup>	.	.	.	.	.	.	.	.	.	.	.	.	-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.

3) The figure for the euro area is an estimate based on provisional national data, as well as on early information on energy prices.

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports <sup>1)</sup>		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index <sup>2)</sup>			Global	Advanced economies	Emerging market economies
	Global <sup>2)</sup>	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders			
	1	2	3	4	5	6	7	8	9	10	11	12
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	-0.5	-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	-3.3
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	51.9	53.1	57.5	45.6	54.7	52.4	52.6	51.7	48.9	9.4	9.1	9.9
2020 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	49.8	46.3	-4.5	-4.7	-4.3
Aug.	52.6	54.6	59.1	45.2	55.1	51.9	53.3	52.4	49.5	3.8	2.5	5.2
Sep.	53.0	54.3	56.5	46.6	54.5	50.4	53.1	52.9	51.0	9.4	9.1	9.9
Oct.	54.1	56.3	52.1	48.0	55.7	50.0	53.6	54.3	50.3	.	.	.
Nov.	54.8	58.6	49.0	48.1	57.5	45.3	55.2	54.7	51.5	.	.	.

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 <sup>1)</sup>						United States	Japan
	Euro short-term rate (€STR) <sup>2)</sup>	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 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
Oct.	-0.55	-0.47	-0.54	-0.51	-0.49	-0.47	0.22	-0.10
Nov.	-0.56	-0.47	-0.54	-0.52	-0.51	-0.48	0.22	-0.10

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 <sup>1), 2)</sup>					Euro area <sup>1), 2)</sup>	United States	United Kingdom	Euro area <sup>1), 2)</sup>			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
1	2	3	4	5	6	7	8	9	10	11	12	
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 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
Oct.	-0.71	-0.75	-0.80	-0.81	-0.60	0.15	0.75	0.27	-0.81	-0.88	-0.68	-0.17
Nov.	-0.72	-0.72	-0.75	-0.75	-0.55	0.17	0.73	0.32	-0.75	-0.81	-0.62	-0.13

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										Standard & Poor's 500	Nikkei 225
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
2017	376.9	3,491.0	757.3	268.6	179.3	107.4	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	172.6	115.8	173.1	629.5	502.5	278.8	292.9	800.5	2,746.2	22,310.7
2019	373.6	3,435.2	731.7	270.8	183.7	111.9	155.8	650.9	528.2	322.0	294.2	772.7	2,915.5	21,697.2
2020 May	322.1	2,909.3	678.1	251.2	150.1	76.9	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	212.2	160.9	82.7	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	206.2	161.6	79.3	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	207.6	161.9	78.9	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	215.7	162.0	75.4	119.0	638.1	669.1	347.2	245.9	822.8	3,365.5	23,306.9
Oct.	355.1	3,180.4	784.7	220.4	162.0	69.8	112.9	641.0	660.8	350.5	240.0	809.1	3,418.7	23,451.4
Nov.	377.7	3,391.8	824.1	238.4	167.0	80.5	130.3	692.7	653.1	364.4	249.2	820.1	3,549.0	25,384.9

Source: Refinitiv.

## 2 Financial developments

### 2.4 MFI interest rates on loans to and deposits from households (new business) <sup>1), 2)</sup>

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

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase				Composite cost-of-borrowing indicator	
	Over-night	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation	APRC <sup>3)</sup>	By initial period of rate fixation			APRC <sup>3)</sup>	Composite cost-of-borrowing indicator			
			Up to 2 years	Over 2 years					Floating rate and up to 1 year		Over 1 year			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 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	0.78	5.58	16.55	5.36	5.28	5.87	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	5.55	5.69	6.23	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	5.48	5.58	6.13	2.20	1.43	1.54	1.38	1.36	1.71	1.41
Mar.	0.02	0.36	0.30	0.64	5.61	16.19	5.49	5.45	5.89	2.06	1.39	1.54	1.35	1.35	1.65	1.39
Apr.	0.02	0.36	0.22	0.73	5.39	16.06	3.62	5.50	5.55	1.99	1.30	1.54	1.36	1.43	1.67	1.44
May	0.02	0.36	0.23	0.70	5.27	16.06	4.14	5.30	5.65	1.83	1.47	1.58	1.40	1.41	1.70	1.42
June	0.02	0.35	0.23	0.71	5.29	16.01	4.43	5.14	5.57	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	4.75	5.27	5.71	2.00	1.43	1.58	1.34	1.38	1.67	1.40
Aug.	0.02	0.35	0.19	0.71	5.21	15.89	5.35	5.35	5.89	1.91	1.42	1.61	1.31	1.40	1.67	1.40
Sep.	0.02	0.35	0.18	0.71	5.24	15.85	5.08	5.25	5.75	1.94	1.39	1.61	1.31	1.37	1.66	1.38
Oct. <sup>(p)</sup>	0.02	0.35	0.20	0.69	5.17	15.84	5.06	5.26	5.80	2.03	1.37	1.58	1.27	1.36	1.65	1.36

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) <sup>1), 2)</sup>

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

	Deposits			Revolving loans and overdrafts	Other loans by size and initial period of rate fixation									Composite cost-of-borrowing indicator
	Over-night	With an agreed maturity of:			up to EUR 0.25 million			over EUR 0.25 and up to 1 million			over EUR 1 million			
		Up to 2 years	Over 2 years		Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2019 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	2.01	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	1.15	1.09	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	1.45
June	0.00	-0.12	0.32	1.96	1.89	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	1.86	1.60	1.31	1.51	1.23	1.17	1.38	1.51
Aug.	0.00	-0.20	0.39	1.85	1.88	1.90	1.94	1.57	1.40	1.49	1.29	1.30	1.20	1.51
Sep.	0.00	-0.20	0.26	1.90	1.95	2.11	1.94	1.54	1.44	1.49	1.22	1.32	1.31	1.51
Oct. <sup>(p)</sup>	0.00	-0.21	0.45	1.84	1.94	2.16	1.96	1.56	1.47	1.50	1.23	1.43	1.39	1.53

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 <sup>1)</sup>						
	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 government	Other general government			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	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 Apr.	1,478	527	185	.	117	537	111	553	150	89	.	65	171	78
May	1,596	522	184	.	129	617	144	545	163	81	.	60	159	81
June	1,671	536	190	.	119	673	153	517	199	82	.	46	139	50
July	1,668	514	158	.	122	728	146	476	181	59	.	41	156	39
Aug.	1,666	505	154	.	121	744	142	383	153	56	.	29	112	34
Sep.	1,688	511	162	.	113	756	146	452	180	62	.	43	127	40
Long-term														
2017	15,353	3,560	3,059	.	1,223	6,866	643	247	66	73	.	18	83	7
2018	15,746	3,688	3,162	.	1,247	7,022	627	228	64	68	.	15	75	6
2019	16,313	3,818	3,398	.	1,321	7,151	626	247	69	74	.	20	78	7
2020 Apr.	16,709	3,943	3,418	.	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	.	1,433	7,569	676	424	100	94	.	38	172	20
July	17,106	3,936	3,162	.	1,445	7,890	673	304	55	66	.	32	140	12
Aug.	17,192	3,930	3,172	.	1,443	7,969	678	162	21	45	.	3	85	8
Sep.	17,319	3,949	3,214	.	1,460	8,006	692	313	65	79	.	26	124	19

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	
Outstanding amount											
2017	16,593.2	4,079.8	3,214.5	.	1,293.4	7,304.7	700.9	7,950.7	612.5	1,245.6	6,092.6
2018	16,962.4	4,192.8	3,331.6	.	1,318.7	7,445.8	673.5	7,023.5	465.0	1,099.2	5,459.2
2019	17,595.7	4,368.2	3,578.3	.	1,405.5	7,557.2	686.5	8,587.9	538.4	1,410.7	6,638.8
2020 Apr.	18,186.9	4,470.6	3,603.6	.	1,490.4	7,863.6	758.7	6,966.3	340.0	1,081.6	5,544.7
May	18,473.9	4,467.0	3,600.5	.	1,535.4	8,063.6	807.3	7,273.2	359.5	1,115.6	5,798.1
June	18,775.5	4,508.9	3,642.3	.	1,552.3	8,242.3	829.6	7,510.3	388.4	1,171.0	5,950.8
July	18,773.6	4,450.2	3,319.5	.	1,566.6	8,618.4	818.9	7,436.1	376.7	1,149.4	5,910.1
Aug.	18,858.2	4,434.9	3,326.2	.	1,563.8	8,713.2	820.0	7,723.5	395.0	1,191.3	6,137.2
Sep.	19,007.9	4,459.6	3,375.9	.	1,572.7	8,761.7	838.0	7,555.9	364.9	1,147.9	6,043.1
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 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	3.2	4.1	.	12.0	9.2	19.2	0.1	-0.3	0.3	0.1
Aug.	7.7	2.8	4.5	.	12.2	10.2	18.0	0.3	-0.1	0.5	0.3
Sep.	8.0	2.7	5.0	.	11.7	10.6	20.9	0.8	-0.1	2.1	0.7

Source: ECB.

