EUROPEAN CENTRAL BANK

EUROSYSTEM

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Contents

Update on economic, financial and monetary developments

Summary

At its meeting on 21 July 2022, in line with its strong commitment to its price stability mandate, the Governing Council took further key steps to make sure inflation returns to its 2% target over the medium term. The Governing Council decided to raise the three key ECB interest rates by 50 basis points and approved the Transmission Protection Instrument (TPI).

The Governing Council judged that it was appropriate to take a larger first step on its policy rate normalisation path than signalled at its previous meeting. This decision was based on the Governing Council's updated assessment of inflation risks and the reinforced support provided by the TPI for the effective transmission of monetary policy. It will support the return of inflation to the Governing Council's medium-term target by strengthening the anchoring of inflation expectations and by ensuring that demand conditions adjust to deliver its inflation target in the medium term.

At the Governing Council's upcoming meetings, further normalisation of interest rates will be appropriate. The frontloading of the exit from negative interest rates to the July meeting allows the Governing Council to make a transition to a meeting-by-meeting approach to interest rate decisions. The Governing Council's future policy rate path will continue to be data-dependent and will help to deliver on its 2% inflation target over the medium term. In the context of its policy normalisation, the Governing Council will evaluate options for remunerating excess liquidity holdings.

The Governing Council assessed that the establishment of the TPI was necessary to support the effective transmission of monetary policy. In particular, as the Governing Council continues normalising monetary policy, the TPI will ensure that the monetary policy stance is transmitted smoothly across all euro area countries. The singleness of the Governing Council's monetary policy is a precondition for the ECB to be able to deliver on its price stability mandate.

The TPI will be an addition to the Governing Council's toolkit and can be activated to counter unwarranted, disorderly market dynamics that pose a serious threat to the transmission of monetary policy across the euro area. The scale of TPI purchases would depend on the severity of the risks facing policy transmission. Purchases are not restricted ex ante. By safeguarding the transmission mechanism, the TPI will allow the Governing Council to more effectively deliver on its price stability mandate.

In any event, the flexibility in reinvestments of redemptions coming due in the pandemic emergency purchase programme (PEPP) portfolio remains the first line of defence to counter risks to the transmission mechanism related to the pandemic.

Economic activity

Economic activity has decelerated in key advanced economies since the last Governing Council meeting in June. In the United States, consumer spending in May surprised significantly to the downside, while there continue to be solid employment gains. Downside risks to the US outlook have increased overall. Activity data for the United Kingdom surprised to the downside, and consumer confidence fell to a record low. Growth in China is recovering after the country emerged from the most recent wave of the pandemic, but remains weak. Meanwhile, inflation in key advanced economies continues to rise, with elevated month-on-month gains, and is increasingly spreading to the service sector. Since the June Governing Council meeting, oil prices have fallen by around 14% as higher risks of an economic slowdown outweigh supply disruptions. Gas prices have increased sharply in Europe owing to reduced supply from Russia, implying an aggravation of the energy shock despite the fall in oil prices.

Euro area economic activity is slowing. Russia's unjustified aggression towards Ukraine is an ongoing drag on growth. The impact of high inflation on purchasing power, continuous supply constraints and higher uncertainty are having a dampening effect on the economy. Firms continue to face higher costs and disruptions in their supply chains, although there are tentative signs that some of the supply bottlenecks are easing. Taken together, these factors are significantly clouding the outlook for the second half of 2022 and beyond.

At the same time, economic activity continues to benefit from the reopening of the economy, a strong labour market and fiscal policy support. In particular, the full reopening of the economy is supporting spending in the services sector. As people start to travel again, tourism is expected to help the economy in the third quarter of this year. Consumption is being supported by the savings that households built up during the pandemic and by a strong labour market.

Fiscal policy is helping to cushion the impact of the war in Ukraine for those bearing the brunt of higher energy prices. Temporary and targeted measures should be tailored so as to limit the risk of fuelling inflationary pressures. Fiscal policies in all countries should aim at preserving debt sustainability, as well as raising the growth potential in a sustainable manner to enhance the recovery.

Inflation

Inflation increased further to 8.6% in June. Surging energy prices were again the most important component of overall inflation. Market-based indicators suggest that global energy prices will stay high in the near term. Food inflation also rose further, standing at 8.9% in June, in part reflecting the importance of Ukraine and Russia as producers of agricultural goods.

Persistent supply bottlenecks for industrial goods and recovering demand, especially in the services sector, are also contributing to the current high rates of inflation. Price pressures are spreading across more and more sectors, in part owing to the indirect

impact of high energy costs across the whole economy. Accordingly, most measures of underlying inflation have risen further.

The Governing Council expects inflation to remain undesirably high for some time, owing to continued pressures from energy and food prices and pipeline pressures in the pricing chain. Higher inflationary pressures are also stemming from the depreciation of the euro exchange rate. But looking further ahead, in the absence of new disruptions, energy costs should stabilise and supply bottlenecks should ease, which, together with the ongoing policy normalisation, should support the return of inflation to the Governing Council's target.

The labour market remains strong. Unemployment fell to a historical low of 6.6% in May. Job vacancies across many sectors show that there is robust demand for labour. Wage growth, also according to forward-looking indicators, has continued to increase gradually over the last few months, but still remains contained overall. Over time, the strengthening of the economy and some catch-up effects should support faster growth in wages. Most measures of longer-term inflation expectations currently stand at around 2%, although recent above-target revisions to some indicators warrant continued monitoring.

Risk assessment

A prolongation of the war in Ukraine remains a source of significant downside risk to growth, especially if energy supplies from Russia were to be disrupted to such an extent that it led to rationing for firms and households. The war may also further dampen confidence and aggravate supply-side constraints, while energy and food costs could remain persistently higher than expected. A faster deceleration in global growth would also pose a risk to the euro area outlook.

The risks to the inflation outlook continue to be on the upside and have intensified, particularly in the short term. The risks to the medium-term inflation outlook include a durable worsening of the production capacity of the economy, persistently high energy and food prices, inflation expectations rising above the Governing Council's target and higher than anticipated wage rises. However, if demand were to weaken over the medium term, it would lower pressures on prices.

Financial and monetary conditions

Market interest rates have been volatile as a result of the pronounced economic and geopolitical uncertainty. Bank funding costs have risen in recent months, which has increasingly fed into higher bank lending rates, in particular for households. While the volume of bank lending to households remains strong, it is expected to decline in view of lower demand. Lending to firms has also been robust as high production costs, inventory building and lower reliance on market funding have created a continued need for credit from banks. At the same time, demand for loans to finance

investment has declined. Money growth has continued to moderate owing to lower liquid savings and lower Eurosystem asset purchases.

The most recent euro area bank lending survey reports that credit standards tightened for all loan categories in the second quarter of the year, as banks are becoming more concerned about the risks faced by their customers in the current uncertain environment. Banks expect to continue tightening their credit standards in the third quarter.

Conclusion

Summing up, inflation continues to be undesirably high and is expected to remain above the Governing Council's target for some time. The latest data indicate a slowdown in growth, clouding the outlook for the second half of 2022 and beyond. At the same time, this slowdown is being cushioned by a number of supportive factors.

At its meeting on 21 July 2022, the Governing Council decided to raise the key ECB interest rates and approved the TPI. At its upcoming meetings, further normalisation of interest rates will be appropriate. The future policy rate path will continue to be data-dependent and will help the Governing Council deliver on its 2% inflation target over the medium term.

The Governing Council stands ready to adjust all of its instruments within its mandate to ensure that inflation stabilises at its 2% target over the medium term. The new TPI will safeguard the smooth transmission of the monetary policy stance throughout the euro area as the Governing Council keeps adjusting the stance to address high inflation.

Monetary policy decisions

The Governing Council decided to raise the three key ECB interest rates by 50 basis points. Accordingly, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will be increased to 0.50%, 0.75% and 0.00% respectively, with effect from 27 July 2022.

At the Governing Council's upcoming meetings, further normalisation of interest rates will be appropriate. The frontloading of the exit from negative interest rates allows the Governing Council to make a transition to a meeting-by-meeting approach to interest rate decisions. The Governing Council's future policy rate path will continue to be data-dependent and will help to deliver on its 2% inflation target over the medium term.

The Governing Council approved the TPI. The Governing Council assessed that the establishment of the TPI was necessary to support the effective transmission of monetary policy.[1] In particular, as the Governing Council continues normalising

[1] For more information on the TPI, see the press release of 21 July 2022.

monetary policy, the TPI will ensure that the monetary policy stance is transmitted smoothly across all euro area countries. The singleness of the Governing Council's monetary policy is a precondition for the ECB to be able to deliver on its price stability mandate.

Subject to fulfilling established criteria, the Eurosystem will be able to make secondary market purchases of securities issued in jurisdictions experiencing a deterioration in financing conditions not warranted by country-specific fundamentals, to counter risks to the transmission mechanism to the extent necessary. The scale of TPI purchases would depend on the severity of the risks facing monetary policy transmission. Purchases are not restricted ex ante.

The Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the asset purchase programme (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 ample liquidity conditions and an appropriate monetary policy stance.

As concerns the PEPP, the Governing Council intends to reinvest the principal payments from maturing securities purchased under the programme until at least the end of 2024. In any case, the future roll-off of the PEPP portfolio will be managed to avoid interference with the appropriate monetary policy stance.

Redemptions coming due in the PEPP portfolio are being reinvested flexibly, with a view to countering risks to the transmission mechanism related to the pandemic. PEPP reinvestment flexibility will continue to be the first line of defence to counter risks to the transmission mechanism related to the pandemic.

The Governing Council will continue to monitor bank funding conditions and ensure that the maturing of operations under the third series of targeted longer-term refinancing operations (TLTRO III) does not hamper the smooth transmission of its monetary policy. The Governing Council will also regularly assess how targeted lending operations are contributing to its monetary policy stance.

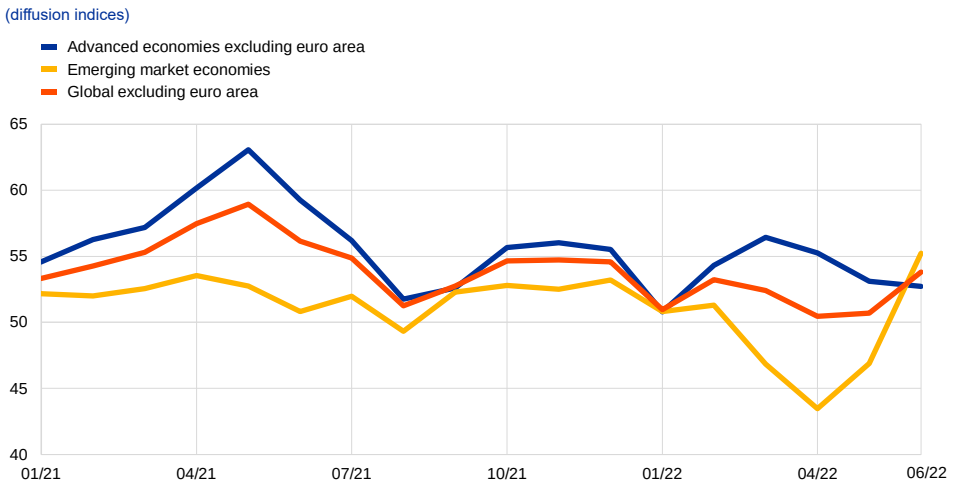
The Governing Council stands ready to adjust all of its instruments within its mandate to ensure that inflation stabilises at its 2% target over the medium term. The Governing Council's new TPI will safeguard the smooth transmission of its monetary policy stance throughout the euro area.

1 External environment

Economic activity has slowed in key advanced economies since the last Governing Council meeting in June. In the United States, consumer spending in May surprised significantly to the downside, while there continues to be solid employment gains. Downside risks to the US outlook have increased overall. Activity data for the United Kingdom surprised to the downside, and consumer confidence fell to a record low. Growth in China is recovering after the country emerged from the most recent coronavirus (COVID-19) wave, but remains weak. Meanwhile, inflation in key advanced economies continues to rise, with elevated month-on-month gains, and is increasingly spreading to the service sector. Since the June Governing Council meeting oil prices have fallen by around 14% as higher risks of an economic slowdown outweigh supply disruptions. Gas prices have increased sharply in Europe, implying an aggravation of the energy shock, despite the decrease in oil prices.

Recent data on global economic activity point to moderating growth amid high inflation and a normalisation in monetary policy around the world. The composite output Purchasing Manager's Index (PMI) for advanced economies (excluding the euro area) declined between April and June, reflecting weaknesses in the United States and the United Kingdom in particular. By contrast, emerging market activity improved significantly in June, primarily owing to the surge in activity in China (see Chart 1). The strong improvement in China in June followed positive developments in the pandemic and the associated lifting of many containment measures in May. The global activity tracker, based on high-frequency indicators, and June PMI data both point to somewhat weakening activity, especially in advanced economies. While some of the uncertainty related to the war in Ukraine is slowly fading, inflation is weighing on real disposable incomes and aggregate demand. Although the easing of pandemic-related containment measures is set to support growth in Asia, global activity is expected to further moderate in the coming months. Central banks in both advanced and emerging economies are progressively normalising their monetary policy stance in response to surging inflation.

Chart 1
Composite output PMI



Sources: IHS Markit, Haver Analytics and ECB calculations.
Note: The latest observations are for June 2022.

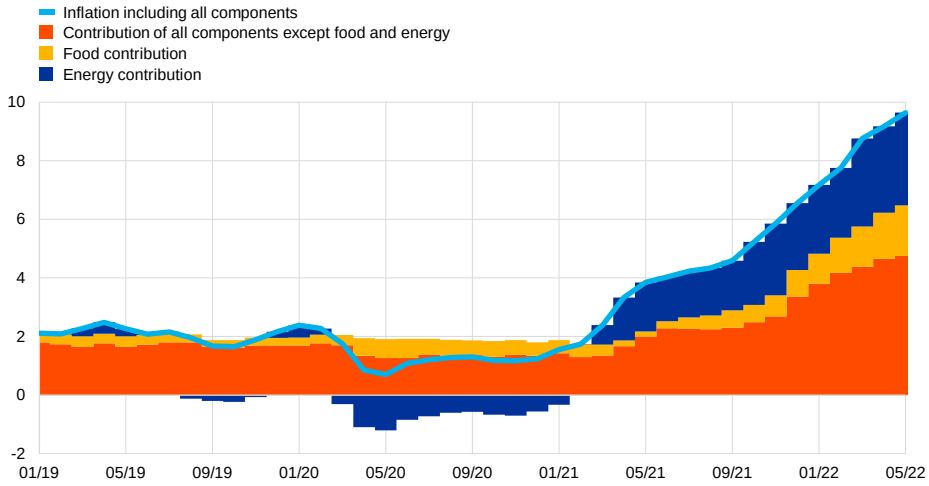
Global supply chain disruptions have eased further. In most economies PMI suppliers' delivery times in June returned to close to levels seen prior to the war in Ukraine, after worsening in April and May. The PMI for supply shortages also improved at the global level, and global price pressures softened. Moreover, recent high-frequency activity data for the port of Shanghai indicate that supply strains in the shipping sector are easing in China. Further improvements in global production networks are expected as pandemic-related containment measures are lifted and the impact of the war in Ukraine on supply chains wanes. Looking ahead, the decline in the June PMI for input prices together with the easing of supply disruptions may signal somewhat lower inflationary pressures from the supply side. However, war-related disruptions to the supply of essential foods (such as wheat and maize) and fertilisers persist and are affecting already-vulnerable emerging market economies, particularly in Africa and the Middle East.

Global trade has contracted again owing to the Russia-Ukraine war and pandemic containment measures in China. In April, global (excluding the euro area) merchandise trade contracted for a third consecutive month and has fallen by 1.9% since January 2022. The ECB trade tracker and the June PMI for new export orders remain in contractionary territory despite some improvement. However, global merchandise trade is still expected to grow moderately in 2022 and 2023.

Global inflationary pressures are broadening to services. Annual headline CPI (consumer price index) inflation across OECD countries increased to 9.6% in May (from 9.2% in April), driven by energy and food inflation and, to a lesser extent, core inflation (Chart 2). Inflation is broadening to services in a number of key advanced economies on the back of higher input costs and the rotation of demand from goods back to services.

Chart 2
OECD consumer price inflation

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



Sources: OECD, Haver Analytics and ECB calculations.
Note: The latest observations are for May 2022.

Oil prices have declined by 14% since the Governing Council meeting in June as markets started to factor in a slowdown in real economic activity. Oil prices were supported by the gradual reopening of the Chinese economy and the ongoing constraints on supply, but this was offset by weaker economic growth prospects. These factors also affected other commodity prices. Both metal and food prices are lower than before the Russian invasion of Ukraine. The recent progress made on establishing a safe corridor for Ukrainian grain shipments has led to a drop in wheat and maize prices since the last Governing Council meeting. Gas prices increased steeply (+119%) following supply shortfalls. After a period of declining gas prices in Europe amid sharp increases in gas inventories, prices recently surged again in response to the reduction in gas flows from Russia to Germany.

In the United States, economic growth momentum slowed sharply in the second quarter. Consumer spending for May was considerably lower than expected and was revised down for April. Also, the Michigan Consumer Sentiment index fell in June to the lowest level since records began in the 1950s. Moreover, the housing market shows signs of slowing, with housing starts surprising to the downside for May. By contrast, the labour market remains tight, and consumers continue to hold excess savings that could support spending going forward. Overall, downside risks to the growth outlook have risen amid increased uncertainty. On the nominal side, annual CPI headline inflation rose to 8.6% in May and 9.1% in June, above market expectations. In month-on-month terms, headline CPI increased to 1.0% in May and 1.3% in June, standing at historically elevated rates. On the risk of recession, a Wall Street Journal survey of economists from late June indicated a 44% probability of a recession in the next 12 months.

In China, the lifting of COVID-19 containment measures led to a rebound in economic activity in June, but underlying growth remains weak and downside risks elevated. With COVID-19 cases falling sharply in early June, containment

measures were further eased. As a result, mobility indicators moved closer to normal levels. Monthly hard activity data partially recovered in May and are expected to further improve in June, given that the composite output PMI surged sharply to above pre-pandemic levels in June. Looking ahead additional fiscal support measures have been announced that are likely to boost infrastructure spending in the third quarter. However, GDP growth this year is expected to remain significantly below the official growth target of 5.5% for 2022, hampered in part by a persistently weak housing sector.

In Japan, annual CPI inflation remains above the target rate set by the Bank of Japan. The jump in the inflation rate in April reflected a dissipation of strong negative base effects related to mobile phone charges. Headline inflation in May remained unchanged at 2.5%, sustained by high energy and food prices, while core inflation increased only marginally. The June Tankan survey signalled that firms may be gradually passing on higher input costs to final prices. Despite increasing market pressure, the Bank of Japan maintained its yield curve control policy. The rate of divergence with other major central banks increased depreciation pressures on the yen, which reached levels not seen since the aftermath of the 1997 Asian financial crisis. Nevertheless, the Bank of Japan has not signalled a change in its monetary policy stance.

In the United Kingdom, growth momentum is further decelerating amid deteriorating business sentiment and rising inflation that is weighing on consumer demand. Monthly GDP surprised to the downside in April. Retail sales also declined and consumer confidence fell to a record low. Annual headline CPI inflation rose to 9.1% in May, while inflationary pressures have increasingly spread to the service sector. Real wages declined sharply, and short-term indicators point towards a deterioration in business sentiment. UK GDP is likely to have contracted in the second quarter.

In Russia, recent data continue to signal deteriorating economic conditions. The impact of the war on the Russian economy is beginning to broaden. In May industrial production and retail sales continued to decline, while car production almost came to a complete halt. However, GDP data for the first quarter and current account data for the second quarter may point to the collapse in 2022 being less severe than previously expected. Headline inflation declined to 16% in mid-June (from 18% in April and 17% in May), mainly driven by the appreciation of the rouble and declining consumer demand. On 10 June the Bank of Russia cut its policy rate for the fourth time to 9.5% (down from 11.0% in May). This was a return to the level set before the February emergency rate increase to 20% following Russia's invasion of Ukraine and the ensuing sanctions.

2 Economic activity

Following a growth rate of 0.5% in the first quarter of 2022, driven by positive net trade and inventory contributions, euro area real GDP growth in the second quarter is expected to have been driven by the reopening of the economy. The reopening has bolstered a recovery in consumption of contact-intensive services and dynamic activity in the tourism sector, which are also likely to support growth in the third quarter. At the same time, persistent headwinds such as the continuing Russia-Ukraine war, high inflation, supply chain disruptions and tightening financing conditions continue to weigh on growth.[2] Elevated uncertainty, commodity price pressures – partly owing to the reduced gas supply from Russia – and tightening financing conditions are expected to dampen consumer and capital spending in the coming quarters. Moreover, a further reduction in gas supplies from Russia, with the prospect of gas rationing in the autumn and winter months, could weaken economic activity significantly and lead to further increases in energy prices. However, the impact of further energy disruptions could be mitigated by the resilient labour market, high levels of accumulated savings and additional targeted fiscal measures.

Real GDP growth in the second quarter of 2022 is expected to have been supported by the reopening of the economy and strong activity in the tourism sector, despite the war in Ukraine, high inflation, tightening financing conditions and persistent uncertainty. Euro area real GDP grew by 0.5% quarter on quarter in the first quarter of 2022, driven by positive net trade and inventory contributions, while domestic demand contracted. Excluding Ireland, euro area GDP rose by 0.3% quarter on quarter. For the second quarter of 2022, the favourable impact on euro area activity from the lifting of pandemic-related restrictions seems to have more than offset the persistent headwinds to consumption and investment spending. Incoming data support these observations. In the first two months of the second quarter, industrial production (excluding construction) was slightly below its level in the first quarter, in line with a negligible contribution to growth from the manufacturing sector. The euro area composite output Purchasing Managers' Index (PMI) averaged 54.2 in the second quarter, only marginally below the level in the first quarter (Chart 3). In June, the manufacturing output PMI indicated a contraction for the first time since June 2020, dropping below 50 (Chart 4, panel a). This signalled a weakening in activity in the manufacturing sector, particularly owing to the acute supply chain disruptions, high commodity prices as a result of Russia's invasion of Ukraine, and the rise in overall uncertainty. Moreover, the PMI for new manufacturing orders continued to decline in June, while the PMI suppliers' delivery times showed that, although supply bottlenecks remained tight in June, they did ease somewhat. By contrast, activity in the services sector recovered in the second quarter of 2022 and is estimated to strengthen further in the third quarter. Services production in April was 2.4% above its level in the first quarter of the year, reflecting a rotation in demand from goods to services with the reopening of the economy. In the second

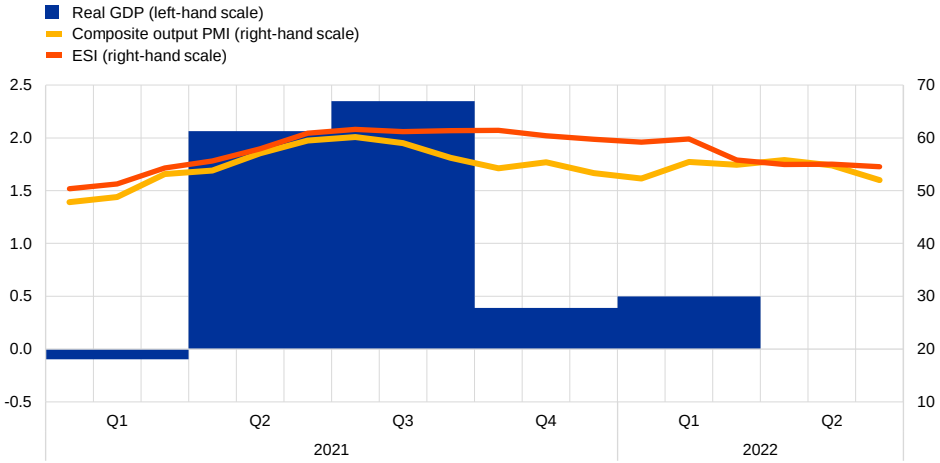
[2] According to the flash estimate released by Eurostat on 29 July, euro area real GDP increased by 0.7%, quarter on quarter, in the second quarter of 2022. This unexpectedly strong estimate, which was not available at the time of the July Governing Council meeting, seems to be supported by a strong contribution of the services sector amid the reopening of the economy, alongside a weaker industrial sector.

quarter, the PMI for services activity averaged 55.6, improving slightly compared with the average for the first quarter, despite experiencing a moderation in June (Chart 4, panel b). The European Commission's Economic Sentiment Indicator (ESI) declined slightly in June, signalling a slowdown in growth in the second quarter (Chart 3). While business confidence improved somewhat for industry and services, it deteriorated for the retail and construction sectors. Reflecting persisting concerns about high inflation amid elevated uncertainty and acute supply chain disruptions, consumer confidence declined further in July to a level below the one recorded at the start of the COVID-19 crisis in April 2020.[3]

Chart 3

Euro area real GDP, composite output PMI and ESI

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



Sources: Eurostat, European Commission, Standard & Poor's Global Ratings and ECB calculations.
Notes: The two lines indicate monthly developments; the bars show quarterly data. The European Commission's Economic Sentiment Indicator (ESI) has been standardised and rescaled to have the same mean and standard deviation as the Purchasing Managers' Index (PMI). The latest observations are for the first quarter of 2022 for real GDP and June 2022 for the PMI and the ESI.

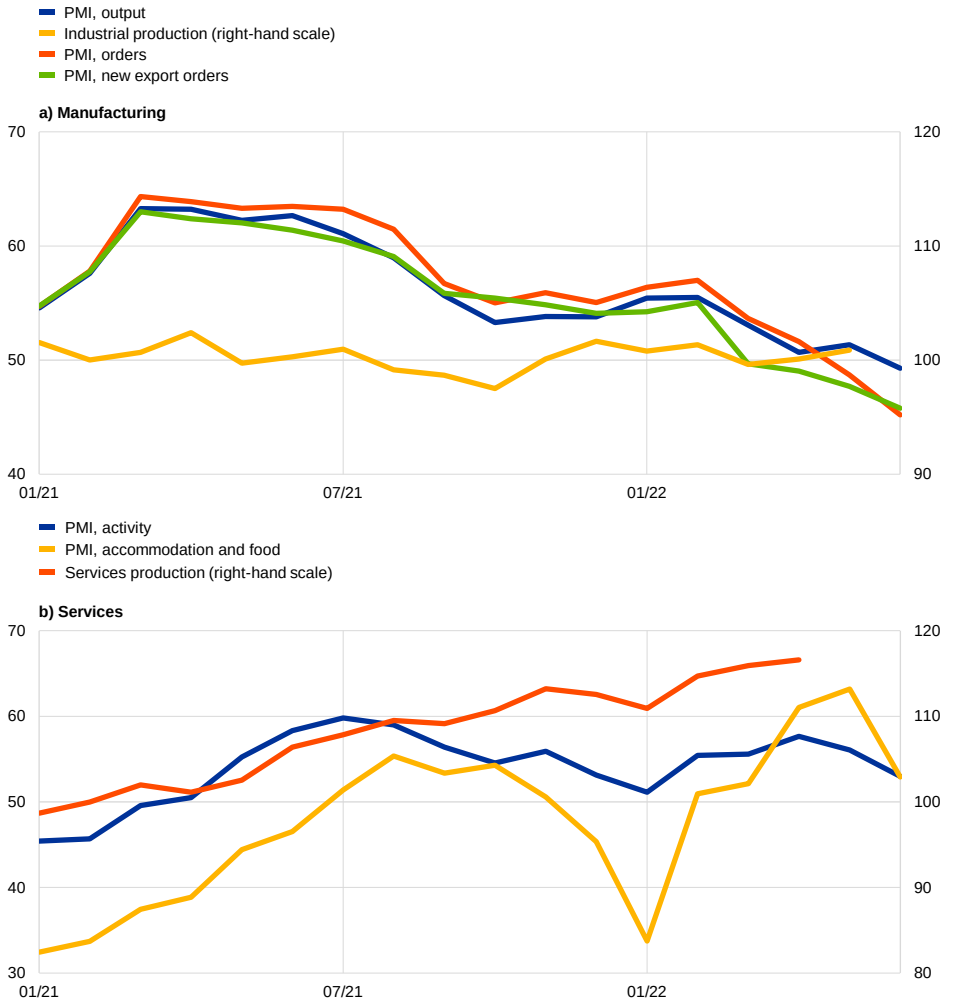
Economic activity should benefit from the recovery in consumption in contact-intensive services, but headwinds could persist. The demand for contact-intensive services is being driven by the reopening of the economy, which is benefiting the tourism sector, but higher energy prices and elevated uncertainty are dampening consumer and business sentiment. The ECB's contacts in the non-financial sector expect the current headwinds to be countered to some extent by the reopening of the economy, spurring activity in contact-intensive services, particularly in tourism. However, corporate contacts, especially in the retail sector, remain concerned about future developments in demand, particularly after the summer (Box 5). While risks are markedly high for the growth outlook in the autumn and winter months, especially in a scenario with further cuts in energy supplies, there are positive factors that continue to support the economy. The resilient labour market, savings accumulated during the pandemic and fiscal measures should help to cushion the impact of higher inflation on income and consumption. Progress in the

[3] The Flash Consumer Confidence Indicator, published on 20 July by the European Commission, stood at a level of -27.

implementation of the Next Generation EU (NGEU) programme is also expected to bolster the economic recovery.

Chart 4
Manufacturing and services

(left-hand scale: diffusion index; right-hand scale: index, February 2020 = 100)



Sources: Standard & Poor's Global Ratings, Eurostat and ECB calculations.
Note: The latest observations are for May 2022 for industrial production, June 2022 for the PMIs and April 2022 for services production.

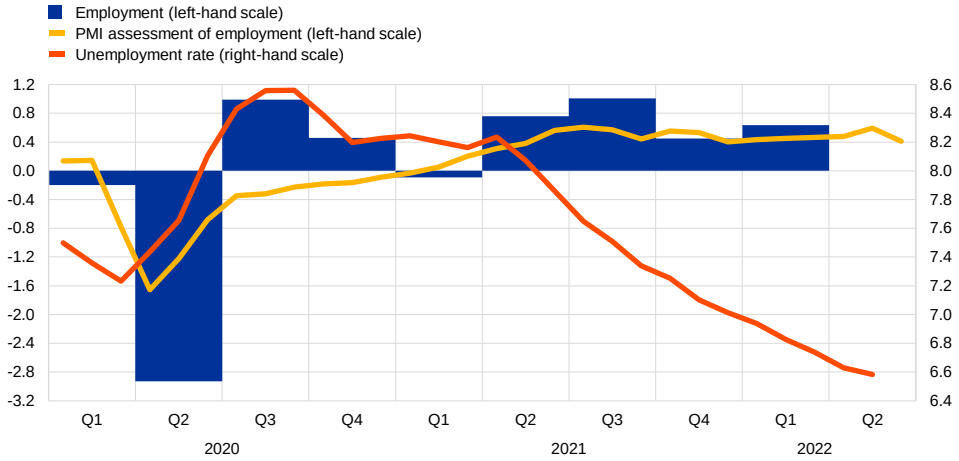
The labour market in the euro area continues to improve despite the economic impact of the war in Ukraine. The unemployment rate stood at 6.6% in May 2022, slightly lower than in April and around 0.8 percentage points lower than the pre-pandemic level observed in February 2020 (Chart 5). This is the lowest level recorded since the euro area came into existence, albeit with continuing, though progressively lower, recourse to job retention schemes. Total employment rose by 0.6%, quarter on quarter, in the first quarter of 2022, after growing by 0.4% in the fourth quarter of 2021. As a result of the economic recovery following the lifting of pandemic-related restrictions, job retention schemes covered 1.1% of the labour force in March 2022, down from around 1.6% in December 2021. This is also mirrored in the total hours worked which, while still below pre-pandemic levels, have

increased towards these levels, particularly in the industrial and market services sectors.

Chart 5

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

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



Sources: Eurostat, Standard & Poor's Global Ratings and ECB calculations.
Notes: The two lines indicate monthly developments; the bars show quarterly data. The PMI is expressed as a deviation from 50 divided by 10. The latest observations are for the first quarter of 2022 for employment, June 2022 for the PMI and May 2022 for the unemployment rate.

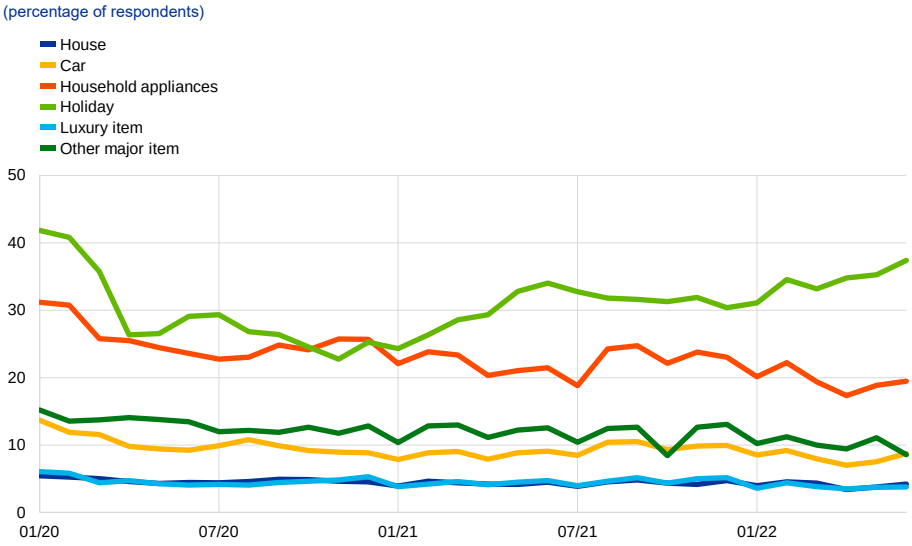
Short-term labour market indicators continue to point to an overall resilient labour market in the euro area. The composite PMI employment indicator for the second quarter of 2022 remained, overall, at a broadly similar level to that observed in the first quarter, thus suggesting a further growth in employment. However, the drop to 54.1 in June (1.8 points lower than in May) indicates a deceleration in momentum. The PMI employment indicator has now been in expansionary territory since February 2021. Looking at developments across different sectors, the PMI employment indicator continues to point to robust employment growth in services and manufacturing.

Household spending is shifting from goods to services. Private consumption declined by 0.4% in the first quarter of 2022, with demand for both services and goods contracting. Household consumption of goods is likely to have remained weak in the second quarter amid high inflation, elevated uncertainty and persistent bottlenecks in production and distribution networks in the goods sector. This weakness is supported by the recent developments in retail sales, which, over the period April-May 2022, stood at an average of 0.8% below their level in the first quarter. Meanwhile, new car registrations in the second quarter were 3% below their level in the first quarter. Consumer confidence continued to wane during the second quarter and declined further in July, reflecting persisting concerns about high inflation and lower economic and financial expectations, amid elevated uncertainty and acute supply constraints. Demand in the tourism sector, however, continues to recover. As restrictions are being lifted, household spending is shifting from goods back to contact-intensive services, supporting demand in the short term. The European Commission's business and consumer survey results for June suggested that, despite the lower sentiment, expected demand for accommodation, food and travel

services is likely to support growth in private consumption, at least over the summer period.[4] This is also confirmed by the latest evidence from the Consumer Expectations Survey for June, showing that households prioritised spending on holidays, whereas their intentions to buy major physical items (such as cars and household appliances) remained subdued (Chart 6). At the same time, consumption is being partly supported by the large volume of savings accumulated by households during the pandemic and by the continued strength of the labour market, which is helping to sustain labour income overall. The household saving rate marginally increased to 15% of disposable income in the first quarter of 2022, largely reflecting the impact of the COVID-19 restrictions and heightened uncertainty. Looking ahead, it is likely that increased precautionary motives due to the uncertainty caused by Russia's invasion of Ukraine will be countered by households' use of savings to cushion, at least partially, the negative effects of the energy shock. However, the asymmetric distribution of the saving capacity across households, rising financial concerns and the related uncertainty might limit the extent to which these savings are able to shield the ongoing recovery in consumption from the recent surge in energy prices (Box 3).

Chart 6

Household purchasing plans for the next 12 months



Sources: Consumer Expectations Survey and ECB calculations.
Note: The latest observation is for June 2022.

Business investment growth is expected to have been subdued in the second quarter of 2022. Non-construction investment declined by 3.6% quarter on quarter in the first three months of 2022, owing to swings in intellectual property investment in Ireland. Excluding Ireland, euro area investment rose by 1.5% quarter on quarter, driven by growth across the four largest euro area economies, and mostly due to growth in the areas of non-transport machinery and equipment. In the second quarter, industrial production of capital goods partially recovered in May (+2.5%

4 However, as shown in Chart 4, panel b, the June PMI for accommodation and food signalled some moderation.

month on month) after a significant decline in March (-3.5%) and a moderate contraction in April (-0.6%). However, it still remains below its average in the first quarter, signalling downside risks to business investment. Survey evidence from June also points to reduced momentum, as a result of persisting supply chain disruptions, elevated uncertainty, high input costs and slowing demand for capital goods. Looking ahead, downside risks are likely to persist in the second half of the year. Rising concerns due to the possibility of gas rationing as a result of the Russia-Ukraine war, paired with tightening funding conditions and weaker final demand, are also likely to reduce demand for business investment. Nevertheless, several factors may support business investment and partly cushion downside pressures: the availability of retained earnings and cash flow for firms; continued stimulus for investment through NGEU disbursements; and the investment opportunities provided by further progress in the economy's green and digital transitions (Article 1).

Housing investment growth is likely to have moderated in the second quarter of 2022, weighed down by rising uncertainty and weakening demand. After surging in the first quarter of 2022, housing investment momentum is estimated to have moderated substantially in the second quarter. Despite substantial construction activity in the pipeline, indicated by a rising number of building permits in the first three months of the year, building construction output in April and May stood only 0.1% above its level in the first quarter, on average. Survey data also point to moderating activity amid growing headwinds to demand. The European Commission's indicator of recent trends in construction activity picked up in June, but on average it declined in the second quarter, as a result of less supportive demand and financial conditions, together with persistent, albeit easing, shortages of materials and labour. According to the survey on the access to finance of enterprises, construction companies' near-term turnover expectations remained strong at the start of the second quarter, but the companies increasingly reported concerns about the cost of materials, finding customers and access to finance. The European Commission's business and consumer survey confirms a significant decline in housing demand, as households' near-term intentions to buy or build a house recorded their largest ever single-quarter decline in the second quarter, although they remained above their long-run average. Overall, elevated uncertainty and deteriorating financing conditions may place further downward pressures on the ongoing recovery in housing investment.

Exports of goods grew moderately in April, but the near-term outlook has deteriorated significantly. In April 2022 nominal extra-euro area goods exports moderately expanded, while extra-euro area goods imports increased substantially. The goods trade balance shifted further into deficit, owing to the higher cost of energy imports and subdued export performance. Exports to Russia decreased further in April after halving in March, reflecting the impact of international sanctions. High-frequency data on trade point to some tentative easing of supply bottlenecks in the second quarter of 2022 compared with the previous quarter, although surveys suggest that firms are likely to continue to face disruptions in their cross-border value chains for the foreseeable future. Forward-looking indicators point to a slowdown in exports of both goods and services, reflecting further weaknesses in manufacturing exports and capacity constraints in the tourism sector. The June PMI indicates that

export orders in the manufacturing sector fell deeper into contractionary territory, while export orders for services, following a recovery in May, also fell back into contractionary territory. After having gradually strengthened until the spring, tourism indicators showed some signs of weakening in June, although all the indicators (except for flights) remained above pre-pandemic levels.