## 2 Financial developments

### 2.8 Effective exchange rates <sup>1)</sup>

(period averages; index: 1999 Q1=100)

	EER-19						EER-42	
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM	Real ULCT	Nominal	Real CPI
	1	2	3	4	5	6	7	8
2017	97.5	93.5	92.4	89.1	80.5	94.1	112.4	91.9
2018	100.0	95.7	94.0	90.5	80.8	95.5	117.3	95.1
2019	98.2	93.3	92.9	88.7	79.1	92.8	115.5	92.4
2019 Q4	97.7	92.4	92.6	88.4	78.1	92.0	114.9	91.4
2020 Q1	97.5	91.8	92.3	88.1	78.6	92.6	115.2	91.2
Q2	98.8	93.1	93.3	88.1	78.3	92.1	118.1	93.4
Q3	101.2	94.9	95.2	.	.	.	121.7	95.6
2020 June	99.8	94.0	94.1	-	-	-	119.1	94.1
July	100.5	94.6	94.6	-	-	-	120.3	94.9
Aug.	101.6	95.1	95.6	-	-	-	122.4	96.0
Sep.	101.6	95.0	95.5	-	-	-	122.5	95.9
Oct.	101.4	94.8	95.0	-	-	-	122.4	95.7
Nov.	100.7	94.2	94.2	-	-	-	121.6	95.0
	<i>Percentage change versus previous month</i>							
2020 Nov.	-0.7	-0.7	-0.9	-	-	-	-0.7	-0.7
	<i>Percentage change versus previous year</i>							
2020 Nov.	3.3	2.1	2.0	-	-	-	6.1	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 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
Oct.	7.923	7.575	27.213	7.442	362.529	123.889	4.541	0.907	4.8747	10.397	1.074	1.178
Nov.	7.815	7.562	26.466	7.446	359.842	123.610	4.495	0.896	4.8704	10.231	1.079	1.184
	<i>Percentage change versus previous month</i>											
2020 Nov.	-1.4	-0.2	-2.7	0.0	-0.7	-0.2	-1.0	-1.3	-0.1	-1.6	0.4	0.5
	<i>Percentage change versus previous year</i>											
2020 Nov.	0.7	1.6	3.7	-0.3	7.9	2.7	4.9	4.5	2.1	-3.9	-1.8	7.1

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 <sup>1)</sup>			Direct investment		Portfolio investment		Net financial derivatives	Other investment		Reserve assets	Memo: Gross external debt
	Assets	Liabilities	Net	Assets	Liabilities	Assets	Liabilities		Assets	Liabilities		
	1	2	3	4	5	6	7	8	9	10	11	12
<i>Outstanding amounts (international investment position)</i>												
2019 Q3	28,093.7	28,285.0	-191.3	11,636.3	9,441.5	9,639.0	12,022.3	-123.7	6,115.1	6,821.2	827.0	15,398.7
Q4	27,826.3	27,882.0	-55.7	11,517.1	9,375.3	9,888.0	12,094.7	-85.3	5,693.0	6,412.0	813.6	14,759.2
2020 Q1	27,459.7	27,552.2	-92.5	11,263.3	9,320.5	8,884.3	11,128.6	-99.0	6,544.8	7,103.1	866.3	15,530.2
Q2	27,985.8	28,057.9	-72.0	11,182.0	9,373.8	9,839.8	11,894.7	-68.0	6,127.1	6,789.3	905.0	15,207.1
<i>Outstanding amounts as a percentage of GDP</i>												
2020 Q2	242.9	243.5	-0.6	97.1	81.4	85.4	103.2	-0.6	53.2	58.9	7.9	132.0
<i>Transactions</i>												
2019 Q4	-363.4	-427.3	63.9	-166.0	-66.3	155.0	11.4	-5.3	-344.7	-372.4	-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	-
Q3	274.7	199.1	75.6	65.6	68.1	50.9	124.3	32.0	122.8	6.7	3.4	-
2020 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	175.5	190.5	-15.0	33.7	15.0	25.4	58.7	6.5	110.6	116.9	-0.5	-
Aug.	97.5	60.6	36.9	60.0	37.9	41.6	41.7	0.3	-5.7	-18.9	1.3	-
Sep.	1.6	-52.0	53.6	-28.0	15.3	-16.2	23.9	25.3	18.0	-91.2	2.6	-
<i>12-month cumulated transactions</i>												
2020 Sep.	613.7	456.7	157.0	-110.9	97.1	461.8	383.7	76.5	178.8	-24.1	7.6	-
<i>12-month cumulated transactions as a percentage of GDP</i>												
2020 Sep.	5.4	4.0	1.4	-1.0	0.9	4.0	3.4	0.7	1.6	-0.2	0.1	-

Source: ECB.

1) Net financial derivatives are included in total assets.

## 3 Economic activity

### 3.1 GDP and expenditure components

(quarterly data seasonally adjusted; annual data unadjusted)

	GDP											
	Total	Domestic demand							External balance <sup>1)</sup>			
		Total	Private consumption	Government consumption	Gross fixed capital formation			Changes in inventories <sup>2)</sup>	Total	Exports <sup>1)</sup>	Imports <sup>1)</sup>	
	Total construction				Total machinery	Intellectual property products						
1	2	3	4	5	6	7	8	9	10	11	12	
<i>Current prices (EUR billions)</i>												
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	485.4	5,305.5	4,820.2
2018	11,587.7	11,119.5	6,222.7	2,368.7	2,431.3	1,178.5	745.7	500.6	96.8	468.1	5,576.2	5,108.1
2019	11,935.5	11,492.0	6,377.9	2,454.0	2,624.3	1,258.9	771.9	586.7	35.9	443.5	5,755.7	5,312.2
2019 Q4	3,015.3	2,907.5	1,606.3	621.7	679.5	317.4	192.8	167.6	0.1	107.7	1,449.6	1,341.8
2020 Q1	2,918.2	2,825.1	1,539.2	625.7	648.2	311.8	175.1	159.7	12.0	93.1	1,388.7	1,295.6
Q2	2,598.7	2,518.2	1,346.6	627.2	544.1	273.1	143.4	125.8	0.2	80.5	1,106.8	1,026.3
Q3	2,897.4	2,760.1	1,530.3	639.7	616.2	307.9	179.9	126.6	-26.2	137.4	1,299.9	1,162.5
<i>as a percentage of GDP</i>												
2019	100.0	96.3	53.4	20.6	22.0	10.5	6.5	4.9	0.3	3.7	-	-
<i>Chain-linked volumes (prices for the previous year)</i>												
<i>quarter-on-quarter percentage changes</i>												
2019 Q4	0.1	1.2	0.1	0.3	6.2	-0.4	-0.5	32.6	-	-	0.0	2.2
2020 Q1	-3.7	-3.3	-4.5	-0.6	-5.7	-2.5	-9.6	-7.2	-	-	-3.8	-3.0
Q2	-11.7	-11.2	-12.4	-2.2	-16.0	-12.5	-18.2	-20.7	-	-	-18.9	-18.2
Q3	12.5	10.3	14.0	4.8	13.4	13.2	24.9	0.8	-	-	17.1	12.3
<i>annual percentage changes</i>												
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 Q4	1.0	1.3	1.2	2.0	5.0	1.9	0.6	17.3	-	-	1.8	2.5
2020 Q1	-3.2	-1.7	-3.9	0.7	1.1	-2.5	-9.9	27.1	-	-	-3.1	0.2
Q2	-14.7	-14.1	-16.0	-1.9	-20.5	-14.3	-26.7	-24.9	-	-	-21.5	-20.7
Q3	-4.3	-4.2	-4.6	2.1	-4.7	-3.9	-8.1	-1.6	-	-	-8.7	-8.9
<i>contributions to quarter-on-quarter percentage changes in GDP; percentage points</i>												
2019 Q4	0.1	1.1	0.0	0.1	1.3	0.0	0.0	1.4	-0.3	-1.0	-	-
2020 Q1	-3.7	-3.2	-2.4	-0.1	-1.3	-0.3	-0.6	-0.4	0.6	-0.5	-	-
Q2	-11.7	-10.8	-6.6	-0.5	-3.6	-1.3	-1.1	-1.1	-0.2	-0.9	-	-
Q3	12.5	10.1	7.3	1.1	2.8	1.4	1.4	0.0	-1.2	2.4	-	-
<i>contributions to annual percentage changes in GDP; percentage points</i>												
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 Q4	1.0	1.3	0.7	0.4	1.1	0.2	0.0	0.8	-0.9	-0.3	-	-
2020 Q1	-3.2	-1.6	-2.1	0.1	0.2	-0.3	-0.6	1.1	0.1	-1.6	-	-
Q2	-14.7	-13.7	-8.5	-0.4	-4.6	-1.5	-1.7	-1.4	-0.1	-1.0	-	-
Q3	-4.3	-4.0	-2.4	0.4	-1.0	-0.4	-0.5	-0.1	-1.0	-0.3	-	-

Sources: Eurostat and ECB calculations.

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

2) Including acquisitions less disposals of valuables.