The risks to the economic outlook continue to be tilted to the downside. While pandemic-related risks remain contained in the near term, the Russia-Ukraine war continues to represent a significant downside risk to growth. In particular, a major threat would be a further disruption in the energy supply to the euro area, which may result in gas rationing for firms and households. The war may also further dampen confidence and aggravate supply-side constraints, while energy and food costs could remain persistently higher than expected.

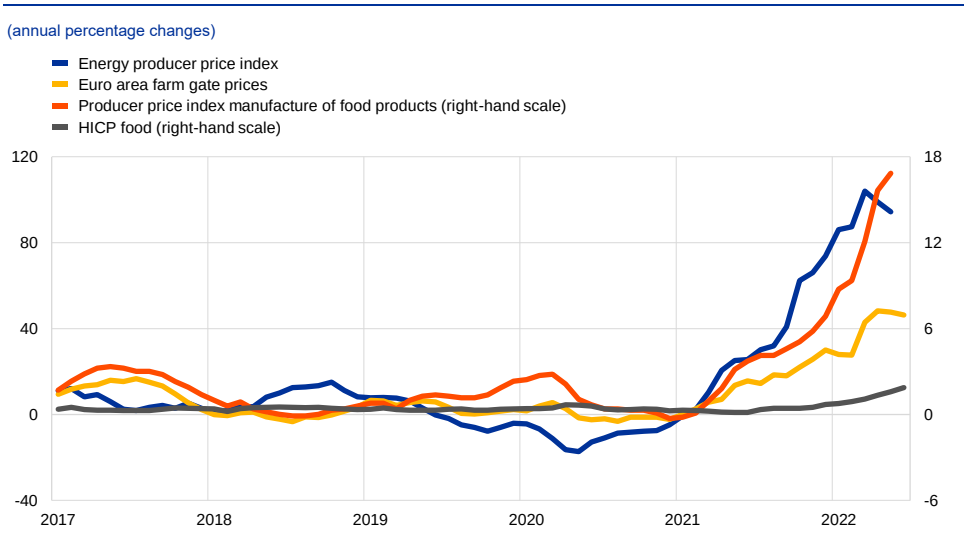
3 Prices and costs

Inflation increased further to 8.6% in June. Surging energy prices were again the most important component of overall inflation. Food inflation also rose further, in part reflecting the importance of Ukraine and Russia as producers of agricultural goods. Persistent supply bottlenecks for industrial goods and recovering demand, especially in the services sector, are also contributing to the current high rates of inflation. Price pressures are spreading across more and more sectors, in part owing to the indirect impact of high energy costs across the whole economy. Accordingly, most measures of underlying inflation have risen further. Continued pressures from energy and food prices and pipeline pressures in the pricing chain will likely keep inflation high for some time to come. Higher inflationary pressures are also stemming from the depreciation of the euro exchange rate. Looking further ahead, in the absence of new disruptions, energy costs should stabilise and supply bottlenecks should ease, which, together with the ongoing policy normalisation, should support the return of inflation to the ECB's inflation target.

HICP inflation rose to another record high in June. The further increase from 8.1% in May to 8.6% in June was mainly driven by higher food inflation. The annual rate of change in consumer energy prices edged only marginally higher, but at more than 40% it remained exceptionally high and continued to account for around half of overall inflation. Elevated wholesale prices for gas, oil and electricity, as well as high refining and distribution margins for transport fuels (particularly diesel oil), all contributed to high energy inflation. Food inflation rose substantially for both processed and unprocessed food, pushed up by global food commodity prices and higher euro area farm gate prices. The pressures on food prices have been increasingly reflecting higher input costs related to energy and fertilisers (Chart 7).

Chart 7

Energy and food input cost pressure



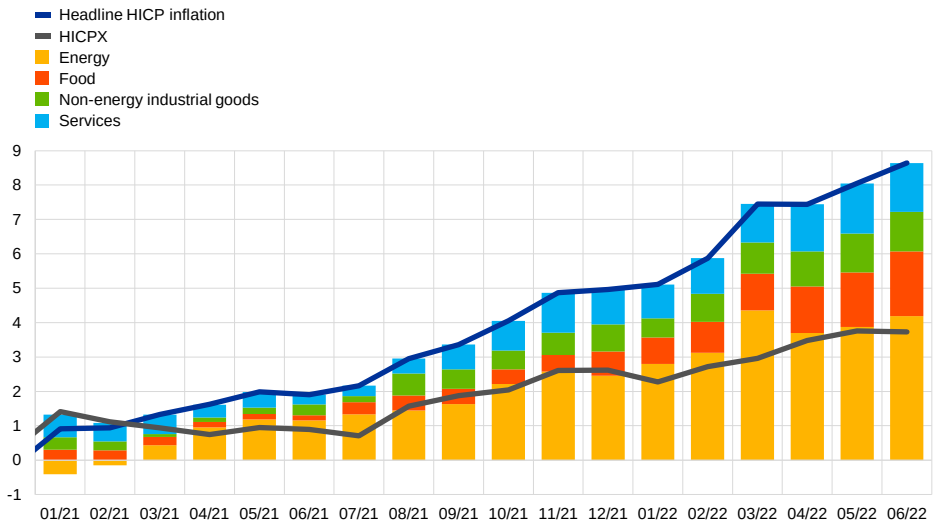
Source: Eurostat.
Note: The latest observations are for June 2022 for euro area farm gate prices and for May 2022 for the other data.

HICP inflation excluding energy and food (HICPX) decreased slightly to 3.7% in June, as the small increase in non-energy industrial goods (NEIG) inflation was more than offset by the moderation in services inflation (Chart 8). Here, too, higher input costs stemming from the surge in energy prices remained a prominent factor. NEIG inflation reached a new high, driven by both durable and non-durable goods. Sizeable month-on-month increases were recorded yet again for the prices of both these components amid global supply disruptions, which had further intensified as a result of the war in Ukraine and indirect effects from high energy costs. Services inflation was the only major component of HICP inflation to decrease, reflecting in part the temporary introduction of the €9 public transport ticket in Germany. Excluding the impact of this measure, services inflation continued its upward dynamic. The main factors driving services inflation are still higher energy costs, which affect transportation in particular; surging food prices, which are an important factor for restaurant services; and reopening effects, which have been particularly evident in items such as accommodation.

Chart 8

Headline inflation and its main components

(annual percentage changes; percentage point contributions)



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

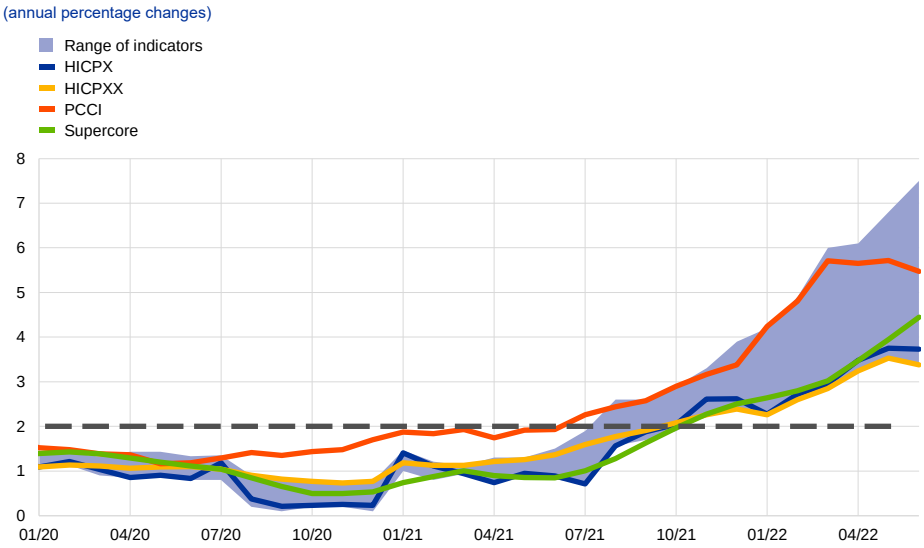
A wide range of measures of underlying inflation surpassed 3.5% in June (Chart 9). Some exclusion-based measures decreased while others continued to increase. While remaining elevated, HICPX inflation declined slightly to 3.7% in June, after 3.8% in May. HICPXX inflation (which excludes travel-related items, clothing and footwear, as well as energy and food) also saw a slight decline, to 3.4%. Meanwhile, the model-based Persistent and Common Component of Inflation (PCCI) edged down to 5.5% in June, and the Supercore indicator, which comprises cyclically sensitive HICP items, rose to 4.5%, from 3.9% in May. It is likely that the decline in some of the underlying inflation measures has been affected by the very strong impact of the €9 public transport ticket in Germany. Finally, the indicator of domestic inflation, which represents price developments of items with lower import content,

has surpassed 3%.[5] At the same time, it remains uncertain how persistent the elevated levels of these indicators will be. A large part of the upward push in underlying inflation dynamics can be attributed to indirect effects from the surge in energy and food prices and from exceptional developments in the balance between supply and demand related to the pandemic and the Russian invasion of Ukraine.

The latest available data showed growth in negotiated wages stood at 2.8% in the first quarter of 2022. The increase from a 1.6% growth rate in the previous quarter was largely driven by one-off payments. Regarding measures of actual pay, growth in compensation per hour and growth in compensation per employee stood at 1.2% (after 1.3% in the previous quarter) and 4.5% (up from 3.8% in the previous quarter) respectively. The discrepancy between these two actual wage measures reflects the changes in hours worked per employee in response to developments in activity and the fading impact of job retention schemes. Looking ahead, developments in wages will be a key factor for the future dynamics of underlying inflation.

Chart 9

Indicators of underlying inflation



Sources: Eurostat and ECB calculations.
Notes: The range of indicators of underlying inflation includes HICP excluding energy, HICP excluding energy and unprocessed food, HICPX (HICP excluding energy and food), HICPXX (HICP excluding energy, food, travel-related items, clothing and footwear), the 10% and 30% trimmed means, and the weighted median. The latest observations are for June 2022.

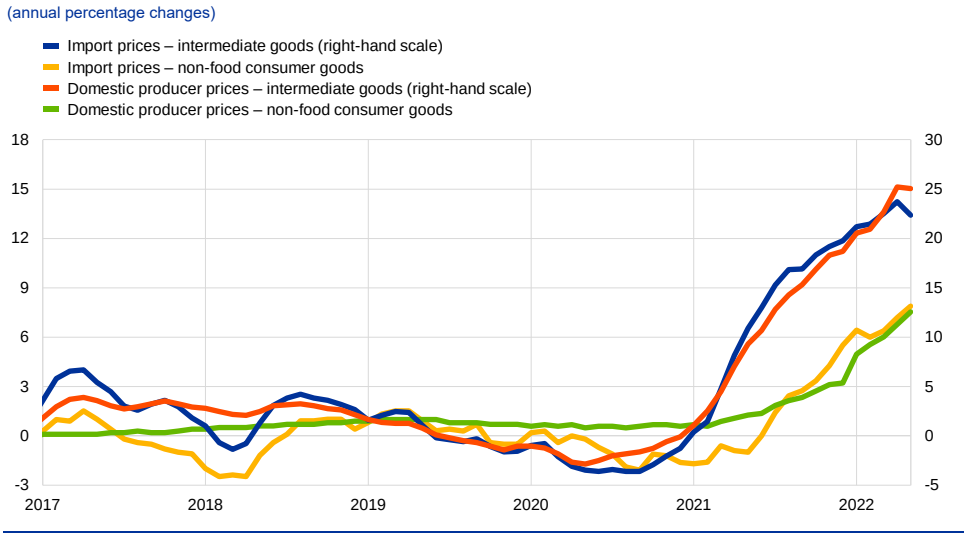
Pipeline pressures on consumer prices for NEIG have continued to build up at all stages of the pricing chain (Chart 10). Cost pressures rose further to new all-time highs on the back of supply chain disruptions, which have intensified again in the wake of the war in Ukraine, and rises in global commodity prices, particularly for energy but also for some metals. At the early stages of the pricing chain for HICP NEIG inflation, the annual growth rate of producer prices for domestic sales of intermediate goods marginally declined to 25.0% in May 2022, down from 25.2% in the previous month. The annual growth rate of import prices for intermediate goods

[5] See the box entitled "A new indicator of domestic inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2022.

also declined (22.4% in May compared with 23.7% in the previous month). Input cost pressures also featured more prominently at later stages of the pricing chain, with producer price inflation for domestic sales of non-food consumer goods increasing from 6.8% in April to 7.5% in May, which was again exceptionally high compared with the average annual rate of 0.6% over the 2001-19 period. Import price inflation for non-food consumer goods continued to increase as well, reaching 7.9% in May. The difference between import price inflation and domestic producer price inflation is likely attributable to the continued depreciation of the euro. Overall, the developments in import and producer prices for non-food consumer goods imply that pressure on NEIG inflation in the HICP is likely to remain elevated in the near term. This is also reflected in the data on selling-price expectations in the manufacturing sector, which remain elevated despite moderating somewhat over the past 2 months.

Chart 10

Indicators of pipeline pressures



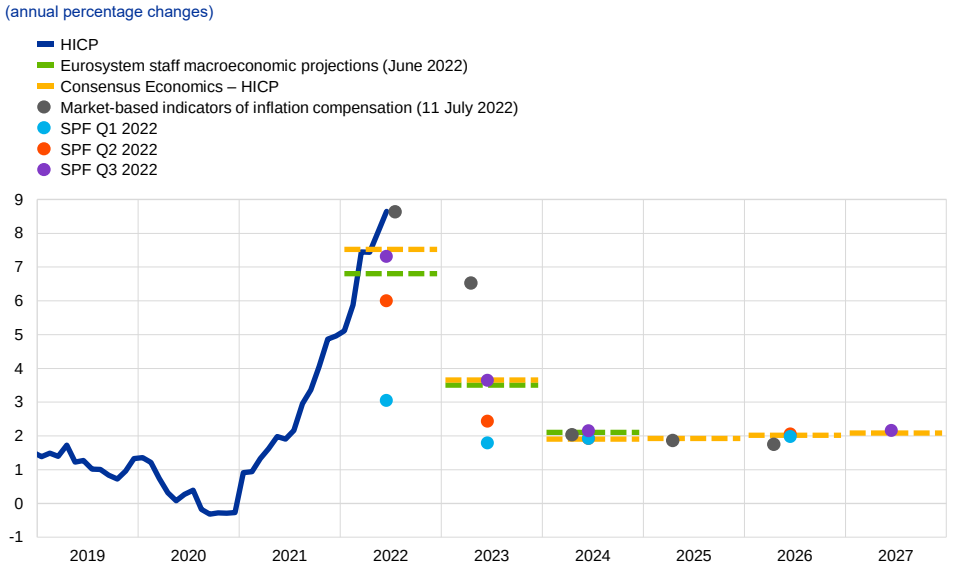
Sources: Eurostat and ECB calculations.
Note: The latest observations are for May 2022.

Survey-based measures of longer-term inflation expectations continued to increase gradually, reaching levels around or slightly above 2%, while market-based measures declined considerably following the June Governing Council meeting (Chart 11). According to the ECB's Survey of Professional Forecasters (SPF) for the third quarter of 2022, longer-term inflation expectations (for 2026) rose further to 2.2%, while those of Consensus Economics stood at 2.1%, up from 1.9% in the previous quarter. At the same time, both the median and the modal expectation in the SPF survey remained at 2.0%. In the latest ECB Survey of Monetary Analysts, long-term inflation expectations remained unchanged at 2.0%. The ECB Consumer Expectations Survey also showed that the longer-term (three years ahead) inflation expectations of households increased in June, after easing slightly in the previous two months. Market-based measures of inflation compensation (based on HICP excluding tobacco) now suggest that inflation may return to levels of around 2% over the course of 2024, rather than in late 2025 as forecast before the meeting. These measures started to decline in the immediate aftermath of the June Governing Council decision and continued to do so in the

weeks after the meeting, with signs of a slowdown in growth, together with tighter monetary policy, expected to ease inflationary pressures over the coming years. Longer-term measures of inflation compensation also continued to fall over the review period. The five-year forward inflation-linked swap rate five years ahead declined by 18 basis points to 2.08% on 20 July. Importantly, market-based measures of inflation compensation are not a direct measure of market participants' actual inflation expectations, since they contain inflation risk premia to compensate for inflation uncertainty. Currently, while much of the repricing in these measures is assessed to reflect lower inflation risk premia, their elevated volatility suggests that the uncertainty around market participants' inflation outlook remains high.

Chart 11

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



Sources: Eurostat, Refinitiv, Consensus Economics, Survey of Professional Forecasters, Eurosystem staff macroeconomic projections for the euro area and ECB calculations.
Notes: The market-based indicators of inflation compensation series is based on the one-year spot inflation rate, the one-year forward rate one year ahead, the one-year forward rate two years ahead, the one-year forward rate three years ahead and the one-year forward rate four years ahead. The latest observations for market-based indicators of inflation compensation are for 11 July 2022. The Survey of Professional Forecasters for the third quarter of 2022 was conducted between 1 and 5 July 2022. The cut-off date for the Consensus Economics forecasts was July 2022. The cut-off date for data included in the Eurosystem staff macroeconomic projections was 24 May 2022.

The risks to the inflation outlook continue to be on the upside and have intensified, particularly in the short term. The risks to the medium-term inflation outlook include a lasting reduction in the production capacity of our economy, persistently high energy and food prices, inflation expectations rising above our target and higher than anticipated wage rises. However, if demand were to weaken over the medium term, it would lower pressures on prices.

4 Financial market developments

Over the review period (9 June to 20 July 2022) financial market developments were dominated by the impact of the ongoing monetary policy tightening in advanced economies and by growing concerns about an imminent global slowdown. The euro short-term rate (€STR) forward curve exhibited high volatility. Long-term sovereign bond yields declined amid lower risk-free rates; sovereign spreads also narrowed, albeit displaying some volatility over the review period. Euro area equity markets recorded sizeable losses, while corporate bond spreads widened, reflecting expectations of tighter monetary policy and increasing likelihood of an economic slowdown. The euro continued to depreciate in trade-weighted terms.

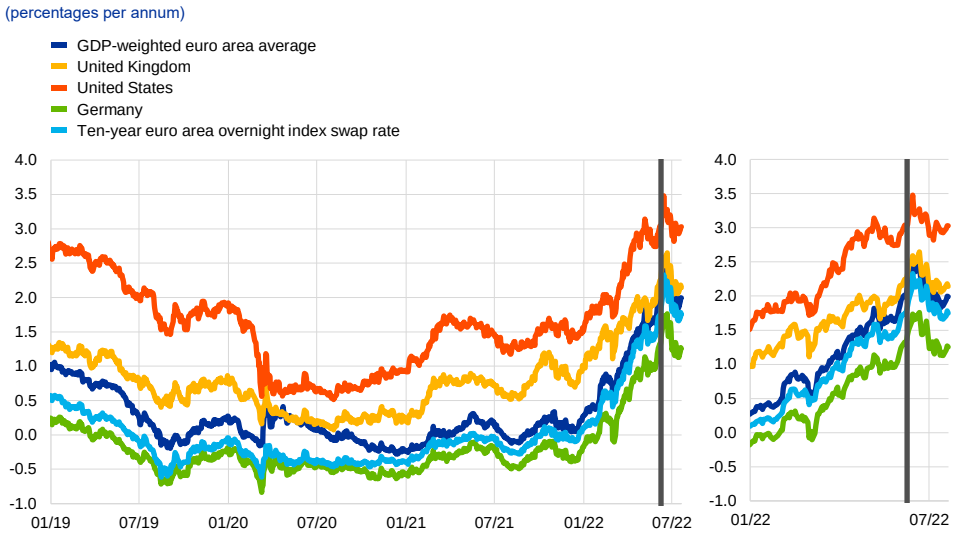
The euro area short-term risk-free rates showed high volatility during the review period, amid elevated uncertainty about the inflation outlook. Over the review period the €STR averaged -58 basis points, while excess liquidity decreased by approximately €180 billion to stand at €4,437 billion, reflecting repayments associated with previous operations in the third series of targeted longer-term refinancing operations (TLTRO III) amounting to €74 billion. At the same time, the overnight index swap (OIS) forward curve based on the benchmark €STR shifted upwards at the beginning of the review period, especially in response to higher than expected US Consumer Price Index in May and the impact of the ongoing monetary policy tightening in several global economies. The initial increase was reversed as market participants' concerns about an imminent global slowdown took centre stage. Towards the end of the review period the OIS moved upwards again, following a renewed higher than expected increase in the US Consumer Price Index in June. Overall, at the end of the review period the OIS forward curve tentatively priced in cumulative hikes amounting to around 150 basis points by the end of 2022 (up from 138 basis points priced in on 9 June).

Long-term euro area sovereign bond yields declined amid lower long-term risk-free rates and narrowing sovereign spreads (Chart 12). During the period under review the average GDP-weighted euro area and German ten-year sovereign bond yields decreased by 17 basis points and 18 basis points, to stand at 1.99% and 1.26% respectively. Ten-year US and UK government bond yields also decreased to stand at 3.03% and 2.14% respectively. Euro area long-term risk-free rates declined by around 11 basis points and sovereign spreads over risk-free rates also narrowed, albeit displaying some volatility over the review period. Notably, sovereign spreads fell tangibly following the Governing Council's announcement on 15 June to apply flexibility in reinvesting redemptions coming due in the PEPP portfolio, with a view to preserving the functioning of the transmission mechanism, and to accelerate the completion of the design of a new anti-fragmentation instrument. Over the last days of the review period euro area sovereign spreads reverted back to higher levels, amid the escalation of the political crisis in Italy. At the country level, the largest decline in spreads was observed for Greece, with the ten-year sovereign spread decreasing by 55 basis points over the review period. Declines in the ten-year sovereign spreads for Spain and France were less pronounced, amounting to 1.5 basis points and 4.5 basis points respectively. While the ten-year sovereign spread

for Italy also declined overall by 8 basis points, its volatility increased towards the end of the review period reflecting the political crisis in Italy.

Chart 12

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



Sources: Refinitiv and ECB calculations.
Notes: The vertical grey line denotes the start of the review period on 9 June 2022. The latest observations are for 20 July 2022.

Euro area corporate bond spreads widened as downside risks to corporate bond valuations increased. Spreads on euro area investment-grade non-financial corporate bonds increased by 17 basis points to stand at 87 basis points, while spreads on financial corporate bonds increased slightly further, rising by 20 basis points to stand at 113 basis points. Corporate bond markets valuations decreased as well, reflecting investors' pessimism about the economic outlook. In line with this, model estimates of corporate bond spreads suggest that the increases in corporate bond spreads since the Governing Council's meeting in June likely reflect increases in default risk and a further deterioration in investors' risk sentiment.

Euro area equity markets recorded further losses as tightening monetary policy and the deteriorating outlook for global growth weighed on equity prices. Equity prices of euro area banks and non-financial corporations decreased by 12.67% and 2.84% respectively, mainly reflecting a deterioration in risk sentiment and further downgrade in long-term earnings expectations. The larger decrease in bank equity prices likely reflect the fact that many large European corporations are global in nature, while banks are much more sensitive to domestic business cycles. These factors point to a higher likelihood of global economic slowdown perceived by market participants on the back of worse than expected outcomes in the latest economic data releases. Furthermore, this perception is exacerbated in the euro area by concerns about Russian threats of further cuts to gas supplies. In the United States, the decline in equity prices for bank and non-financial corporations was more contained, standing at 3.16% and 1.18% respectively

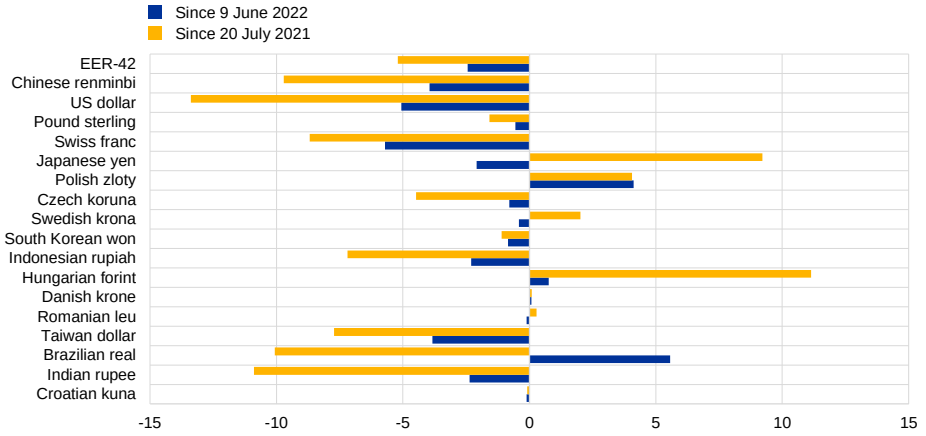
In foreign exchange markets, the euro continued to depreciate in trade-weighted terms, reflecting a weakening against most major currencies (Chart

13). Over the review period the nominal effective exchange rate of the euro, as measured against the currencies of 42 of the euro area's most important trading partners, weakened by 2.4%. This reflected a depreciation of the euro against the US dollar (by 5.1%) – amid expectations of a faster pace of monetary tightening by the US Federal Reserve System – as well as against the currencies of other major economies, including the Swiss franc (by 5.7%), the Japanese yen (2.1%) and to a lower extent the pound sterling (by 0.6%). The euro also weakened against the currencies of most emerging market economies, including the Chinese renminbi (by 3.9%), but appreciated vis-à-vis the Polish zloty (by 4.1%) and the Hungarian forint (0.8%).

Chart 13

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 20 July 2022.

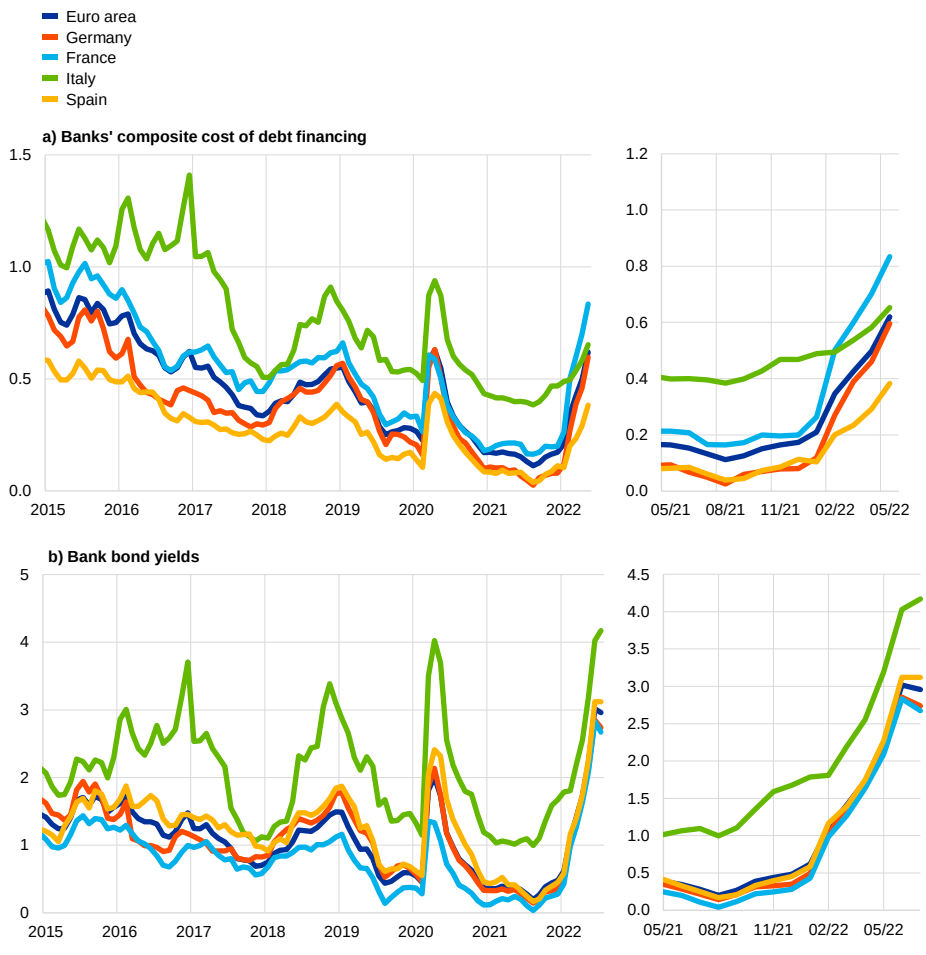
5 Financing conditions and credit developments

Bank funding and lending conditions continued to tighten in May, and bank lending rates for firms and households increased further, reflecting the rising trend of market rates. The growth of loans to firms and households nonetheless remained robust. Over the period from 9 June to 20 July the cost of both market-based debt financing and equity for firms increased substantially. The most recent bank lending survey indicates that credit standards on loans to firms and to households for house purchase tightened considerably in the second quarter of 2022, as banks are becoming more concerned about the risks faced by their customers in the current uncertain environment. Money creation normalised further in May amid high energy prices, which compressed disposable income, and lower Eurosystem asset purchases.

The funding costs of euro area banks continued to increase in May, as market rates rose further. The composite cost of euro area banks' debt financing in May continued the upward trend that had started in August 2021, and subsequently increased by about 50 basis points (Chart 14, panel a). This was mainly attributable to rising yields on bank bonds (Chart 14, panel b), as rates on deposits, which account for a large share of euro area banks' funding, have so far remained close to their historical lows. Banks are still able to apply negative rates to a significant share of firms' and households' deposits. More recently, bond yields have stabilised as worsening perceptions of the economic outlook have put downward pressure on risk-free rates.

Chart 14

Composite bank funding rates in selected euro area countries



Sources: ECB, IHS Markit iBoxx indices and ECB calculations.
Notes: Composite bank funding rates are a weighted average of the composite cost of deposits and unsecured market-based debt financing. The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their respective outstanding amounts. Bank bond yields are monthly averages for senior-tranche bonds. The latest observations are for May 2022 for composite bank funding rates and 20 July 2022 for bank bond yields.

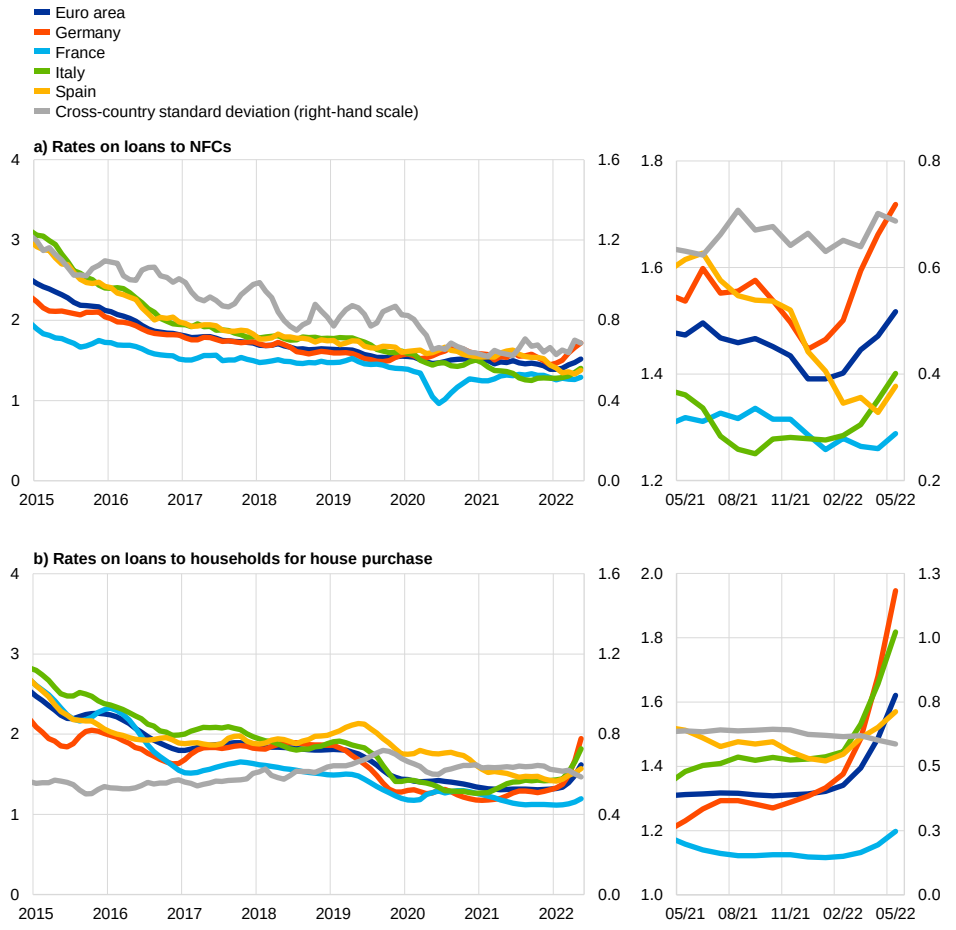
Bank lending rates for firms and households increased further in May, as mortgage rates recorded the largest monthly change in two decades. The sharp increase since the beginning of 2022 in risk-free rates and in euro area government bond yields has pushed up lending rates (Chart 15). In May the composite bank lending rate for loans to households for house purchase continued to accelerate, standing at 1.78% after a monthly increase of 17 basis points and an increase of 14 basis points in April. Bank lending rates for loans to non-financial corporations (NFCs) increased more moderately, by 4 basis points, to 1.55%. The spread between bank lending rates on very small loans and on large loans remained broadly unchanged at pre-pandemic levels, suggesting that bank-based financing conditions for small and medium-sized enterprises have not worsened in relative terms. Moreover, the cross-country dispersion of lending rates to firms and households remained contained (Chart 15, panels a and b). For the coming months, available evidence points to further lending rate increases. This is suggested, for example, by

the marked increase recorded by diffusion indices. These indices, which are computed from micro data, measure the net number of banks that are raising lending rates for firms and tend to have leading indicator properties. In addition, banks have continued to tighten their credit standards on loans to firms and households, as indicated by the euro area bank lending survey, which signals a contraction in credit supply in the coming months that may imply higher lending rates.

Chart 15

Composite bank lending rates for NFCs and households in selected countries

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



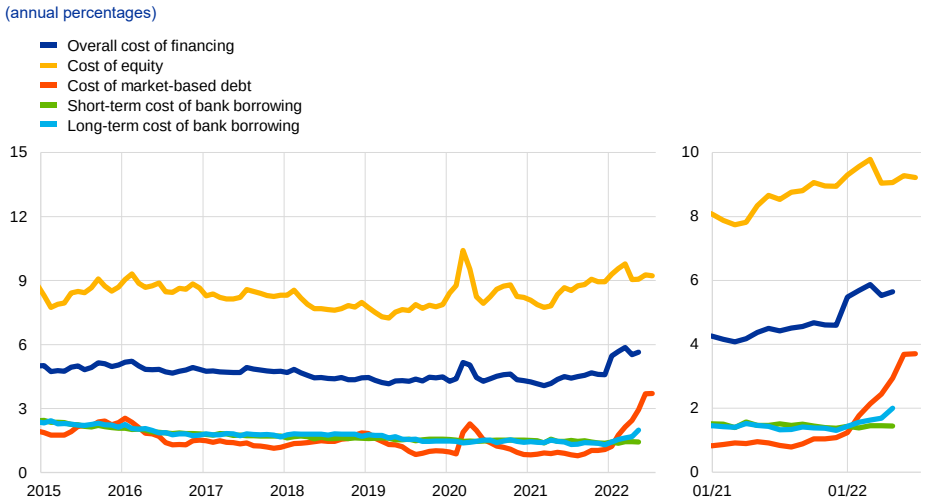
Source: ECB.
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observations are for May 2022.

Over the period from 9 June to 20 July 2022 the cost of both market-based debt issuance and equity financing for NFCs increased substantially. Due to lags in the data available for the cost of bank borrowing, the overall cost of financing for NFCs, comprising the cost of bank borrowing, the cost of market-based debt and the cost of equity, can be calculated only up to May 2022, when it increased to 5.7% from 5.5% in April. This was the result of an increase in both the cost of market-based debt and the cost of long-term bank borrowing (Chart 16). The May 2022 data were close to the peak recorded earlier in the year and significantly above the levels seen in the previous two years. In the period since 9 June, both the cost of market-

based debt and the cost of equity have continued to increase, by around 50 and 30 basis points respectively. The slight decline in the risk-free rate during this period was more than compensated by a significant increase in corporate bond spreads, especially in the high-yield segment. In the same vein, the increase in the cost of equity is accounted for by an increase in the equity risk premium as the deterioration in the euro area and global economic outlook percolated into market risk perceptions.

Chart 16

Nominal cost of external financing for euro area NFCs, broken down by components



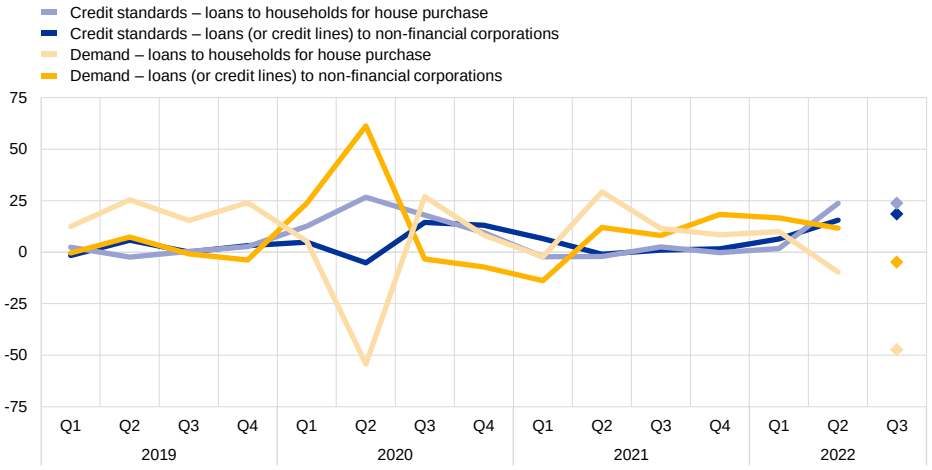
Sources: ECB and ECB estimates, Eurostat, Dealogic, Merrill Lynch, Bloomberg and Thomson Reuters.
Notes: The overall cost of financing for NFCs is calculated as a weighted average of the cost of borrowing from banks, market-based debt and equity, based on their respective outstanding amounts. The latest observations are for 20 July 2022 for the cost of market-based debt (monthly average of daily data), 15 July 2022 for the cost of equity (weekly data) and May 2022 for the cost of borrowing from banks (monthly data).

According to the July 2022 euro area bank lending survey**, credit standards for loans to firms and for loans to households for house purchase became substantially tighter in the second quarter of 2022 (Chart 17).** Against the background of the highly uncertain economic outlook, continuing supply chain disruptions and high energy prices, the main factors underlying the tightening of credit standards were perceptions of increased risk and reduced risk tolerance. With monetary policy becoming less accommodative, euro area banks also reported that their cost of funds and balance sheet constraints had contributed to the tightening of credit standards. The tightening of credit standards for housing loans was considerably stronger than in the previous quarter and above the historical average. For the third quarter of 2022, banks expect a continued tightening of credit standards on loans to firms and loans to households for house purchase.