## 3 Economic activity

### 3.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											Taxes less subsidies on products
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	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
<b>Current prices (EUR billions)</b>												
2017	10,055.8	176.2	2,001.8	498.9	1,909.3	469.5	468.2	1,134.6	1,146.7	1,900.0	350.7	1,160.9
2018	10,383.7	174.5	2,052.2	528.2	1,963.8	500.3	476.8	1,167.3	1,206.6	1,957.9	356.1	1,203.9
2019	10,693.1	178.5	2,064.5	570.1	2,026.8	530.6	481.3	1,204.8	1,251.4	2,020.4	364.7	1,242.4
2019 Q4	2,701.5	45.2	520.6	145.6	512.2	134.9	119.8	304.4	316.5	510.9	91.4	313.8
2020 Q1	2,624.4	45.0	500.2	141.9	480.2	133.2	120.8	302.6	306.3	507.9	86.3	293.7
Q2	2,339.2	45.4	427.6	125.8	379.8	127.5	114.6	297.3	259.7	491.7	69.8	259.5
Q3	2,604.8	44.3	494.8	143.8	470.0	136.5	118.7	305.2	290.7	518.5	82.2	292.6
<i>as a percentage of value added</i>												
2019	100.0	1.7	19.3	5.3	19.0	5.0	4.5	11.3	11.7	18.9	3.4	-
<b>Chain-linked volumes (prices for the previous year)</b>												
<i>quarter-on-quarter percentage changes</i>												
2019 Q4	0.1	1.1	-0.7	0.2	0.2	0.9	-0.2	0.6	0.2	0.4	0.0	0.1
2020 Q1	-3.4	-1.6	-3.9	-3.2	-6.2	-1.3	-0.9	-0.8	-3.3	-2.1	-6.8	-6.9
Q2	-12.0	-0.1	-15.0	-12.6	-21.2	-4.4	-2.4	-2.3	-15.8	-6.9	-22.9	-9.4
Q3	12.3	0.7	16.0	13.9	23.1	6.9	3.4	2.3	12.0	9.5	21.6	14.3
<i>annual percentage changes</i>												
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	1.8	6.4	0.9	1.3	3.7	1.0	0.9	1.6
2019	1.3	0.8	-0.9	3.0	1.9	4.7	1.3	1.5	1.6	1.1	1.3	1.6
2019 Q4	0.9	0.8	-1.4	1.8	1.8	4.4	0.9	1.7	0.7	1.1	1.1	1.7
2020 Q1	-2.9	-1.0	-4.9	-2.7	-5.7	1.9	-0.4	0.3	-2.7	-1.3	-6.4	-6.1
Q2	-14.7	-0.8	-19.0	-14.7	-25.7	-4.8	-3.4	-2.3	-18.3	-8.3	-28.1	-15.0
Q3	-4.4	0.0	-5.9	-3.4	-8.8	1.8	-0.3	-0.4	-8.6	0.2	-12.6	-3.5
<i>contributions to quarter-on-quarter percentage changes in value added; percentage points</i>												
2019 Q4	0.1	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	-12.0	0.0	-2.9	-0.7	-3.9	-0.2	-0.1	-0.3	-1.9	-1.3	-0.7	-
Q3	12.3	0.0	3.0	0.7	3.8	0.4	0.2	0.3	1.3	1.9	0.6	-
<i>contributions to annual percentage changes in value added; percentage points</i>												
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	0.3	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	0.0	-
2019 Q4	0.9	0.0	-0.3	0.1	0.3	0.2	0.0	0.2	0.1	0.2	0.0	-
2020 Q1	-2.9	0.0	-1.0	-0.1	-1.1	0.1	0.0	0.0	-0.3	-0.3	-0.2	-
Q2	-14.7	0.0	-3.7	-0.8	-4.9	-0.2	-0.2	-0.3	-2.1	-1.6	-1.0	-
Q3	-4.4	0.0	-1.1	-0.2	-1.7	0.1	0.0	0.0	-1.0	0.0	-0.4	-

Sources: Eurostat and ECB calculations.

## 3 Economic activity

### 3.3 Employment <sup>1)</sup>

(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity									
		Employ- ees	Self- employed	Agricul- ture, forestry and fishing	Manufac- turing, energy and utilities	Con- struc- tion	Trade, transport, accom- modation and food services	Infor- mation and com- munica- tion	Finance and insur- ance	Real estate	Professional, business and support services	Public adminis- tration, edu- cation, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
<i>as a percentage of total persons employed</i>													
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
<i>annual percentage changes</i>													
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 Q4	1.0	1.3	-0.3	-1.6	0.2	1.2	1.2	2.7	0.2	-0.1	1.1	1.5	0.9
2020 Q1	0.4	0.6	-1.4	-3.2	-0.4	1.1	0.3	2.3	0.1	-1.1	0.3	1.2	-0.1
Q2	-3.0	-3.1	-2.6	-3.8	-2.2	-1.0	-5.7	0.5	-1.0	-2.0	-4.8	0.2	-5.9
Q3	-2.1	-2.0	-2.3	-3.0	-2.7	0.8	-4.2	0.9	-0.9	0.1	-3.6	0.6	-3.7
Hours worked													
<i>as a percentage of total hours worked</i>													
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
<i>annual percentage changes</i>													
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 Q4	0.5	0.9	-0.9	-1.9	-0.6	0.4	0.8	2.8	0.1	1.3	0.7	1.2	0.1
2020 Q1	-3.8	-2.9	-7.3	-3.8	-4.2	-4.4	-5.7	0.8	-2.5	-5.3	-2.6	-1.2	-8.1
Q2	-16.8	-15.4	-22.9	-6.9	-15.8	-17.9	-27.7	-5.9	-6.0	-16.9	-16.6	-5.8	-28.6
Q3	-4.7	-4.4	-5.9	-2.0	-5.6	-0.8	-8.6	-1.5	-2.4	-3.3	-6.4	0.0	-7.3
Hours worked per person employed													
<i>annual percentage changes</i>													
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 Q4	-0.5	-0.4	-0.6	-0.3	-0.8	-0.8	-0.4	0.0	-0.1	1.4	-0.4	-0.3	-0.7
2020 Q1	-4.1	-3.6	-6.0	-0.6	-3.8	-5.4	-6.0	-1.5	-2.6	-4.3	-2.9	-2.4	-8.0
Q2	-14.3	-12.8	-20.9	-3.2	-13.9	-17.0	-23.3	-6.4	-5.0	-15.3	-12.4	-6.0	-24.1
Q3	-2.6	-2.4	-3.7	1.0	-3.0	-1.6	-4.6	-2.4	-1.5	-3.4	-3.0	-0.5	-3.8

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-employment, % of labour force	Unemployment <sup>1)</sup>											Job vacancy rate <sup>3)</sup>
			Total		Long-term unemployment, % of labour force <sup>2)</sup>	By age				By gender				
			Millions	% of labour force		Adult		Youth		Male		Female		
						Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	
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 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
Q3	-	-	14.027	8.6	-	11.444	7.6	2.582	18.5	7.117	8.1	6.909	9.1	-
2020 May	-	-	12.321	7.7	-	10.033	6.8	2.289	17.2	6.373	7.4	5.948	8.0	-
June	-	-	12.747	7.9	-	10.378	7.0	2.369	17.6	6.580	7.6	6.167	8.3	-
July	-	-	14.140	8.7	-	11.519	7.7	2.621	18.9	7.179	8.2	6.960	9.2	-
Aug.	-	-	14.029	8.6	-	11.425	7.6	2.603	18.6	7.130	8.1	6.899	9.1	-
Sep.	-	-	13.911	8.5	-	11.389	7.6	2.522	17.9	7.042	8.0	6.869	9.0	-
Oct.	-	-	13.825	8.4	-	11.274	7.5	2.551	18.0	7.032	8.0	6.793	8.9	-

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, starting in Q1 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					Construction production	ECB indicator on industrial new orders	Retail sales				New passenger car registrations	
	Total (excluding construction)		Main Industrial Groupings					Total	Food, beverages, tobacco	Non-food	Fuel		
	Manufacturing	Intermediate 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	1.2	3.0	7.9	2.5	1.6	3.4	0.8	5.7
2018	0.7	0.9	0.6	1.1	1.4	-1.5	1.7	2.8	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	-4.3	2.4	0.9	3.6	0.7	1.8
2019 Q4	-2.0	-2.1	-3.8	-2.8	1.9	-2.4	0.0	-5.9	2.1	0.6	3.5	-0.8	12.5
2020 Q1	-6.1	-6.1	-5.3	-10.2	-0.7	-5.6	-3.8	-6.5	-1.4	4.8	-4.7	-10.1	-27.4
Q2	-20.1	-21.2	-19.5	-28.0	-13.3	-10.6	-15.4	-26.4	-6.8	3.0	-11.1	-29.3	-50.8
Q3	-6.8	-7.1	-5.8	-11.6	-1.7	-4.9	-2.9	-8.0	2.3	2.6	3.2	-5.1	-6.9
2020 May	-20.3	-21.5	-19.4	-27.9	-14.6	-10.6	-10.4	-28.3	-2.7	5.8	-5.9	-26.9	-48.5
June	-11.8	-12.3	-12.6	-15.4	-7.2	-7.5	-4.5	-13.4	1.5	1.0	4.0	-14.0	-28.1
July	-6.8	-7.1	-8.6	-9.1	-1.4	-5.7	-3.3	-10.4	0.0	1.2	0.0	-6.0	-3.8
Aug.	-6.7	-7.2	-5.0	-12.5	-2.2	-4.6	0.4	-7.1	4.4	3.6	6.2	-3.7	-15.7
Sep.	-6.8	-7.2	-3.7	-13.3	-1.5	-4.5	-2.5	-6.5	2.5	2.9	3.2	-5.6	-1.8
Oct.	-	-	-	-	-	-	-	-	4.3	5.1	5.4	-9.6	-4.8
month-on-month percentage changes (s.a.)													
2020 May	12.5	13.6	10.1	25.7	5.9	2.9	29.1	11.8	20.2	2.5	38.9	38.5	138.7
June	9.5	10.3	7.1	14.5	6.2	2.9	5.7	20.9	5.7	-3.2	12.0	19.6	39.9
July	5.3	5.9	5.1	6.9	5.0	1.6	0.0	2.2	-1.6	0.0	-4.3	9.1	29.3
Aug.	0.6	0.4	3.1	-1.7	-0.5	1.2	3.9	4.0	4.2	2.3	5.5	2.2	-0.2
Sep.	-0.4	-0.3	0.5	0.6	1.2	-1.0	-2.9	0.4	-1.7	-1.4	-1.9	-1.5	1.7
Oct.	-	-	-	-	-	-	-	-	1.5	2.0	2.0	-3.7	2.9