Chart 17

Changes in credit standards and net demand for loans to NFCs and loans to households for house purchase

(net percentages of banks reporting a tightening of credit standards or an increase in loan demand)



Source: Euro area bank lending survey.
Notes: For survey questions on credit standards, "net percentages" are defined as the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably". For survey questions on demand for loans, "net percentages" are defined as the difference between the sum of the percentages of banks responding "increased considerably" and "increased somewhat" and the sum of the percentages of banks responding "decreased somewhat" and "decreased considerably". The diamonds denote expectations reported by banks in the most recent round of the survey for the following quarter. The latest observations are for the second quarter of 2022.

The demand for housing loans decreased in the second quarter of 2022, while loan demand from firms continued to increase but is expected to fall in the third quarter. Banks reported that firms' loan demand was supported by the need for working capital financing, against the background of supply chain bottlenecks and rising input costs. By contrast, demand for loans to finance fixed investment made a significant negative contribution to firms' overall demand for loans, indicating that firms may be postponing their investment in the current uncertain environment. In addition, the reported positive contribution of the general level of interest rates to loan demand was more moderate than in the previous quarter. The decrease in demand for housing loans was reported to stem from lower consumer confidence and the increase in the general level of interest rates. For the third quarter of 2022, banks expect a decrease in firms' demand for loans and a more pronounced decrease in the demand for housing loans than in the second quarter.

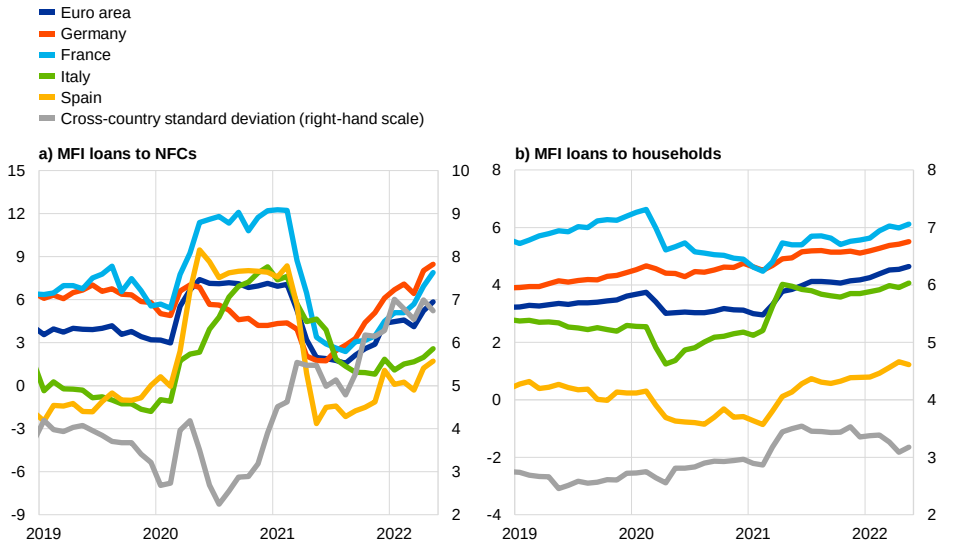
The survey also suggests that banks' access to wholesale funding has deteriorated. Euro area banks reported that their access to money markets, securitisation and particularly funding via the issuance of debt securities deteriorated in the second quarter of 2022. This reflects the tightening of financial market conditions for banks in the context of the ongoing monetary policy normalisation. By contrast, access to retail funding improved slightly in the second quarter. For the third quarter, banks expect a slight deterioration in access to retail funding and a continued deterioration in access to market-based funding, in particular debt securities funding.

The growth of loans to firms and households has remained robust. The annual growth rate of loans to NFCs accelerated to 5.8% in May, from 5.2% in April and 4.1% in March (Chart 18, panel a). This once again reflected a large base effect, following a month-on-month reduction in loan volumes in both April and May 2021. Shorter-term loans made a large contribution, given the persistence of supply chain bottlenecks and higher input costs, both of which raise firms' working capital needs. The resilience of loan growth also reflects to some extent a move away from the issuance of debt securities, with market-based funding conditions having tightened more sharply than bank-based funding conditions. The annual growth rate of loans to households remained broadly unchanged at 4.6% in May (Chart 18, panel b), supported by robust lending for house purchase and a recovery in consumer loans as spending opportunities improved with the reopening of the economy. As indicated by the ECB's Consumer Expectations Survey, this could be also related to households' expectations of tighter access to credit and higher nominal borrowing costs next year.

Chart 18

MFI loans in selected euro area countries

(annual percentage changes; standard deviation)



Source: ECB.
Notes: Loans from monetary financial institutions (MFIs) 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 May 2022.

The pace of deposit accumulation continued to moderate in May from the high levels seen during the pandemic (Chart 19). The annual growth rate of overnight deposits decreased to 7.7% in May, from 8.1% in April. The slowdown was observed for the overnight deposits of both firms and households, as higher costs for food and energy have reduced firms' cash buffers and limited the capacity of households to increase savings.[6] At the same time, high uncertainty related to the war in Ukraine and the deteriorating economic outlook continued to support firms and households' preference for liquidity. Against this background, inflows into deposits remained

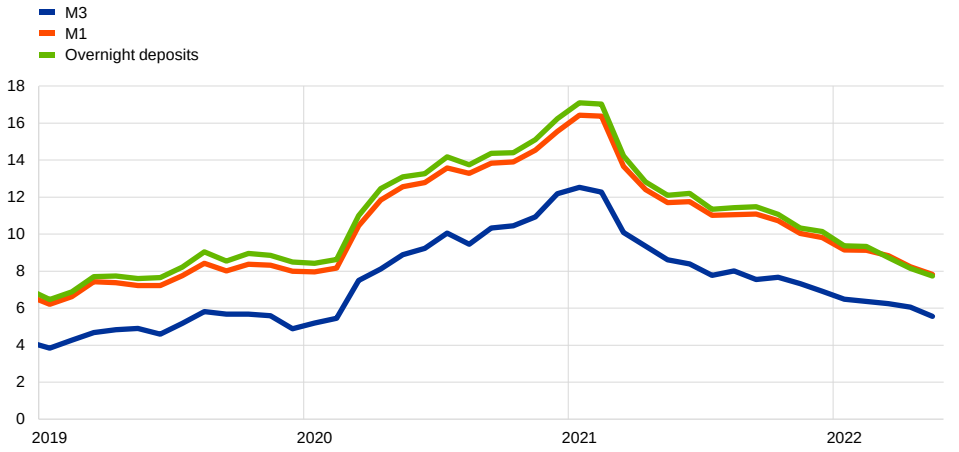
[6] See the box entitled "Household saving during the COVID-19 pandemic and implications for the recovery of consumption" in this issue of the Economic Bulletin.

sizeable in May, owing to an increase for households. Growth in the deposit holdings of firms and households has varied across countries, reflecting differences in their liquidity needs and national fiscal support measures.

Chart 19

M3, M1 and overnight deposits

(annual growth rate, adjusted for seasonal and calendar effects)



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

Broad money (M3) growth returned to its long-term average in May. The annual growth rate of M3 continued its downward trend in May, declining to 5.6% from 6.1% in April (Chart 19). This annual rate is in line with the average since 1999, and shorter-term dynamics point to a stronger moderation. On the components side, the main driver of M3 growth continued to be the narrow aggregate M1, largely reflecting developments in overnight deposits. On the counterparts side, credit to the private sector continued to support annual M3 growth, while the positive contribution from the Eurosystem's purchases of government securities under the asset purchase programme and the pandemic emergency purchase programme decreased further, as these purchases are gradually being phased out. At the same time, the increase in net monetary outflows to the rest of the world dampened money growth, reflecting two main developments. First, the higher energy prices exerted a negative impact on deposit dynamics and the euro area trade balance. Second, the current uncertainty and yield differentials with several countries outside the euro area has made investing in euro area assets less attractive to global investors.

Boxes

1 Trade flows with Russia since the start of its invasion of Ukraine

Prepared by Maria Grazia Attinasi, Julia Doleschel, Rinalds Gerinovics, Vanessa Gunnella and Michele Mancini

War-related disruptions to the production and trade of energy and agri-food commodities have raised concerns about global energy and food supply security. Russia is a top exporter of energy commodities and, like Ukraine, also a key global exporter of agricultural commodities. This box first takes stock of recent developments in the trade flows from war-affected areas since the onset of the conflict. Flows of energy and agri-food commodities are tracked using marine freight data and gas flow data, which provide a timelier assessment of recent developments than customs trade data. [1] The box then examines the evolution of Russia's imports since the start of the war. However, as Russia stopped releasing official customs trade data as of end-February 2022, the box looks at customs data on the exports of a selection of Russia's trading partners in order to approximate Russia's imports. Finally, these data are used to provide a preliminary empirical assessment of the effects of sanctions on Russia´s trade flows.

The quantity of Russia's marine oil exports has recovered to close to pre-invasion levels amid historically high discounts and some diversion of flows towards large Asian countries. Following Russia's invasion of Ukraine, weekly oil shipments from Russia declined (-15%) at end-March 2022 compared with the previous year's level, amid war-related disruptions and the voluntary withdrawal of some energy companies and shipping merchants. This decline was especially pronounced for the United States (-60%) and the European Union (-35%). The price of Russian oil (Ural grade) fell at the start of the war and is currently selling at a steep discount vis-à-vis Brent (-30%) (Chart A). As a result, and amid some volatility, in the first week of July oil flows stood close to their 2021 average level despite having fallen significantly in June. Russia's share in total oil imports by China and India increased to 11% and 14% respectively at end-June, up from 6% and 2% before the war. By contrast, seaborne exports to the United States and the United Kingdom dried up shortly after the start of the war, as both countries banned oil imports from Russia, while the EU scaled back oil imports and is sourcing more oil from the Americas and Africa (Chart B). [2]

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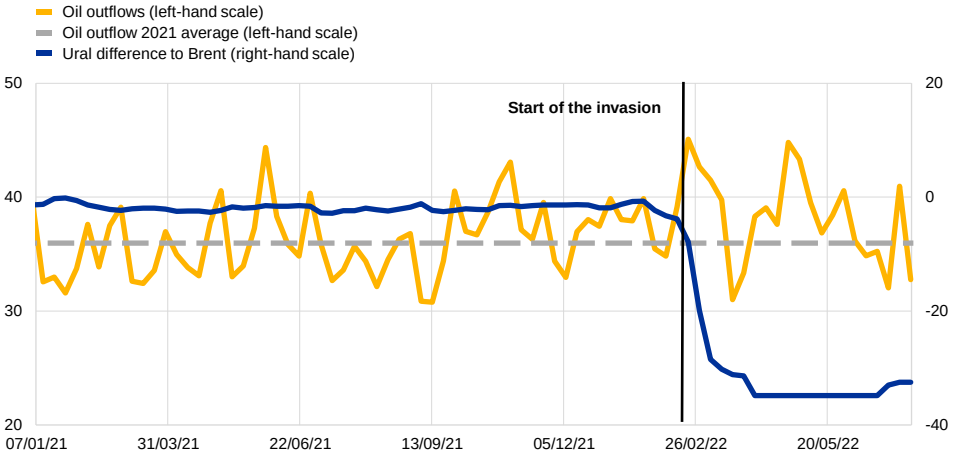
1 Marine vessel movement data is collected through an automatic identification system which records and transmits vessel locations for tracking purposes and is provided by Refinitiv, whereas gas flow data is provided by Bloomberg.

2 Following the sixth package of EU sanctions, the ban of oil imports covering 90% of total EU imports from Russia (with a temporary exemption of pipeline flows) is foreseen to take full effect by end-2022. However, some major European energy companies have already suspended operations and purchases of oil and oil products in the aftermath of the invasion. The EU has also announced a new maritime service ban prohibiting EU companies form offering insurance and finance to vessels carrying Russian oil, making exports to third countries more difficult.

Chart A

Russian marine oil export volumes and prices relative to Brent oil

(left-hand scale: millions of barrels per week; right-hand scale: USD difference)

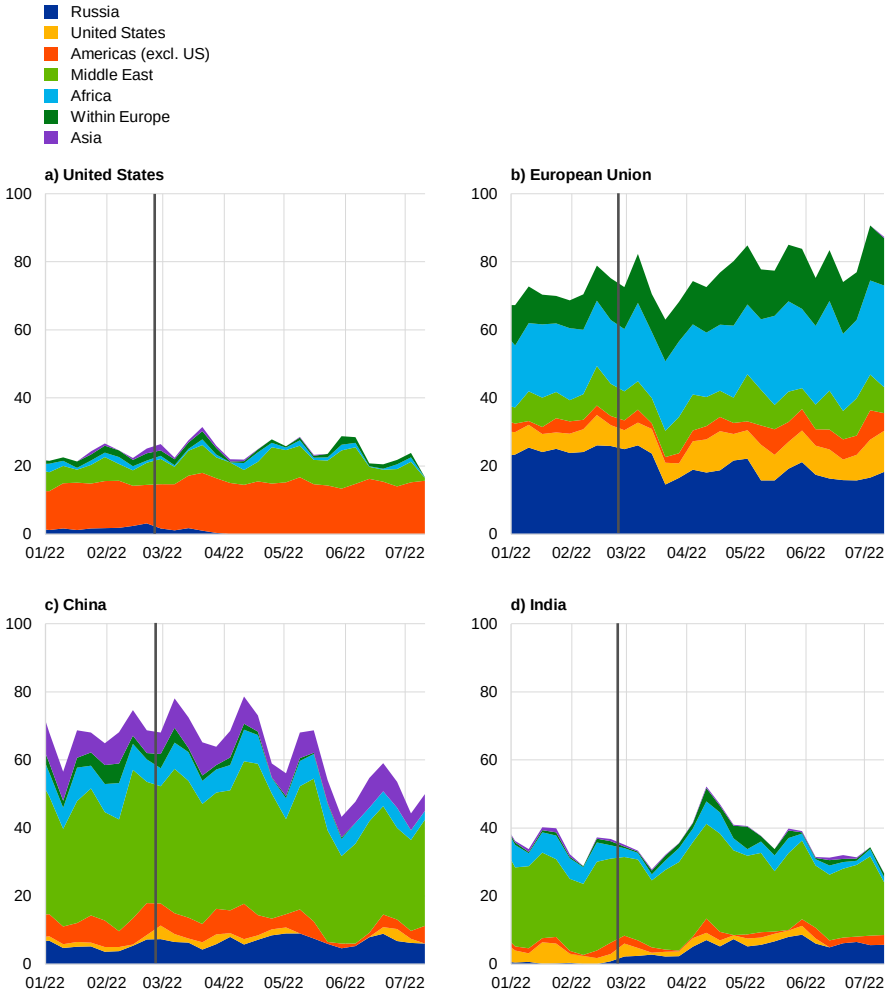


Sources: Refinitiv and ECB staff calculations.
Notes: The latest weekly observations are for 15 July 2022. Marine oil includes crude and fuel oil.

Chart B

Seaborne oil imports by source

(millions of barrels per week)



Sources: Refinitiv and ECB staff calculations.
Notes: The latest observations are for the week of 15 July 2022. For the EU, Europe includes intra-EU imports but excludes domestic flows. In all of the charts Europe refers to geographical Europe, excluding Russia. Marine oil includes crude and fuel oil.

Russian gas exports to the EU were also significantly reduced, standing at 35% of their previous year's level in the last week of June 2022 (Chart C). At the turn of the year, Russian gas pipeline flows via central and eastern Europe dropped substantially amid the tensions with Ukraine. With the start of the war, they remained volatile until the recent complete termination of gas flows to Bulgaria, Denmark, Finland, Lithuania, the Netherlands and Poland and voluntary reductions by, or partial cut-offs towards, Austria, the Czech Republic, France, Germany, Italy and Slovakia. As a result, total EU gas imports from Russia in the final week of June decreased by 65% compared with last year. [3] Increasing imports of liquefied natural gas (LNG)[4] and non-Russian pipeline gas (Chart C) partially compensated for the

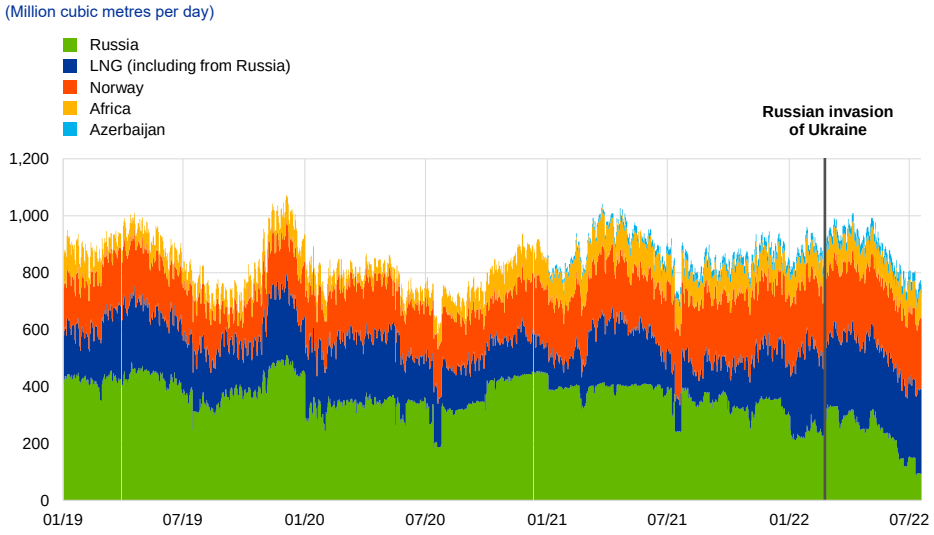
[3] For the effects of the war on euro area energy markets see the box entitled "The impact of the war in Ukraine on euro area energy markets", *Economic Bulletin*, Issue 4, ECB, 2022.

[4] Marine freight data by Refinitiv show that Russian LNG shipments constitute about a fifth of extra-EU import volumes of LNG with the share remaining broadly unchanged after the conflict.

shortfall, but risks for EU gas provision remain on the horizon[5] as the level of gas storage in the EU stood below the 2015-20 average in early July.[6] On the Russian side, gas is being diverted to Asian routes.

Chart C

Gas exports to the EU by source



Sources: Bloomberg and ECB staff calculations.
Notes: The latest observations are for 19 July 2022. The period considered also includes a complete suspension of gas flows from Russia via Nord Stream 1 related to annual maintenance works from 14 July 2022.

Seaborne exports of agricultural commodities from Russia fell at the start of the invasion and those from Ukraine have come to a halt. Globally, Russia and Ukraine jointly accounted for 24% of wheat and 14% of maize exports in 2021.[7] Since the start of the war, Russia's seaborne exports of wheat have experienced significant volatility, reflecting disruptions in transportation logistics, but also a counteracting move from Russia whereby its own exports of some agri-food commodities to former Soviet states in the Eurasian Economic Union were temporarily restricted in order to ensure the food security of the Russian Federation.[8] At the end of June, Russia's weekly seaborne exports of wheat stood at 40% of the previous year's level, amid a redirection of more shipments towards Egypt and Turkey.[9] Until recently, with the complete blockade of ports in the Black Sea, grain shipments from Ukraine had come to a halt, aggravating global food security concerns. However, to help ease this resulting global pressure, Ukraine and Russia have agreed to a set-up of safe passage for grain shipments from the Ukrainian

5 For a quantification of the effects of gas shortages, see Borin, A., Conteduca, F. P., Di Stefano, E., Gunnella, V., Mancini, M. and Panon, L., "Quantitative assessment of the economic impact of the trade disruptions following the Russian invasion of Ukraine", *Occasional Paper Series*, Banca d'Italia, No 700, 2022.

6 See "European natural gas imports", Bruegel, 20 July 2022.

7 Based on customs data provided by the Trade Data Monitor.

8 See "Russia temporarily bans grain exports to ex-Soviet countries", Reuters, 14 March 2022 and "Russian Federation bans exports of wheat, maize and other cereals to Armenia, Kazakhstan and Kyrgyzstan until 30 June 2022", Food Price Monitoring and Analysis, 15 March 2022.

9 However, favourable weather conditions for the current crop harvesting season are expected to lead to an increase in grain shipments.

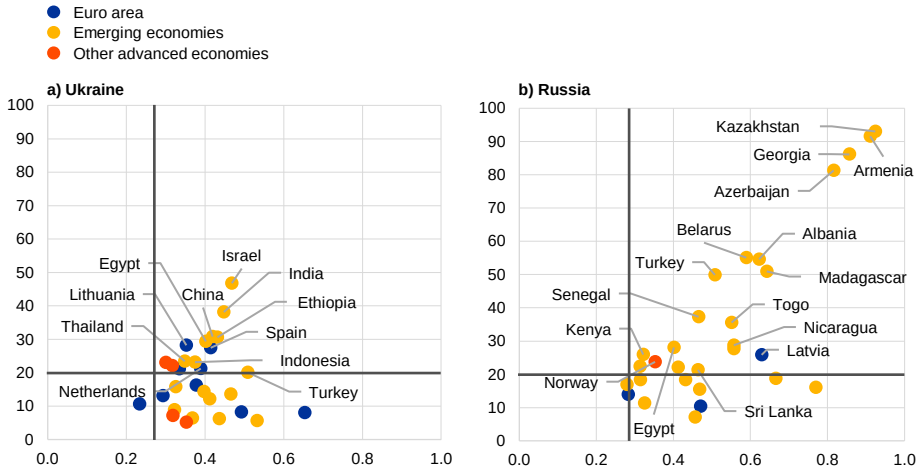
ports that should significantly relieve the food security concerns of emerging market economies.[10]

Food security may be at risk in countries that are most dependent on Russian and Ukrainian food exports, given their limited ability to diversify suppliers in the short term. Available nominal customs trade data on global imports of agri-food products (fertilisers, soybean, maize and wheat) point to some heterogeneity across countries and regions in terms of their exposure to imports from Russia and Ukraine (Chart D). Emerging market economies, in particular countries in central Asia and Africa, are among the regions most dependent on Russia and Ukraine for their grain supply. Moreover, an index of export market diversification suggests that higher import exposure tends to be associated with a high concentration of exporters, meaning that the ability of these countries to find alternative suppliers might be limited in the short term.[11] The recently announced ban on wheat exports from India, the world's second largest wheat producer, may further exacerbate the global food supply situation which is already curtailed by the war.[12] While the Indian ban does not affect euro area imports substantially, it contributes to an all-time high in global wheat prices.[13]

Chart D

Grain market concentration and import dependency

(y-axis: share of imports from Ukraine and Russia; x-axis: Herfindahl–Hirschman index, 2021)



Sources: Trade Data Monitor and ECB staff calculations.
Notes: The Hirschman-Herfindahl index is a measure of the dispersion of trade value across an importer's partners. A country whose imports are concentrated in very few markets will have an index value close to 1. Similarly, a country with a perfectly diversified trade portfolio will have an index close to zero. A minimum threshold of 5% import dependency on Russia has been applied. The region to the right of the vertical line and above the horizontal line can be considered to reflect a high overall concentration of import partners and high dependence on Russia or Ukraine for imports.

10 See "Russia and Ukraine sign grain deal to avert global food crisis" Financial Times, 22 July 2022.

11 The elevated price of fertilisers may threaten food security by affecting crop production in 2022 and 2023. Russian invasion of Ukraine has only exacerbated the already limited supply of fertilisers, whose prices started to rose already in 2021 amid high energy prices. See: "Impacts and Repercussions of Price Increases on the Global Fertilizer Market", USDA Foreign Agricultural Service, 30 June 2022

12 See "India Bans Wheat Exports Due to Domestic Supply Concerns", USDA Foreign Agricultural Service, 19 May 2022.

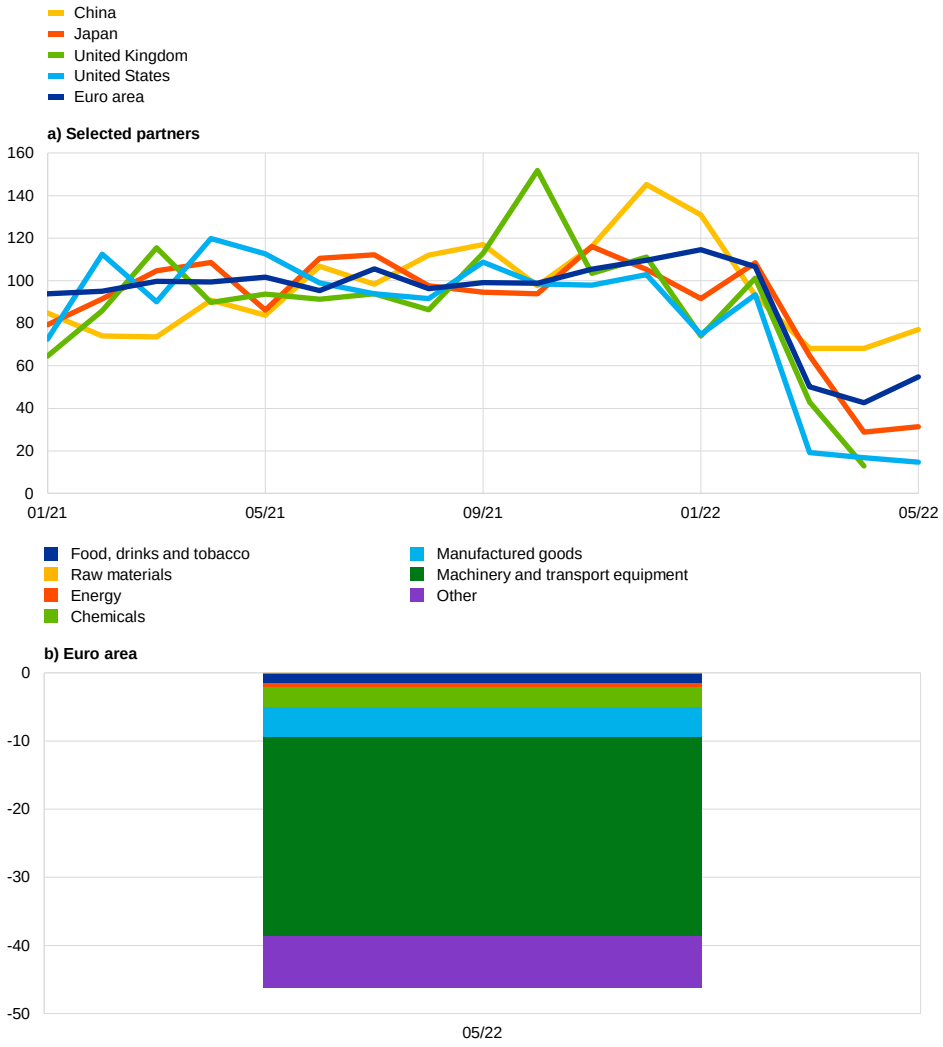
13 See the box entitled "The surge in euro area food inflation and the impact of the Russia-Ukraine war", *Economic Bulletin*, Issue 4, ECB, 2022.

Overall, Russia's merchandise imports have significantly dropped since the start of the war, especially from sanctioning countries. Customs data show that exports to Russia have fallen significantly compared with 2021 levels, as Russia's trade has been disrupted owing to the adverse macroeconomic and transport-related consequences of the war (Chart E, panel a). The contraction is especially pronounced for the countries imposing sanctions (-85% for the United States and -45% for the euro area compared with the 2021 level as of May 2022), though exports from non-sanctioning countries also remain below their 2021 level (e.g. -23% in the case of China).

Chart E

Exports to Russia

(panel a): index, 2021 = 100; panel b): euro area year-on-year percentage change in values)



Sources: Trade Data Monitor, Eurostat and ECB staff calculations.
Notes: The latest observations in panel a) are for May 2022 (China, Japan, United States, and the euro area) and April 2022 (United Kingdom). Panel b) shows euro area exports to Russia by sector.

For the euro area, exports to Russia of goods subject to sanctions (e.g. machinery and transport equipment) are driving the overall exports contraction. Since the Russian invasion of Ukraine, the EU has issued six packages

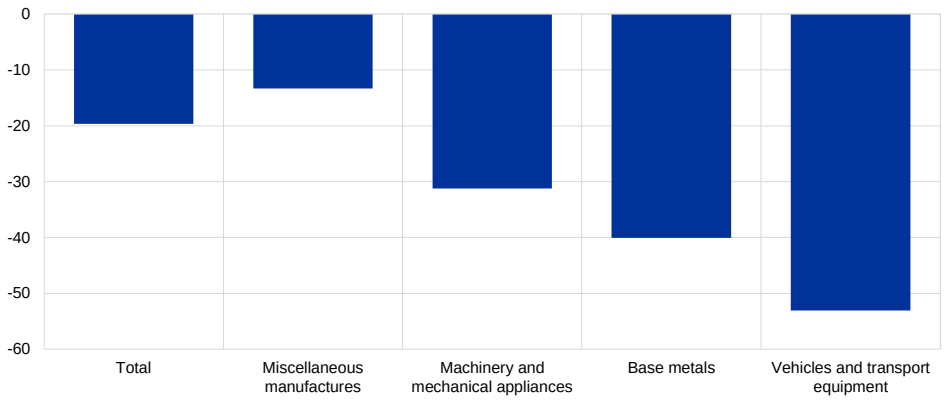
of sanctions against Russia including sanctions on individuals and restrictions on media, transport and financial sectors, and trade.[14] Initial trade measures targeted military-related goods and products that serve Russia's military, transport and technological enhancement. More recent restrictions focus on luxury goods (both imported and exported) and other imported goods that generate revenues for Russia, including coal and oil. Looking at euro area trade flows with Russia (Chart E, panel b), machinery and transport equipment account for most of the overall fall.

An empirical analysis suggests that the first round of sanctions in March 2022 reduced Russian imports by 15%, with sanctioned products bearing the brunt. An empirical analysis − using a difference-in-differences approach based on a sample of 59 Russian trading partner countries covering around 86% of total Russian imports in 2021 − confirms that in March 2022, compared with the previous month when sanctions were not in force, the Russian imports from sanctioning countries were 20 percentage points lower than those from non-sanctioning countries. A breakdown across selected product groups suggests that Russia's access to goods relevant for producing military equipment, such as vehicles and machinery and mechanical appliances, was impeded significantly in relative terms (Chart F). Overall, this corresponds to a drop of about 15% in total Russian imports in March due to the first round of sanctions.

Chart F

Effect of sanctions on Russian imports

(difference in differences, percentage point effect on March 2022 vs February 2022)



Sources: Trade Data Monitor and ECB staff calculations.
Notes: The difference-in-differences is obtained by subtracting from the change in Russian imports from sanctioning countries between March and February 2022 the change in Russian imports from non-sanctioning countries. For exporting countries with limited data availability, export data is at Harmonised System 2-digit level. Non-sanctioning countries are Argentina, Brazil, China, Costa Rica, Hong Kong, Iceland, India, Indonesia, Israel, Kazakhstan, Malaysia, Mexico, Norway, Peru, Philippines, Singapore, South Africa, Thailand and Turkey. Sanctioning countries are Australia, Austria, Belgium, Brunei Darussalam, Bulgaria, Canada, Chile, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, South Korea, Latvia, Lithuania, Luxembourg, Malta, Morocco, Netherlands, New Zealand, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, United Kingdom and United States. Selected sectors account for approximately 60% of total Russian imports.

[14] For further details see "EU restrictive measures against Russia over Ukraine (since 2014)", European Council.

2 Wage share dynamics and second-round effects on inflation after energy price surges in the 1970s and today

Prepared by Niccolò Battistini, Helen Grapow, Elke Hahn and Michel Soudan

This box reviews wage share dynamics and potential second-round effects on inflation at times of energy price increases. In a net energy-importing region, such as the euro area, increasing energy inflation induces a deterioration in the terms of trade (the ratio of export prices to import prices), thereby eroding the income used to remunerate domestic factors of production. The wage share (the share of domestic income allocated to labour) can provide an indication of the ability of workers to resist such real income losses and the potential for second-round effects on prices.[1] This box explores wage share and inflation dynamics in the euro area after the energy price increase observed since the second quarter of 2021. First, the current episode is compared to another well-known episode featuring a large energy price shock, namely the oil embargo imposed by the Organization of the Petroleum Exporting Countries (OPEC) in October 1973. Second, the developments in the euro area are compared with those in the United States. Finally, a model-based analysis evaluates how the transmission of energy price increases to inflation, and in particular the emergence of second-round effects, has changed compared to the 1970s.

The wage share reflects the interplay between real wages, productivity and the terms of trade. From an accounting perspective, the wage share rises when there is an increase in real consumer wages (measured by nominal wages per employed person divided by the private consumption deflator), a decline in labour productivity or a deterioration in the terms of trade (proxied by the GDP deflator-to-private consumption deflator ratio).[2] To the extent that higher import prices are passed through to consumer prices, an energy-induced decline in the terms of trade dents real consumer wages, potentially triggering pressures for wage rises to protect workers' purchasing power. Hence, the impact of energy price hikes on the wage share crucially depends on the response of labour income. In turn, all other things

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1 The wage share (measured as nominal wages divided by nominal GDP) provides a good proxy for firms' real marginal costs in the New Keynesian Phillips curve and is thus a quantitatively important determinant of inflation. For more on the relationship between the wage share and inflation dynamics, see Galí, J. and Gertler, M., "Inflation dynamics: A structural econometric analysis", *Journal of Monetary Economics*, Vol. 44, No 2, October 1999, pp. 195-222.

2 Formally, the wage share can be decomposed as follows:

$$\frac{W}{Y} = \frac{W}{E\,P^C} \cdot \frac{P^C}{P^Y} \cdot \frac{E}{Y^r}$$

where W denotes compensation of employees (adjusted by the employed people-to-employee ratio), Y nominal GDP, E employed people, P^C the private consumption deflator, P^Y the GDP deflator and Y^r real GDP. Hence, the wage share on the left-hand side of the equation corresponds to the product of the three ratios on the right-hand side of the equation, i.e. real consumer wages, the inverse of the terms of trade and the inverse of labour productivity. For a similar use of the private consumption deflator-to-GDP deflator ratio as a proxy for the terms of trade, see, for example, the article entitled "Energy prices and private consumption: what are the channels?", *Economic Bulletin*, Issue 3, ECB, 2022.

being equal, the response of labour income to energy price hikes will affect unit labour costs and the GDP deflator.

The recent deterioration in the terms of trade has had limited implications for labour income and the GDP deflator relative to the experience in the 1970s. The increase in energy prices caused a strong decline in the euro area terms of trade between the second quarter of 2021 and the first quarter of 2022, inducing the largest four-quarter loss in 40 years.[3] However, this income loss was only about a third of the drop triggered by the OPEC oil embargo between the fourth quarter of 1973 and the third quarter of 1974.[4] Another difference is that real consumer wages declined after the recent rise in energy inflation, while they strongly increased in the 1970s.[5] Overall, despite some upward pressures from declining productivity, smaller terms-of-trade losses and lower real wages resulted in a slight decline in the wage share, in contrast to a sizeable increase after the OPEC oil embargo (Chart A, panel a). These dynamics reverberated in the profile of the GDP deflator, which grew moderately and through different channels in the recent period (mainly through unit profits and taxes, rather than unit labour costs) compared with the 1970s (Chart A, panel b).

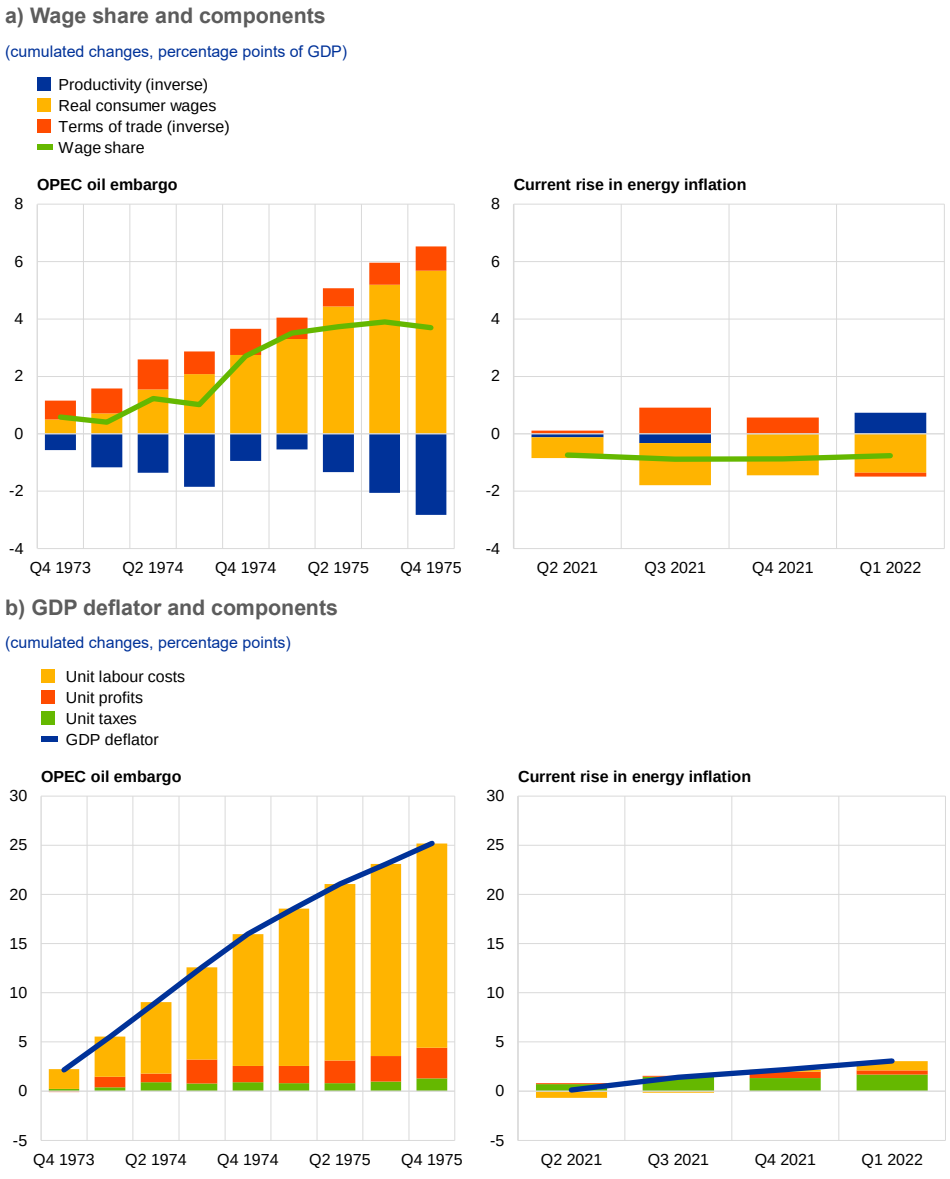
3 The income effect of the terms of trade is calculated by weighting export and import price changes by their respective values as percentage shares of GDP. On this basis, the terms-of-trade decline curbed domestic income by 1.6 percentage points of GDP between the second quarter of 2021 and the first quarter of 2022. Note that this loss refers to the total terms-of-trade effect on income, including both the hike in energy prices and other components (e.g. exchange rate depreciation). For the methodology, see the box entitled "Implications of the terms-of-trade deterioration for real income and the current account", *Economic Bulletin*, Issue 3, ECB, 2022.

4 Euro area data before 1995 are drawn from the area-wide model database. See Fagan, G., Henry, J. and Mestre, R., "An area-wide model (AWM) for the euro area", *Working Paper Series*, No 42, ECB, January 2001.

5 Note that recent wage dynamics may be distorted by the use by several euro area governments of job retention schemes to mitigate the consequences of the coronavirus (COVID-19) crisis for workers' income.

Chart A

Wage share and GDP deflator in the euro area: 1970s versus today



Sources: Eurostat, ECB area-wide model database and ECB staff calculations.
Notes: Productivity is measured as real GDP divided by employed people. Real consumer wages are defined as compensation of employees (adjusted by the employed people-to-employee ratio), divided by employed people and the private consumption deflator. The terms of trade are proxied by the ratio of the GDP deflator to the private consumption deflator.

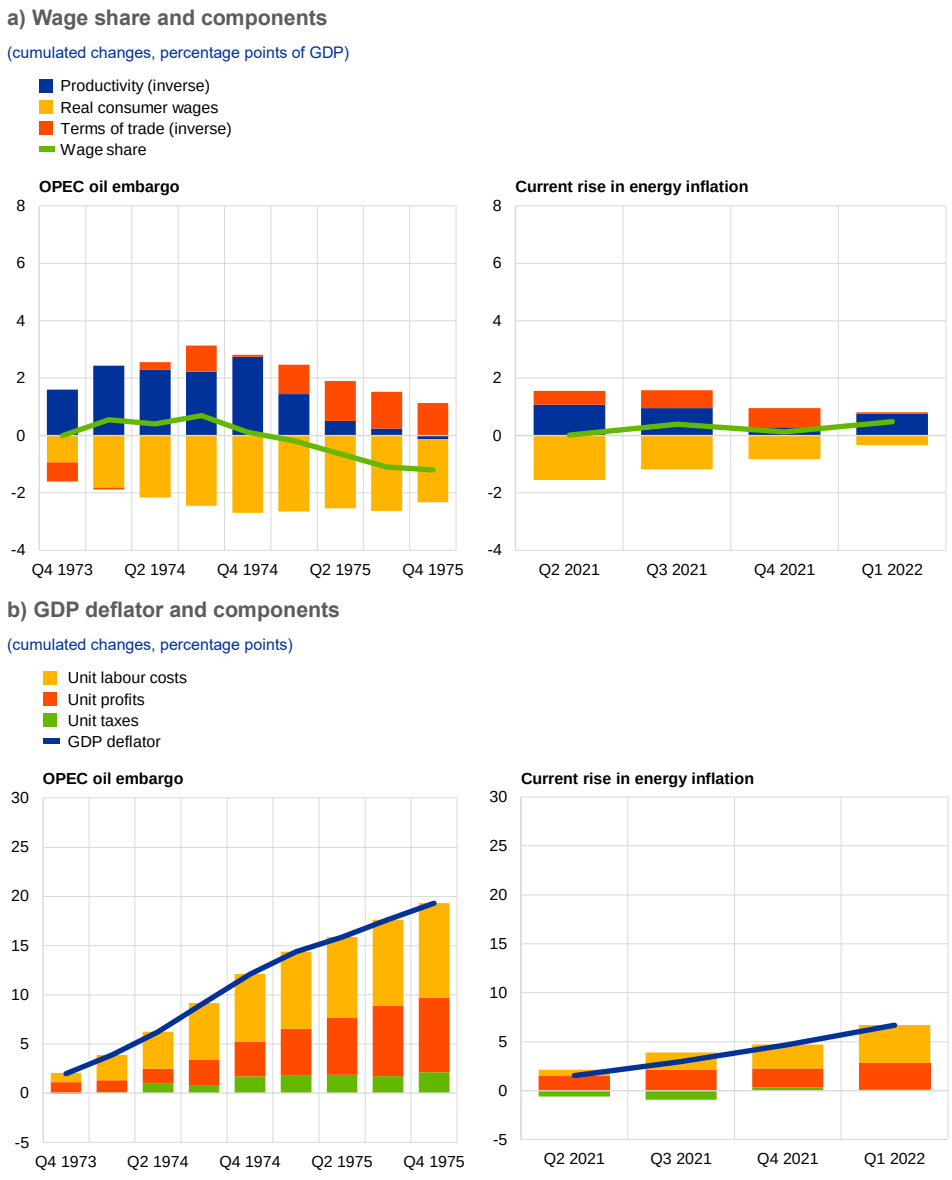
Wage share dynamics in the United States are similar to those in the euro area today, but these differed markedly in the 1970s. In the United States, rising energy prices have induced a smaller income loss through the terms of trade today (1.5 percentage points of GDP) than in the 1970s (3.0 percentage points of GDP).[6]

[6] Note that, in both episodes, the income loss induced by the terms-of-trade deterioration is smaller in the United States than in the euro area. This can be explained by the higher energy dependence in the euro area than in the United States (see, for example, Fosco, M. and Klitgaard, T., "Recycling Oil Revenue", *Liberty Street Economics*, Federal Reserve Bank of New York, 14 May 2018). This gap has increased over the last twenty years, as the United States has become significantly more self-sufficient in terms of energy, while the euro area has increased its net dependence on foreign energy, albeit remaining below the levels at the start of the 1980s (see the US Energy Information Administration (EIA) website).

However, contrary to the euro area, the US wage share declined slightly in the aftermath of the OPEC oil embargo, mainly reflecting losses in real consumer wages, similarly to the experience today (Chart B, panel a). The drivers of the GDP deflator in the United States today are similar to the experience of the 1970s, although smaller in magnitude, with rising unit profits playing a significant role in both episodes (Chart B, panel b). Overall, the US experience shows that the GDP deflator may increase considerably as a result of energy price shocks, despite limited wage indexation mechanisms and, especially today, low net energy dependency and strong monetary policy credibility.

Chart B

Wage share and GDP deflator in the United States: 1970s versus today



Sources: OECD, US Bureau of Economic Analysis and ECB staff calculations.
Note: See notes to Chart A.

A structural model allows the second-round effects of higher energy prices on inflation to be identified. Oil supply shocks, which are important drivers of energy prices, may affect consumer prices through direct, indirect and second-round effects.[7] Direct effects are those with an immediate link to specific HICP components, while indirect effects capture the transmission of the shock to consumer prices via the production and distribution chain. Second-round effects occur when agents pass on the inflationary impact of the direct and indirect effects to wage and price setting, potentially leading to a wage-price spiral. The pass-through of the oil supply shock to inflation is analysed in two steps using a structural model.[8] First, direct effects are singled out from the total effects by approximating them with the difference in the responses of the HICP and the HICP excluding energy.[9] Second, the responses of the GDP deflator and its components are used to assess the extent and source of second-round effects. A comparison of the combined indirect and second-round effects derived in step one of the analysis with the second-round effects captured via the GDP deflator in step two allows some conclusions to be drawn on the indirect effects. Estimates of the model for the 1970s and 1980s and for the period since the euro was introduced in 1999 provide insights into the differences in the transmission mechanism of oil supply shocks to inflation and the emergence of second-round effects in the two periods.

Second-round effects played a major role in the transmission of oil supply shocks to inflation in the 1970s and 1980s, but these have been largely absent on average in the period since the euro was launched. The impact of an oil supply shock on HICP inflation was delayed but also large and persistent in the 1970s and 1980s, mainly due to the combined indirect and second-round effects (Chart C, panel a). By contrast, in the euro period, a shock of the same size had a frontloaded but small and transitory impact on HICP inflation, split about equally between the direct and the combined indirect and second-round effects. In the 1970s and 1980s, the GDP deflator started to rise about half a year after the shock; this increase was driven first by nominal wages (measured by compensation per employee) and then, after a year, also by unit profits and resulted in a wage-price spiral (Chart C, panel b). In contrast, since 1999, on average neither wage nor price setters have recouped the real income losses induced by oil supply shocks. These results also suggest that, in the 1970s and 1980s, second-round effects explained most of the persistence of the impact of oil supply shocks on HICP inflation, while indirect effects contributed to the increases in HICP inflation in the first few quarters following the shock. Given the weak evidence of persistent second-round effects since 1999, indirect effects predominated among the estimated combined effects. In line with the accounting perspective outlined above, the model results also indicate

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7 On the taxonomy of the different effects of energy price hikes on inflation, see the box entitled "Recent oil price developments and their impact on euro area prices", *Monthly Bulletin*, ECB, July 2004.

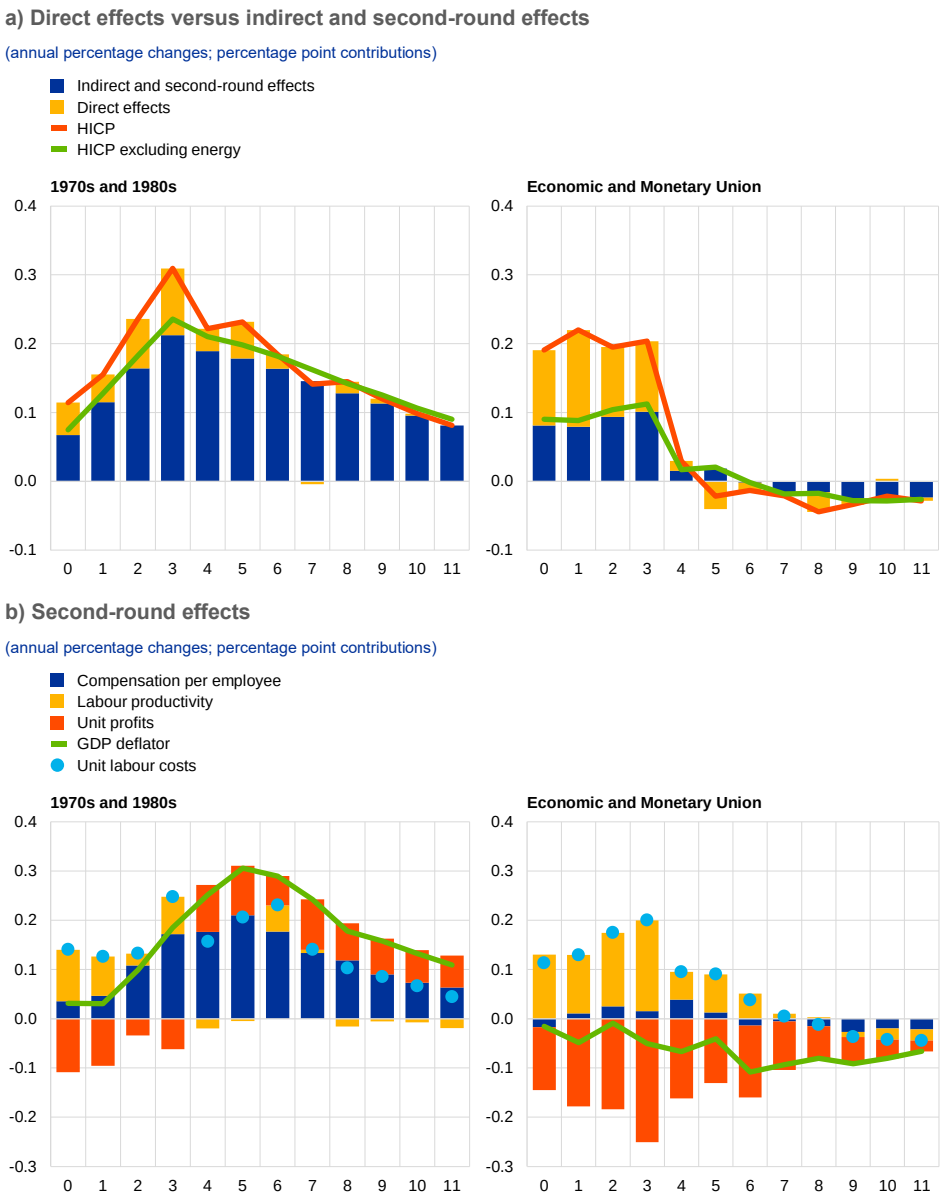
8 The impulse responses are derived from a modified version of the model developed in Hahn, E., "How are wage developments passed through to prices in the euro area? Evidence from a BVAR model", *Applied Economics*, Vol. 53, Issue 22, 2021. The model was extended in order to also identify an oil supply shock. The model is estimated separately for the period since the introduction of the euro (first quarter of 1999 to fourth quarter of 2019, to exclude the COVID-19 crisis) and for the period between the first quarter of 1973 and the fourth quarter of 1989 to capture the features of these periods given the substantial structural and institutional economic changes since the early 1970s.

9 HICP data used for the years prior to 1996 are internal ECB estimates.

that an oil supply shock caused a rise in the wage share in the 1970s and 1980s but not during the euro period.

Chart C

Impact of an oil supply shock: 1970s and 1980s versus Economic and Monetary Union



Sources: Eurostat, ECB, ECB area-wide model database and ECB staff calculations.
Notes: Estimates based on a modified version of the model developed in Hahn, E., op. cit. (see footnote 8). In both panels, the oil supply shock is standardised to reflect a 10% increase in oil prices and the x-axis displays the number of quarters since the shock ("0" refers to the quarter in which the shock occurs). The estimation sample spans the period from the first quarter of 1973 to the fourth quarter of 1989 in the left panels and the period from the first quarter of 1999 to the fourth quarter of 2019 in the right panels.

Compared to the 1970s, recent wage share and GDP deflator developments have been muted, while second-round effects from higher energy prices on inflation have been largely absent on average since 1999. After the recent energy price surge, the euro area GDP deflator rose considerably less than the HICP. Relative to the 1970s, the muted developments in the wage share and the

GDP deflator may stem from several long-term economic changes affecting, for instance, the production structure (e.g. lower energy dependence, deeper integration in global value chains), labour market institutions (e.g. less widespread wage indexation, a lower degree of unionisation) and monetary policy (e.g. a clearer strategy aimed at controlling inflation).[10] Nevertheless, high and persistent inflation increases the risk of second-round effects materialising via higher wages and profit margins.

[10] On wage indexation, see Goldstein, M., "Wage Indexation, Inflation, and the Labor Market", *IMF Staff papers*, Vol. 22, No 3, International Monetary Fund, January 1975; and, more recently, Bivens, J., "Look to the 1990s, not the 1970s, for the right lessons to guide today's monetary policy", *Working Economics Blog*, Economic Policy Institute, August 2016; and Bivens, J., "Corporate profits have contributed disproportionately to inflation. How should policymakers respond?", *Working Economics Blog*, Economic Policy Institute, April 2022. On monetary policy, see Ehrmann, M., Fratzscher, M., Gürkaynak, R.S. and Swanson, E.T., "Convergence and anchoring of yield curves in the euro area", *The Review of Economics and Statistics*, Vol. 93, No 1, February 2011, pp. 350-364. On the interaction between the two, see Hofmann, B., Peersman, G. and Straub, R., "Time variation in U.S. wage dynamics", *Journal of Monetary Economics*, Vol. 59, No 8, December 2012, pp. 769-783.

3 Household saving during the COVID-19 pandemic and implications for the recovery of consumption

Prepared by Maarten Dossche, Dimitris Georgarakos, Aleksandra Kolndrekaj and Francisco Tavares

The ECB Consumer Expectations Survey (CES) **asked households in 2020 and 2021 about their saving behaviour and the underlying motives.** Some special-purpose questions were fielded asking households whether in 2020 they saved or dissaved, by how much and why they did so. The answers to these questions provide information about the drivers of the increase in savings recorded in euro area aggregate data.[1]

The data show that during the coronavirus (COVID-19) pandemic most households were not able to increase their savings. Chart A (panel a) shows that most households did not change the amount of savings they held in the course of 2020, while about 20% increased and around 16% decreased their stock of savings. The drivers of households' saving behaviour differed across savers and dissavers (Chart A, panel b). On one hand, for those who saved, COVID-19-related restrictions/fear of infection and precautionary motives were the most important reasons.[2] On the other hand, among those who dissaved, an unexpected income loss was cited as the most important reason. Many dissavers also referred to COVID-19-related reasons (e.g. the incurrence of additional expenses) for having to draw on their savings. Overall, these findings are in line with earlier evidence suggesting that the surge in the aggregate saving ratio was driven mostly by involuntary savings due to COVID-19 restrictions and the fear of getting infected but that precautionary motives also played a significant role.[3]

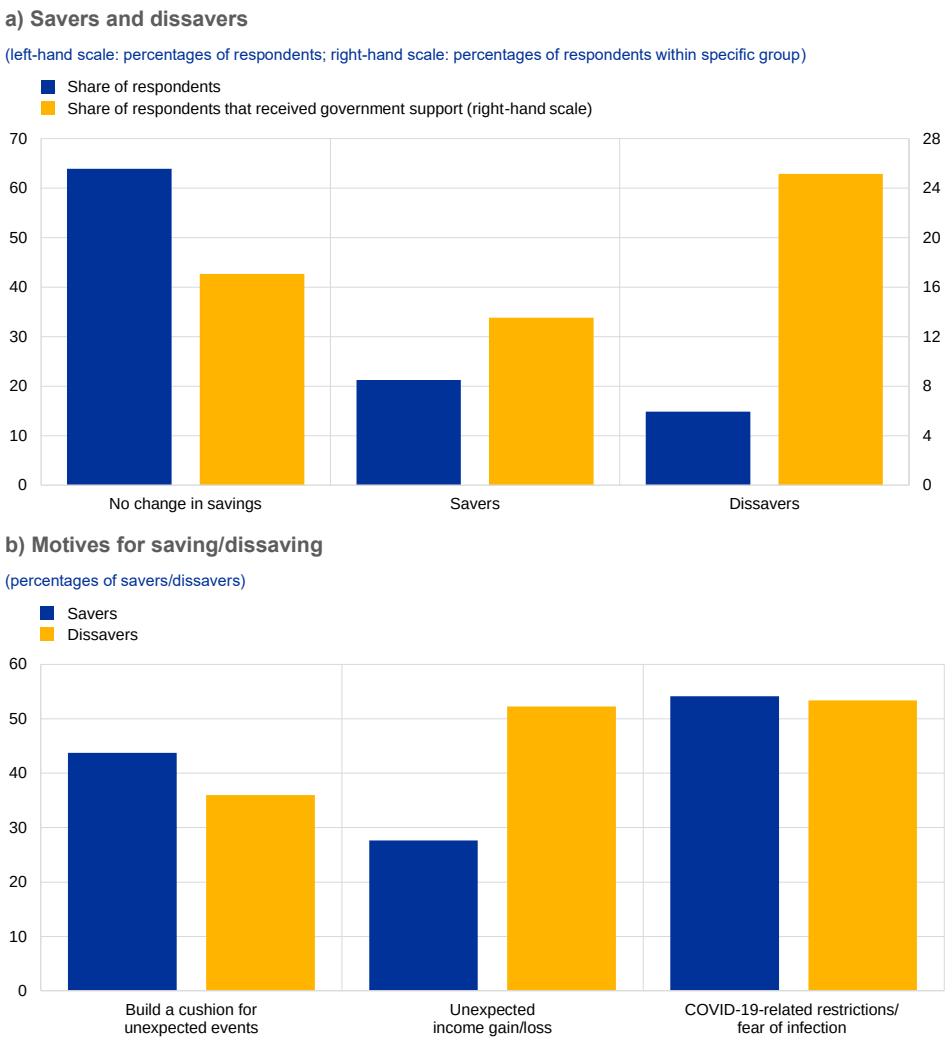
1 The analysis is based on responses from households in Germany, France, Italy, Spain, the Netherlands and Belgium.

2 Note that the importance of the precautionary motive in Chart A (panel b) should be seen as an upper bound in explaining the increase in the aggregate saving ratio, as this motive is likely to have already existed before the pandemic (unlike COVID-19-related reasons).

3 See Dossche, M. and Zlatanos, S., "COVID-19 and the increase in household savings: precautionary or forced?", *Economic Bulletin*, Issue 6, ECB, 2020.

Chart A

Savers/dissavers and motives for saving/dissaving



Source: ECB (CES).
Notes: Weighted data. Panel b shows the share of respondents reporting that (one or more) specific reasons were the most important for their saving behaviour.

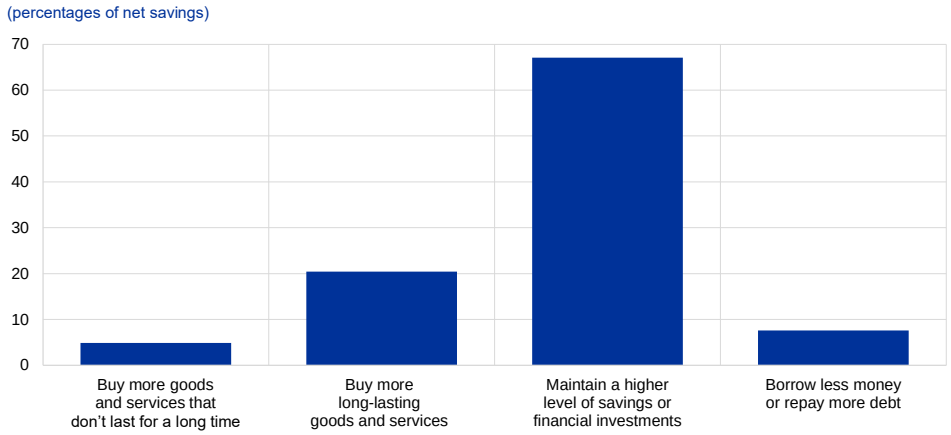
Dissavers generally received more government support, were more often liquidity-constrained and had a higher marginal propensity to consume (MPC) than savers. Combining the information above with information from regular CES survey modules allows an economic profile of saving/dissaving households to be sketched. This confirms that COVID-19-related government support was mainly targeted at households that had to draw on their savings, as they were adversely affected by the pandemic. At the same time, households who saved tended to be less liquidity-constrained and had a lower MPC. This arguably limited the upward pressure on consumption from the expected unwinding of household savings as the pandemic started to subside.

The bulk of accumulated COVID-19-induced savings were not expected to be spent until at least the spring of 2022. In March 2021 the survey asked respondents two specific questions about their savings: (i) how much have you

saved (dissaved) since January 2020; and (ii) how, over the next twelve months, do you plan to use (react to) the (reduced) amount of savings or financial investments you have accumulated since the start of 2020? Combining the replies to these questions allowed the share of accumulated net savings that households planned to consume in the following year to be computed (Chart B). The results may also capture some savings that are being spent on regular planned consumption, in particular on big-ticket items. Chart B indicates that respondents in March 2021 expected at least 74% of excess net savings accumulated since January 2020 not to be spent within the next 12 months, thus tempering expectations of widespread pent-up demand.

Chart B

Allocation of net savings in the next 12 months



Source: ECB (CES, March 2021).
Notes: Weighted data. Net savings are the difference between the amount saved and dissaved since January 2020. The bars represent the share of net savings allocated to each of the options.

Households were also asked about their consumption compared to the pre-COVID-19 period. In July 2021 the CES asked respondents how their past (future) consumption compared (would compare) to pre-pandemic levels.[4] The majority of households reported that their consumption in the 12 months preceding July 2021 was similar to their typical consumption before the pandemic (Chart C, panel a).[5] More than 30% of households reported that their consumption had been lower than in the pre-COVID-19 period, while less than 15% reported that their consumption had been higher than before the pandemic. These responses were in line with the observed drop in aggregate consumption relative to the pre-pandemic period. The downward adjustment in spending relative to pre-pandemic levels was more evident among households that had saved ("savers"), and even more so among households reporting that COVID-19-related reasons, such as government restrictions or the fear of infection, had been the most important reason for saving during the pandemic ("COVID-19 savers") (Chart C, panel a). This corroborated the finding that a

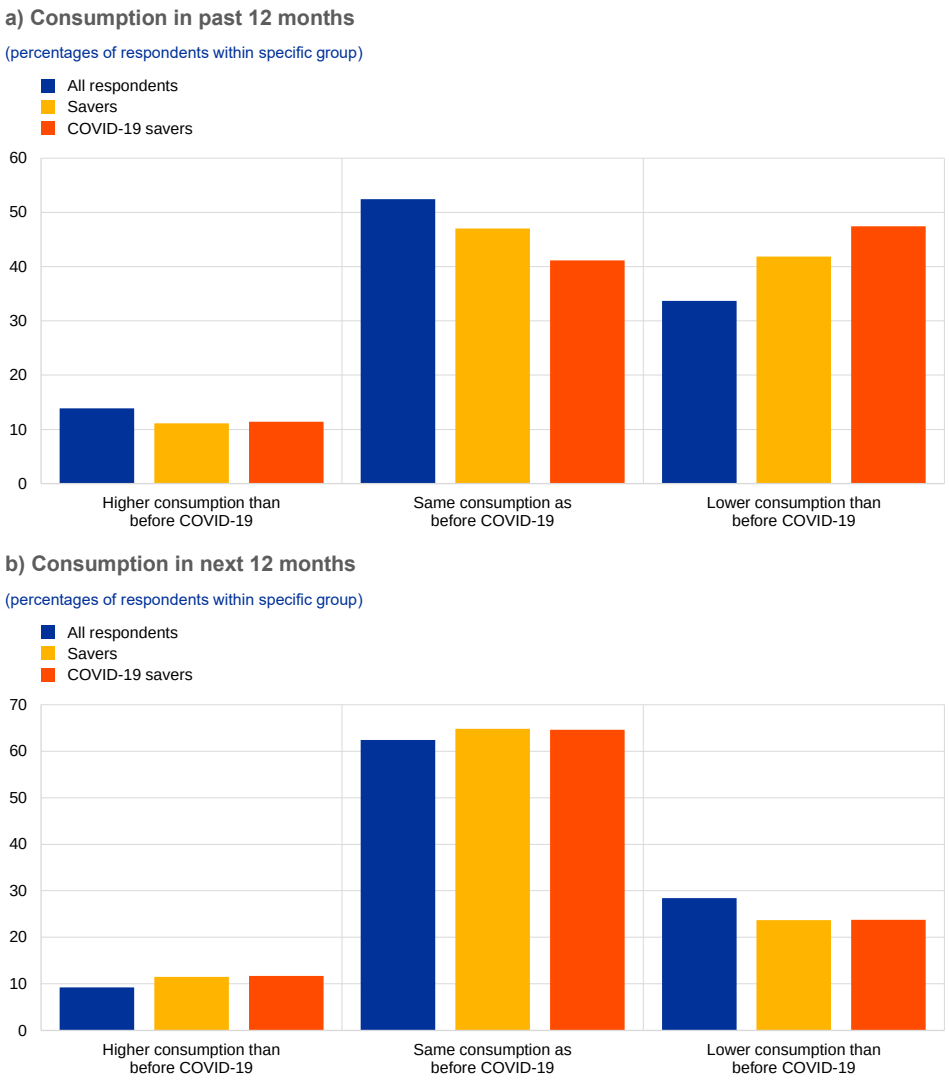
4 The backward-looking question was: "Which of the following best describes your household's total consumption of all goods and services over the past twelve months? Your consumption was higher than / about as much as / lower than what your household used to consume on average prior to COVID-19 pandemic." The forward-looking version referred to the next twelve months.

5 Aggregate analyses also did not signal much scope for an additional boost to the ongoing recovery in consumption from widespread pent-up demand. See Dossche, M., Krustev, G. and Zlatanos, S., "COVID-19 and the increase in household savings: an update", *Economic Bulletin*, Issue 5, ECB 2021.

significant part of additional savings had been driven by households who had to reduce their consumption due to restrictions on various types of consumption ("involuntary savings").

Chart C

Consumption compared to the pre-COVID-19 period



Source: ECB (CES, July 2021).
Notes: Weighted data. To distinguish different types of savers, questions on savings from the July 2021 CES have been used.

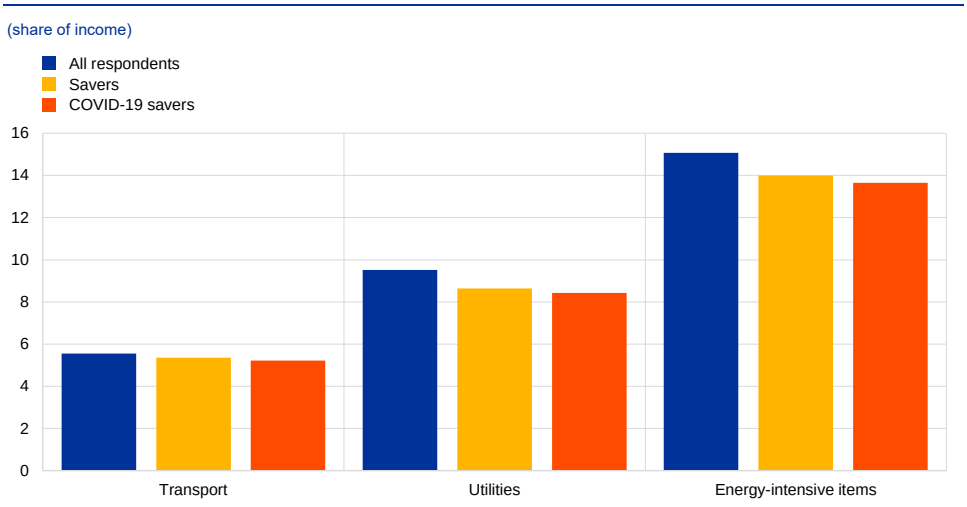
When asked about their future spending plans, most consumers expected to return to their pre-COVID-19 levels of consumption. In addition, the share of consumers reporting that they would consume less than in the pre-pandemic period exceeded the share of consumers that expected to consume more (Chart C, panel b). While the evidence shows that government restrictions/fear of infection contributed to savings, such motives were expected to diminish in importance, especially after the summer of 2021 when a significant part of the population started to be vaccinated and lockdowns became less severe. Nevertheless, the finding that households remained cautious about increasing their spending after the summer of 2021 suggests that households continued to have a strong precautionary motive

driven mainly by pandemic-induced financial concerns and surrounding uncertainty.[6] Overall, the results from the July 2021 CES did not suggest that widespread pent-up demand would provide an immediate boost to aggregate consumption, especially if household concerns about their finances did not diminish.[7] As the survey was conducted in mid-2021, this may also have reflected expectations of a further wave of COVID-19, which to a large extent has taken place.

The concentration of pandemic-related savings among specific households limits the extent to which these savings can buffer the recent surge in energy prices. As documented before, the households that managed to save during the COVID-19 pandemic represent only about 20% of the population. Moreover, these households are less exposed to energy-intensive consumption items than the average of all households (Chart D). This applies even more to COVID-19 savers. This is in line with other evidence from the CES that higher-income households tend to spend a lower share of their income on energy-intensive consumption.[8] The distribution of savings accumulated during the COVID-19 pandemic may thus limit the extent to which these savings can shield the ongoing recovery of consumption from the adverse impact of the recent surge in energy prices.

Chart D

Exposure to energy-intensive consumption



Source: ECB (CES).
Notes: Weighted data. Energy exposure is computed as the ratio of average expenditure on transport and/or utilities to household total net income in January and April 2022.

6 See Christelis, D., Georgarakos, D., Jappelli, T. and Kenny, G., "The Covid-19 crisis and consumption: survey evidence from six EU countries", *Working Paper Series*, No 2507, ECB, December 2020.

7 The more limited scope for widespread pent-up demand providing an immediate boost to aggregate consumption in the euro area since the summer of 2021 is also evident from a comparison of national accounts data for the euro area and the United States that have become available since July 2021. See, for example, Lane P.R., "The euro area outlook and monetary policy", presentation given at "The ECB and its Watchers XXII" conference, 17 March 2022.

8 See Battistini, N., Di Nino, V., Dossche, M. and Kolndrekaj, A., "Energy prices and private consumption: what are the channels?", *Economic Bulletin*, Issue 3, ECB, 2022.

4 How higher oil prices could affect euro area potential output

Prepared by Julien Le Roux, Bela Szörfi and Marco Weißler

The recent increase in energy prices constitutes a significant supply shock, which could therefore also have an impact on the potential output of the euro area economy. Based on the assumptions used in the June 2022 Eurosystem staff macroeconomic projections, oil prices in US dollars in the period 2022 to 2024 are expected to be around 40% higher than their levels in the pre-COVID period (2017-19).[1] Expressed as a percentage, the increase in oil prices since 2019 is smaller than the 1973 and 1979 shocks (Chart A).[2] In addition, the increase observed between 2003 and 2008 turned out to be of a greater magnitude than the current increase. The nature of the current oil price increase – largely a supply shock linked to supply bottlenecks and to the war in Ukraine – is more comparable to the 1970s shocks than to those of the 2000s, when demand for oil played a major role in the rise in fossil fuel prices.[3] Since the current increase in energy prices, and oil prices in particular, reflects supply-side factors, it could also affect potential output and the output gap, with implications for inflationary pressures. This box describes the channels of impact and uses elasticities estimated on historical data to shed light on the risks to potential output stemming from the current increase in energy prices.

1 See the Eurosystem staff macroeconomic projections for the euro area, June 2022.

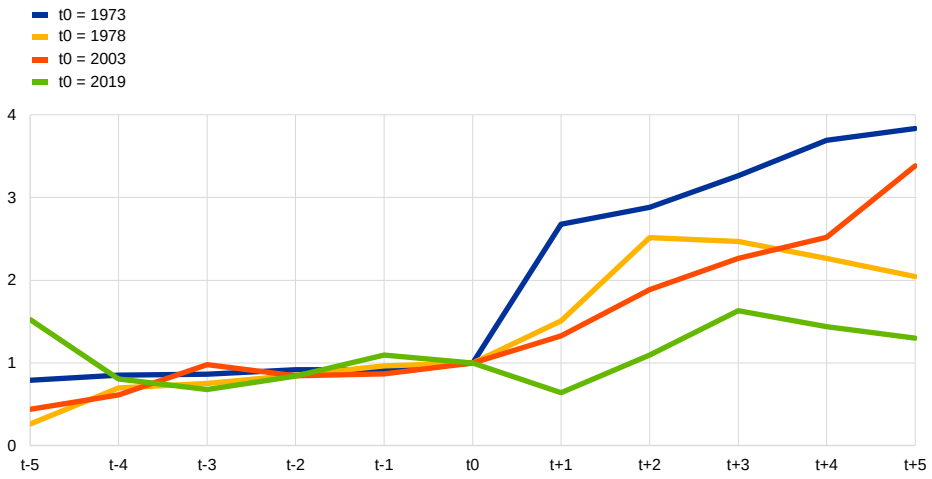
2 The price of a barrel of Brent crude oil rose by 168% in 1974, followed by a rise of 51% in 1979 and 67% in 1980. The shocks were triggered by political events affecting the main oil-producing countries. For additional comparisons, see "Today's oil shock pales in comparison with those of yesteryear", *The Economist*, 15 March 2022.

3 Demand factors linked to the recovery of the global economy after the pandemic have also played a role in the recent increase in oil prices. For a breakdown of oil prices into demand and supply factors, see "Energy price developments in and out of the COVID-19 pandemic – from commodity prices to consumer prices", *Economic Bulletin*, Issue 4, ECB, 2022.

Chart A

Annual relative change in crude oil prices in US dollars

(index = 1 in the year preceding the shock)



Sources: Bloomberg and ECB staff calculations.
Notes: This chart shows the relative change in the oil price, expressed in US dollars, for the five years before and after each exogenous shock, where t0 stands for the year preceding the surge in oil prices. For the 2020 shock, the oil price is based on the June 2022 Eurosystem staff macroeconomic projections, which are based on oil futures prices on 17 May 2022.

With regard to the channels of impact, economic theory suggests that under certain conditions permanent oil price changes can be negatively correlated with each of the determinants of potential output.[4] The capital stock is mainly affected by two opposing effects. First, the oil price itself as an input in the production process can be seen as a component of the user cost of capital and may affect investment decisions. Second, the price of oil is negatively correlated with the degree of utilisation of the capital stock and thus with the depreciation rate. Overall, in both cases, if the elasticity of substitution between oil and the other intermediate inputs is greater than one, there is a negative relation between oil prices and the existing capital stock, and therefore potential output. An increase in the oil price reduces total factor productivity, since higher oil prices lead to obsolescence of oil-intensive production technology and thus a decrease in the value added from production. In addition, increased transportation costs resulting from higher oil prices could lead to a decrease in the incentive to specialise and therefore a drop in productivity growth. The impact of higher energy prices on labour market trends depends on the extent to which workers' wage demands adjust to the increase. A rise in the price of energy initially raises costs and reduces companies' profits if nominal wages do not adjust. Restoring employment and profitability to their initial levels requires some combination of lower nominal wages and higher output prices. Either way, real wages and the unemployment rate that does not generate wage or inflationary pressures (called the non-accelerating inflation rate of unemployment or NAIRU) may be negatively affected and permanently alter labour supply.

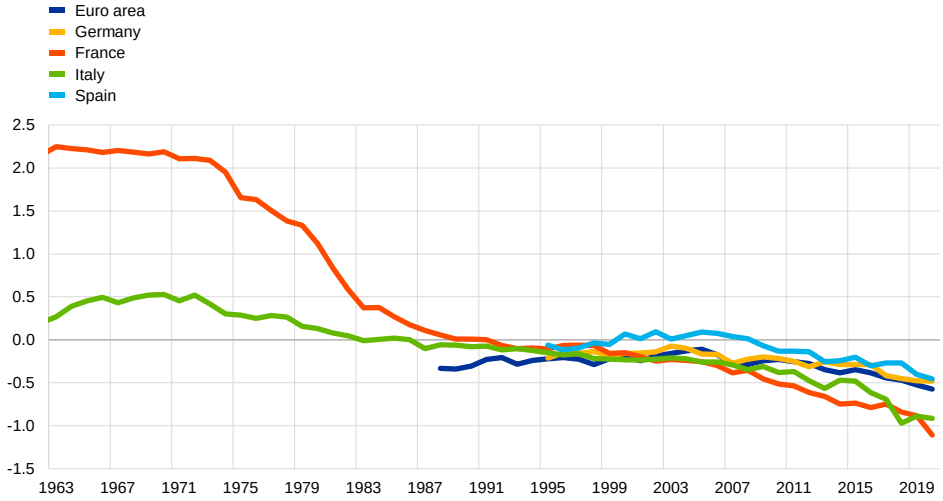
4 Temporary oil price changes are not expected to affect potential output, but mainly the business cycle. However, an environment of volatile oil prices – although not resulting in higher prices on average – may also have an impact on investment decisions and as a result on potential output. See Estrada, A. and Hernández de Cos, P., "Oil prices and their impact on potential output", *Occasional Paper*, No 0902, Banco de España, 2009.

However, there is no clear empirical evidence that oil price shocks have a lasting effect on potential output. While Fuentes and Moder (2020) suggest that the 1973-74 oil embargo imposed by OPEC only had a negative effect on global potential output in the first year after the shock, which was swiftly reversed in the following years, some studies have found small effects on long-term real GDP growth.[5] Blanchard and Galí (2008) find for a set of OECD countries that oil price shocks have lost significance as a source of economic fluctuations from the 1970s until today.[6] They claim that this stems from more flexible labour markets, improved monetary policy and the fact that those economies have a lower oil intensity compared with the 1970s. When the first oil price shock hit the global economy in 1973, approximately one barrel of oil was required to generate USD 1,000 of GDP in 2010 prices. Today less than half that amount of oil is needed to generate the same level of output.[7] For euro area economies, this drop has probably been even larger (Chart B) since their energy mix is much less dependent on fossil fuels.