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	86.9	-13.5	74.2	-14.5	-10.9	-11.4	-18.2	85.9	52.4	56.0	51.1	52.4
2020 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	85.5	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.	90.9	-11.4	-	-13.9	-9.5	-8.6	-11.2	-	53.7	57.1	48.0	50.4
Oct.	91.1	-9.2	76.3	-15.5	-8.3	-6.9	-12.1	86.2	54.8	58.4	46.9	50.0
Nov.	87.6	-10.1	-	-17.6	-9.3	-12.7	-17.3	-	53.8	55.3	41.7	45.3

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 <sup>2)</sup>	Housing wealth	Profit share <sup>3)</sup>	Saving ratio (net)	Debt ratio <sup>4)</sup>	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted) <sup>1)</sup>	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	93.7	1.7	2.3	5.4	4.6	4.6	35.1	6.9	77.2	4.1	9.6	2.7
2018	12.4	93.4	1.8	2.0	6.4	2.6	4.6	35.5	5.9	77.8	1.9	7.0	1.4
2019	12.9	93.8	1.8	2.6	4.8	5.7	3.8	34.7	5.7	77.6	2.4	3.5	1.9
2019 Q3	12.9	93.5	2.2	2.5	4.3	4.7	3.8	34.9	5.7	79.2	1.8	0.6	1.6
Q4	12.9	93.8	1.0	2.6	2.7	5.7	3.8	34.7	5.7	77.6	2.4	-8.1	1.9
2020 Q1	13.8	93.6	0.8	2.6	-0.2	3.0	4.2	33.7	4.6	78.9	2.5	0.0	2.1
Q2	16.5	94.9	-3.6	3.3	-14.2	4.0	4.3	31.0	4.1	83.3	2.6	-28.5	1.8

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 <sup>1)</sup>	
	Total			Goods		Services		Primary income		Secondary income		Credit	Debit
	Credit	Debit	Balance	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit		
1	2	3	4	5	6	7	8	9	10	11	12	13	
2019 Q4	1,099.3	1,034.8	64.4	610.2	519.7	254.0	247.4	205.9	205.5	29.2	62.3	16.4	19.0
2020 Q1	1,058.4	1,007.1	51.3	587.0	497.2	241.4	251.7	200.7	192.4	29.4	65.8	10.8	10.8
Q2	859.8	816.5	43.3	466.9	413.1	190.4	182.1	176.4	152.6	26.1	68.7	10.5	15.3
Q3	945.8	883.0	62.8	553.5	460.3	198.4	183.3	165.6	176.4	28.3	63.0	10.5	8.0
2020 Apr.	273.1	263.9	9.3	141.8	130.6	61.4	60.5	61.0	50.4	8.9	22.4	3.8	5.8
May	285.2	270.2	15.0	155.8	137.3	63.4	59.9	58.1	47.2	7.9	25.8	3.5	4.5
June	301.5	282.4	19.1	169.3	145.2	65.6	61.7	57.3	55.0	9.2	20.5	3.3	5.0
July	310.8	294.0	16.8	179.9	150.5	65.9	60.9	55.5	61.0	9.5	21.6	3.3	3.1
Aug.	312.3	291.4	20.9	183.2	152.1	64.2	60.6	55.6	58.8	9.3	20.0	4.1	1.8
Sep.	322.8	297.6	25.2	190.4	157.7	68.4	61.8	54.5	56.7	9.5	21.4	3.1	3.0
<i>12-month cumulated transactions</i>													
2020 Sep.	3,963.3	3,741.5	221.8	2,217.6	1,890.3	884.2	864.5	748.6	726.8	113.0	259.9	48.3	53.1
<i>12-month cumulated transactions as a percentage of GDP</i>													
2020 Sep.	34.7	32.7	1.9	19.4	16.5	7.7	7.6	6.5	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<sup>1)</sup>, values and volumes by product group<sup>2)</sup>

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
	Exports	Imports	Total			Memo item: Manu- facturing	Total			Memo items: Manu- facturing	Oil		
			Intermediate goods	Capital goods	Consumption goods		Intermediate goods	Capital goods	Consumption goods				
1	2	3	4	5	6	7	8	9	10	11	12	13	
<i>Values (EUR billions; annual percentage changes for columns 1 and 2)</i>													
2019 Q4	2.2	-1.9	592.5	276.0	125.5	179.5	496.9	526.0	291.4	86.6	139.0	385.9	61.0
2020 Q1	-1.6	-4.0	578.4	275.3	115.7	176.1	480.5	507.6	284.0	82.8	133.9	370.6	56.4
Q2	-23.6	-21.5	446.8	218.1	87.2	132.8	369.0	422.9	220.2	77.2	118.7	319.4	26.3
Q3	-8.6	-11.6	531.7	.	.	.	447.9	468.1	.	.	.	357.2	.
2020 Apr.	-29.9	-25.3	135.5	69.7	26.4	37.6	109.6	135.5	72.8	24.8	36.2	99.6	7.9
May	-29.8	-26.6	147.7	71.9	28.8	44.2	123.3	139.5	71.6	25.4	39.9	106.9	7.8
June	-10.5	-12.1	163.5	76.6	32.0	51.0	136.1	147.9	75.8	27.0	42.5	112.8	10.5
July	-10.4	-14.3	173.0	80.0	34.9	54.5	145.5	154.3	79.8	27.9	43.6	116.8	11.4
Aug.	-12.6	-13.6	175.8	81.6	35.7	54.2	147.5	154.8	79.5	27.6	44.4	119.4	11.9
Sep.	-3.1	-7.1	182.9	.	.	.	154.9	159.0	.	.	.	121.0	.
<i>Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)</i>													
2019 Q4	0.0	-1.8	107.3	108.1	108.7	106.1	107.1	107.2	105.2	105.8	113.3	110.1	96.7
2020 Q1	-4.0	-4.7	103.7	106.7	100.1	102.6	102.2	103.9	103.7	100.4	108.6	105.0	98.3
Q2	-23.6	-16.4	81.6	86.6	75.7	78.9	79.1	92.1	89.8	94.3	96.7	91.1	81.5
Q3	.	.	.	.	.	.	.	.	.	.	.	.	.
2020 Mar.	-7.8	-8.8	98.7	104.1	91.6	95.0	95.2	97.5	98.3	94.4	100.6	95.8	92.4
Apr.	-29.9	-20.0	74.2	82.7	67.9	67.4	70.3	88.7	89.6	89.1	89.0	84.7	83.0
May	-29.7	-20.9	81.0	85.5	75.7	78.6	79.2	91.9	89.0	93.3	97.4	91.6	80.2
June	-10.6	-7.7	89.7	91.5	83.5	90.7	87.7	95.7	90.8	100.6	103.7	96.9	81.4
July	-9.7	-10.3	95.5	95.6	92.0	98.1	94.6	100.0	95.1	103.9	107.7	101.3	79.6
Aug.	-10.9	-9.8	97.9	98.7	94.5	98.0	96.9	100.5	95.2	102.6	109.8	103.5	81.5

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 <sup>1)</sup>

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) <sup>2)</sup>						Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unprocessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Administered prices
		2	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	-0.1	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	1.3	0.1	-1.3	0.1	1.2	0.8
Q2	105.5	0.2	0.9	-0.6	1.2	-0.4	0.7	3.7	-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 June	105.7	0.3	0.8	-0.5	1.2	0.2	0.1	-0.1	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	0.1	-1.7	0.0	0.0	-0.2	0.3
Sep.	105.0	-0.3	0.2	-1.0	0.5	0.0	0.0	0.3	-0.1	-0.4	0.0	-0.4	0.4
Oct.	105.2	-0.3	0.2	-0.8	0.4	0.1	0.1	0.5	0.1	0.4	0.1	-0.4	0.6
Nov. <sup>3)</sup>	104.8	-0.3	0.2	.	0.6	0.1	0.2	0.5	-0.1	-0.2	0.2	.	.

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing	Transport	Communication	Recreation and personal care	Miscellaneous	
	Total	Processed food	Unprocessed food	Total	Non-energy industrial goods	Energy	Rents					
14	15	16	17	18	19	20	21	22	23	24	25	
% of total in 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	-0.4	-0.7	0.6	1.4
2020 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	-0.6	-0.8	0.3	1.3
Oct.	2.0	1.3	4.3	-2.3	-0.1	-8.2	1.2	1.2	-0.9	-1.8	0.4	1.3
Nov. <sup>3)</sup>	1.9	1.3	4.2	.	-0.3	-8.4	.	.	.	.	.	.

Sources: Eurostat and ECB calculations.

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

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

3) Estimate based on provisional national data, as well as on early information on energy prices.

## 4 Prices and costs

### 4.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction <sup>1)</sup>										Con- struction <sup>2)</sup>	Residential property prices <sup>3)</sup>	Experimental indicator of commercial property prices <sup>3)</sup>
	Total (index: 2015 = 100)	Total	Industry excluding construction and energy						Energy				
			Manu- facturing	Total	Intermedi- ate 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	3.1	0.9	1.9	2.8	0.2	5.7	2.0	4.4	4.7
2018	104.1	3.3	2.4	1.5	2.7	1.0	0.4	0.1	0.6	8.4	2.4	4.8	4.1
2019	104.7	0.6	0.6	0.8	0.1	1.5	1.0	1.1	0.9	-0.1	2.0	4.2	4.6
2019 Q4	104.4	-1.4	0.0	0.4	-1.2	1.4	1.7	2.4	0.7	-6.0	1.9	4.3	4.2
2020 Q1	103.7	-1.7	0.0	0.4	-1.4	1.1	2.3	3.3	0.6	-7.4	1.5	5.0	3.9
Q2	100.2	-4.5	-3.0	-0.5	-2.7	1.0	1.1	1.5	0.6	-15.5	1.0	5.1	5.8
Q3	101.4	-2.7	-2.0	-0.3	-1.8	0.8	0.5	0.3	0.6	-9.3	.	.	.
2020 May	99.7	-5.0	-3.5	-0.7	-2.9	0.9	1.0	1.3	0.5	-17.3	-	-	-
June	100.5	-3.7	-2.3	-0.6	-2.5	1.1	0.7	0.8	0.5	-12.8	-	-	-
July	101.2	-3.2	-2.0	-0.4	-2.0	0.9	0.6	0.5	0.6	-10.9	-	-	-
Aug.	101.3	-2.6	-1.8	-0.3	-1.8	0.8	0.5	0.3	0.6	-8.7	-	-	-
Sep.	101.7	-2.3	-2.2	-0.3	-1.6	0.8	0.4	0.1	0.7	-8.3	-	-	-
Oct.	102.1	-2.0	-1.9	-0.2	-1.3	0.8	0.3	0.0	0.7	-7.6	-	-	-

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

1) Domestic sales only.