Chart B

Net imports of fossil fuel products

(kilograms per €1,000 of GDP – expressed as a logarithm)



Sources: Eurostat, Insee, Istat and ECB calculations.
Note: The chart shows net imports of coal, coke, briquettes, petroleum, petroleum products and related materials, and gas, natural and manufactured, relative to GDP (kilograms per €1,000 of GDP in 2010 prices).

Given the current oil price increase, the loss in the level of euro area potential output in the medium term can be estimated at around 0.8%. According to elasticities derived from the macroeconomic models used to produce the Eurosystem staff macroeconomic projections, an increase of 1% in oil prices would imply a decline in the level of euro area potential output of around -0.02% in the

5 On the one hand, see the box entitled "The scarring effects of past crises on the global economy", *Economic Bulletin*, Issue 8, ECB, 2020. On the other hand, see, for instance, Darby, M. R., "The Importance of Oil Price Changes in the 1970s World Inflation", NBER Chapters in *The International Transmission of Inflation*, 1983, pp. 232-272; and Kilian, L., "The Economic Effects of Energy Price Shocks", *Journal of Economic Literature*, Vol. 46(4), 2008, pp. 871-909.

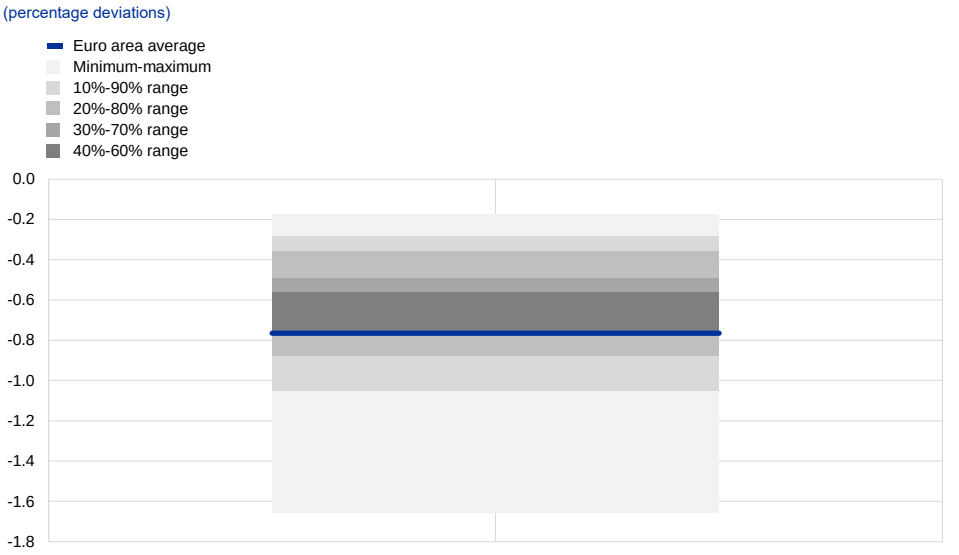
6 Blanchard, O. J. and Galí, J., "The Macroeconomic Effects of Oil Price Shocks: Why are the 2000s so Different from the 1970s?", *Working Paper*, MIT Department of Economics, No 07-21, 2008.

7 Rühl, C. and Erker, T., "Oil Intensity: The curious relationship between oil and GDP", *M-RCBG Associate Working Paper Series*, No 164, Mossavar-Rahmani Center for Business and Government, Harvard University, 2021.

medium term. Assuming a permanent oil price shock of 40% – equivalent to the deviation of the oil price assumption used in the June 2022 Eurosystem staff macroeconomic projections compared with the average for the period 2017-20 – the level of potential output in the euro area would be revised down by -0.8% after four years (Chart C). This constitutes a somewhat limited shock, which should be seen in the context of the cumulative increase in potential output, estimated by the European Commission to hover at around 5.2% for the next four years. Furthermore, this assessment appears to be consistent with other estimates, as previous work by the ECB suggests an elasticity of -0.02 for the long-term elasticity of GDP to oil prices globally, implying a similar effect of the current oil price shock on the long-term level of GDP.[8]

Chart C

Distribution of the impact of the recent increase in oil prices on the level of potential output across euro area countries



Source: ECB calculations based on elasticities derived from the macroeconomic models used to produce the Eurosystem staff macroeconomic projections for the euro area.
Notes: The scenario is based on the June 2022 Eurosystem staff macroeconomic projections, in deviation from a counterfactual where the price of oil is fixed at the average for the period from the fourth quarter of 2017 to the first quarter of 2019. Around the euro area average, shaded areas denote the deciles of the impact of the current oil price shock on the level of potential output after four years, by country, for the nineteen euro area countries.

However, considerable uncertainty surrounds this analysis, notably in relation to the persistence of the shock and to policy responses. On the one hand, the magnitude of the shock is based on futures prices for the period 2022 to 2024, which can be very volatile. As a result, the estimates for the scale of the loss of potential output can change significantly. On the other hand, the monetary policy response to the inflationary pressure from an oil price increase can partially mitigate its persistence and reduce the medium-term effect on potential output by stabilising the macroeconomic cycle and firmly anchoring inflation expectations, thus limiting hysteresis effects. In addition, current technological and economic conditions differ considerably from those prevailing during earlier oil price shocks. This situation may

8 Schnabel, I., "Reflation, not stagflation", opening remarks at a virtual event organised by Goldman Sachs, Frankfurt am Main, 17 November 2021.

mean that production technology can adjust more quickly to the change in input prices. In particular, for transportation and household energy consumption, viable green alternatives exist that are far less dependent on oil.[9]

[9] The rise in the oil price has coincided with a sharp rise in the price of natural gas, and this may amplify the negative effects of oil prices on activity and potential output by de facto significantly reducing the possibilities for substituting the use of oil with gas.

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

Prepared by Johannes Gareis, Friderike Kuik and Richard Morris

This box summarises the results of contacts between ECB staff and representatives of 71 leading non-financial companies operating in the euro area. The exchanges mainly took place between 20 and 29 June 2022.[1]

Contacts reported continued growth in activity, albeit with quite divergent developments both across and within sectors. Despite signs of weakening demand in some sectors, overall activity in recent months had been more resilient than many had anticipated given the uncertainty created by the war in Ukraine and rising inflation. The recovery in sectors benefiting from the relaxation of pandemic-related restrictions was particularly strong — even if tempered by labour constraints in some cases — and generally exceeded expectations. Tourism-related bookings for the spring and summer were said to be at or above pre-pandemic levels. Consumer demand for clothing and other personal items was also reported to be recovering well in the context of a return to more normal spending patterns. By contrast, food manufacturers and retailers pointed to consumption shifts in response to high food inflation, with fewer meals out and more meals being consumed at home, as well as a shift in spending towards less expensive products. Demand for many household items was also reported to be declining, reflecting low consumer confidence and the anticipated shift in consumption from durable goods to services. There were signs of weakening demand for construction, mainly in the residential sector, against the backdrop of rising costs and interest rates and elevated uncertainty. Meanwhile, manufacturing activity remained to a large degree supply-constrained, with long order backlogs, despite many contacts pointing to a decline in new orders.

Looking ahead, there was widespread uncertainty and concern about the outlook for activity, particularly beyond the summer. Besides the cooling housing market, contacts widely referred to consumer confidence being very low. Some (especially in the retail and consumer goods sectors) were already uncertain about the outlook for consumer spending in the third quarter. Others, while not seeing any signs of a downturn in their own figures yet, referred more to the possibility of a recession later in the year. Several factors were cited as being likely to help sustain activity in the coming months. These included pent-up demand (e.g. for holidays), accumulated savings, a gradual easing of supply constraints, long order books and the desire of many firms to hold more inventory. Some contacts noted, however, that over time households would increasingly feel the financial squeeze caused by rising prices. There would clearly also be downside scenarios if gas supplies were to be curtailed even further.

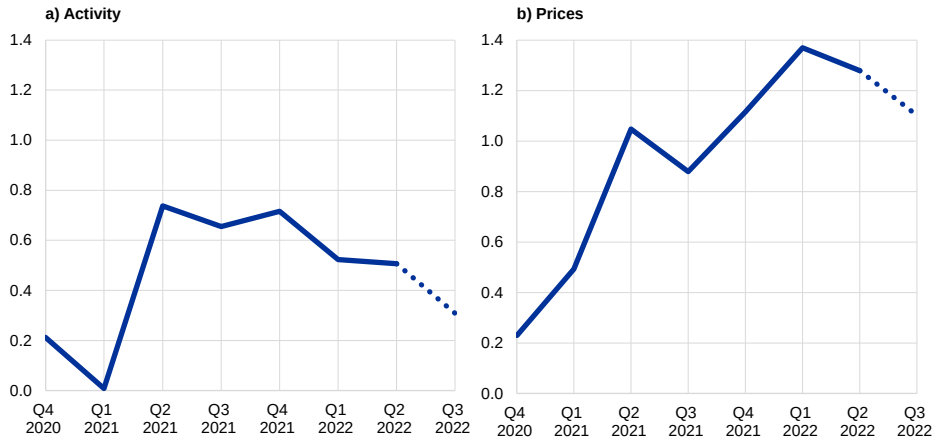
[1] For further information on the nature and purpose of these contacts, see the article entitled "The ECB's dialogue with non-financial companies", *Economic Bulletin*, Issue 1, ECB, 2021.

Contacts reported continued positive employment growth, albeit dampened in some countries and sectors by difficulties recruiting and retaining staff. The recovery in hospitality, travel, and entertainment services was the main driver of employment growth according to recruitment agencies. The latter also reported a shift from temporary to permanent recruitment, as governments had reduced their COVID-19-related testing activities. Many firms continued to report difficulties in recruiting and retaining staff, and while this was primarily the case for high-skilled professionals (especially in IT), shortages of unskilled labour were also reported in some countries and sectors. The influx of refugees from Ukraine was not currently seen as having much of an impact on labour supply.

Chart A

Summary of views on developments in and the outlook for activity and prices

(average of ECB staff scores, ranging from -2 (significant decrease) to +2 (significant increase))



Source: ECB.
Notes: The scores reflect the average of ECB staff scores in their assessment of what contacts said about developments in activity (sales, production and orders) and prices in the second quarter of 2022. Scores range from -2 (significant decrease) to +2 (significant increase). A score of 0 would mean no change, while a score of 1 would be typical for normal growth. The dotted line refers to expectations for the next quarter.

Contacts continued to report a high magnitude and/or frequency of selling price increases, as substantial cost pressures were passed through the value chain. Rising costs for energy and/or transport were the main concern for most firms, while the prices of most material and component inputs also continued to rise, despite somewhat more mixed developments in commodity prices of late. Energy markets were pricing in high risk premia for gas and electricity due to the uncertainty about the supply of gas from Russia, while refining margins had also increased substantially.[2] Many companies still had to pass on the recent rise in energy costs, which itself was only being felt gradually as related contracts expired. Some companies were reluctant to conclude new, long-term hedging contracts, as this would lock in high prices, even if it left their cost bases more exposed to volatile energy prices in the future. The pass-through of rising costs to selling prices was facilitated by the fact that nearly all companies were increasing their prices in parallel

2 Refining margins have increased both for petrol/gasoline and for diesel/gasoil, but more so for the latter. Pressure on refining margins is attributable to a combination of factors, in particular reduced exports of refined petroleum products from Russia, but also reduced refining capacity globally (which had accelerated during the earlier stages of the pandemic) in a context of recovering demand.

and, in the manufacturing sector in particular, customers focused more on the availability and timeliness of delivery than the price. Consequently, many companies could broadly maintain or even increase their margins, albeit this was more difficult in consumer-oriented sectors where companies faced greater competition. That said, substantial price increases were also seen for many consumer goods and services (food, travel, accommodation, etc.) and price increases were also prevalent in those sectors (e.g. telecommunications) where prices usually declined. Looking ahead, while most contacts anticipated a similar trend in selling price increases in the third quarter, some were more hesitant in view of faltering demand, pointing to a potential for some moderation in the overall rate of increase.

Most contacts thought wage pressures were gradually building up, although there was a good deal of uncertainty and differences across countries. The different timing of wage negotiations, the length of existing contracts and many one-off and ad hoc elements made it difficult to quantify the underlying pace of wage growth. That said, around three-quarters of contacts expected existing or future wage negotiations to imply higher wage growth in 2023 than in 2022, with most contacts placing wage growth in 2022 at between 2% and 4%. For many it was, however, difficult at this stage to give any quantitative indication. A key aspect of many of the impending wage negotiations would be the balance between the permanent and one-off elements. There were also significant regional differences, with wage pressure and bargaining power being comparably lower in countries or areas with continuing high rates of unemployment.

6 Selling price expectations among euro area enterprises

Prepared by Nicola Benatti, Renate Dreiskena, Annalisa Ferrando, Juan Ángel García and Carolina Miguel

This box analyses recent information from euro area firms regarding their selling price expectations. Firms are important economic agents when it comes to determining inflation dynamics, since they take many decisions that influence macroeconomic outcomes, from negotiating wages and setting prices to determining how much to invest and how many people to employ. However, information about firms' pricing practices remains relatively scarce compared with information on other economic agents in both the euro area and many other countries. To help understand pricing practices among euro area corporations, the most recent Survey on the Access to Finance of Enterprises in the euro area (SAFE) introduced additional questions on recent (over the past 12 months) and expected (over the next 12 months) price changes at firm level.[1] It also included questions on the importance of different determinants of such price expectations over the next 12 months. This box reports on the responses and analyses which characteristics of firms are relevant for better understanding those expectations.

In line with the recent increase in inflationary pressures, euro area companies overall reported an increase in selling prices over the last year. About three-quarters of euro area firms indicated that their selling prices increased "a little" (46%) or "a lot" (26%). Meanwhile, the proportion of firms whose prices remained unchanged was more limited (22%), and only very few firms reported lower prices (4%).

Firms expect upward pressures to continue in the near term (Chart A). The large majority of euro area enterprises also expect their prices to increase going forward (47% by "a little" and 28% by "a lot"), with a lower proportion expecting their prices to remain unchanged (18%) or to decrease a little (3%). Expectations of overall higher selling prices are shared across firms of all sizes.

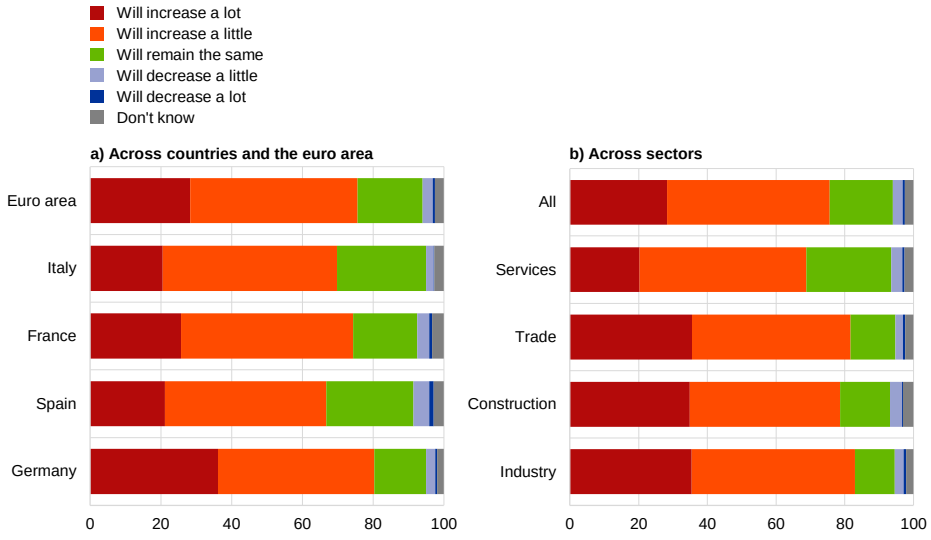
1 See "Survey on the Access to Finance of Enterprises in the euro area – October 2021 to March 2022", ECB, June 2022.

Chart A

Expected changes in selling prices across the euro area and the largest euro area countries and across sectors

QA2: Looking ahead, considering the markets where you sell your main products or services, would you say that in the next twelve months your selling prices…?

(percentages of respondents)



Source: ECB (Survey on the Access to Finance of Enterprises in the euro area – October 2021 to March 2022).
Note: Base is all enterprises.

Among the four largest euro area economies, firms in Germany expect stronger upward price pressures than firms in the other three countries. More than one-third of German firms expect their prices to increase by "a lot" (36%), while for the other large countries the proportion ranges between 21% (Spain and Italy) and 26% (France). In all four countries, firms expecting prices to increase by "a little" form the largest group (ranging from 44% in Germany to 49% in France and Italy), while only about one-quarter of firms expect unchanged or decreasing prices (ranging between 18% in Germany and 30% in Spain).

At sectoral level, higher selling prices are predominantly expected by firms in the industry, construction and trade sectors, while more moderate increases are expected in the services sector. Around 35% of firms in the industry, construction and trade sectors expect their prices to increase "a lot", compared with only 20% of firms in the services sector. Moreover, while 25% of firms in the services sector report that they have no expectations of raising their prices over the next year, the percentage is significantly lower in the other sectors. Although it is not possible to precisely map the relationship between firms' prices and the main HICP sub-components, the survey results suggest the presence of stronger price pressures in the non-energy industrial goods component, while the services sub-component could help attenuate the overall rise in inflation.

Input costs (for both materials and labour) and expected inflation are the main factors behind higher expected selling prices among euro area companies, followed by own demand. To further understand the forces behind the expected price changes, firms were also asked to indicate the main determinants of their

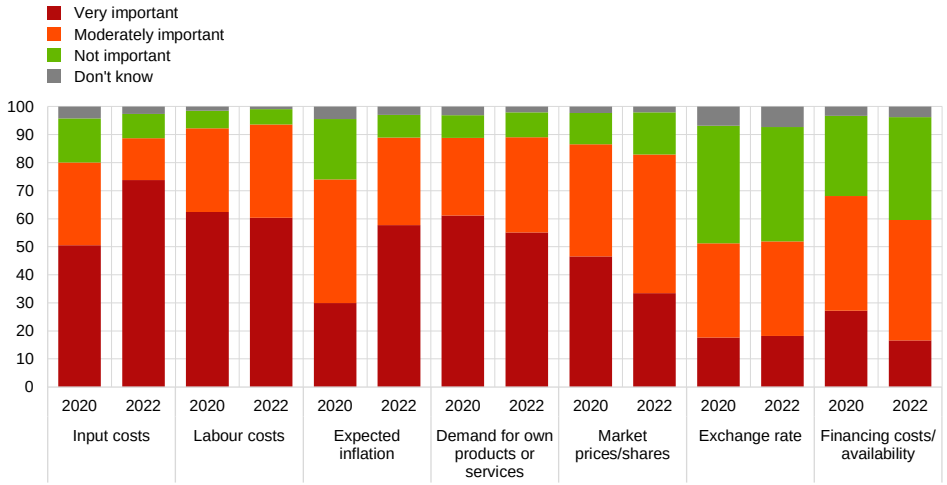
selling price expectations over the next twelve months (Chart B). In line with the observed increase in global prices for commodities and raw materials, the cost of production inputs is the most important factor currently influencing selling price expectations (reported as “very important” by 74% of firms), followed by labour costs (60%), expected inflation (58%) and own demand (55%). By contrast, factors such as market shares/competitors’ prices, the exchange rate, and financing costs and availability play a much more limited role.[2]

Chart B

Factors influencing selling prices of euro area enterprises – 2022 compared with 2020 (pre-pandemic)

QA3: How important do you expect the following factors to be when setting or changing your selling prices over the next twelve months?

(percentages of respondents)



Source: ECB (Survey on the Access to Finance of Enterprises in the euro area – October 2021 to March 2022).
Note: Base is all enterprises.

The perceived importance of both input costs and expected inflation as factors determining selling price expectations has increased compared with 2020.

Prior to the coronavirus (COVID-19) pandemic, a previous SAFE survey round contained similar questions on the factors influencing firms’ selling price expectations. Changes in the relative importance assigned to different factors in the current survey round compared with the previous one offer additional insights into the increases in selling price expectations among firms. In early 2020, prior to the pandemic, labour and production input costs were already the main source of upward pressures on selling prices. More specifically, the share of firms reporting that labour costs are relevant has remained similar to that in the previous survey

2 A probit analysis based on firm-level responses confirms the relative importance of the various factors in explaining future expected increases in selling prices. These findings are conditional on sectoral and country differences as well as on firms’ characteristics (e.g. size, export orientation) and financial position (past increases in sales and profits). For instance, the estimated marginal impact indicates, approximately, that a one standard deviation increase in expected inflation is associated with a 12 percentage point increase in the percentage of firms raising their selling prices. The greatest influence on decisions by firms to raise future selling prices comes from raw materials and other supply costs, which contribute to a 25 percentage point increase in the percentage of firms expecting to increase prices. Increases in labour costs and financing costs account for more moderate increases (3-4 percentage points) in the probability of firms reporting higher selling prices.

(reported as “very important” by around 60% of firms), while the relevance of input costs has risen further (to 74% of firms from 50%). The significant rise in inflation since 2020 appears to have influenced the role of expected inflation in expected selling prices, with 58% of firms now reporting it as “very important” (up from 30% in 2020). By contrast, developments in own demand and in competitors’ prices/market share play a smaller role now than in 2020, while the exchange rate and financing costs/availability continue to play a very limited role (reported as “not important” by around 40% of firms). These trends are broadly similar across firm sizes, although input costs and expected inflation seem to be more relevant for large companies than for small and medium-sized enterprises, while the opposite seems to hold for financing costs.

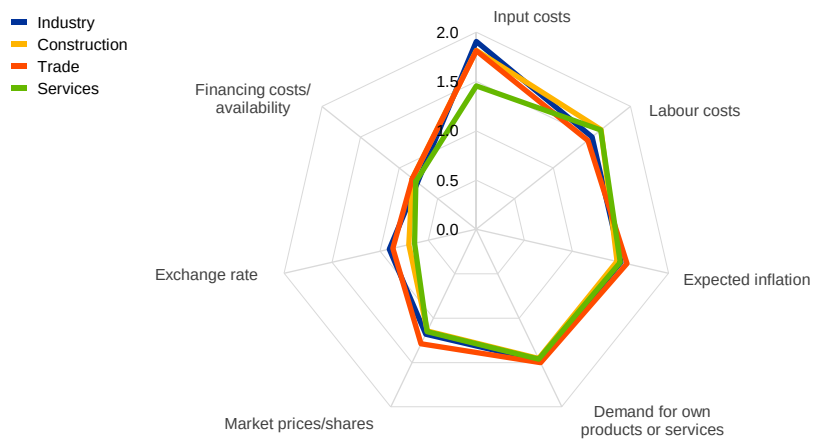
The greater importance attached to input costs helps explain why selling price expectations are higher in the industry, construction and trade sectors than in the services sector (Chart C). Firms in the industry, construction and trade sectors assign significantly greater importance to the role of input costs than firms in the services sector. This underscores the severe impact of the rise in materials and commodities prices over recent months in more material-intensive sectors, while more labour-intensive sectors, like services but also construction, assign a slightly higher importance to labour costs. Meanwhile, the other two important factors – expected inflation and own demand – are ranked very similarly across sectors.

Chart C

Factors influencing selling prices across sectors

QA3: How important do you expect the following factors to be when setting or changing your selling prices over the next twelve months?

(index)



Source: ECB (Survey on the Access to Finance of Enterprises in the euro area – October 2021 to March 2022).
Notes: The chart shows the importance attached by firms to different factors influencing selling prices across sectors on a scale from 0 to 2. Responses are assigned the following values: “not important” = 0; “important” = 1; “very important” = 2. Base is all enterprises.

Additional granular analysis provides insights into what types of firms considered expected inflation to be particularly important for the setting of future selling prices in 2022. To better understand what has been driving the rising importance of inflation expectations reported by respondents, the analysis compares those firms indicating that expected inflation is “very important” (dark red bars in

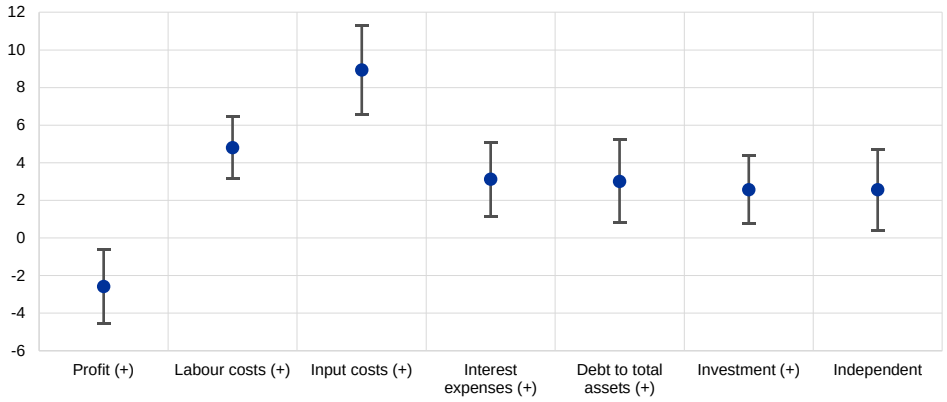
Chart B) in pricing decisions with those indicating that it is “not important” (green bars in Chart B).

Family-run companies and firms reporting increases in the prices of production inputs and in their overall debt burden are among the firms that considered expected inflation to be a very important factor for the setting of future selling prices. Chart D shows the marginal impact of several characteristics of firms on the probability that they reported expected inflation as “very important”, conditional on size, sectoral and country differences. Firms that reported increases in input costs and labour costs in the period from October 2021 to March 2022 are, respectively, 5 and 9 percentage points more likely to report expected inflation as a very important factor for future selling prices than firms that did not report such increases. This evidence may suggest that the higher relevance of input and labour costs and expected inflation could just reflect upward pressures on prices. Firms with increased interest expenses and leverage also tended to report expected inflation as very important for their pricing, although the difference is slightly smaller at 3 percentage points. In addition, the analysis shows that “independent” firms (firms owned by families or individual entrepreneurs) are 3 percentage points more likely to revise their pricing decisions owing to expected inflation. Finally, firms that have increased their fixed investment in the previous six months are also more likely to take into account expected inflation. By contrast, this was less likely for more profitable firms, which may have more room to keep prices unchanged by absorbing costs.

Chart D

Marginal impacts of firm characteristics on whether firms consider expected inflation to be a very important factor in setting future selling prices

(average marginal effects with 95% confidence bands; percentage points)



Source: ECB (Survey on the Access to Finance of Enterprises in the euro area – October 2021 to March 2022).
Notes: Average marginal effect of a one standard deviation increase in the selected variable on expected future selling prices based on probit regressions. The dependent variable is a dummy equal to 1 if firms report expected inflation as a “very important” factor in setting future selling prices and 0 if they report it as “not important”. The explanatory variables are size; ownership; listed/unlisted; export orientation; past increases in turnover, profits, leverage, interest expenses, labour costs, input costs, investment, working capital and employment; and positive perceptions of changes in the general economic outlook. Sector and country dummies are also included.

7 Euro area fiscal policy response to the war in Ukraine and its macroeconomic impact

Prepared by Cristina Checherita-Westphal, Maximilian Freier and Philip Muggenthaler

This box provides a quantitative assessment of the fiscal policy measures adopted by euro area governments in response to the war in Ukraine and their macroeconomic impact. The discretionary fiscal measures adopted by euro area governments since Russia's invasion of Ukraine on 24 February 2022 have three main objectives: cushioning the impact of energy price increases, increasing defence capabilities in euro area countries and Ukraine, and addressing the refugee crisis. Some governments have also extended liquidity support in the form of guarantees, although this would, in principle, affect their budget balances only if the guarantees (contingent liabilities) are called on.[1] Moreover, several support initiatives have been adopted at the EU level, including direct help for the Ukrainian government. Against this background, this box focuses on fiscal stimulus measures that have a direct impact on the budget balance of euro area countries. It also provides estimates for the impact of such measures on euro area growth and inflation over the period 2022-24.

Euro area discretionary fiscal support in response to the war in Ukraine, embedded in the June 2022 Eurosystem staff baseline projections, is estimated at close to 1% of GDP in 2022.[2] Three-quarters of this support represent further compensatory measures introduced in response to the increase in energy prices after Russia's invasion of Ukraine (Chart A, panel a). It should be noted that several euro area countries had already adopted measures to address rising energy prices before the invasion.[3] The rest of the war-related support is associated with defence spending and refugee support. A large part of the fiscal support, particularly the energy-related component, is estimated to unwind over the period 2023-24. At the same time, defence spending is projected to rise more sharply by the end of the projection horizon. Overall, based on government plans at the time of the June 2022 projections, about one-third of the stimulus is expected to continue over the projection horizon. Eurosystem staff identify the risks to these

1 Several euro area countries have approved either specific guarantee schemes for firms affected by the war or have allowed these firms to benefit from the unused budgeted amounts approved in the context of the COVID-19 pandemic.

2 This refers to fiscal policy measures taken by the cut-off date for fiscal assumptions, namely 24 May 2022. For more details, see the June 2022 Eurosystem staff macroeconomic projections for the euro area.

3 Such measures introduced in 2021 are estimated at around 0.2% of euro area GDP. Some of this support was extended into 2022, while new measures were approved between 1 January and 24 February 2022. Together with the measures adopted after 24 February 2022, which represent around 0.65% of euro area GDP (Chart A), the overall energy-related fiscal support is estimated at 0.8% of GDP in 2022.

baseline assumptions to be tilted towards additional fiscal stimulus, stemming in particular from the extension of energy-related compensatory measures.[4]

In terms of composition by fiscal instrument, most of the war-related measures are on the expenditure side. More specifically, the majority of euro area fiscal support introduced in response to the war, with effect in 2022, consists of fiscal transfers and subsidies, as well as cuts in (energy-related) indirect taxes (Chart A, panel b). The bulk of the support over the period 2023-24 is currently expected to consist of government investment, primarily on defence spending. Most of the measures are estimated to be debt-financed, with some amounts intended to be covered through revenues from the EU Emissions Trading System and relatively limited offsetting discretionary measures.[5]

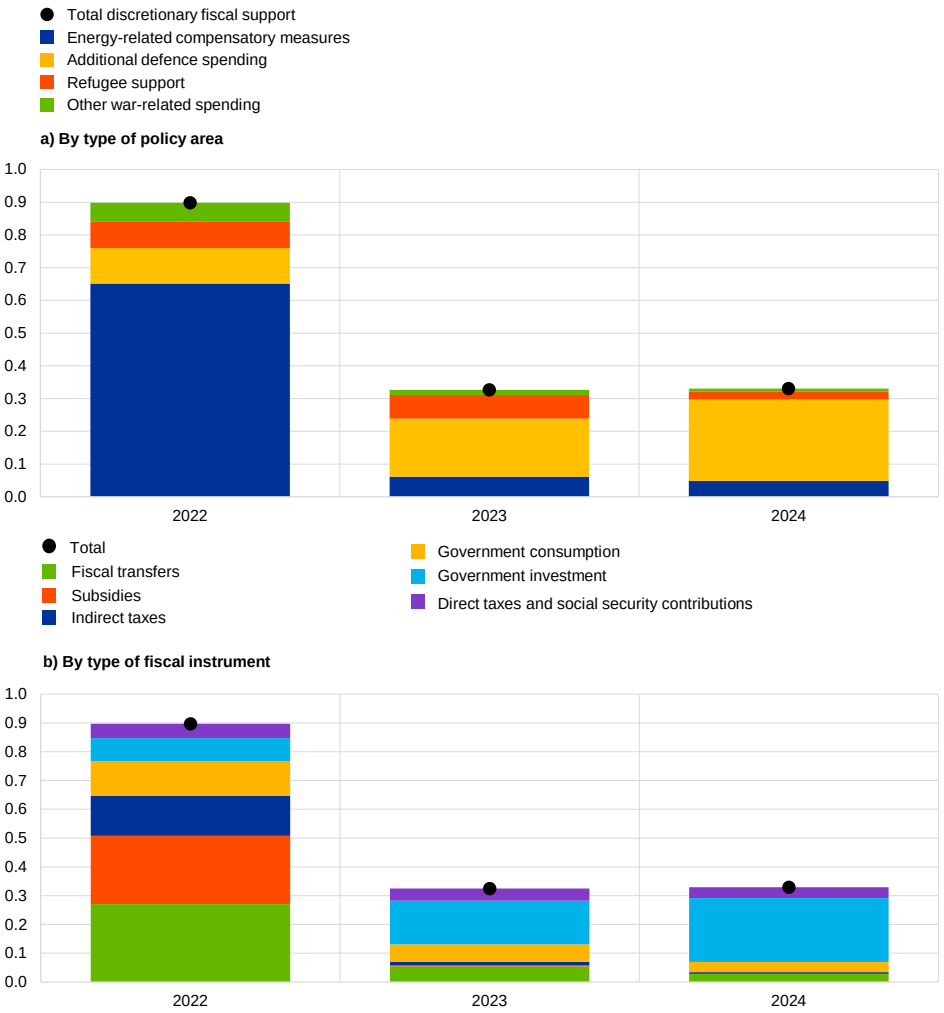
4 Indeed, since the cut-off date used for the June 2022 projections, several governments have already announced the extension of measures and/or the introduction of new measures beyond those considered in the baseline projections. Moreover, risks of additional fiscal policy responses may materialise in a downside scenario related to the economic impact of the war, such as the scenario presented in Box 3 of the June 2022 Eurosystem staff macroeconomic projections.

5 Notably, a discretionary measure specifically intended to compensate for part of the energy-related support has been approved in Italy. It is a claw-back tax on energy producers' profits – that is, a one-off levy of 25% which will apply to net sales that rose by more than €5 million during the period October 2021-April 2022 compared with one year earlier, excluding cases where the profit margin rose by less than 10%.

Chart A

Euro area fiscal measures related to the war in Ukraine

(percentage of euro area GDP)



Sources: June 2022 Eurosystem staff macroeconomic projections and ECB calculations, based on the ESCB Working Group on Public Finance (WGPF) fiscal questionnaires.
Notes: In panel a), "Other war-related spending" includes other direct transfers to Ukraine, the build-up of strategic gas reserves and support for companies other than those in the three main categories identified. In panel b), where the euro area fiscal measures related to the war in Ukraine are presented by type of fiscal instrument, "Fiscal transfers" consists mainly of direct support from the general government to households and, to a lesser extent, capital transfers to firms. "Subsidies" are current unrequited payments from the general government to resident producers (firms), mainly intended to lower energy prices. The fiscal measures are shown in terms of (ex ante) budget cost, in levels, per year. The war-related compensatory energy support, broadly denoting measures approved after 24 February 2022, is hereby proxied by the revisions in the estimated budget cost compared to the March 2022 ECB staff projections.

The overall energy-related compensatory measures in place in 2022 have been classified into four categories by Eurosystem staff[6] (Chart B):

- **Budget-side composition:** Measures on the expenditure side have a somewhat larger share in terms of euro area budgetary impact in 2022 (close to 60%).[7] They relate mostly to fiscal transfers to households and subsidies to firms. This type of spending is either linked to energy consumption or takes the

6 It should be noted that this classification is not straightforward in some cases and is necessarily based on assumptions in these cases.

7 The assessment in this box considers euro area aggregate data, although it is recognised that there are variations at country level.

form of lump-sum payments to households. Where euro area countries have introduced a freeze on energy prices, governments provide subsidies or capital transfers to energy providers or compensate for service charges/fees. On the revenue side, measures mostly relate to cuts in energy taxes (excise duties) on electricity, natural gas and solid fuels, and, to a lesser extent, cuts in VAT on energy products.[8] In addition, euro area countries have cut other taxes or fees related to energy consumption, such as environmental surcharges, network fees or system charges.

- **Recipient group.** Most of the measures approved for 2022 are directed at households (somewhat above 70% of the total budget impact).[9] Several countries have also extended support for firms in the most affected sectors, but this has a more limited fiscal impact.

- **Income targeting.** In terms of their impact, around 12% of euro area measures target low-income households (that is, measures which include clearly stipulated means-tested income criteria). These targeted measures take the form of rebates, vouchers for electricity or heating costs, and lump-sum payments to low-income households. Around 54% of the total measures are considered to represent non-targeted support for households, with the remaining 34% consisting of transfers to firms and other measures generally not targeting a certain income level.

- **Environmental considerations.** Based on the information available so far, slightly more than 1% of the total measures in terms of budgetary impact are estimated to contribute directly to the green transition. Around 53% of measures could be classified as supporting short-run fossil fuel consumption, while the other 46% represent "environmentally neutral" measures, including those that are currently difficult to classify. Tax cuts and subsidies for fossil fuels incentivise neither the efficient use of energy nor investment in energy-saving technology. Some countries have introduced "green measures", including subsidies for public transport or VAT reductions and subsidies for renewable energy sources.

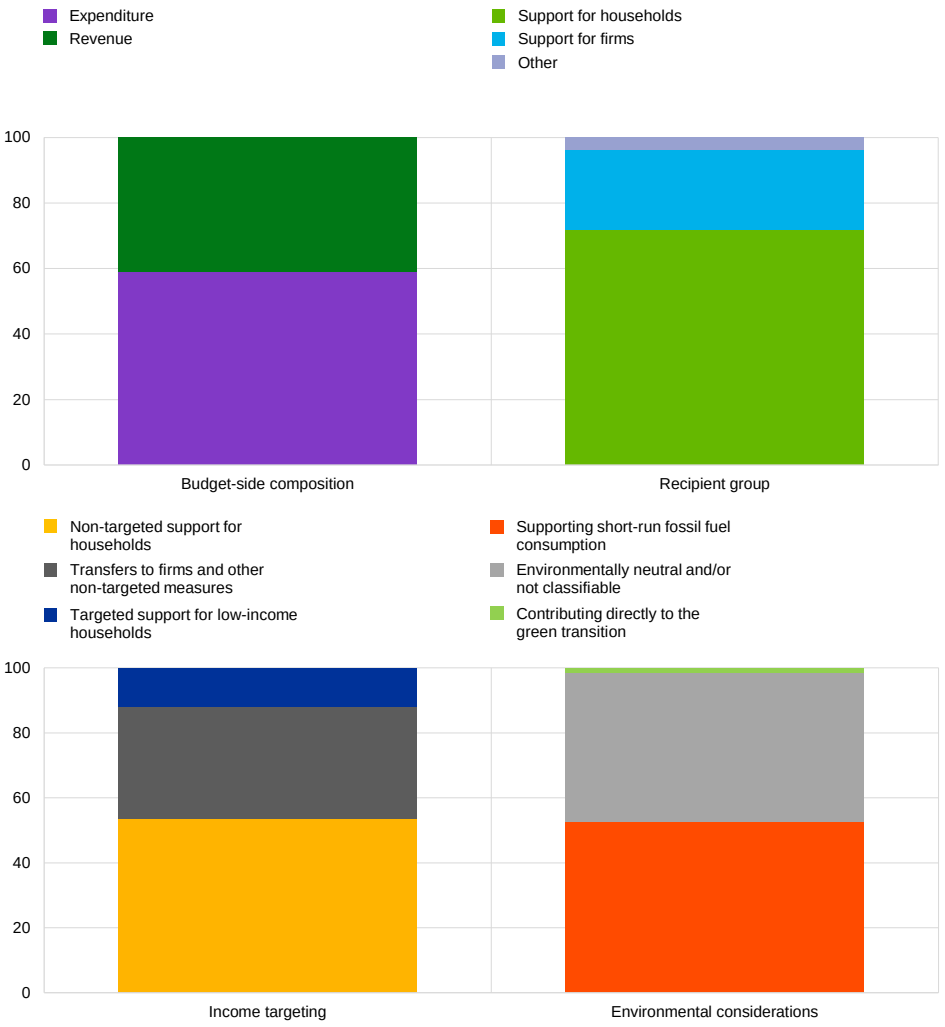
8 In the case of VAT, EU Member States may apply reduced VAT rates on energy products as long as they respect the minimum criteria laid down in the EU VAT Directive (Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax (OJ L 347, 11.12.2006, p. 1)), and they consult the VAT Committee. For excise duties, Member States can reduce their rates to the minimum defined by the current Energy Taxation Directive.