2) Input prices for residential buildings.

3) Experimental data based on non-harmonised sources (see [https://www.ecb.europa.eu/stats/ecb\\_statistics/governance\\_and\\_quality\\_framework/html/experimental-data.en.html](https://www.ecb.europa.eu/stats/ecb_statistics/governance_and_quality_framework/html/experimental-data.en.html) for further details).

### 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 <sup>1)</sup>	Imports <sup>1)</sup>	Import-weighted <sup>2)</sup>			Use-weighted <sup>2)</sup>		
			Total	Private consump- tion	Govern- ment consump- tion	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
% of total									100.0	45.4	54.6	100.0	50.4	49.6	
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	6.6	-1.7	17.8
2018	103.4	1.4	1.7	1.5	1.7	1.9	1.5	2.2	60.4	-0.7	-5.9	4.3	-0.3	-5.7	5.7
2019	105.2	1.7	1.4	1.1	1.7	2.1	0.7	0.1	57.2	1.6	3.7	-0.1	2.6	7.4	-2.3
2019 Q4	105.9	1.7	1.2	1.0	1.7	1.4	0.3	-0.9	56.5	3.7	8.7	-0.6	5.0	13.4	-3.6
2020 Q1	106.5	1.9	1.4	1.2	2.6	1.9	-0.1	-1.2	45.9	1.8	7.4	-3.1	1.2	7.1	-4.9
Q2	107.4	2.4	1.4	0.7	4.8	1.4	-2.0	-4.4	28.5	-2.4	4.0	-8.1	-4.3	0.1	-9.2
Q3	106.5	1.0	0.7	0.2	1.6	0.8	-1.7	-2.9	36.5	2.1	1.9	2.4	-0.4	-1.6	1.0
2020 June	-	-	-	-	-	-	-	-	35.5	-1.6	1.8	-4.6	-3.0	-0.6	-5.7
July	-	-	-	-	-	-	-	-	37.3	-1.9	-0.5	-3.2	-3.9	-3.7	-4.2
Aug.	-	-	-	-	-	-	-	-	37.4	4.9	2.2	7.3	1.9	-1.4	5.6
Sep.	-	-	-	-	-	-	-	-	34.9	3.6	4.0	3.2	1.0	0.2	1.9
Oct.	-	-	-	-	-	-	-	-	34.4	2.8	2.8	2.9	0.0	-1.2	1.4
Nov.	-	-	-	-	-	-	-	-	36.5	3.6	0.5	6.6	-1.7	-7.1	5.0

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

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

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

## 4 Prices and costs

### 4.4 Price-related opinion surveys

(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 12 months	Input prices		Prices charged	
	Manu- facturing	Retail trade	Services	Construction		Manu- facturing	Services	Manu- facturing	Services
	1	2	3	4	5	6	7	8	9
1999-15	4.3	-	-	-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	-1.5	0.9	-0.7	-7.8	12.5	49.4	52.9	49.3	47.7
2020 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.	-1.3	2.6	-1.0	-6.0	11.0	50.6	53.0	49.6	47.1
Oct.	0.7	3.1	-2.3	-7.0	9.3	52.9	53.1	50.5	48.7
Nov.	0.2	1.2	-4.2	-8.3	7.0	55.9	51.5	51.6	47.7

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 <sup>1)</sup>
			Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	
	1	2	3	4	5	6	7
% of total in 2018	100.0	100.0	75.3	24.7	69.0	31.0	
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 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
Q3	.	.	.	.	.	.	1.6

Sources: Eurostat and ECB calculations.

1) Experimental data based on non-harmonised sources (see [https://www.ecb.europa.eu/stats/ecb\\_statistics/governance\\_and\\_quality\\_framework/html/experimental-data.en.html](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	2.5
2019	110.4	1.9	-1.0	3.3	0.9	1.4	0.8	0.4	2.6	1.1	2.6	2.0
2019 Q4	110.9	1.7	-0.1	2.6	0.9	1.1	0.0	0.9	-0.5	1.7	2.7	2.4
2020 Q1	114.0	4.3	-1.3	4.3	2.3	5.1	2.5	-0.3	1.1	4.4	4.9	7.1
Q2	119.3	8.4	-2.5	11.5	7.2	11.9	3.1	1.1	-5.0	9.4	10.8	21.6
Q3	113.9	2.9	-0.6	1.8	5.7	4.0	-0.5	-0.6	3.1	6.2	2.4	12.5
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 Q4	116.7	1.7	2.4	1.0	1.4	1.6	1.6	1.6	1.4	1.3	2.3	2.6
2020 Q1	115.7	0.6	0.9	-0.4	-1.5	-1.1	2.2	-0.8	2.5	1.3	2.2	0.4
Q2	110.2	-4.7	0.6	-7.6	-7.6	-11.8	-2.4	-1.4	-5.3	-6.0	1.4	-7.1
Q3	117.1	0.6	2.4	-1.5	1.3	-1.1	0.4	0.0	2.6	0.6	2.0	2.1
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	0.7
2019	105.0	0.1	2.8	-1.7	1.0	0.7	1.0	1.7	0.0	0.3	-0.4	0.7
2019 Q4	105.2	0.0	2.4	-1.6	0.5	0.5	1.6	0.7	1.9	-0.4	-0.4	0.2
2020 Q1	101.5	-3.5	2.3	-4.5	-3.7	-5.9	-0.3	-0.4	1.4	-3.0	-2.5	-6.3
Q2	92.4	-12.1	3.1	-17.2	-13.8	-21.2	-5.3	-2.4	-0.3	-14.1	-8.5	-23.6
Q3	102.9	-2.2	3.0	-3.3	-4.2	-4.9	0.9	0.6	-0.5	-5.2	-0.3	-9.3
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	2.7
2019	117.7	2.2	2.0	2.1	2.2	2.3	1.8	1.7	2.9	1.6	2.3	3.1
2019 Q4	118.3	2.0	2.3	1.7	2.0	1.8	2.0	1.5	1.1	1.6	2.6	3.5
2020 Q1	121.2	4.3	3.7	3.3	3.4	4.0	3.4	1.5	6.0	3.7	4.7	8.3
Q2	128.1	9.3	4.7	6.5	8.4	12.6	3.9	3.1	6.2	5.9	7.0	16.6
Q3	121.5	3.0	2.0	1.4	2.0	3.7	2.8	1.1	5.3	3.5	2.3	5.5
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	0.3	2.2	1.9	-1.3	0.5	-0.3	0.4
2019	107.5	0.4	3.4	-1.1	1.2	1.0	1.0	1.5	0.1	0.5	-0.2	0.9
2019 Q4	107.6	0.5	2.7	-0.8	1.4	1.0	1.6	0.8	0.5	0.0	-0.1	1.0
2020 Q1	107.7	0.6	2.9	-0.7	1.8	0.1	1.1	2.2	6.0	-0.1	-0.1	1.9
Q2	110.1	2.6	6.6	-3.8	3.9	2.8	1.1	2.7	17.6	-1.9	-2.6	0.6
Q3	107.8	0.4	2.0	-0.3	-2.7	-0.3	3.3	2.2	3.0	-2.3	0.2	-5.7

Sources: Eurostat and ECB calculations.