9 VAT cuts are mostly classified as support to households.

Chart B

Overall euro area fiscal measures to cushion the impact of energy price increases in 2022

(percentage share of total based on the 2022 budgetary impact)



Sources: June 2022 Eurosystem staff macroeconomic projections and ECB calculations, based on the Working Group on Public Finance (WGPF) fiscal questionnaires and Eurosystem staff assessment.
Notes: In the "Recipient group" bar, the category "Other" includes, inter alia, the building-up of gas reserves and recapitalisations of state-owned enterprises. In the "Income targeting" bar, the category "targeted support for low-income households" denotes the measures intended to directly support households based on clear means-tested income criteria. In the category "Transfers to firms and other non-targeted measures", some measures (about 5% in this category) refer to support granted only to specific sectors, such as agriculture or transportation, characterised by a higher share of low-wage workers compared with other sectors.

Besides the measures to curb the impact of high energy prices, the euro area fiscal response to the war mainly involves defence and refugee spending. The increase in euro area defence spending, embedded in the June 2022 Eurosystem staff macroeconomic projections, reflects first and foremost announced additional defence spending in Germany. Several other euro area countries have announced that they plan to increase their military capacity, with many referencing the NATO commitment to invest 2% of GDP in defence spending. However, few countries have outlined their plans in detail. Finally, additional spending has been approved in several countries to address the Ukraine refugee crisis, with this spending making up a larger share of total support primarily in central and eastern European countries.

In terms of their macroeconomic impact, the war-related fiscal measures are estimated to have a positive effect on GDP growth and to temporarily reduce inflationary pressures in 2022. Harmonised country-level simulations based on the ECB and ESCB models indicate that the war-related measures described above could increase euro area GDP growth by about 0.4 percentage points and reduce HICP inflation (mainly by lowering energy price inflation) by just under 0.4 percentage points in 2022 (Chart C).[10] In 2023, the impact on growth is estimated to fade, while the impact on inflation is expected to be broadly reversed. In cumulative terms over the projection horizon, the total stimulus measures in response to the war are estimated to have an impact of almost 0.4 percentage points on overall growth and a limited impact of just over 0.1 percentage point on inflation. The harmonised simulations are subject to uncertainty. The HICP inflation impact, which feeds mainly through the energy component, will depend on how much subsidies affect consumer prices, as well as on other behavioural responses stemming from country-specific features of the measures. The growth impact will depend on the effectiveness of the measures in stimulating short-run consumption and, particularly for the period 2023-24, on the actual effect of the defence spending, which is currently expected to come mostly in the form of government investment.[11]

Looking ahead, if additional public support is required, financial resources should be used efficiently. Efforts should be made to increasingly target energy-related compensatory measures to the most vulnerable households.[12] Moreover, incentives should be geared towards reducing the use of fossil fuels and dependence on Russian energy, while maintaining sound public finances.

10 For a discussion of factors other than direct fiscal measures related to the impact of the war in Ukraine on the energy markets, see the box entitled "The impact of the war in Ukraine on euro area energy markets", *Economic Bulletin,* Issue 4, ECB, 2022. This box also presents estimates related to the contribution of fiscal measures on the tax side to reducing HICP energy inflation as at April 2022.

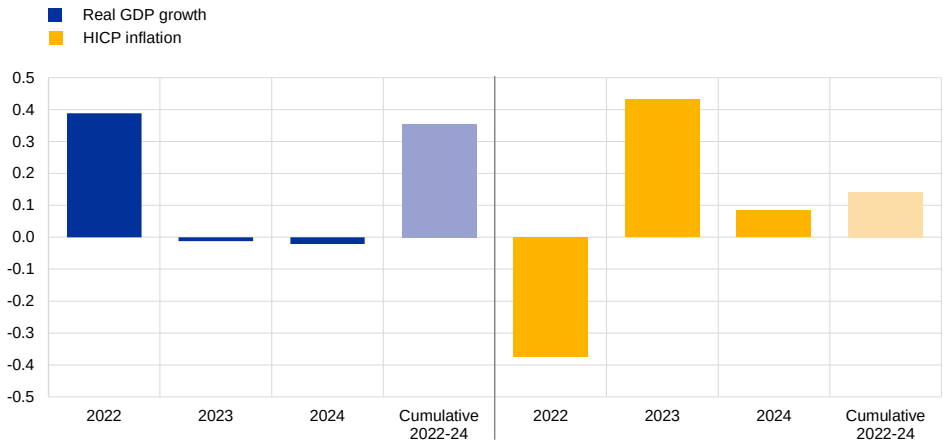
11 Some spending may not go into productive investment, instead taking the form of other fiscal instruments such as public wages. It may not feed into the domestic production of military equipment either, but public investment could include military deliveries from abroad. As a result, the related fiscal multipliers may be lower than considered in the present simulations.

12 See also the European Commission's recommendations in the context of the 2022 European Semester to "Supporting policies should be temporary and targeted to the most vulnerable in order for them to be most effective, while maintaining incentives to reduce the consumption of fossil fuels and containing their budgetary impact."

Chart C

Macroeconomic effects of budget support related to the war in Ukraine

(percentage points)



Source: ECB calculations.
Notes: The simulations are conducted with two sets of models regularly used in the Eurosystem's forecasting exercises: the ECB's New Multi-Country Model (NMCM) and the basic model elasticities (BMEs), a platform based on national central banks' macroeconomic models. Simulations take into account only those fiscal measures with a direct budgetary impact; they do not cover other government (regulatory) measures whose direct costs may be borne by the private sector.

Articles

1 The recovery in business investment – drivers, opportunities, challenges and risks

Prepared by Malin Andersson, Claudia Di Stefano, Yiqiao Sun and Francesca Vinci

1 Introduction

The coronavirus (COVID-19) pandemic led to a sharp decline in business investment in the euro area, which was followed by a significant rebound. Euro area non-construction (or "business") investment – also referred to as "investment" in this article – plummeted at the outbreak of the pandemic. Firms struggled to cover working capital in their day-to-day operational activities and delayed strategic investment objectives when the economies suddenly collapsed in the first half of 2020. Helped by substantial support from monetary and fiscal policy, which also prevented a larger collapse, it has now largely bounced back and is close to its pre-pandemic level.[1] However, investment has faced a number of headwinds, related to supply bottlenecks, rising energy costs and high uncertainty. The risks to the investment outlook have increased with Russia's war in Ukraine. Meanwhile, the pandemic has accelerated the structural transformation process taking place in the euro area economy, highlighting the benefits of digital and green investment.

Looking at investment from a medium-term perspective, opportunities, challenges and risks stem from the digitalisation and greening of the economy. Understanding the implications of this twin transformation process is crucial given the important role of investment as a driver of the business cycle and determinant of the productive capacity of the economy.[2] This article takes stock of the current investment dynamics in the euro area and examines the drivers of the ongoing transformation process as well as its likely consequences for the economic recovery.

The article focuses on these cyclical and structural issues. Section 2 looks at developments in business investment two years after the onset of the pandemic in the euro area. Section 3 focuses on the opportunities, challenges and risks to investment from the ongoing digitalisation and greening of the euro area economy. Section 4 concludes.

1 Adjusted for the statistical volatility of intangible investment in Ireland (see Box 1).

2 See the article entitled "Business investment developments in the euro area since the crisis", *Economic Bulletin*, Issue 7, ECB, 2016.

2 Business investment: taking stock after the pandemic shock

Two years after the onset of the pandemic, business investment has largely recovered. The pandemic shock caused the largest and fastest fall in investment in modern history. Thanks to extraordinary policy support and the fact that lasting repercussions on the financial markets were limited, however, euro area investment has broadly bounced back (Chart 1), though by less than in the United States (see Box 1). Monetary policy has played a crucial role in supporting investment during the pandemic by providing favourable financing conditions and facilitating credit access for firms.[3] Evidence indicates that national fiscal policy support has been given predominantly to the firms and sectors with the largest liquidity needs or losses in sales during the crisis.[4] Fiscal policies have also supported investment over the past two years (in part through guarantees and liquidity support), particularly in digital technologies and the green transition.[5]

Nevertheless, the recovery in investment appears to have been weaker for countries and types of investment more heavily affected by supply bottlenecks and mobility restrictions. This is especially the case in Germany, which is facing a shortage of microchips, and for transport equipment, which has been hit by a drop in demand for flights (Chart 1, panels a and b). Since early 2022 investment has also faced rising commodity prices and uncertainty related to the war in Ukraine, along with re-intensified supply concerns as a result of the war and the resurgence of the pandemic in Asia.

3 See the ECB's website for information on its response to the pandemic, and Ferrando, A., Popov, A. and Udell, G.F., "Unconventional monetary policy, funding expectations and firm decisions", *Working Paper Series,* No 2598, ECB, October 2021.

4 See the box entitled "The impact of fiscal support measures on the liquidity needs of firms during the pandemic", *Economic Bulletin,* Issue 4, ECB, 2021, and Harasztosi, P. et al., "Firm-level policy support during the crisis: So far, so good?", *EIB Working Papers,* 2022/01, European Investment Bank, January 2022.

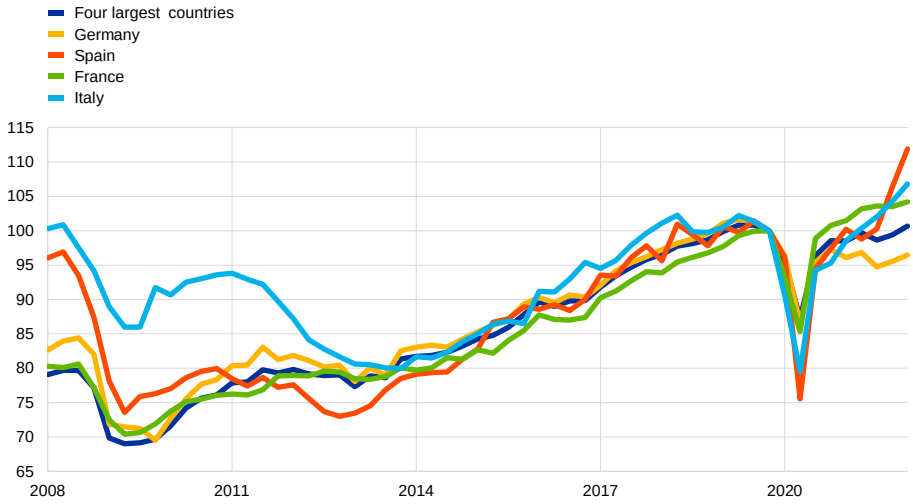
5 See the article entitled "The initial fiscal policy responses of euro area countries to the COVID-19 crisis", *Economic Bulletin*, Issue 1, ECB, 2021, and "Latest EIB survey: The state of EU business investment 2021", European Investment Bank, 2 December 2021.

Chart 1

Real non-construction investment in the four largest euro area countries

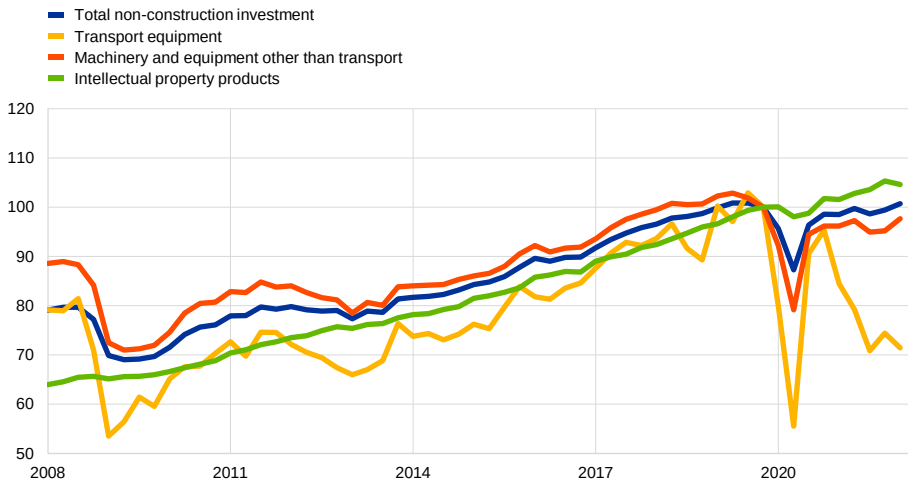
a) Total non-construction investment

(index: Q4 2019=100)



b) Breakdown by asset type

(index: Q4 2019=100)



Sources: Eurostat and ECB estimates.
Notes: The first series in panel a) and all data in panel b) refer to the four largest euro area countries to avoid the high volatility in some other euro area country data related to intangible investment (see Box 1). In panel b), owing to missing data, German investment in transport equipment from the second quarter of 2021 onwards has been proxied using the quarter-on-quarter growth rates for German production of transport equipment. The latest observation is for the first quarter of 2022.

Box 1

Non-construction investment in the euro area and the United States

Prepared by Valerie Jarvis

This box compares the non-construction investment recoveries in the euro area and the United States. The rebound in non-construction investment in the United States from the COVID-19 lockdowns in 2020 was swift, with investment already surpassing pre-COVID levels and broadly

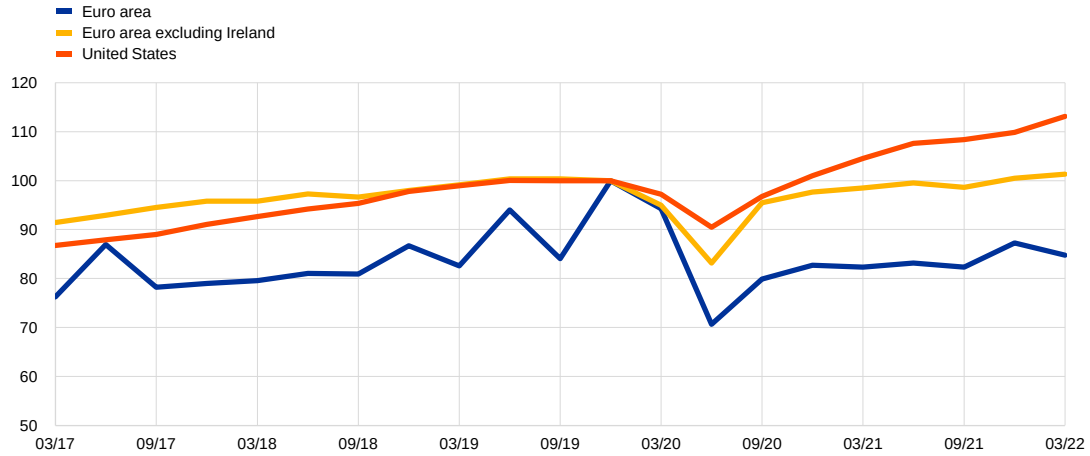
back to its pre-pandemic rate of growth by the end of that year.[6] By contrast, data for the euro area aggregate suggest a significant gap compared with the pre-pandemic level (Chart A, panel a).

Chart A

Real non-construction investment

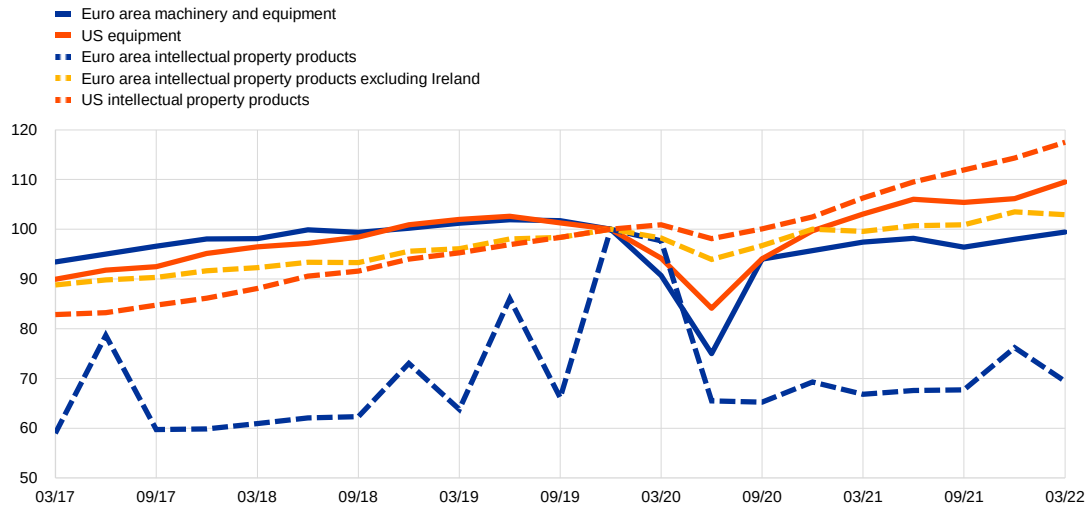
a) Total non-construction investment

(index: Q4 2019=100)



b) Breakdown

(index: Q4 2019=100)



Sources: Bureau of Economic Analysis (Haver Analytics), Eurostat and ECB staff calculations.
Notes: Panel a): US data are for private non-construction investment. Panel b): "Intellectual property products" (or intangibles) includes software and databases, and research and development expenditure (R&D). The latest observations are for the first quarter of 2022.

There are several factors behind the euro area's slower recovery in investment. First, the pandemic began somewhat earlier in Europe than in the United States, and lockdown measures in the spring of 2020 were stricter and more protracted, resulting in less bad outcomes in terms of health but a larger contraction of economic activity and investment, as well as stronger headwinds for the

[6] Moreover, trend growth has typically also been slightly higher in the United States than in the euro area. Between the trough of the global financial crisis and end-2019, US non-construction investment grew by just over 1.5% per quarter, compared with around 1.4% in the euro area (0.8% excluding Ireland). Following the double-dip recession of 2008-12 in the euro area, US investment increased, on average, by 1.1% quarter on quarter, compared with 1.0% in the euro area excluding Ireland.

recovery.[7] Second, and more importantly, euro area investment patterns have been more volatile than in the United States, reflecting irregular inflows of intangible investment by US multinationals, particularly for Ireland. By far the largest inflow to date occurred in the final quarter of 2019, artificially boosting the yardstick by which the subsequent recovery would be measured.[8] Adjusting for this starting level (Chart A, panel a), the euro area recovery is closer to the profile in the United States, albeit merely edging back to pre-crisis levels by mid-2021. This evolution is common across asset types, with a gap having built up between the euro area and the United States both for machinery and equipment and for intellectual property products (Chart A, panel b).

There are additional explanations for the faster rebound in investment in the United States than in the euro area. The swifter economic rebound in the United States may have increased confidence in the strength of the recovery, thus reducing the downward drag of uncertainty on investment relative to the situation in the euro area. More lay-offs in the United States during the most restrictive period of the pandemic may also have been compensated for by higher investment than in the euro area. At the same time, a potentially larger share of jobs open to teleworking in the United States may have helped to boost investment in IT-related equipment more than in the euro area.[9] Some euro area investment may also have been postponed during the second half of 2020 and early 2021 as the private sector waited for details related to the workings of the Next Generation EU instrument (see Box 2).

Over the past two years investment has continued to fall short of corporate savings. The euro area non-financial corporate sector has been a net lender for most of the period since the global financial crisis, meaning that firms generated savings in excess of their investment in most years (Chart 2). These dynamics reflect a range of factors which have curbed investment and spurred savings.[10] For example, investment has been dampened by: structural rigidities in product and labour markets; episodes of balance sheet adjustment to reduce a high corporate debt burden; the expansion of the services sector, causing shifts from tangible capital to labour-intensive production; as well as a secular fall in returns on investment, which has incentivised firms to shift towards financial assets and away from fixed capital assets.[11] Savings have been boosted by firms increasing the cash buffers needed to finance intangible investment and leaner inventories.[12] The corporate net lending position increased further during the pandemic and reached

7 See Licchetta, M., Mattozzi, G., Raciborski, R. and Willis, R., "Economic Adjustment in the Euro Area & the United States during the COVID-19 Crisis", *European Economy Discussion Paper*, No 160, European Commission, March 2022. See also the box entitled "Economic developments in the euro area and the United States in 2020", *Economic Bulletin*, Issue 2, ECB, 2021.

8 This yardstick may also have been boosted by additional investment amid fears of a no-deal Brexit. See Box 1 in the article entitled "Understanding post-referendum weakness in UK import demand and UK balance of payments risks for the euro area", *Economic Bulletin*, Issue 3, ECB, 2021.

9 See Brussevich, M., Dabla-Norris, E. and Khalid, S., "Who will Bear the Brunt of Lockdown Policies? Evidence from Tele-workability Measures Across Countries", *IMF Working Paper*, No 2020/088, International Monetary Fund, 12 June 2020, and Dingel, J.I. and Neiman, B., "How many jobs can be done at home?", *Journal of Public Economics*, Vol. 189, September 2020.

10 See Boone, L. and Revoltella, D., "Policy change needed to accelerate investment in structural transformation", *VoxEU*, 6 December 2019.

11 See Ruscher, E. and Wolff, G., "Corporate balance-sheet adjustment: New stylised facts and their relevance for the Eurozone", *VoxEU*, 5 March 2012.

12 See Demary, M., Hasenclever, S. and Hüther, M., "Why the COVID-19 Pandemic Could Increase the Corporate Saving Trend in the Long Run", *Intereconomics Review of European Economic Policy*, Vol. 56, No 1, pp. 40-44.

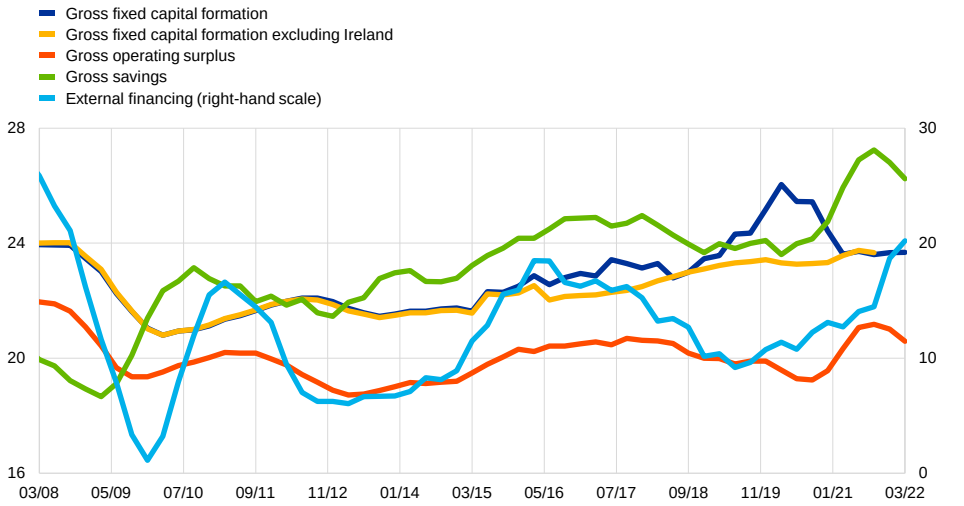
record levels in 2021, with non-financial corporations increasing liquidity and capital buffers to better withstand future shocks.[13]

While internal funds have increased, the timing of their future use is uncertain. Both internal and external financing as a share of value added have increased over recent years (Chart 2). Ample availability of funding should support business investment and the financing of both digitalisation, which relies more on internal funds, and green investment, which is both equity and debt-financed. However, firms may choose to retain precautionary savings when faced with continued high uncertainty, particularly as a result of the war in Ukraine (given its potential impact on the future energy mix or globalisation forces), the uncertainty about the need for investment as a result of climate-related policies, the fading of fiscal support measures or, more recently, high inflation. Other challenges and risks to the investment outlook stem from the expected normalisation of the cost of financing, high corporate indebtedness, and an expected increase in insolvencies.[14]

Chart 2

Nominal investment, savings and financing

(four-quarter moving averages as a percentage of value added)



Source: ECB.
Note: External financing refers to the net incurrence of total financial liabilities, including monetary financial institution (MFI) loans, debt securities, shares, loans from non-MFIs and the rest of the world, and trade credit. Gross operating surplus is expressed as a share of value added minus 20. The latest observations are for the third quarter of 2021 for gross fixed capital formation excluding Ireland, and for the first quarter of 2022 for the other series.

Domestic demand and profits are key drivers of business investment dynamics. A structural vector autoregressive (VAR) model shows that the main determinants of investment growth since 2008 have been shocks from domestic demand and gross operating surplus (Chart 3). Together with weak demand, news-based uncertainty has curbed investment in past crises as well as during the pandemic. Estimations based on micro data point to the relevance of demand (sales)

13 See the box entitled "Corporate saving ratios during the pandemic", *Economic Bulletin,* Issue 2, ECB, 2022.

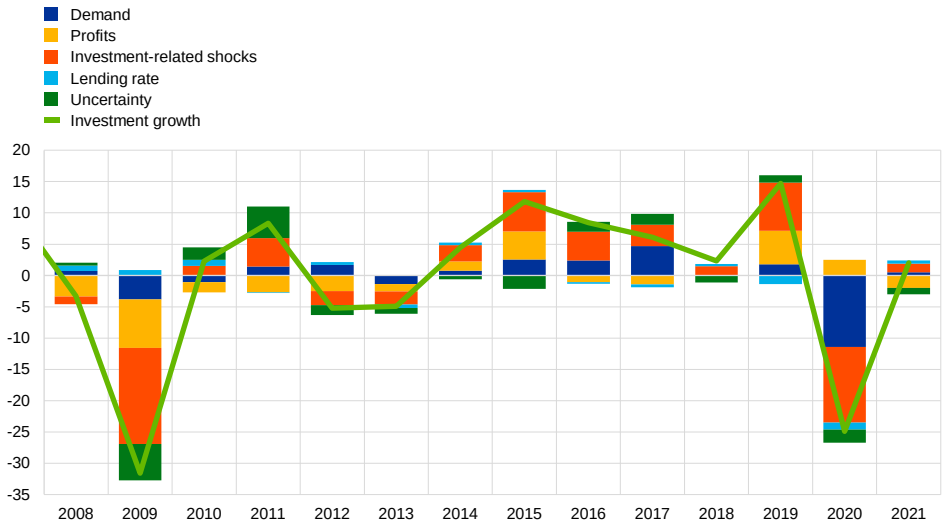
14 See the article entitled "Assessing corporate vulnerabilities in the euro area", *Economic Bulletin,* Issue 2, ECB, 2022.

and profits (cash flow), but with different sensitivities depending on the firm's financial soundness, sector and size, see Box 2.

Chart 3

Decomposition of business investment

(annual percentage changes, percentage points)



Sources: Baker S.R., Bloom, N. and Davis, S.J., "Measuring Economic Policy Uncertainty", 10 March 2016, European Commission, Eurostat, ECB and ECB estimates.
Notes: The structural VAR model uses a Cholesky decomposition of shocks. It is estimated on quarterly data for the period from the first quarter of 2005 to the fourth quarter of 2021, and the results aggregated to produce annual data. "Demand" is GDP minus total investment from the national accounts, "profits" is total gross operating surplus from the national accounts. "Investment" is total investment excluding housing investment (both from the national accounts) and excluding government investment (from the AMECO database, interpolated quarterly and deflated). "Uncertainty" is a news-based measure of uncertainty (using two newspapers per country). The "lending rate" is the annualised interest rate on corporate loans other than revolving loans and overdrafts, convenience credit card debt and extended credit card debt. See WGEM Team on Investment, "Business investment in EU countries", *Occasional Paper Series*, No 215, ECB, October 2018, pp. 92-93. The latest observations are for 2021.

Box 2

The role of cash flow in business investment on the basis of firm-level data

Prepared by Desislava Rusinova, Lorena Saiz and Jan-Christopher Scherer

This box uses firm-level data to assess drivers of business investment, particularly among financially constrained firms. The literature has found that financial factors such as financial debt or cash flow are key determinants of investment in tangible fixed assets. Other characteristics such as the sector or country where the firms operate, sales growth, expected future profitability and the level of economic uncertainty are also relevant. The present analysis is based on investment equations including most of these determinants, estimated using panel data for firms in the four largest euro area countries for the post-financial crisis period (2013-19). The empirical results confirm the relevance of cash flow, particularly for micro and small firms, and for countries with a larger proportion of small firms, such as Spain and Italy.[15]

[15] The dynamic investment equations are estimated using a generalised method of moments approach, which controls for biases due to unobserved firm-specific effects and endogenous explanatory variables. The model includes lags of investment, sales growth and cash flow, as well as time, sector and firm-size fixed effects, and a long-run equilibrium investment-capital stock relationship, or error correction term, as in Bond, S., Elston, J.A., Mairesse, J. and Mulkay, B., "Financial factors and investment in Belgium, France, Germany, and the United Kingdom: A comparison using company panel data", *The Review of Economics and Statistics*, MIT Press, Vol. 85(1), February 2003, pp. 153-165.

One key driver of investment is related to the extent to which firms have access to external financing, specifically bank credit, or are financially constrained. Proxies for financial constraints are firm leverage, size or age. In the literature, "excess sensitivity" of investment to cash flow is often interpreted as suggesting the importance of financial constraints. Having cash at hand when credit conditions tighten is important, since firms with high debt and low cash holdings could be forced to cut investment when facing adverse shocks. Identifying vulnerable firms as those with simultaneously high levels of debt and low levels of cash or liquid assets suggests that around 15% of firms were in a vulnerable financial position before the COVID-19 crisis on average for the four countries.[16] In all countries most of the vulnerable firms are micro firms. Since smaller firms tend to be more dependent on bank-based external financing, high leverage ratios represent both high levels of indebtedness (potentially affecting their access to finance) and greater exposure to interest rate risk. Utility companies and firms in the accommodation and food as well as transport sectors are much more frequently represented among vulnerable firms. While utility companies benefit from a stable cash-flow stream, they are highly leveraged to finance potentially large and periodic capital expenditure needs for the purpose of maintaining infrastructures. Accommodation and food services firms, which were among the hardest hit sectors in the COVID-19 crisis, were already relatively highly represented among vulnerable firms in 2019.

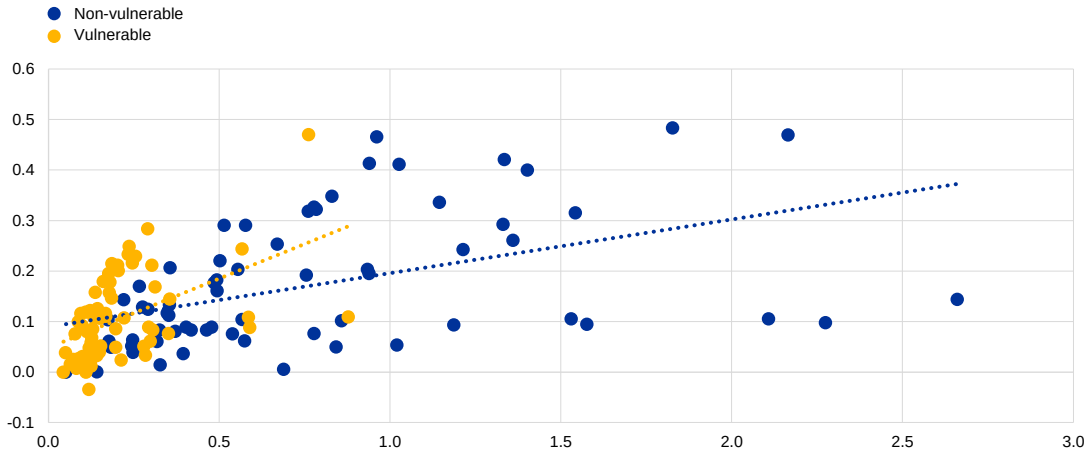
When the sensitivity of investment to cash flow before the pandemic is considered separately for vulnerable and for non-vulnerable firms, it is much higher for vulnerable firms (Chart A). This means that unexpected changes in operating cash flow are likely to lead to larger adjustments in investment decisions for those firms. Since some of the sectors most affected by the pandemic (such as transportation and storage, accommodation and food, or real estate services) already had a larger than average share of vulnerable firms, the investment contraction is likely to have been particularly sizeable in those sectors. The predicted decline in the investment ratio given the observed changes in both cash flow and sales in 2020 is largest in those sectors that were most affected by the pandemic (Chart B). Gross fixed capital formation data for 2020 by sector, where available, confirm that investment declined the most in these sectors. Preliminary (but incomplete) micro data for 2020 indicate that the decline in the investment ratio was on average smaller than predicted in all sectors. This suggests that other factors such as monetary and fiscal policy support also had an effect.

[16] Vulnerable firms are defined as those firms that belong simultaneously to the top tertile for the leverage ratio (financial debt over total assets) and to the bottom tertile for the liquid asset ratio (current assets minus current liabilities over total assets). A firm with high debt but high liquid asset holdings and profits could take on more debt to finance future investment projects, whereas a firm with low liquid assets could find it difficult to take on more debt. See Albuquerque, B., "Corporate debt booms, financial constraints and the investment nexus", *Staff Working Paper*, No 935, Bank of England, August 2021.

Chart A

Investment in tangible assets and cash flow for vulnerable and non-vulnerable firms in each sector

(y-axis: investment in tangible assets over total fixed assets; x-axis: cash flow over total fixed assets)

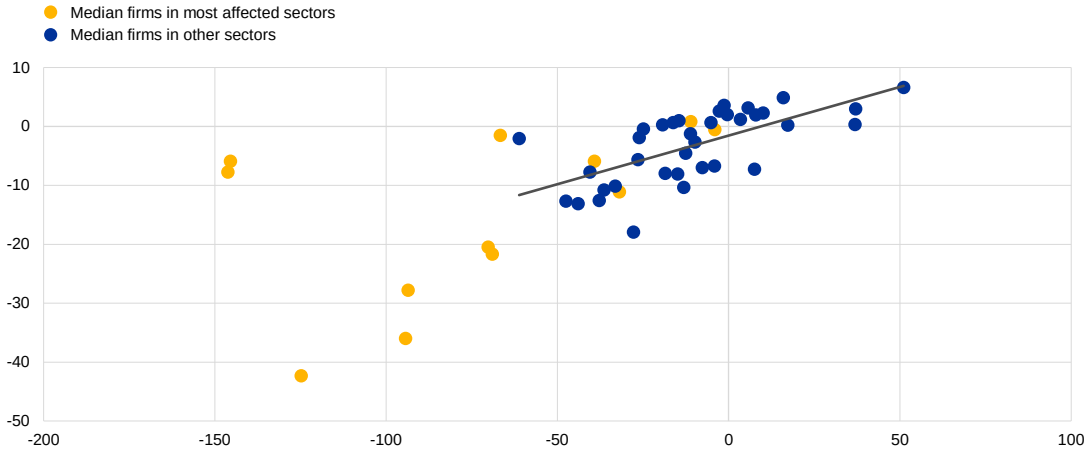


Sources: Orbis and ECB calculations.
Notes: The chart shows the average investment in tangible assets and cash flow (i.e. profits plus depreciation), both scaled by fixed assets at book value, for vulnerable and non-vulnerable firms in each economic sector (all sectors except the financial sector based on the NACE classification system) in Germany, Spain, France and Italy over the period 2012 to 2019. See footnote 16 for a definition of vulnerable firms. All variables in the underlying micro data are winsorised at the 5th and 95th percentiles to mitigate the impact of outliers.

Chart B

Predicted changes in the investment ratio in 2020

(y-axis: predicted change in investment ratio (percentage points); x-axis: change in cash flow (percentages))



Sources: Orbis, BACH and ECB calculations.
Notes: The chart depicts the predicted changes in the investment ratio for the median firm in Spain, France and Italy and in each economic sector in 2020 (all sectors except the financial sector based on the NACE classification system) given the observed changes in cash flow from 2019 to 2020. Since firm level data for 2020 is incomplete, sectoral information from the BACH database, which does not cover Germany, has been used for changes in both cash flow and sales growth (which is also included in the investment equation). The investment ratio is defined as the change in tangible fixed assets over previous period tangible and intangible fixed assets. The most affected sectors are wholesale and retail trade, transportation and storage, accommodation and food services, and arts, entertainment and recreation. The regression line is based on the observations for firms in other sectors (blue dots). It suggests a clear positive relationship between predicted changes in the investment ratio and changes in cash flow. For firms in the most affected sectors (yellow dots), the drop in both cash flow and the predicted investment ratio was much larger than for the other sectors.

Policy support was fundamental to providing liquidity and cushioning the impact of the pandemic, albeit to a different extent across firms. Among the policy measures, monetary policy played a key role in ensuring the preservation of favourable financing conditions and a continuous credit flow. Nonetheless, financial constraints may mean that individual firms' investment spending responds

differently to changes in monetary policy, and the empirical evidence for this is inconclusive.[17] Monetary policy shocks proxied either by bank lending rates or changes in three-month EONIA swaps appear, nevertheless, to have more explanatory power for investment decisions of vulnerable firms in Spain or Italy than in other countries.

Box 3

Business investment and the Next Generation EU instrument – crowding in or crowding out?

Prepared by Roberto A. De Santis, Maximilian Freier and Francesca Vinci

This box assesses the impact of the expected significant increase in EU-funded public investment on business investment. The Next Generation EU (NGEU) fiscal instrument was set up in response to the pandemic, and was designed not only as a temporary measure to support the recovery process but also to make the EU economies more resilient through structural reforms and investment, in line with long-term EU objectives such as the green and digital transitions.[18] Its core component, the Recovery and Resilience Facility (RRF), will provide the EU Member States with grants and loans of up to €724 billion in current prices over the period 2021-26. RRF funding is conditional on, among other criteria, its use for investment projects complying with pre-defined targets and milestones.