## 5 Money and credit

### 5.1 Monetary aggregates <sup>1)</sup>

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

	M3											
	M2						M3-M2					
	M1		M2-M1				Repos	Money market fund shares	Debt securities with a maturity of up to 2 years			
	Currency in circulation	Overnight deposits	Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months								
1	2	3	4	5	6	7	8	9	10	11	12	
Outstanding amounts												
2017	1,112.6	6,636.4	7,749.0	1,198.7	2,261.3	3,460.0	11,209.0	74.6	509.6	80.7	664.8	11,873.9
2018	1,164.2	7,114.7	8,278.9	1,128.3	2,298.9	3,427.2	11,706.1	74.4	521.8	82.0	678.2	12,384.3
2019	1,221.5	7,726.9	8,948.4	1,073.2	2,362.5	3,435.7	12,384.1	78.7	529.1	19.4	627.2	13,011.3
2019 Q4	1,221.5	7,726.9	8,948.4	1,073.2	2,362.5	3,435.7	12,384.1	78.7	529.1	19.4	627.2	13,011.3
2020 Q1	1,265.3	8,079.2	9,344.5	1,075.3	2,368.6	3,443.9	12,788.3	109.9	537.3	50.3	697.5	13,485.8
Q2	1,302.8	8,425.1	9,727.9	1,075.5	2,400.9	3,476.4	13,204.3	95.2	582.3	17.1	694.6	13,898.9
Q3	1,330.5	8,617.1	9,947.6	1,077.0	2,423.4	3,500.4	13,448.0	100.3	612.8	1.6	714.8	14,162.8
2020 May	1,293.4	8,339.3	9,632.8	1,095.6	2,389.4	3,485.0	13,117.8	95.7	560.0	23.9	679.6	13,797.4
June	1,302.8	8,425.1	9,727.9	1,075.5	2,400.9	3,476.4	13,204.3	95.2	582.3	17.1	694.6	13,898.9
July	1,310.7	8,464.9	9,775.6	1,080.2	2,406.9	3,487.1	13,262.7	106.2	595.8	6.0	707.9	13,970.6
Aug.	1,321.7	8,528.8	9,850.5	1,047.6	2,414.7	3,462.4	13,312.8	91.7	593.7	5.5	690.9	14,003.7
Sep.	1,330.5	8,617.1	9,947.6	1,077.0	2,423.4	3,500.4	13,448.0	100.3	612.8	1.6	714.8	14,162.8
Oct. <sup>(p)</sup>	1,338.2	8,681.8	10,020.0	1,060.3	2,431.7	3,492.0	13,512.0	96.3	613.9	15.3	725.5	14,237.5
Transactions												
2017	36.5	592.2	628.7	-108.7	34.2	-74.5	554.3	6.5	-11.3	-15.8	-20.6	533.7
2018	50.6	468.0	518.6	-73.2	44.8	-28.5	490.1	-0.9	12.6	-0.9	10.8	500.9
2019	57.3	605.8	663.2	-59.7	61.5	1.8	665.0	4.1	-2.1	-56.6	-54.6	610.4
2019 Q4	17.8	130.5	148.3	-31.4	9.6	-21.8	126.5	4.6	-14.5	-1.0	-10.9	115.6
2020 Q1	43.8	347.7	391.5	0.0	6.1	6.0	397.5	30.9	8.3	28.9	68.1	465.6
Q2	37.5	342.9	380.4	2.1	32.7	34.8	415.3	-14.1	45.1	-34.0	-3.0	412.3
Q3	27.7	269.1	296.8	5.7	22.9	28.5	325.4	5.9	29.8	-14.1	21.6	347.0
2020 May	16.2	109.4	125.6	26.7	10.3	37.1	162.6	2.4	9.8	-9.5	2.7	165.4
June	9.4	87.4	96.8	-19.5	11.5	-8.0	88.8	-0.2	22.3	-7.2	14.9	103.7
July	7.9	118.8	126.8	9.4	6.2	15.6	142.3	12.0	13.5	-9.2	16.3	158.6
Aug.	11.0	65.9	76.8	-31.7	8.0	-23.7	53.1	-14.3	-2.8	-0.4	-17.6	35.5
Sep.	8.9	84.4	93.2	28.0	8.7	36.7	129.9	8.3	19.1	-4.5	22.9	152.8
Oct. <sup>(p)</sup>	7.6	63.7	71.3	-18.1	8.4	-9.7	61.6	-4.1	1.1	14.0	11.0	72.7
Growth rates												
2017	3.4	9.8	8.8	-8.2	1.5	-2.1	5.2	9.5	-2.2	-17.3	-3.0	4.7
2018	4.5	7.0	6.7	-6.1	2.0	-0.8	4.4	-1.3	2.5	-1.6	1.6	4.2
2019	4.9	8.5	8.0	-5.3	2.7	0.1	5.7	5.4	-0.4	-71.4	-8.0	4.9
2019 Q4	4.9	8.5	8.0	-5.3	2.7	0.1	5.7	5.4	-0.4	-71.4	-8.0	4.9
2020 Q1	7.1	11.0	10.4	-3.8	1.8	0.0	7.4	47.4	2.1	59.0	10.0	7.5
Q2	9.7	13.2	12.7	-3.3	2.6	0.7	9.3	28.2	11.0	-53.9	9.0	9.3
Q3	10.5	14.4	13.8	-2.1	3.0	1.4	10.3	36.7	12.6	-95.9	11.9	10.4
2020 May	9.2	13.1	12.5	-2.6	2.2	0.7	9.1	35.7	5.9	-37.9	6.2	9.0
June	9.7	13.2	12.7	-3.3	2.6	0.7	9.3	28.2	11.0	-53.9	9.0	9.3
July	9.8	14.1	13.5	-1.5	2.6	1.3	10.0	42.8	12.1	-77.4	10.9	10.1
Aug.	10.4	13.7	13.3	-5.1	2.9	0.3	9.6	28.3	8.5	-70.6	7.8	9.5
Sep.	10.5	14.4	13.8	-2.1	3.0	1.4	10.3	36.7	12.6	-95.9	11.9	10.4
Oct. <sup>(p)</sup>	10.7	14.3	13.8	-2.7	3.2	1.4	10.3	23.4	15.2	-67.0	14.0	10.5

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
<b>Outstanding amounts</b>													
2017	2,241.5	1,798.6	285.0	149.1	8.8	6,317.9	3,703.1	561.9	2,052.2	0.8	987.7	208.2	415.8
2018	2,334.2	1,901.4	277.3	147.9	7.6	6,645.3	4,035.6	517.8	2,090.6	1.3	996.0	204.8	436.2
2019	2,482.3	2,068.7	256.9	150.2	6.5	7,041.2	4,397.1	492.3	2,151.0	0.8	1,032.7	217.1	468.0
2019 Q4	2,482.3	2,068.7	256.9	150.2	6.5	7,041.2	4,397.1	492.3	2,151.0	0.8	1,032.7	217.1	468.0
2020 Q1	2,610.8	2,191.4	264.0	147.9	7.6	7,173.7	4,535.9	472.2	2,165.0	0.6	1,151.5	224.3	472.6
Q2	2,869.9	2,396.7	318.6	148.4	6.2	7,349.4	4,683.7	462.7	2,202.1	0.9	1,084.9	226.5	466.0
Q3	2,958.3	2,481.2	323.3	146.9	6.9	7,491.0	4,816.7	446.5	2,226.9	1.0	1,058.4	240.4	469.6
2020 May	2,821.4	2,352.1	317.0	147.5	4.9	7,301.0	4,644.2	465.0	2,190.9	0.9	1,104.2	232.2	461.2
June	2,869.9	2,396.7	318.6	148.4	6.2	7,349.4	4,683.7	462.7	2,202.1	0.9	1,084.9	226.5	466.0
July	2,918.6	2,434.2	331.8	147.2	5.3	7,395.6	4,728.0	456.2	2,210.3	1.1	1,028.2	241.4	474.4
Aug.	2,937.5	2,462.5	323.7	146.9	4.3	7,437.8	4,768.3	450.7	2,217.7	1.1	1,005.9	233.7	467.9
Sep.	2,958.3	2,481.2	323.3	146.9	6.9	7,491.0	4,816.7	446.5	2,226.9	1.0	1,058.4	240.4	469.6
Oct. (p)	2,968.9	2,488.0	328.8	147.0	5.1	7,534.1	4,856.4	443.3	2,233.4	1.1	1,051.6	237.2	478.4
<b>Transactions</b>													
2017	182.3	184.0	-1.8	-0.8	1.0	255.0	305.2	-82.1	33.4	-1.5	51.6	8.0	27.3
2018	94.6	106.8	-9.7	-1.0	-1.4	326.6	325.4	-45.0	45.6	0.5	1.7	-3.6	19.2
2019	149.6	167.1	-18.9	1.7	-0.4	394.6	360.2	-26.2	61.0	-0.5	26.9	11.0	29.7
2019 Q4	34.4	38.7	-3.2	-1.9	0.8	85.7	84.2	-11.9	13.5	-0.2	-6.7	-2.4	2.5
2020 Q1	125.9	120.8	6.4	-2.2	1.0	131.3	138.1	-20.6	14.0	-0.2	116.1	6.8	4.5
Q2	261.2	206.7	55.4	0.5	-1.3	177.6	149.0	-9.2	37.4	0.3	-71.4	2.7	-6.5
Q3	94.7	88.6	6.6	-1.3	0.9	144.3	134.8	-15.6	25.0	0.1	46.1	14.6	3.9
2020 May	106.9	75.5	32.5	0.3	-1.4	52.9	43.1	-2.0	11.8	0.0	-10.2	4.4	-5.1
June	48.8	44.6	2.0	0.9	1.3	49.5	40.4	-2.2	11.2	0.0	-18.2	-5.6	4.8
July	56.3	42.7	15.4	-1.1	-0.7	48.9	46.0	-5.7	8.3	0.2	17.1	15.7	8.5
Aug.	18.5	27.5	-7.8	-0.3	-1.0	44.4	42.3	-5.4	7.5	-0.1	-21.0	-7.6	-6.5
Sep.	20.0	18.5	-1.0	0.1	2.5	51.0	46.4	-4.5	9.1	-0.1	50.0	6.6	1.8
Oct. (p)	9.2	6.6	4.2	0.1	-1.8	42.9	39.5	-3.3	6.6	0.1	-7.6	-3.2	8.7
<b>Growth rates</b>													
2017	8.7	11.3	-0.7	-0.5	12.3	4.2	9.0	-12.7	1.7	-65.3	5.4	4.0	7.1
2018	4.2	5.9	-3.4	-0.7	-16.2	5.2	8.8	-8.0	2.2	66.7	0.2	-1.7	4.6
2019	6.4	8.8	-6.8	1.2	-6.8	5.9	8.9	-5.1	2.9	-36.8	2.7	5.3	6.8
2019 Q4	6.4	8.8	-6.8	1.2	-6.8	5.9	8.9	-5.1	2.9	-36.8	2.7	5.3	6.8
2020 Q1	9.7	12.1	-2.2	-1.0	24.5	6.1	9.8	-8.5	2.4	-56.9	16.9	5.7	2.7
Q2	19.2	20.7	21.1	-1.8	-13.8	7.4	11.3	-9.4	3.6	-48.0	5.0	3.7	0.6
Q3	21.1	22.4	24.9	-3.3	23.4	7.7	11.7	-11.3	4.2	-0.2	8.2	9.9	0.9
2020 May	17.6	19.1	18.3	-2.0	-31.5	7.0	10.9	-9.3	3.2	-38.4	9.7	7.3	-0.1
June	19.2	20.7	21.1	-1.8	-13.8	7.4	11.3	-9.4	3.6	-48.0	5.0	3.7	0.6
July	20.5	21.5	27.2	-2.8	-15.6	7.4	11.3	-10.2	3.8	-39.9	8.7	10.2	3.5
Aug.	19.9	21.3	24.6	-3.4	-31.4	7.5	11.5	-11.0	4.0	-40.8	4.8	0.8	1.1
Sep.	21.1	22.4	24.9	-3.3	23.4	7.7	11.7	-11.3	4.2	-0.2	8.2	9.9	0.9
Oct. (p)	20.5	21.6	27.0	-3.0	-28.5	7.9	11.9	-11.4	4.3	-34.0	7.3	7.1	2.4