Focusing on the euro area, NGEU is expected to increase public investment by around 2.5 percentage points of GDP in the six-year period to 2026. The largest share of NGEU funding is intended to be allocated to new investment projects ("additional investment"), with a smaller part financing already budgeted projects ("substitutive investment"), as shown in Chart A, first column. Previous studies suggest that NGEU investments and structural reforms are likely to have positive economic effects (e.g. on growth, potential output, cross-country convergence and public finances), but they do not explicitly focus on the effects on private investment.[19]

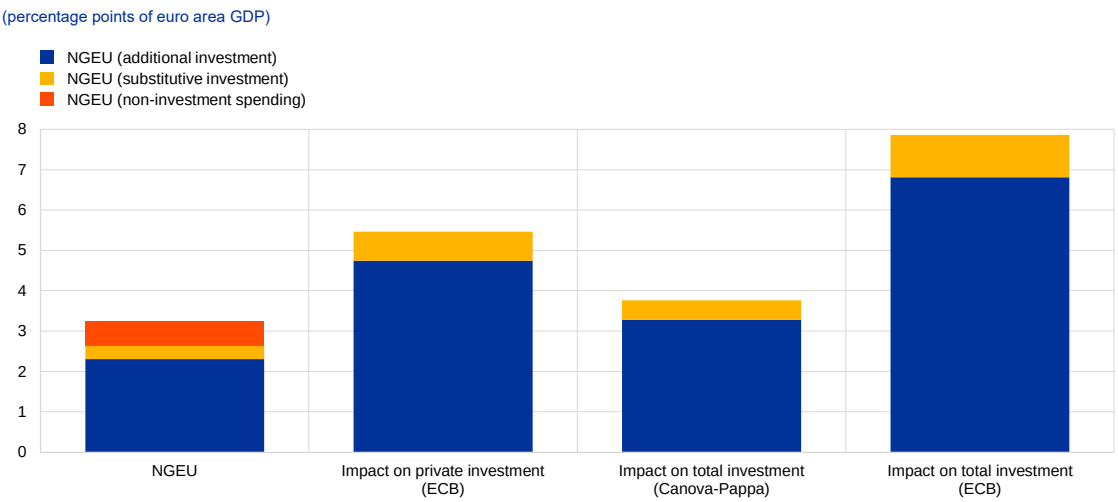
17 See e.g. Ottonello, P., Winberry, T., "Financial Heterogeneity and the Investment Channel of Monetary Policy", *Econometrica*, Vol. 88, No 6, November 2020, pp. 2473-2502; Jeenas, P., "Firm Balance Sheet Liquidity, Monetary Policy Shocks, and Investment Dynamics", *Working paper*, 2019. Lakdawala, A. and Moreland, T., "Monetary Policy and Firm Heterogeneity: The Role of Leverage Since the Financial Crisis", *Working Paper*, 2021.

18 See the article entitled "Next Generation EU: A euro area perspective", *Economic Bulletin*, Issue 1, ECB, 2022.

19 See e.g. Bańkowski, K., Bouabdallah, O., Domingues Semeano, J., Dorrucci, E., Freier, M., Jacquinot, P., Modery, W., Rodríguez-Vives, M., Valenta, V. and Zorell, N., "The economic impact of Next Generation EU: A euro area perspective", *Occasional Paper Series*, No 291, ECB, April 2022.

Chart A

NGEU funding and its expected cumulative impact on private and total investment in the euro area (2021-26)



Sources: Canova and Pappa (see footnote 22), and ECB staff calculations with input from Eurosystem staff calculations.
Notes: Calculations based on the instrumental variable elasticities reported in Table 1, applied to the expected flow of funds stemming from NGEU. Canova and Pappa's calculations are based on their estimated multiplier, on impact, of the European Regional Development Fund on investment. Most NGEU grants and loans are expected to finance new fiscal measures in the euro area ("additional") with a smaller amount expected to finance already budgeted fiscal measures ("substitutive").

Whether changes in public investment have a positive or negative impact on business investment remains a contested issue in the literature. Under certain circumstances, public investment may crowd out business investment, either directly, because private economic activity is substituted by public economic activity, or indirectly, because higher public debt pushes up interest rates and thus the real cost of capital.[20] On the other hand, public investment may have a positive multiplier effect on business investment, for instance if public infrastructure investment leads to a more favourable business investment environment.[21]

The potential impact of NGEU on private investment can be gauged by estimating the historical multipliers of the European Structural and Investment Funds (ESIF) for private investment. While there are differences between the ESIF and NGEU regarding their governance (for example RRF-funded measures do not require co-financing by the EU Member States), the ESIF and NGEU share two important features in terms of their policy objectives and instruments.[22] First, funding is directed towards broadly similar goals, including investment in research and development (R&D), the green transition and social cohesion. Second, both the ESIF and NGEU allocate most of their funding to investment (around 80% of NGEU expenditure in the euro area; Chart A, first column). Therefore ESIF flows, which are available from the early 1990s, can be used to estimate the effects of such EU funds on private investment – of which approximately 70% is business investment – relative to GDP on an annual basis, both at impact (h=0) and in the following years (h>0).

20 Buiter, W.H., "'Crowding out' and the effectiveness of fiscal policy", *Journal of Public Economics*, Vol. 7, No 3, June 1977, pp. 309-328.

21 Aschauer, D.A., "Is public expenditure productive?", *Journal of Monetary Economics*. Vol. 23, No 2, March 1989, pp. 177-200.

22 See also Canova, F. and Pappa, E., "What are the likely macroeconomic effects of the EU Recovery plan?", *Working Paper*, 2021; and Albrizio S. and Geli, J.F., "An empirical analysis of the determinants that can boost Next Generation EU´s effectiveness" *Economic Bulletin*, Issue 4, Banco de España, 2021, pp. 1-9.

According to the historical regularities estimated for the ESIF, NGEU-funded public investment could crowd in sizeable private investment, with a multiplier greater than one. The estimated multipliers of the ESIF – based on a panel of 28 EU countries from 1994 to 2018 – are larger than one, at impact as well as after one year (Table A). This implies that one euro spent through the ESIF is associated with two euro in private investment cumulated over time. The cumulative magnitude of the effect is therefore positive and large. Similar conclusions can be drawn from a study by Canova and Pappa (see footnote 22), which uses alternative econometric techniques and focuses on total (private and public) investment, although the positive impact is smaller. Despite high uncertainty and potential variation across countries, these estimates suggest that the NGEU flows have the potential to increase euro area private investment cumulatively by about 5% of euro area GDP between 2021 and 2026 (Chart A).[23] However, this conclusion is subject to a number of assumptions, including that the NGEU plans will be implemented in a timely, efficient and effective way.

Table A

European Structural and Investment Funds' multipliers for private investment

(Cumulative impact of one euro of ESIF funding on private investment expenditure relative to GDP in the current year (h=0) and one year ahead (h=1))

	Private investment		Total investment	
	h=0	h=1	h=0	h=1
ESIF multiplier	1.144***	2.197***	1.619***	3.161***

Sources: European Commission, Eurostat and ECB staff calculations.
Notes: The estimation entails a linear regression of the change in ESIF funding on the change in investment (both scaled by GDP) with an instrumental variable, where the change in predicted ESIF funding is employed as an instrument. The latter is constructed, for a given region, as the average ESIF disbursements in regions with similar characteristics but in other countries, then aggregated at the national level. The estimation controls for previous year GDP growth, year and country fixed effects and global financial crisis country-time fixed effects. The top and bottom 5% of observations are winsorised. Sample: 1994-2018 for the then 28 Member States of the EU. Methods draw from: Durand, L. and Espinoza, R.A., "The Fiscal Multiplier of European Structural Investment Funds: Aggregate and Sectoral effects with an Application to Slovenia", *IMF Working Paper*, No 2021/118, International Monetary Fund, 30 April 2021. ***denotes statistical significance at 1%.

There are several possible channels by which EU-financed public investment stimulates private investment. First, much of EU financing goes into network infrastructure (transport and communication). This has opened up previously isolated rural areas to business investment. Second, EU funding often goes to underdeveloped sectors of the economy, particularly in advanced technologies. Returns in these sectors may be relatively high and attract investor interest. A third explanation for the high ESIF multiplier may be the fact that these projects require national co-financing, by either public or private entities. Nevertheless, identifying the factors behind the positive effects of EU-financed investment on private investment remains an open research avenue.

3 Opportunities and challenges for investment

The pandemic has provided major investment opportunities for digitalisation and greening. These are two of EU's key policy priorities, and NGEU funds are intended to spur such investment (see Box 3). Considerable further investment is necessary to meet targets, and there are several challenges and risks to be overcome.

[23] See also Pfeiffer, P., Varga, J. and in 't Veld, J., "Quantifying Spillovers of Next Generation EU Investment", *European Economy Discussion Paper*, No 144, European Commission, July 2021.

Digitalising investment

Investment in digital technologies accelerated after the outbreak of the pandemic, with especially larger firms as well as firms in the services sector taking up such technologies.[24] Survey evidence shows that the adoption of digital technologies increased in the EU between 2018 and 2020, and roughly half of firms surveyed in Germany in February 2021 reported having invested in some form of digital technology during the pandemic, while a third considered the pandemic to have accelerated digitalisation (Chart 4). There is, however, considerable variation across firms and sectors: large firms in the EU were more likely to have invested in digital technologies, while small and medium-sized firms had encountered more financial or logistical barriers than others. Across sectors, while digitalisation in the manufacturing sector was high but had not advanced significantly during the pandemic, the services sector had accelerated investment in digital technologies.

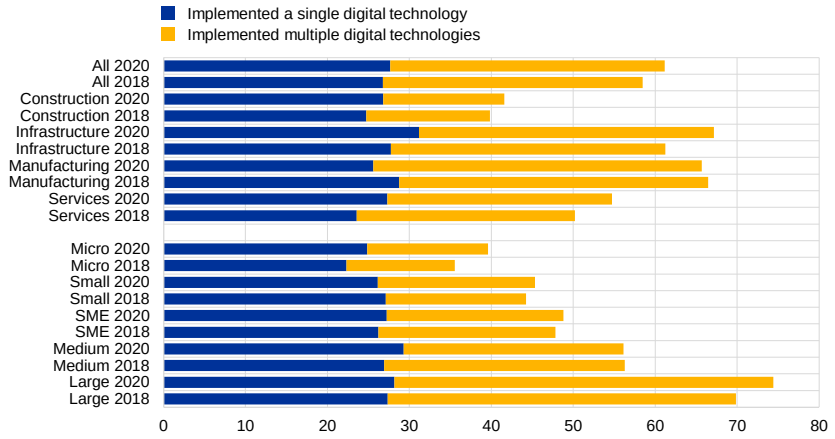
[24] See Ficarra, M., Rückert, D., Virginie, A. and Weiss, C., *Digitalisation in Europe 2020-2021 – Evidence from the EIB Investment Survey*, European Investment Bank, July 2021. See also Anderton, R., Jarvis, V., Labhard, V., Morgan, J., Petroulakis, F. and Lara, V., "Virtually everywhere? Digitalisation and the euro area and EU economies – Degree, effects, and key issues", *Occasional Paper Series*, No 244, ECB, June 2020, revised December 2020.

Chart 4

The COVID-19 pandemic and the diffusion of digital technologies

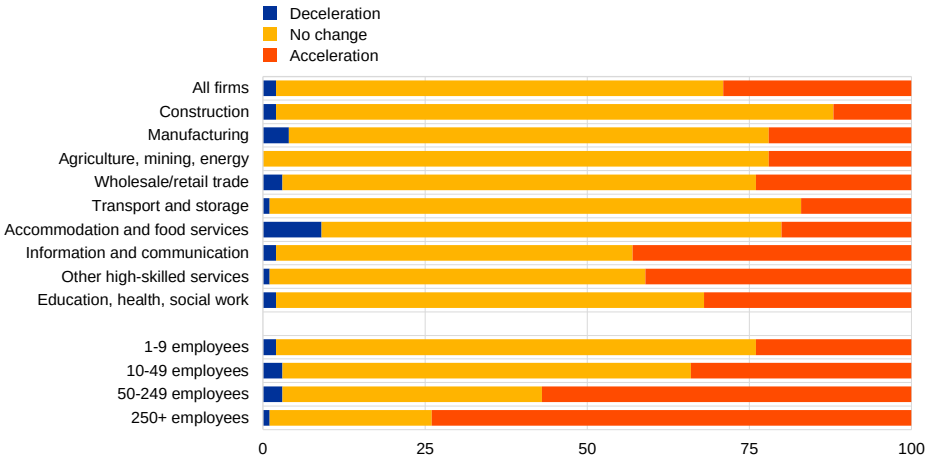
a) European Union

(percentages of firms in the respective survey)



b) Germany

(percentages of firms in the survey)

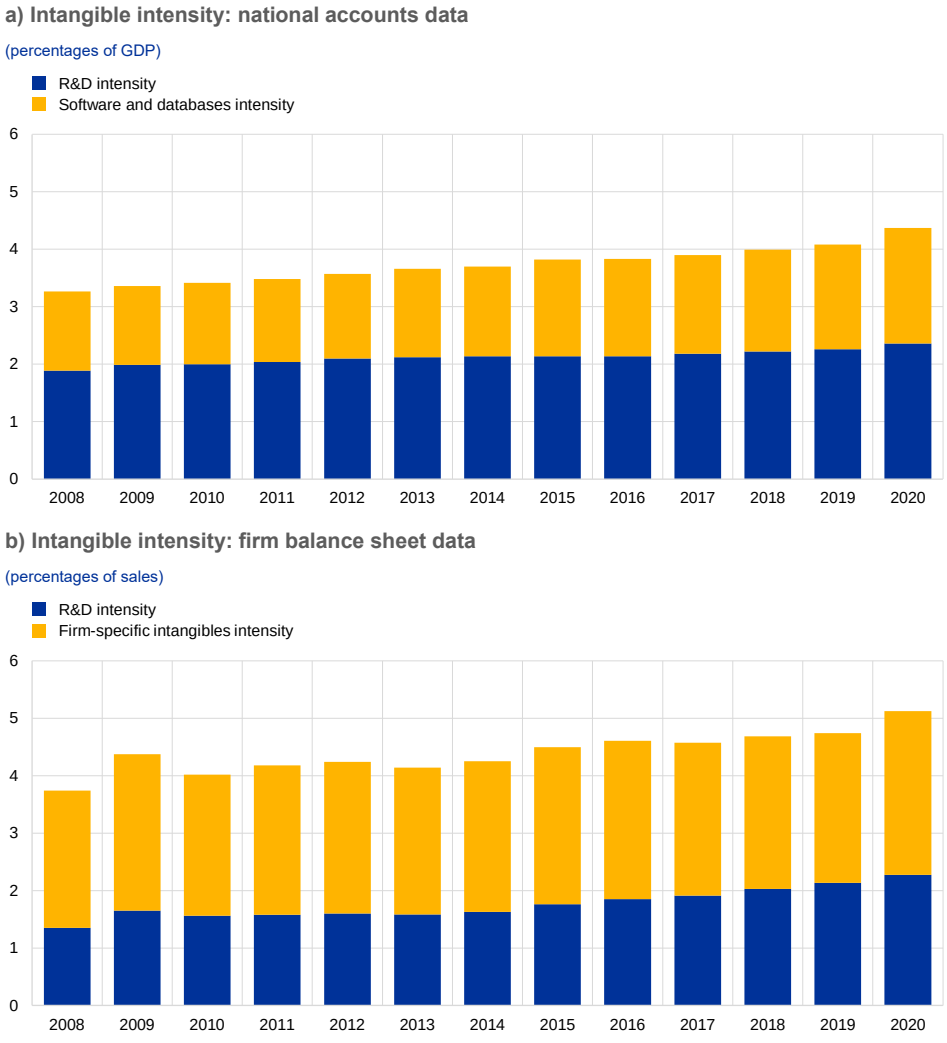


Sources: panel a): European Investment Bank Investment Survey; panel b): Bellmann et al., "The pandemic has boosted firm investments in digital technologies", *VoxEU*, 5 August 2021, and Institute for Employment Research.
Notes: The survey shown in panel a) was conducted in 2018 and 2020. The data in panel b) answer the question "Did the pandemic accelerate the diffusion of digital technologies?" and cover 1,941 German firms, which were surveyed by phone in February 2021. SME stands for "small and medium-sized enterprises".

Digitalisation and R&D efforts in the euro area are making investment more intangible-intensive. Intangible investment has been rising in the euro area as a share of GDP (Chart 5, panel a), driven by R&D, which covers investment to expand the technology frontier, as well as expenditure on software and databases, which tracks the software component of digital investments. Intangible investment intensity rose from 4.1% of GDP in the euro area in 2019 to 4.4% in 2020, according to preliminary national accounts data for 2020. Intangible intensity can also be tracked through balance sheet data for publicly listed firms incorporated in the euro area, which report R&D expenditure as well as firm-specific intangibles expenditure. The latter is based on a broader definition of intangible investment than national accounts data, including also marketing and human capital investment. Such investment is linked to firms' ability to bring their products to the market, reaching consumers and

gaining and retaining market share. Balance sheet data also show that euro area-based firms have been investing increasingly in intangibles, with aggregated intangible investment exceeding 5% of sales in 2020 (Chart 5, panel b). This confirms the relatively small negative impact of the pandemic on intangible investment (Chart 1, panel b).

Chart 5 Intangible investment intensity of the euro area



Sources: Eurostat, Standard and Poor's and ECB calculations.
Notes: National accounts intangible intensity is defined as intangible investment over GDP. Balance sheet intangible intensity (for publicly listed firms incorporated in the euro area) is defined as total intangible investments over total sales. The balance sheet data sample excludes agriculture and finance (NACE codes A and K). "Firm-specific intangibles" is defined as 30% of sales, general and administrative expenses as in Peters and Taylor.[25]

Increasing intangible intensity and digitalisation have a wide-ranging impact on the business environment. For example, digitally intensive firms tend to spur productivity in their sectors, albeit often with some lag before the full productivity-

[25] Peters, R.H. and Taylor, L.A., "Intangible capital and the investment-q relation", *Journal of Financial Economics*, Vol. 123(2), 2017, pp. 251-272.

enhancing effects of digital technologies are felt.[26] Digitalisation is also intrinsically linked to tax regimes, which could make the tax-base of increasingly digital and intangible-intensive economies more volatile. If multinationals can easily transfer their intangible assets from one location to another, volatility in investment cycles could also increase.[27] Intangible-intensive firms may face additional funding constraints, as intangible investments may be hard to use as collateral, resulting in uncertainty concerning the ability to raise funding.[28] As a consequence, firms tend to rely on retained earnings rather than bank loans to fund intangible investment.[29] A more intangible-intensive economy could thus respond less sensitively to the credit channel of monetary policy.[30]

The road to digitalisation in Europe is made more difficult by the structural characteristics of the corporate sector. Europe tends to be slow to adopt digital technologies because of its large proportion of small and medium-sized enterprises, which switch to new technologies more slowly than larger firms; a still incomplete single market in services; a preference for debt financing, due to the tax-deductibility of interest payments; and to some extent factors related to regulation and costs.[31]

Greening investment

The need to develop new technologies to mitigate and adapt to climate change-related risks creates investment opportunities.[32] Large firms associate climate change not only with risks but also with business opportunities, particularly if they seek to be transition leaders, or develop clean technologies or IT and consulting services that help others transition, according to recent ECB corporate survey evidence.[33] The survey shows that firms have already increased their investment to

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26 For a comprehensive overview, see Haskel, J. and Westlake, S., *Capitalism without capital: The Rise of the Intangible Economy*, Princeton University Press, 2017, and, for a discussion of the lagged impact of digital investment on firm-level productivity and the broader "productivity paradox", see Work stream on productivity, innovation and technological progress, "Key factors behind productivity trends in EU countries", *Occasional Paper Series*, No 268, ECB, September 2021, revised December 2021.

27 See Crotti, R., "Does intangible asset intensity increase profit-shifting opportunities of multinationals?" *Graduate Institute of International and Development Studies Working Paper*, No 02-2021, 2021; Avdijev, S., Everett, M. and Shin, H.S., "Tracking the international footprints of global firms", *BIS Quarterly Review*, 11 March 2018; and Montornès, J. and Khder, M.B., "The impact of multinationals' transfers on Irish GDP", *Eco Notepad*, Post No 202, Banque de France, 2 March 2021.

28 See Coad, A. et al., "Investment expectations by vulnerable European firms – a difference-in-difference approach", *EIB Working Papers*, 2022/04, European Investment Bank, March 2022.

29 See Caggese, A. and Pérez-Orive, A., "How stimulative are low real interest rates for intangible capital?", *European Economic Review*, Vol. 142, 103987, February 2022.

30 See Döttling, R. and Ratnovski, L., "Technological progress reduces the effectiveness of monetary policy", *VoxEU,* 19 March 2021.

31 See the box entitled "Digitalisation and its impact on the economy: insights from a survey of large companies", *Economic Bulletin,* ECB, Issue 7, 2018; Anderton, R., Jarvis, V., Labhard, V., Morgan, J., Petroulakis, F. and Vivian, L., "Virtually everywhere? Digitalisation and the euro area and EU economies – Degree, effects, and key issues", *Occasional Paper Series*, No 244, ECB, June 2020, revised December 2020; "The Digital Transformation of SMEs" *Policy Highlights*, OECD, 2021.

32 Not only the transition to a greener economy but also physical risks, such as natural disasters, affect investment, by destroying capital and triggering new investment (although this is not further discussed here), see Hallegatte, S. and Przyluski, V., "The economics of natural disasters", *CESifo Forum*, Vol. 11, No 02, ifo Institute – Leibinitz Institute for Economic Research at the University of Munich, July 2010, pp. 14-24.

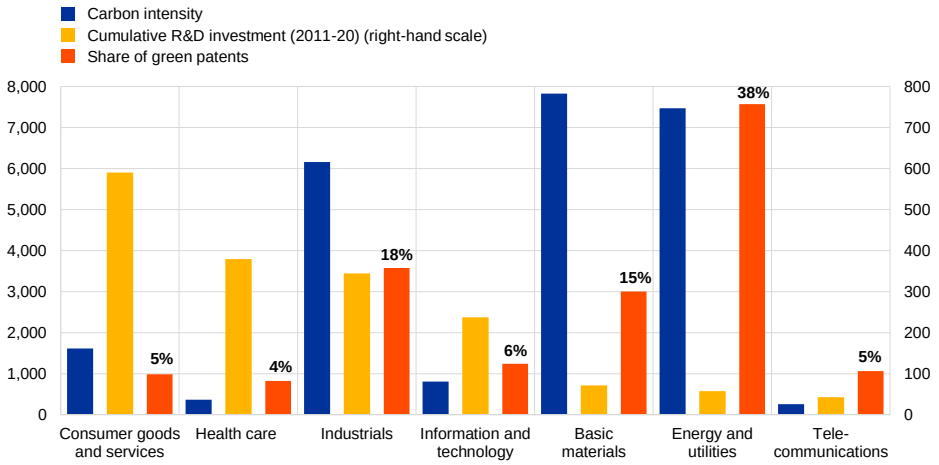
33 See the box entitled "The impact of climate change on activity and prices: insights from a survey of leading firms", *Economic Bulletin*, Issue 4, ECB, 2022.

mitigate climate-related risks, to ensure compliance with climate policies and to minimise disruptions from possible natural disasters.

Green innovation – measured by patents related to climate change mitigation and adaptation technologies as a share of all patents – has seen a notable increase in some sectors. Green patents accounted for the largest share of all patents registered from 2016 to 2018 in the most polluting sectors, such as basic materials, energy and those producing other industrial goods, indicating that a significant proportion of their R&D spending was devoted to green technologies (Chart 6). The process of diffusion of patented technologies through the wider economy is expected to trigger further green investment.

Chart 6

Cumulative R&D investment and green innovation by sector of main business



Sources: European Commission EU Industrial R&D Investment Scoreboard for R&D investment, EC-JRC/OECD COR&DIP© database v.3 for patents, Urgentem for emissions, ECB staff calculations.
Notes: Carbon intensity refers to the ratio of CO2 emissions to revenues; the chart shows 2020 sectoral averages. Cumulative R&D investment is computed as the sum of R&D investment (in nominal terms) of the 500 companies that invested the largest sums in R&D in the 27 EU countries plus the United Kingdom over the period 2011-20. The starting year 2011 is chosen because of a change in that year in the sector definitions in the Industry Classification Benchmark managed by FTSE Russell. The sector of main business is based on the Industry Classification Benchmark. Green patents are defined as those related to climate change mitigation and adaptation. Green innovation refers to the share of green patents registered by the top 462 R&D investors in the years from 2016 to 2018.

Investment in clean energy constitutes the main pillar of the green transition and depends critically on the availability of clean technologies for energy production. Investment in energy transition is increasing for all technologies and reached some €110 billion in the euro area in 2021.[34] This is still a small share of overall investment (Chart 7). While the pace of green investment in EU has accelerated over the pandemic period, additional investment of €90-100 billion per year would be needed in the period to 2050 to reach the EU target of zero net emissions.[35] The investment needs are higher under a policy mix – combining carbon pricing, bans and regulations, and green subsidies – than a policy based on

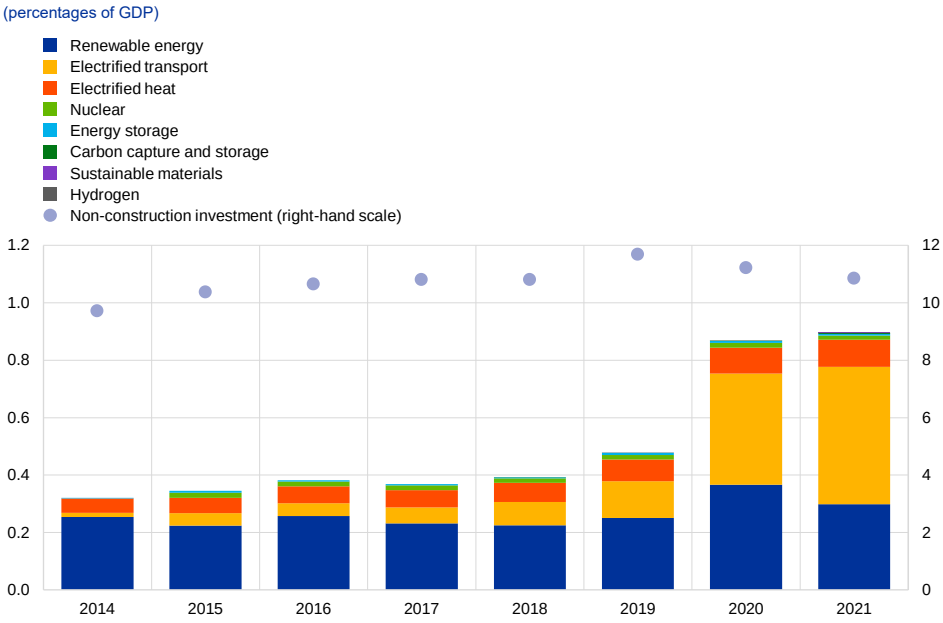
[34] See "Global Investment in Low-Carbon Energy Transition Hit $755 Billion in 2021", BloombergNEF, 27 January 2022.

[35] See High-level group on post-COVID economic and social challenges, "A New Era for Europe – How the European Union Can Make the Most of its Pandemic Recovery, Pursue Sustainable Growth, and Promote Global Stability", European Union, Luxembourg, 1 March 2022, p. 22.

carbon pricing alone.[36] Across sectors, the investment needs of the residential sector exceed the combined investments needed in transport, industry and services. The energy crisis and the war in Ukraine have strengthened the incentives to pursue green energy investment for reasons of energy security. At the same time, the resulting rise in global commodity prices and resurging supply bottlenecks have increased the risk of investment delays in the clean energy sector by driving up production costs for solar modules, wind turbines and battery packs.

Chart 7

Euro area non-construction investment and investment in energy transition by technology



Sources: BloombergNEF and Eurostat.
Note: The series "nuclear", "carbon capture and storage", "sustainable materials" and "hydrogen" start in 2015, 2018, 2021 and 2019 respectively.

There are several challenges for green investment, primarily related to available financing, regulation certainty and staffing. Financing from public and private sources to support green investment is crucial.[37] EU funding for private investment in new green technologies is provided through the Next Generation EU instrument (see Box 3), the European Fund for Strategic Investments and European Investment Bank loans.[38] Moreover, the policy mix as well as private returns on such projects need to give the appropriate incentives. To facilitate and incentivise the

36 See "Impact assessment accompanying the document 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Stepping up Europe's 2030 climate ambition – investing in a climate-neutral future for the benefit of our people'", *Commission Staff Working Document*, SWD(2020) 176 final, European Commission, Brussels, 17 September 2020.

37 See Economics Department (EIB), "Investment Report 2020/2021: Building a smart and green Europe in the Covid-19 era", European Investment Bank, 2021, p 149, and Spinaci, S., "Green and sustainable finance", *Briefing*, European Parliamentary Research Service, European Parliament, February 2021.

38 The European Investment Bank plans to support €1 trillion worth of investments in climate action and environmental sustainability in the period 2021-30. It stopped financing fossil fuel energy projects in 2021 and will gradually increase the share of its financing dedicated to climate action and environmental sustainability to reach half of its operations in 2025.

implementation of the “Fit for 55” package, carbon pricing and regulations in the Green Deal are accompanied by enabling infrastructure, a Just Transition Mechanism and a gradual phasing out of free Emissions Trading System allowances.[39] Nevertheless, many European firms hesitate to invest owing to uncertainty surrounding the regulatory framework, high investment costs, lack of financing, unavailability of skilled staff and uncertainty about new technologies.[40] Even though firms surveyed by the ECB mentioned these challenges in a climate change-related special survey this year, all respondents planned to increase their investment in climate mitigation throughout the transition period as part of their strategy to stay resilient.[41]

4 Conclusions

Euro area business investment plummeted during the pandemic; the rebound has been significant but has varied considerably across countries, firms and types of investment. Nevertheless, the pandemic has accelerated the adoption of digital technologies as a result of the increase in remote working. Green private investment is being spurred by green transition policies and firms’ behavioural changes in response to surging climate risks as well as energy security considerations related to the war in Ukraine. While supported by extraordinary policies, investment has continued to face headwinds over the past two years, which also pose clear risks in the years ahead. The war has intensified risks to the short-term outlook for investment in relation to supply constraints, production costs and uncertainty. Corporate savings have increasingly exceeded investment. It is still uncertain when firms will start spending their accumulated savings on investment.

The continued recovery in euro area investment is heavily dependent on the challenging pursuit of digitalisation and greening of the euro area economy. This twin transformation has created investment opportunities during the pandemic, but investment needs in these areas remain considerable and expenditures are still insufficient. While R&D and new technologies have the potential to boost euro area productivity, particularly given the possible synergies between digital and green investment, challenges remain in terms of financing, regulation and incentives, which require coordinated policies.

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39 The European Green Deal Investment Plan is intended to i) increase funding and mobilise at least €1 trillion in sustainable investments over the next decade, particularly via the InvestEU programme; ii) create an enabling framework for private and public investors; and iii) provide support for identifying, structuring and executing sustainable projects. As part of the European Green Deal, the EU is revising its climate, energy and transport-related legislation under the “Fit for 55 package” to align current laws with its goals for 2030 and 2050.

40 See Delanote, J. and Rückert, D., “How to foster climate innovation in the European Union: Insights from the EIB Online Survey on Climate Innovation”, *EIB Working Papers*, 2022/02, European Investment Bank, February 2022.

41 See the box entitled “The impact of climate change on activity and prices – insights from a survey of leading firms”, *Economic Bulletin*, Issue 4, ECB, 2022.

2 Guaranteeing freedom of payment choice: access to cash in the euro area

Prepared by Alejandro Zamora-Pérez

The Eurosystem is committed to the principle that every individual in the euro area should be able to decide how to make day-to-day payments, regardless of their individual payment preference, geographical location or technological savviness. On the basis of the ECB's most recent data, despite the gradual decline in cash transactions, cash is the most popular payment instrument among euro area citizens for day-to-day transactions at the point of sale or person-to-person payments. In addition, cash is used for savings and liquidity, especially in times of crisis or uncertainty. Satisfying demand for cash requires a sophisticated physical infrastructure involving central banks and private intermediaries in the distribution of banknotes and coins to both citizens and businesses. However, as seen in other economies, a decline in the use of cash for payments may lead to a reduction in the cash services provided by credit institutions. This can in turn make it more difficult or costly to withdraw cash, especially for vulnerable groups or those living in geographically remote areas, who sometimes have no access to other means of payment. To help prevent this situation, the Eurosystem carefully monitors the development and extent of cash services in the euro area and analyses current measures to counter any deterioration in cash services in a timely manner. The Eurosystem does this as part of its responsibility to ensure freedom of payment choice and access to cash for all citizens. This article looks at the issue of access to cash (Section 1), recent trends in cash access points (Section 2), ways to measure access to cash (Section 3) and initiatives to guarantee access to cash (Section 4).

1 Why is access to cash important?

Cash is the payment instrument most frequently used by euro area citizens, but its declining use in transactions may lead to changes in the cash infrastructure that reduce citizens' access to cash. In 2019 around three out of four transactions at the point of sale in the euro area were made in cash.[1] However, in recent years there has been a declining trend in the use of cash[2] (which accelerated during the coronavirus (COVID-19) pandemic)[3]. In parallel, there has

1 See "Study on the payment attitudes of consumers in the euro area (SPACE)", ECB, Frankfurt am Main, December 2020.

2 *ibid*. The speed of the decrease in cash use has varied across the euro area. From 2016 to 2019, the share of cash transactions decreased by 6 percentage points on average, while in some countries the decrease was sharper (e.g. in Finland and the Netherlands, at 11 and 17 percentage points respectively).

3 In July 2020, a few months after the start of the pandemic, around 40% of respondents of a euro area-wide ECB survey reported using cash somewhat less or much less often. However, it is still too soon to assess whether these early survey findings will translate into a lasting change in behaviour once the pandemic is over or COVID-19 becomes endemic. For the results of the survey, see Tamele, B., Zamora-Pérez, A., Litardi, C., Howes, J., Steinmann, E. and Todt, D., "Catch me (if you can): assessing the risk of SARS-CoV-2 transmission via euro cash", *Occasional Paper Series*, No 259, ECB, Frankfurt am Main, July 2021.

been a decrease in the number of bank branches per inhabitant throughout the euro area. The number of automated teller machines (ATMs) per inhabitant has slightly increased, partly offsetting the bank branch closures. However, in some euro area countries, such as Belgium and the Netherlands, the network of ATMs has also shrunk. There is a relationship between the decline in the use of cash for day-to-day transactions and the decrease in the number of cash service points. On one hand, reduced transactional use of cash puts pressure on private-sector providers to reduce cash-related costs (e.g. by closing cash service points which are no longer profitable) or to increase revenues (e.g. fees) related to cash services. This is because the cash infrastructure involves substantial fixed costs, meaning that lower cash use increases per-unit costs. On the other hand, fewer cash access points may increase the effort it takes for citizens to obtain cash, which could further reduce demand and add to the pressure to reduce cash service points. This second effect may not be very strong at present in the euro area, but in the future the cash infrastructure could deteriorate to a point where the availability of cash affects payment choice.

The consequences of a weakened cash infrastructure are more visible in countries where cash use has decreased faster and the need for initiatives to guarantee access to cash has become more evident. A prominent example is Sweden, which has seen a marked decline in the use of cash.[4] Many bank branches in Sweden now refuse to handle cash, many retailers are accepting cashless payments only, and even some basic services will not take cash (for example, hospitals have refused cash payments from patients).[5] In addition, the potential lack of a non-digital fall-back system in case of system failure is perceived as a real risk. Some of these developments have led to a strong negative reaction among sections of the population and prompted discussions among politicians of all parties aimed at finding legislative solutions (see Section 4).

If such trends were to occur in the euro area, they could adversely affect many euro area citizens who prefer to use cash or simply want cash as a payment choice or savings option. As digitalisation has driven improvements in many areas of daily life, it is often taken for granted that a "cashless economy" would be beneficial for all segments of society. Some observers have advocated measures to restrict the use of cash (e.g. promotion of digital payments or strict cash payment limits). However, in these discussions the perspective of cash users is often overlooked, or the benefits they derive from cash are underestimated. Recent assessments of specific policies that restrict the use of cash have found that, in some settings, the costs of these policies outweigh their social benefits.[6] In the euro area, the large numbers of citizens who prefer to use cash in transactions do so for different reasons. For example, survey data show that many consumers use cash

4 Sveriges Riksbank has argued that the decline of cash in Sweden cannot be explained by traditional causes. Measures to curb tax evasion and a strict banknote and coin changeover in Sweden between 2010 and 2017 may partly explain the unusual decline. See "Why are people in Sweden no longer using cash?", Payments in Sweden 2020, Sveriges Riksbank, October 2020.

5 See "Access to Cash Review – Final report", Access to Cash Review, March 2019.

6 See, for example, Álvarez, F., Argente, D., Jiménez, R. and Lippi, F., "Cash: A Blessing or a Curse", *Journal of Monetary Economics*, Vol. 125, January 2022, pp. 85-128.

because it provides a clear overview of expenses.[7] Citizens also mention additional reasons to use cash for payments, such as its widespread acceptability, ease of use, speed, safety and anonymity.[8] Consumers also tend to prefer cash to digital means of payment in certain circumstances. For example, cash is overwhelmingly preferred when making low value payments or in certain locations (such as shops or restaurants), and it is used more often in rural areas.[9] Surveys also show that a majority of citizens in the euro area would still like to have the option to pay with cash, even if some of them report that they have a preference for digital means of payment.[10] In addition, estimates suggest that cash is increasingly used as a safe haven asset in both normal times and times of crisis, both inside and outside the euro area.[11] In summary, the behaviour of many citizens indicates that cash provides them with added value compared with other means of payment or other savings options, and hence they would be negatively affected by reduced access to cash.

Furthermore, the loss of access to cash would have a greater effect on citizens who cannot use other means of payment and are at risk of financial exclusion.[12] Around 13.5 million people in the euro area are unbanked (i.e. have no bank account or access to financial services) and largely rely on cash to make payments independently. An even greater number of individuals are underbanked, meaning that they do have a bank account, but lack convenient access to financial services. Regarding the specific issue of access to cashless means of payment, ECB survey data show that in 2019 around 2% of euro area citizens over 18 years old had no access to cashless payment methods and hence relied solely on cash or on other people to make payments.[13] This percentage is higher for certain population groups, such as those aged 65 or over (3%), those with only primary or secondary education (4%), or those from certain countries, such as Cyprus, Greece or Malta (around 10%). Against this background, central banks around the world have shown renewed interest in ensuring financial inclusion by providing widespread access to central bank money. As one of the new policy options, some central banks are considering introducing central bank digital currencies (CBDCs) which would be available to the public.[14] However, a divide exists between people who are increasingly using digital means of payment and others who cannot use them or are reluctant to adopt them. As there are several sources of financial exclusion, digital solutions may help in some settings, but some analysts argue that, in certain contexts, ensuring widespread availability of cash may be more effective in

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7 See Esselink, H. and Hernández, L., "The use of cash by households in the euro area", *Occasional Paper Series*, No 201, ECB, Frankfurt am Main, November 2017.

8 ibid.

9 See "Study on the payment attitudes of consumers in the euro area (SPACE)", op. cit. SPACE survey data show that in 2019, 92% (83%) of payments below €5 (between €5 and €10) at the point of sale and between persons were made in cash.

10 See "Study on the payment attitudes of consumers in the euro area (SPACE)", op. cit.

11 See the article entitled "The paradox of banknotes: understanding the demand for cash beyond transactional use", *Economic Bulletin*, Issue 2, ECB, Frankfurt am Main, 2021.

12 See Panetta, F., "Cash still king in times of COVID-19", speech at the Deutsche Bundesbank's 5th International Cash Conference – "Cash in times of turmoil", 15 June 2021.

13 See "Study on the payment attitudes of consumers in the euro area (SPACE)", op. cit.

14 See Boar, C. and Wehrli, A., "Ready, steady, go? – Results of the third BIS survey on central bank digital currency", *BIS Papers*, No 114, Bank for International Settlements, January 2021.

preventing exclusion than other strategies.[15] Consequently, it is important to also explore solutions that ensure that cash remains accessible and accepted. In the euro area, these considerations are in line with the general position of the Eurosystem regarding the introduction of a digital euro, which, like cash, would be a form of central bank money backed by the Eurosystem.[16] If a digital euro is introduced, the Eurosystem has stated that it would not replace cash but complement it.