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 <sup>1)</sup>

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

	Credit to general government			Credit to other euro area residents								
	Total	Loans	Debt securities	Total	Loans					Debt securities	Equity and non-money market fund investment fund shares	
					Total	To non-financial corporations <sup>3)</sup>	To households <sup>4)</sup>	To financial corporations other than MFIs and ICPFs <sup>3)</sup>	To insurance corporations and pension funds			
					Adjusted loans <sup>2)</sup>							
1	2	3	4	5	6	7	8	9	10	11	12	
Outstanding amounts												
2017	4,623.3	1,034.2	3,575.2	13,114.4	10,870.9	11,166.3	4,325.7	5,600.3	836.5	108.5	1,442.0	801.5
2018	4,684.1	1,008.4	3,664.3	13,416.5	11,123.0	11,483.4	4,405.0	5,741.9	849.8	126.4	1,519.9	773.6
2019	4,660.6	986.8	3,662.1	13,865.7	11,452.5	11,839.8	4,475.8	5,931.2	893.5	152.0	1,562.7	850.4
2019 Q4	4,660.6	986.8	3,662.1	13,865.7	11,452.5	11,839.8	4,475.8	5,931.2	893.5	152.0	1,562.7	850.4
2020 Q1	4,794.5	1,007.2	3,775.6	14,056.3	11,692.1	12,068.0	4,604.9	5,965.5	960.8	160.9	1,565.2	799.0
Q2	5,279.0	1,005.9	4,261.4	14,242.1	11,780.6	12,163.1	4,718.2	5,995.6	912.6	154.2	1,644.9	816.5
Q3	5,737.1	1,003.0	4,722.3	14,200.3	11,867.0	12,224.9	4,731.7	6,066.1	912.2	156.9	1,519.1	814.3
2020 May	5,118.5	1,012.2	4,094.6	14,227.9	11,805.6	12,179.9	4,716.4	5,981.9	953.0	154.4	1,625.8	796.6
June	5,279.0	1,005.9	4,261.4	14,242.1	11,780.6	12,163.1	4,718.2	5,995.6	912.6	154.2	1,644.9	816.5
July	5,563.8	1,004.6	4,547.4	14,117.4	11,808.6	12,179.6	4,727.6	6,016.4	910.0	154.5	1,491.9	816.9
Aug.	5,622.7	1,000.7	4,610.2	14,173.2	11,841.5	12,205.3	4,750.4	6,031.4	904.3	155.4	1,514.8	816.9
Sep.	5,737.1	1,003.0	4,722.3	14,200.3	11,867.0	12,224.9	4,731.7	6,066.1	912.2	156.9	1,519.1	814.3
Oct. <sup>(p)</sup>	5,804.1	1,003.8	4,788.5	14,229.4	11,898.2	12,257.8	4,738.7	6,091.4	909.3	158.8	1,527.0	804.2
Transactions												
2017	289.1	-43.6	332.0	363.1	274.4	316.6	85.4	173.3	19.3	-3.6	63.8	24.9
2018	91.5	-28.2	119.7	375.0	307.5	382.2	124.1	166.1	-0.3	17.7	88.5	-21.1
2019	-87.3	-23.3	-64.4	452.6	378.4	422.4	115.7	200.5	41.3	21.1	30.8	43.4
2019 Q4	12.9	-14.6	27.4	94.3	78.9	103.3	6.3	59.0	7.7	5.9	-0.4	15.8
2020 Q1	145.5	19.7	125.8	237.8	249.3	242.7	135.5	40.5	64.5	8.8	19.8	-31.3
Q2	465.2	-1.8	467.0	182.3	96.5	103.6	120.7	35.8	-53.4	-6.7	74.7	11.2
Q3	258.9	-2.8	261.7	154.1	104.6	86.9	29.1	71.9	0.6	3.0	44.4	5.0
2020 May	143.4	-1.6	145.0	101.3	78.1	76.0	50.1	22.1	7.5	-1.5	18.1	5.1
June	144.4	-6.1	150.5	16.6	-17.5	-7.7	3.6	17.9	-38.8	-0.2	16.9	17.1
July	97.1	-1.4	98.4	63.8	43.3	37.0	19.0	23.4	0.4	0.5	18.0	2.4
Aug.	65.7	-3.7	69.4	60.5	36.0	28.7	21.8	18.7	-5.5	0.9	21.1	3.4
Sep.	96.1	2.3	93.9	29.8	25.3	21.1	-11.7	29.8	5.6	1.6	5.3	-0.8
Oct. <sup>(p)</sup>	55.3	1.1	54.1	36.2	31.6	35.4	7.5	26.1	-3.8	1.8	11.8	-7.2
Growth rates												
2017	6.6	-4.0	10.2	2.8	2.6	2.9	2.0	3.2	2.3	-3.2	4.6	3.2
2018	2.0	-2.7	3.4	2.9	2.8	3.4	2.9	3.0	0.0	16.3	6.1	-2.6
2019	-1.9	-2.3	-1.8	3.4	3.4	3.7	2.6	3.5	4.8	16.1	2.0	5.5
2019 Q4	-1.9	-2.3	-1.8	3.4	3.4	3.7	2.6	3.5	4.8	16.1	2.0	5.5
2020 Q1	1.6	0.4	2.0	4.2	4.8	5.0	5.0	3.3	11.4	20.7	3.0	-0.7
Q2	13.5	0.4	17.2	4.7	4.7	4.8	6.5	3.2	3.9	16.3	7.1	0.6
Q3	18.9	0.0	24.1	4.9	4.7	4.6	6.5	3.5	2.6	7.5	9.1	0.1
2020 May	9.7	1.1	12.1	4.9	5.2	5.3	6.7	3.3	8.6	20.9	6.8	-2.3
June	13.5	0.4	17.2	4.7	4.7	4.8	6.5	3.2	3.9	16.3	7.1	0.6
July	15.5	0.2	19.8	4.9	4.7	4.7	6.5	3.3	3.5	14.8	9.2	0.4
Aug.	16.6	-0.7	21.4	5.0	4.5	4.6	6.5	3.3	2.2	10.7	10.7	1.0
Sep.	18.9	0.0	24.1	4.9	4.7	4.6	6.5	3.5	2.6	7.5	9.1	0.1
Oct. <sup>(p)</sup>	20.3	0.0	25.9	4.9	4.6	4.6	6.3	3.6	1.6	14.1	10.3	-1.3

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 <sup>1)</sup>

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

	Non-financial corporations <sup>2)</sup>					Households <sup>3)</sup>				
	Total	Adjusted loans <sup>4)</sup>	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total	Adjusted loans <sup>4)</sup>	Loans for consumption	Loans for house purchase	Other loans
	1					2				
<b>Outstanding amounts</b>										
2017	4,325.7	4,360.0	985.1	821.6	2,518.9	5,600.3	5,867.2	655.0	4,216.1	729.2
2018	4,405.0	4,489.1	991.4	844.2	2,569.4	5,741.9	6,024.9	682.6	4,356.4	702.9
2019	4,475.8	4,578.4	968.3	877.7	2,629.8	5,931.2	6,223.7	720.2	4,523.7	687.4
2019 Q4	4,475.8	4,578.4	968.3	877.7	2,629.8	5,931.2	6,223.7	720.2	4,523.7	687.4
2020 Q1	4,604.9	4,706.4	1,003.6	917.2	2,684.1	5,965.5	6,254.1	715.2	4,565.1	685.3
Q2	4,718.2	4,830.2	958.5	993.0	2,766.7	5,995.6	6,276.7	701.1	4,603.9	690.6
Q3	4,731.7	4,845.2	930.5	1,014.5	2,786.7	6,066.1	6,334.1	702.6	4,667.6	695.9
2020 May	4,716.4	4,819.0	964.1	998.8	2,753.4	5,981.9	6,264.8	698.9	4,593.3	689.6
June	4,718.2	4,830.2	958.5	993.0	2,766.7	5,995.6	6,276.7	701.1	4,603.9	690.6
July	4,727.6	4,835.3	950.1	997.4	2,780.2	6,016.4	6,291.3	704.4	4,621.6	690.4
Aug.	4,750.4	4,858.8	943.3	1,015.5	2,791.6	6,031.4	6,307.2	702.6	4,632.8	696.0
Sep.	4,731.7	4,845.2	930.5	1,014.5	2,786.7	6,066.1	6,334.1	702.6	4,667.6	695.9
Oct. <sup>(p)</sup>	4,738.7	4,845.7	917.3	1,010.3	2,811.1	6,091.4	6,358.2	704.6	4,690.1	696.7
<b>Transactions</b>										
2017	85.4	135.2	0.2	39.2	46.1	173.3	165.5	45.2	133.9	-5.8
2018	124.1	175.9	18.0	32.8	73.3	166.1	188.4	41.2	134.2	-9.3
2019	115.7	143.3	-12.4	43.3	84.8	200.5	215.5	41.0	168.6	-9.2
2019 Q4	6.3	21.6	-8.5	8.6	6.2	59.0	61.6	9.5	51.7	-2.2
2020 Q1	135.5	136.4	32.9	44.1	58.4	40.5	38.1	-3.7	45.0	-0.9
Q2	120.7	131.0	-38.8	81.0	78.6	35.8	29.1	-12.3	39.2	8.9
Q3	29.1	34.1	-22.6	16.0	35.7	71.9	59.9	5.8	65.0	1.1
2020 May	50.1	47.6	-22.1	38.7	33.5	22.1	16.8	-1.1	18.4	4.8
June	3.6	14.2	-1.5	-4.7	9.8	17.9	16.6	3.4	11.7	2.9
July	19.0	16.8	-7.1	7.0	19.2	23.4	18.3	3.8	18.9	0.7
Aug.	21.8	22.8	-2.6	8.3	16.2	18.7	19.3	2.5	16.0	0.2
Sep.	-11.7	-5.5	-12.9	0.8	0.4	29.8	22.3	-0.5	30.1	0.2
Oct. <sup>(p)</sup>	7.5	1.7	-12.9	-3.8	24.1	26.1	25.2	2.3	22.4	1.4
<b>Growth rates</b>										
2017	2.0	3.2	0.0	5.0	1.8	3.2	2.9	7.4	3.3	-0.8
2018	2.9	4.1	1.8	4.0	2.9	3.0	3.2	6.3	3.2	-1.3
2019	2.6	3.2	-1.3	5.1	3.3	3.5	3.6	6.0	3.9	-1.3
2019 Q4	2.6	3.2	-1.3	5.1	3.3	3.5	3.6	6.0	3.9	-1.3
2020 Q1	5.0	5.5	2.9	9.1	4.4	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	0.3	4.1	0.4
Q3	6.5	7.1	-3.8	17.3	6.8	3.5	3.1	-0.1	4.5	1.0
2020 May	6.7	7.3	-1.5	17.5	6.2	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	0.3	4.1	0.4
July	6.5	7.1	-2.2	16.3	6.5	3.3	3.0	0.4	4.2	0.7
Aug.	6.5	7.1	-3.3	17.0	6.8	3.3	3.0	0.3	4.1	0.8
Sep.	6.5	7.1	-3.8	17.3	6.8	3.5	3.1	-0.1	4.5	1.0
Oct. <sup>(p)</sup>	6.3	6.8	-5.1	16.3	7.2	3.6	3.1	-0.1	4.5	1.5

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 <sup>1)</sup>

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

	MFI liabilities						MFI assets			
	Central government holdings <sup>2)</sup>	Longer-term financial liabilities vis-à-vis other euro area residents					Net external assets	Other		
		Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves		Total		
								Repos with central counterparties <sup>3)</sup>	Reverse repos to central counterparties <sup>3)</sup>	
1	2	3	4	5	6	7	8	9	10	
<b>Outstanding amounts</b>										
2017	347.6	6,769.9	1,966.9	59.8	2,017.9	2,725.3	930.7	323.0	143.5	92.5
2018	389.2	6,817.4	1,940.0	56.1	2,099.7	2,721.6	1,030.0	460.2	187.0	194.9
2019	364.1	7,060.0	1,945.9	50.1	2,156.7	2,907.3	1,455.7	453.4	178.9	187.2
2019 Q4	364.1	7,060.0	1,945.9	50.1	2,156.7	2,907.3	1,455.7	453.4	178.9	187.2
2020 Q1	409.5	7,036.4	1,936.8	47.2	2,120.0	2,932.4	1,563.2	517.7	183.7	196.5
Q2	673.3	7,041.1	1,932.7	44.1	2,080.0	2,984.4	1,559.6	532.7	159.2	174.3
Q3	806.2	7,040.9	1,935.5	43.0	2,059.2	3,003.2	1,568.8	503.6	139.9	147.3
2020 May	600.3	7,047.2	1,934.3	45.2	2,101.4	2,966.3	1,552.8	545.6	196.5	211.4
June	673.3	7,041.1	1,932.7	44.1	2,080.0	2,984.4	1,559.6	532.7	159.2	174.3
July	756.1	7,046.5	1,936.5	43.6	2,047.0	3,019.5	1,536.6	555.5	162.3	174.1
Aug.	819.5	7,028.7	1,940.2	43.1	2,033.6	3,011.8	1,552.2	503.7	170.4	177.6
Sep.	806.2	7,040.9	1,935.5	43.0	2,059.2	3,003.2	1,568.8	503.6	139.9	147.3
Oct. <sup>(p)</sup>	864.3	7,037.5	1,931.7	42.7	2,037.4	3,025.6	1,574.0	531.9	148.7	154.4
<b>Transactions</b>										
2017	41.8	-73.6	-83.5	-6.6	-71.1	87.5	-96.7	-53.5	-61.2	-28.5
2018	45.5	51.0	-37.8	-4.9	16.1	77.6	88.4	42.6	16.2	23.6
2019	-24.4	106.1	-5.3	-3.3	27.6	87.1	309.4	17.3	-2.7	-2.5
2019 Q4	-21.1	4.2	-1.5	-3.4	-11.6	20.7	-3.9	-4.6	-5.3	-10.9
2020 Q1	45.7	-46.4	-6.7	-2.9	-47.6	10.8	68.3	13.3	4.7	9.3
Q2	264.0	-1.8	-2.4	-3.1	-14.4	18.0	-33.2	60.1	-24.5	-22.2
Q3	69.2	8.0	-0.3	-1.1	0.6	8.8	28.2	-17.0	-19.3	-27.1
2020 May	79.6	14.6	4.1	-1.0	-7.4	18.9	2.3	12.6	8.9	8.1
June	73.0	0.0	-0.9	-1.1	-6.5	8.5	8.2	7.5	-37.3	-37.0
July	19.3	-6.2	1.5	-0.5	-8.1	1.0	-26.8	37.7	3.2	-0.2
Aug.	63.3	4.0	4.2	-0.5	-10.5	10.8	33.2	-56.6	8.1	3.5
Sep.	-13.5	10.2	-6.0	-0.1	19.2	-2.9	21.8	1.9	-30.5	-30.3
Oct. <sup>(p)</sup>	58.2	-13.4	-2.8	-0.3	-23.0	12.7	2.0	24.0	8.8	7.2
<b>Growth rates</b>										
2017	13.4	-1.1	-4.0	-9.6	-3.4	3.4	-	-	-29.8	-23.5
2018	13.0	0.8	-1.9	-8.0	0.8	2.9	-	-	8.1	7.7
2019	-6.3	1.5	-0.3	-5.9	1.3	3.1	-	-	-1.5	-1.5
2019 Q4	-6.3	1.5	-0.3	-5.9	1.3	3.1	-	-	-1.5	-1.5
2020 Q1	11.7	0.2	-0.1	-11.1	-2.6	2.8	-	-	-0.3	0.6
Q2	81.0	-0.5	-1.3	-19.5	-3.3	2.5	-	-	-10.5	-8.8
Q3	91.8	-0.5	-0.6	-19.4	-3.4	2.0	-	-	-24.1	-25.6
2020 May	63.3	0.1	0.0	-15.9	-2.6	2.5	-	-	-0.3	0.2
June	81.0	-0.5	-1.3	-19.5	-3.3	2.5	-	-	-10.5	-8.8
July	85.5	-0.5	0.0	-20.3	-4.1	2.1	-	-	-15.3	-15.6
Aug.	89.8	-0.1	1.3	-20.6	-4.3	2.4	-	-	-13.6	-16.6
Sep.	91.8	-0.5	-0.6	-19.4	-3.4	2.0	-	-	-24.1	-25.6
Oct. <sup>(p)</sup>	108.5	-0.6	-0.8	-17.5	-3.8	2.1	-	-	-32.8	-34.6

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				Compensation 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	Non-resident creditors	Up to 1 year	Over 1 year	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Euro or participating currencies	Other currencies	
	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 <sup>1)</sup>

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

	Change in debt-to-GDP ratio <sup>2)</sup>	Primary deficit (+)/surplus (-)	Deficit-debt adjustment							Interest-growth differential	Memo item: Borrowing requirement	
			Total	Transactions in main financial assets				Revaluation effects and other changes in volume	Other			
				Total	Currency and deposits	Loans	Debt securities					Equity and investment fund shares
	1	2	3	4	5	6	7	8	9	10	11	12
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 <sup>1)</sup>

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

	Debt service due within 1 year <sup>2)</sup>					Average residual maturity in years <sup>3)</sup>	Average nominal yields <sup>4)</sup>						
	Total	Principal		Interest			Outstanding amounts				Transactions		
		Maturities of up to 3 months	Maturities of up to 3 months	Total	Floating rate		Zero coupon	Fixed rate	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 Q3	12.7	11.2	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	10.9	4.1	1.3	0.3	7.5	2.0	1.2	-0.2	2.4	1.9	0.1	1.0
Q2	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
2020 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.	15.2	13.8	4.4	1.4	0.3	7.5	1.9	1.1	-0.1	2.3	2.1	0.1	0.8
Oct.	14.9	13.5	3.9	1.4	0.3	7.6	1.8	1.1	-0.2	2.2	2.1	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.

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

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