For the above reasons, the Eurosystem's cash strategy[17] establishes a commitment to support cash and its related infrastructure to ensure access to cash. At present, the overall situation of access to cash in the euro area does not raise any concerns.[18] However, experience in countries in which cash use has strongly declined shows that public authorities and central banks should remain vigilant about evolving problems with access to cash. To prevent such problems and guarantee citizens' freedom to choose how to pay, and to prevent the financial exclusion of certain social groups, the Eurosystem's cash strategy aims to ensure widespread availability of, access to and acceptance of euro banknotes and coins.

2 Cash access points in the euro area

Analysing the cash access points available to citizens and businesses is key to assessing access to cash in a territory. Supplying cash to citizens entails a sophisticated infrastructure and distribution system involving several players, such as banknote printing works, central banks, cash-in-transit companies and credit institutions. But members of the public only interact with the last link in the supply chain – cash access points, such as ATMs and bank branches – where they can withdraw and deposit cash.

In the euro area, the overall number of cash access points is decreasing, although trends vary across countries. Chart 1 shows the number of traditional cash access points (bank branches and ATMs) per 100,000 inhabitants in selected euro area countries. Although there seems to be a clear declining trend in the number of bank branches per 100,000 inhabitants on average in the euro area, the number of ATMs per 100,000 inhabitants slightly increased over the period 2016-20. This is because some countries are resisting a downsizing of their ATM network (e.g. Germany) or even increasing it (e.g. Italy and Austria). A related general trend is towards a greater share of cash recycling machines (CRMs), i.e. more modern ATM machines which allow customers to deposit banknotes and which recycle banknotes

15 See Mancini-Griffoli, T., Martinez Peria, M.S., Agur, I., Ari, A., Kiff, J., Popescu, A. and Rochon, C., "Casting Light on Central Bank Digital Currency", *IMF Staff Discussion Notes*, No 18/08, International Monetary Fund, November 2018. Survey data seem to suggest that the reluctance among segments of the population, such as older citizens, to use new financial technologies may be due to a perceived low utility of adopting new technologies. See, for example, Doerr, S., Frost, J., Gambacorta, L. and Qiu, H., "Population ageing and the digital divide", *SUERF Policy Briefs*, No 270, February 2022. In this regard, some unique features of cash are not technologically replicable in digital means of payment. See "Eurosystem experimentation regarding a digital euro – Research workstream on hardware bearer instrument", Deutsche Bundesbank, Frankfurt am Main, 2021.

16 See the ECB's website for information on a digital euro.

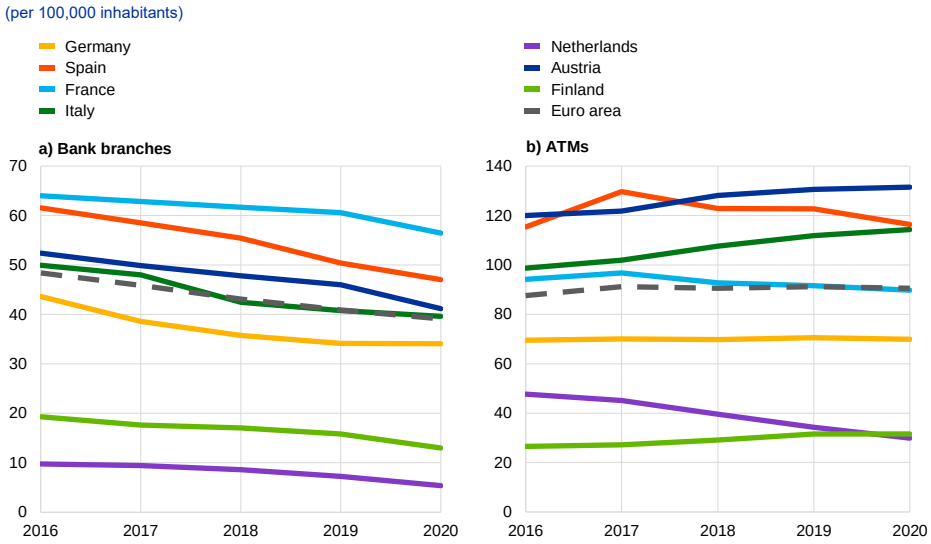
17 See the ECB's website for information on the Eurosystem cash strategy.

18 See "Report of the ERPB Working Group on Access and Acceptance of Cash", Euro Retail Payments Board, November 2021.

deposited by customers in previous transactions. These machines are used by banks and other cash handlers to partly offset the reduction in cash services provided by branches at their counters and in the number of ATMs that only dispense banknotes.

Chart 1

Cash access points per 100,000 inhabitants in selected euro area countries, 2016-20



Sources: ECB and World Bank.
Notes: ATMs include all types of customer-operated cash machines (cash dispensers and machines with deposit functionality, some of which also recycle banknotes deposited by customers in previous transactions after conducting mandatory authenticity checks). Data on bank branches and ATMs (the numerator) are from the ECB, while population data (the denominator) are from the World Bank.

The main reasons for the decline in the number of cash access points include supply-side factors (such as banks' cost-reduction strategies or the increasing digitalisation of banking services) and population trends. Despite the major social and economic implications of the closure of cash access points,[19] there has been little research into the drivers of this trend, although some of them have been identified. As shown in Chart 1, France and the Netherlands are clear examples of reductions in both bank branches and ATMs. In these countries, general economic conditions put pressure on banks to cut costs, leading to the closure of less profitable bank branches or those that were located near other branches.[20] As with most other countries shown in Chart 1, the bank branch rationalisation was stronger

19 As well as reduced access to financial services, bank branch closures may cause a reduction in local credit supply and decreased business formation. See, for example, Nguyen, H.L.Q., "Are credit markets still local? Evidence from bank branch closings", *American Economic Journal: Applied Economics*, Vol. 11(1), 2019, pp. 1-32; and Ho, C.S.T. and Berggren, B., "The effect of bank branch closures on new firm formation: the Swedish case", *The Annals of Regional Science*, Vol. 65, No 2, 2020, pp. 319-350.

20 See Jiménez Gonzalo, C. and Tejero Sala, H., "Bank branch closure and cash access in Spain", *Financial Stability Review*, No 34, Banco de España, May 2018, pp. 35-56; and Galardo, M., Garrì, I., Mistrulli, P.E. and Revelli, D., "The geography of banking: Evidence from branch closings", *Economic Notes*, Vol. 50, No 1, e12177, 2021. Since the 2008 financial crisis there has also been a process of bank mergers which may have led to the closure of branches of surviving banks that were near each other and hence redundant. However, previous research has shown that consolidation processes have not always led to bank branch closures. See Avery, R.B., Bostic, R.W., Calem, P.S. and Canner, G.B., "Consolidation and bank branching patterns", *Journal of Banking & Finance*, Vol. 23, Nos 2-4, 1999, pp. 497-532; and Damar, H.E., "Does post-crisis restructuring decrease the availability of banking services? The case of Turkey", *Journal of Banking & Finance*, Vol. 31, No 9, 2007, pp. 2886-2905.

than the decline (if any) in ATMs. This is also partly due to banks' new cost-cutting strategies. For example, qualitative surveys of euro area banks conducted by the Eurosystem suggest that some are "nudging" customers away from bank counters towards automated cash services provided via ATMs. This means that the reduction in cash services traditionally offered by bank branches is at least partly offset by the installation of new ATMs in branches or in other locations where demand for cash is high (e.g. shopping centres, airports). The reduction in cash access points may also be due to depopulation in remote areas or the decline in opportunities to use cash as businesses close or migrate to more densely populated locations.[21]

However, a decrease in the number of traditional cash access points does not necessarily imply reduced access to cash. Although a decline in traditional cash access points means that citizens have fewer locations where they can withdraw and deposit cash, a more detailed analysis is needed to assess whether access to cash is still adequate. First, access to cash is mainly a geographical problem; hence the precise location of cash access points should be factored in. It could be that closures mostly occurred in areas where cash access points were previously too close together and would therefore have had little impact on the availability of cash for citizens. Conversely, if closures happened in geographical locations where there are no other options for accessing cash, citizens in those areas would have been adversely affected. Second, alternatives to traditional cash access points, e.g. access provided by retailers and post offices, may have proliferated. This could partially offset the decline in traditional access points. Finally, the fees charged for cash services are also important. For example, increasing fees for cash withdrawals from commercial banks would effectively worsen cash access. The following section looks at how to define, measure and analyse the issue of access to cash.

3 Measuring access to cash

To assess whether access to cash is adequate, central banks and governments need to design and produce proper metrics and analyse all relevant factors. Metrics should include density of cash access points and consider their geographical proximity to citizens. As problems with access to cash may be visible only at the local level, metrics should be produced at the highest levels of disaggregation possible. Other factors, such as direct costs borne by citizens or the risk of exclusion of vulnerable populations, should also be monitored. The following subsections explain the main elements in measuring access to cash.

21 See Jiménez Gonzalo, C. and Tejero Sala, H., *op. cit*. Previous research has shown in other contexts that population trends only weakly explain bank branch closures, as business strategies are the main driver. See Argent, N.M. and Rolley, F., "Financial Exclusion in Rural and Remote New South Wales, Australia: a Geography of Bank Branch Rationalisation, 1981-98", *Australian Geographical Studies*, Vol. 38, No 2, 2000, pp. 182-203.

Key elements in measuring access to cash: two different problems

The issue of access to cash can be sub-divided into two separate problems: (i) the distance or coverage problem and (ii) the capacity problem. The distance or coverage problem refers to the question of whether a large share of the population is sufficiently close to a cash access point. For example, if most citizens in a region are within 5 km of a cash access point, analysts or regulators might consider access to cash to be adequate. However, there is no one-size-fits-all definition of adequate coverage, as individual circumstances may vary. For example, a 10 km distance may be unproblematic for an individual if the cash access point is on their daily route to work, while a 3 km distance could be problematic for someone without adequate transport.[22] Hence, additional measures should be considered to further analyse the problem of access to cash. The capacity problem supplements the coverage problem, as it refers to the number of points of access to cash needed in each location to meet the demand for cash. For example, in densely populated areas or areas where demand for cash is strong, a single ATM may theoretically cover a large share of the population but may not be sufficient to meet demand, and additional ATMs should be installed in the same location. Thus coverage and capacity are equally important when assessing whether access to cash is adequate.

Given the importance of the distance problem, the Eurosystem has recently conducted an analysis of this aspect in each euro area country following a common methodology. For all euro area countries, central banks estimated the average share of the population with a cash access point within 5, 10 and 15 km of their residence, measured in a straight line.[23] Although specific country results cannot be disclosed, Chart 2 illustrates the situation in the euro area by depicting the distributions of the euro area country results for each of the three distances at the national level. It uses boxplots for the three metrics and black dots for the individual observations for the 19 euro area countries. Results are satisfactory overall in the euro area, but the share of the population covered by cash access points is uneven across countries. The share of people living within 5 km of the nearest cash access point ranges from 77% in the country with the lowest coverage to 100% in the country with highest coverage. The lower bound of population coverage increases to 86% when the radius is increased to 10 km and 93% when it is increased to 15 km. At 5 km, between 87% and 98% of the population is covered in around half of the countries (depicted by the blue boxplot, which illustrates the interquartile range), and

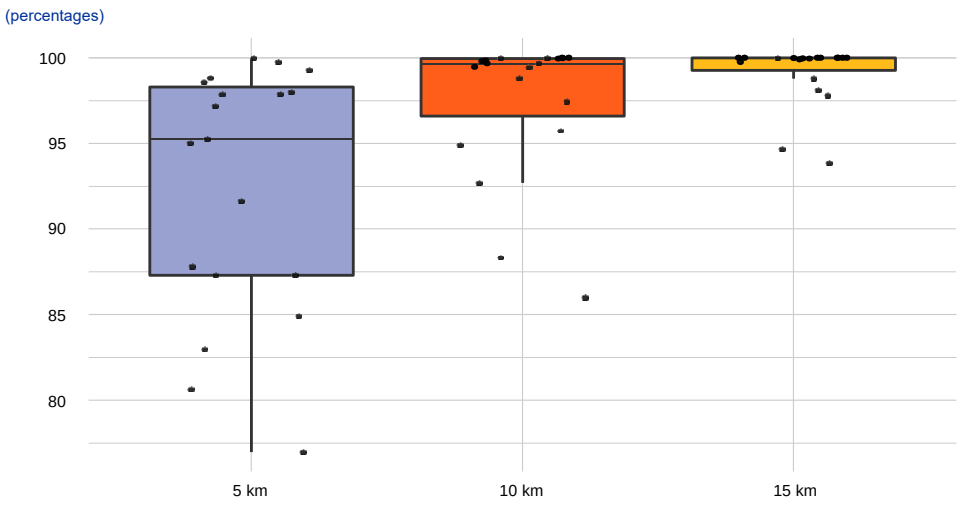
22 For an analysis of the impact of shoe-leather costs on consumers' cash withdrawal behaviour, see Chen, H., Strathearn, M. and Voia, M., "Consumer Cash Withdrawal Behaviour: Branch Networks and Online Financial Innovation", *Staff Working Paper/Document de travail du personnel*, No 2021-28, Bank of Canada, Ottawa, 2021.

23 The purpose of producing three different metrics is to provide a better understanding of the distance problem in each country and in the euro area as a whole. In other sectors, straight-line distance, in general, is found to provide a reasonable proxy of more realistic measures, such as road distance or travel time. See Phibbs, C.S. and Luft, H.S., "Correlation of Travel Time on Roads versus Straight Line Distance", *Medical Care Research and Review*, Vol. 52, No 4, 1995, pp. 532-542; and Boscoe, F.P., Henry, K.A. and Zdeb, M.S., "A Nationwide Comparison of Driving Distance Versus Straight-Line Distance to Hospitals", *The Professional Geographer*, Vol. 64, No 2, 2012, pp.188-196. However, as shown in Box 2, in some countries, such as Austria, the local topography can dictate the use of more detailed measures, such as actual road distance. Some analyses measure distances not only from homes (or local neighbourhoods) but also from centres of economic activity, such as high streets, retail centres or supermarkets. See Tischer, D., Evans, J., Cross, K., Scott, R. and Oxley, I., "Where to withdraw? Mapping access to cash across the UK", University of Bristol, November 2020.

the median coverage (black line crossing the blue rectangle) is over 95%. At 10 km (orange boxplot) and 15 km (yellow boxplot), the share of population covered increases in most countries. At these distances, the interquartile range and the median are closer to 100%. As the radius increases, observations also tend to cluster around the higher values (higher than 95% at 10 km and higher than 98% at 15 km).

Chart 2

Share of population within 5, 10 and 15 km of the nearest cash access point



Source: ECB/Eurosystem.
Notes: Using different straight-line distances, the chart illustrates in an anonymised manner the variation across euro area countries of the national average shares of the population covered by the nearest cash access point in 2020. The boxplots for the three metrics show the observations for the individual euro area countries as black dots. The coloured rectangles represent the interquartile range (i.e. central half of the data points), while the black line crossing each rectangle represents the median. The vertical lines extending from the boxes (whiskers) indicate the maximum and minimum values of the dataset excluding outliers (i.e. excluding data points significantly distant from other observations).

Box 1

Applying location science to optimise population coverage from a public interest perspective

Prepared by Diana Posada Restrepo and Alejandro Zamora-Pérez

Despite the increasing importance of the distance or coverage problem in the assessment of access to cash, central banks and public authorities have as yet no analytical tool to determine whether the current distribution of cash access points is optimised from a public interest perspective, i.e. whether it covers the largest possible share of the population, subject to certain constraints (such as the current number of cash access points per inhabitant). This is an important policy issue, as cash needs to be accessible for all the population, but in some circumstances it may not be economically viable to provide cash access points in all municipalities. Therefore, the number of locations with cash access points may need to be limited.

To address this issue, the Eurosystem has developed an internal model to compare the current network against a theoretical network which achieves maximum coverage. The model was used, for example, for a euro area region (a region at the third, i.e. most detailed, level of the EU's NUTS classification system) with 160 cash access points per 100,000 inhabitants in 2020. In this region, coverage was relatively low, as only 81% of the population was within 5 km of the nearest cash

access point. This contrasts with the optimised outcome produced by the model, according to which, even with 5% fewer cash access points per inhabitant, it would have been possible to design the network in such a way that 99% of the population had a cash access point within 5 km. Thus the model further highlights the importance of the location of cash service points when analysing access to cash.

This facility location model[24] is designed to optimise the provision of cash to satisfy a dispersed population. The model has two separate objectives: (i) to minimise the (straight-line) distance between cash access points and locations with populations and cash-intensive outlets (such as municipalities or other local administrative units); and (ii) to maximise the coverage of the network, i.e. to ensure that the largest possible share of the population has a cash access point within a given distance. The result is a theoretical network that achieves maximum coverage.

The model focuses on only one of the dimensions of access to cash discussed in the main text, i.e. how to improve coverage based on a given number of cash access points. Other relevant considerations (such as the capacity problem, which is discussed below, or cost efficiency) and different methodologies used to measure distance (such as road distance or travel time distance) are not considered in the model. The results of the model therefore need to be interpreted in the light of other analysis, but they do provide insights into one of the main topics of current policy discussions on access to cash – the coverage problem.

Using the insights provided by location science, central banks could engage at the local level with private providers and public administrations to improve population coverage. For example, they could target specific locations which appear to be underserved by commercial banks. In the example given above, the model showed that a region with relatively low access to cash has significant potential to increase its coverage (from 81% to 99%), even with fewer cash access points. This could be used to increase the efficacy of some innovative solutions developed in previous years (e.g. alternative solutions provided by the market, such as cash-back, mobile branches and cash access points with public-private cost-sharing). These findings could be useful to central banks currently considering access to cash measures or in discussions with private and public stakeholders.

The second problem – whether the capacity of the network is adequate – means that not only the location but also the number of cash access points needed to meet demand in each area must be considered. A preliminary analysis of the capacity of the network can be performed by simply relating the current number of cash access points to the population. Chart 1 in Section 2 provided an example of how the number of traditional access points (bank branches and ATMs) has developed over time in the euro area and in selected euro area countries. Moreover, in 2020 the Eurosystem conducted a data collection exercise to determine the number of ATMs per 100,000 inhabitants in all euro area countries. As with the

[24] The model is based on location science, which uses a wide range of mathematical and analytical methods to determine the best location for facilities. Facility location problems have been applied to numerous settings for both private (e.g. logistical sites, retail facilities, industrial plants, bank branches) and public (e.g. police stations, hospitals) facilities. The Eurosystem's internal model to determine optimal coverage of cash access points builds on literature such as Kisore, N.R. and Koteswaraiah, C.B., "Improving ATM coverage area using density based clustering algorithm and voronoi diagrams", *Information Sciences*, Vol. 376, 2017, pp.1-20.

coverage metrics described above, results differed significantly across countries, ranging from 30 to 134 ATMs per 100,000 inhabitants. The wide variation suggests that this simple measure is not the most informative for an assessment of adequate access to cash, as it assumes a uniform distribution of points of access within a country's territory and across its population. In addition, some countries with low ATM density have high coverage metrics and, according to surveys, high levels of satisfaction regarding ease of access to cash (see the paragraph below). To improve the assessment of these simple metrics, analysts must factor in geographical considerations (e.g. assess the situation using the highest possible level of disaggregation, such as municipalities) and consider the demand for cash access points. As demand for cash access points is not directly observable, it needs to be estimated on the basis of a set of factors which predict the demand for cash. According to the literature, these variables include the number of cash-intensive locations nearby (supermarkets, shops, restaurants, etc.), socioeconomic variables (income, education, age, rurality, financial literacy, etc.) and behavioural factors (e.g. a self-reported preference for cash).

The above coverage and capacity metrics need to be supplemented by survey data on consumers' perceived ease of access to cash. Although preferences are subjective and each citizen perceives ease of access differently, assessing self-reported satisfaction can provide additional insights.[25] Chart 3 shows how citizens in euro area countries rated ease of access to ATM withdrawals in the euro area in 2019. In general, citizens in most countries considered it easy ("very easy" or "fairly easy") to access an ATM. On average in the euro area, 89% of respondents found it easy to obtain cash from an ATM. Only about one in ten respondents considered access to an ATM to be "fairly difficult" (7%) or "very difficult" (2%). The countries with the highest share of respondents who deemed access to ATMs to be difficult were Malta (21%), Greece (17%), Lithuania (16%) and Belgium (15%).

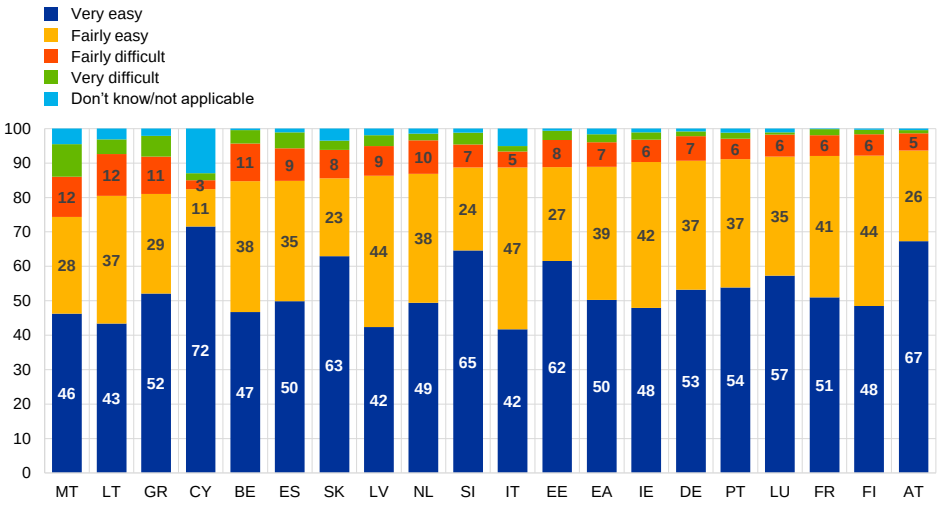
[25] Some euro area central banks use survey data to monitor access to cash. See, for example, "Cash withdrawals and payments in urban and rural areas", *Monthly Report*, Deutsche Bundesbank, June 2020.

Chart 3

Perceived ease of access to ATMs by country

Share of respondents perceiving access to ATM withdrawals as "very easy", "fairly easy", "fairly difficult" or "very difficult"

(percentages)



Source: ECB SPACE survey.
Note: Countries are shown in ascending order of perceived ease of access to ATM withdrawals (share of respondents perceiving access as "very easy" or "fairly easy"). "EA" stands for the euro area.

Access vulnerability and the robustness of the cash access point network

In addition to measuring the different dimensions of access to cash, it is worth analysing how citizens would be affected if further cash access points were to close in the future. Some central banks are analysing the vulnerability of access to cash and the robustness of the current network of bank branches and ATMs. For example, it is possible to simulate the number of citizens that would be affected if their nearest ATM were closed, as well as the impact of this closure in terms of the additional distance to the next nearest ATM. Box 2 provides an example of this type of analysis. Another approach is to develop measures combining supply and demand factors to define vulnerability of access to cash and estimate the share of population which may be vulnerable.[26] These assessments could help authorities and central banks to anticipate the negative consequences of further closures of cash access points and allow them to take appropriate measures in good time.

Box 2

Findings of a study on ATM access in Austria

Prepared by Helmut Stix and Simon Thielen

Since 2020 the Oesterreichische Nationalbank has been keeping track of the geographical distribution of ATMs in Austria, shedding light on people's access to cash by conducting granular

[26] See Posada Restrepo, D., "Cash infrastructure and cash access vulnerability in Spain", *Economic Bulletin*, No 3, Banco de España, 2021.

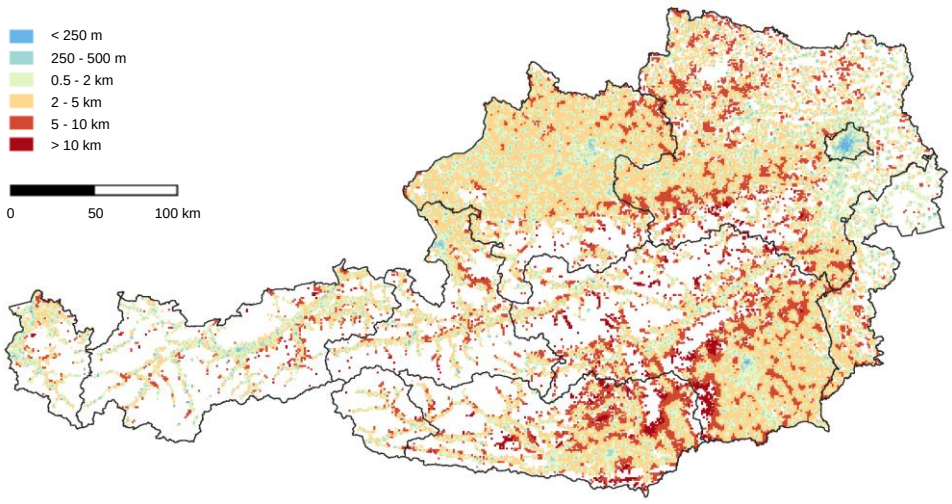
spatial analyses. These analyses allow ATM access in different parts of the country to be quantified. They also highlight areas where people have to travel greater distances to reach an ATM, and allow changes in ATM access over time to be monitored. The focus is on ATMs as they are the most important cash access points for Austrian residents.

The methodology relies on a 100 m by 100 m geographical grid of Austria. The travel distance to the nearest ATM is computed for each populated grid cell. The distances reflect the shortest travel routes (in terms of distance) based on the Austrian road system (as opposed to straight-line distances) for two modes of transport (by car and on foot). Finally, using data on people's main residences and aligning these data with the geographical grid allows population-weighted summary statistics to be computed for different levels of agglomeration (such as municipalities or provinces).[27]

Spatial analyses: main findings

- The findings are that the median distance and the mean distance to the nearest ATM are 0.6 km and 1.2 km respectively. Four out of ten Austrian residents have to travel a distance of less than 500 m to reach the nearest ATM; slightly above two-thirds have an ATM within 1 km of their home.
- However, areas where travel distances are longer have also been identified. For example, 2.8% of the Austrian population have to travel more than 5 km to withdraw cash from their nearest ATM; in most cases, these residents live in small rural municipalities.

Figure A
Average distance to nearest ATM



Sources: Statistics Austria and Oesterreichische Nationalbank.
Notes: Figure A illustrates average distances to the nearest ATM (as at the end of 2020). For better visualisation, results have been aggregated to 1 km by 1 km grid cells. The redder (bluer) the colour of a grid cell, the longer (shorter) the average distance is. Unpopulated areas are shown in white.

27 Further details on the methodology can be found in Stix, H., "A spatial analysis of access to ATMs in Austria", *Monetary Policy & the Economy*, Issue Q3/20, Oesterreichische Nationalbank, 2020, pp. 39-59. All results reported in Box 2 are based on 2020 year-end data. The views expressed are those of the authors and not necessarily those of the Oesterreichische Nationalbank.

In addition, a "vulnerability analysis" was conducted which analysed how people's access to cash would be affected if local ATMs ceased to operate. For this analysis, it was assumed that for each grid cell, the nearest ATM location is closed, requiring people to travel to the next nearest ATM. This purely hypothetical exercise serves the purpose of identifying, at a granular spatial level, areas which would see substantial increases in travel distances if the nearest ATM were to shut down.

Vulnerability analysis: main findings

- For about 82% of the population, travel distances would increase by less than 1 km if the nearest ATM location closed.
- 8% of the population live in areas where they would have to travel more than 3 km further to reach the next nearest ATM. This is the additional distance chosen (arbitrarily) to define "vulnerable areas".
- Vulnerable areas can mainly be found in rural municipalities with just one ATM location and/or in municipalities with less than 3,000 inhabitants.
- Vulnerable and non-vulnerable areas are fairly similar to each other with respect to the age structure of inhabitants, the availability of public transport and per capita income.
- Overall, the results suggest that a large share of the Austrian population has access to an ATM within a fairly reasonable travel distance of their homes. However, granular analyses also allow areas where ATM access is limited and/or areas where the closure of an ATM might lead to longer travel distances to be identified. On a methodological note, the use of actual road network distances (as opposed to straight-line distances) is important given Austria's topography and settlement structure. Straight-line distances would underestimate the share of Austrian residents who need to travel longer distances.

Cost of accessing cash: commercial bank fees

Commercial banks' fees for cash services are the most visible cost borne by consumers and have a negative impact on effective access to cash. Inadequate access to cash – as measured by coverage and capacity metrics – increases implicit costs in terms of time and effort (also known as "shoe-leather" costs). However, increasing fees may have even more impact on consumers' perceptions of cash access than a deterioration in geographical coverage. Citizens and businesses may be discouraged from using cash, or they may adapt their withdrawal and deposit behaviour, depending on what charges are imposed for cash services.

Monitoring bank fees is therefore crucial when assessing the evolution of cash access. However, data on fees for cash services have not been systematically collected in the euro area. In 2018 the Eurosystem therefore decided to develop a data collection methodology to help it monitor trends in fee policies. The data collected since 2019 show a wide variety of country-specific fee models, which in some cases are shaped by national legislation and other country-specific and industry-specific factors. Despite the heterogeneity of fee policies, the Eurosystem

has designed a methodology to keep track of the most common fee elements[28] in the euro area, which helps the analysis of the year-on-year evolution of fee levels.

4 Initiatives to guarantee access to cash

While the Eurosystem is working to detect potential problems in the euro area, where access to cash is currently ensured, the need for initiatives to guarantee availability of cash has become evident in some countries where the cash infrastructure has deteriorated. As seen in Section 1, in Sweden many bank branches and retailers are refusing to handle or accept cash, and even some hospitals have rejected cash payments from patients.[29] In addition, it is perceived as a real risk that the country will soon lack a fall-back payment system in case of digital system failure or potential cyberattacks. These trends, and strong concerns expressed by members of the public, have prompted all-party political debate, which resulted in legislation in Sweden requiring certain credit institutions to ensure adequate coverage of cash services, which entered into force in 2021. In the United Kingdom, where cash use is declining rapidly, there are some initiatives to preserve access to cash. For example, UK Finance – the main trade association of the banking and financial sector – and the largest UK credit institutions have made a commitment to guarantee access to cash and preserve its infrastructure.[30] To this end, several stakeholders – including banks, the LINK cash machine network, consumer and business associations, and the Post Office – are providing new cash access points, such as free-of-charge ATMs and post office branches.[31] Among these new services, an innovative and successful initiative was to create shared "banking hubs", i.e. locations in which several banks collaborate to offer basic cash services.

In the euro area in 2021, the Euro Retail Payments Board set up a joint initiative between bank, consumer and retailer associations and the Eurosystem to assess access to cash. The final report of the working group[32] provides an in-depth account of the overall situation as regards access to cash in the euro area. It concludes that the situation is not yet a matter of concern, but that cash services seem to be deteriorating in certain areas in some countries. It also includes a detailed overview of public and private initiatives aimed at guaranteeing access to cash.

Initiatives promoted by public authorities and central banks generally focus on the distance or coverage problem described in the previous section, i.e. whether a large share of the population does not have too far to travel to a cash

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28 The type of fees collected vary widely across euro area banks, which makes collecting fee data very complex. The elements that serve as building blocks of fee policies include, for example, surcharge and disloyalty fees (both charged as a lump-sum or as a percentage of the transaction amount), the number of free withdrawals per month, amount thresholds below or above which a transaction is free of charge, flat rates, and minimum average balances in an account required for cash service fees to be waived.

29 See "Access to Cash Review – Final report", op. cit.

30 See Access to Cash on the UK Finance website.

31 See "Pivotal moment as banks, consumer groups, Post Office and LINK join forces to help protect cash services", *press release*, UK Finance, 15 December 2021.

32 See "Report of the ERPB Working Group on Access and Acceptance of Cash", op. cit.

access point given the current network. For example, in the Netherlands, public authorities and private stakeholders have agreed since 2007 that the straight-line distance to the nearest ATM should not exceed 5 km.[33] In Lithuania and Latvia, the central banks and financial market participants have recently signed memoranda of understanding with similar commitments.[34] Outside the euro area, central banks and authorities are establishing criteria or rules in the same spirit. For example, in Poland, Narodowy Bank Polski has prepared a national strategy in collaboration with public authorities and market players which deems that access to cash is acceptable if 90% of the population has a cash access point within 10 km.[35] Similarly, Swedish legislation establishing mandatory norms to preserve access to cash also takes geographical coverage into account when defining reasonable access to cash.[36]

The euro area private sector also has several initiatives to offset the reduction in traditional cash access points by increasing alternative cash access points. For example, credit institutions in some regions are mitigating the impact of bank branch closures by offering mobile branches or using financial agents.[37] These allow banks to provide a regular banking service in different locations without having a fixed establishment. In other countries, post offices are increasingly providing cash services. Retailers are also starting to offer cash at the point of sale when customers purchase goods ("cash-back") or even if they do not make a purchase ("cash-in-shop"). In some regions, new providers, such as independent ATM operators, are entering the market and introducing new cash access points. These examples illustrate how the market is adapting to changes in the cash infrastructure, while acknowledging the importance of preserving access to cash.

5 Conclusion

The Eurosystem is committed to guaranteeing access to cash to preserve the freedom of payment choice and financial inclusion of euro area citizens. On the basis of the most recent ECB data, cash is the dominant means of payment in the euro area for daily transactions. Many citizens use cash as their only payment option, either by preference or because they have no access to digital means of payment. A shrinking cash infrastructure can affect the way citizens choose to pay and create barriers to the financial inclusion of vulnerable social groups. To prevent these problems, the Eurosystem is developing and using a wide range of analytical tools to define, measure and assess access to cash in times of profound and rapid change. It is paying close attention to developments and initiatives undertaken in economies where cash use has declined markedly and some parts of the cash infrastructure have deteriorated. Furthermore, the Eurosystem is vigilant with regard

33 See "Towards a New Vision on Cash in the Netherlands – Final Report of the NFPS Task Force for the revision of the NFPS's position on cash", National Forum on the Payment System, May 2020.

34 See "Memorandum of Understanding for Ensuring Access to Cash in Lithuania", Lietuvos Bankas, 21 June 2021; and "Financial industry agrees on ensuring access to cash", *press release*, Latvijas Banka, 3 September 2021.

35 A summary of Poland's national strategy for cash circulation security is available on Narodowy Bank Polski's website (only available in Polish).

36 See Lag (2010:751) om betaltjänster (the Swedish Payment Services Act) (only available in Swedish).

37 See Jiménez Gonzalo, C. and Tejero Sala, H., op. cit.

to possible concerns and keeps track of new initiatives to address cash access deficiencies. In summary, and in line with the goals of its cash strategy, the Eurosystem is working to ensure that cash remains widely accessible in the euro area.

Statistics

Contents

Further information

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

Conventions used in the tables

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

1 External environment

1.1 Main trading partners, GDP and CPI

	GDP [1] (period-on-period percentage changes)						CPI (annual percentage changes)						
	G20	United States	United Kingdom	Japan	China	Memo item: euro area	OECD countries		United States	United Kingdom (HICP)	Japan	China	Memo item: euro area [2] (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	2.9	2.3	1.7	-0.2	6.0	1.6	2.1	2.1	1.8	1.8	0.5	2.9	1.2
2020	-3.2	-3.4	-9.3	-4.5	2.3	-6.3	1.4	1.7	1.2	0.9	0.0	2.5	0.3
2021	6.1	5.6	7.4	1.7	8.1	5.3	4.0	2.9	4.7	2.6	-0.3	0.9	2.6
2021 Q2	0.5	1.6	5.6	0.6	1.5	2.1	3.7	2.8	4.8	2.0	-0.8	1.1	1.8
Q3	1.9	0.6	0.9	-0.8	0.4	2.3	4.4	3.1	5.3	2.8	-0.2	0.8	2.8
Q4	1.3	1.7	1.3	1.0	4.4	0.4	5.9	4.0	6.7	4.9	0.5	1.8	4.6
2022 Q1	0.7	-0.4	0.8	-0.1	1.4	0.5	7.9	5.5	8.0	6.2	0.9	1.1	6.1
2022 Jan.	-	-	-	-	-	-	7.2	5.1	7.5	5.5	0.5	0.9	5.1
Feb.	-	-	-	-	-	-	7.8	5.6	7.9	6.2	0.9	0.9	5.9
Mar.	-	-	-	-	-	-	8.8	5.9	8.5	7.0	1.2	1.5	7.4
Apr.	-	-	-	-	-	-	9.2	6.2	8.3	9.0	2.5	2.1	7.4
May	-	-	-	-	-	-	9.6	6.4	8.6	9.1	2.5	.	8.1
June	-	-	-	-	-	-	.	.	9.1	9.4	.	.	8.6

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

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports [1]		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index [2]					
	Global [2]	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders	Global	Advanced economies	Emerging market economies
	1	2	3	4	5	6	7	8	9	10	11	12
2019	51.7	52.5	50.2	50.5	51.8	51.3	50.3	52.2	48.8	-0.5	-0.4	-0.6
2020	47.5	48.8	46.5	42.4	51.4	44.0	48.5	46.3	45.3	-4.1	-4.3	-3.8
2021	54.9	59.6	55.9	49.4	52.0	54.9	53.7	55.2	52.1	11.1	9.6	12.8
2021 Q3	53.0	56.8	56.3	47.4	50.6	58.4	51.7	53.4	50.3	-0.3	-0.1	-0.5
Q4	54.6	57.3	56.3	52.1	51.9	54.3	52.2	55.5	50.4	2.1	2.4	1.8
2022 Q1	52.2	54.9	58.3	48.7	48.0	54.2	51.0	52.6	49.1	1.8	3.4	0.0
Q2	51.6	54.0	55.0	52.1	44.9	54.2	50.2	52.1	48.7	.	.	.
2022 Jan.	51.0	51.1	54.2	49.9	50.1	52.3	50.7	51.1	49.0	3.8	5.2	2.3
Feb.	53.2	55.9	59.9	45.8	50.1	55.5	51.6	53.7	50.3	3.6	4.9	2.2
Mar.	52.4	57.7	60.9	50.3	43.9	54.9	50.6	53.0	47.9	1.8	3.4	0.0
Apr.	50.4	56.0	58.2	51.1	37.2	55.8	48.3	51.1	48.1	-0.5	0.3	-1.3
May	50.7	53.6	53.1	52.3	42.2	54.8	49.3	51.1	48.0	.	.	.
June	53.8	52.3	53.7	53.0	55.3	52.0	53.0	54.1	50.1	.	.	.

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 Economic activity

2.1 GDP and expenditure components

(quarterly data seasonally adjusted; annual data unadjusted)

	GDP											
	Total	Domestic demand								External balance [1]		
		Total	Private consumption	Government consumption	Gross fixed capital formation				Changes in inventories [2]	Total	Exports [1]	Imports [1]
						Total construction	Total machinery	Intellectual property products				
	1	2	3	4	5	6	7	8	9	10	11	12
	Current prices (EUR billions)											
2019	11,984.4	11,578.4	6,378.3	2,457.3	2,656.9	1,253.6	771.5	624.8	86.0	406.0	5,766.2	5,360.2
2020	11,409.5	11,000.6	5,912.9	2,571.8	2,510.6	1,216.9	683.7	602.9	5.4	408.8	5,179.1	4,770.3
2021	12,268.6	11,787.6	6,268.9	2,716.6	2,694.9	1,361.1	761.7	564.7	107.2	481.0	6,057.1	5,576.2
2021 Q2	3,019.6	2,892.3	1,536.0	677.5	664.1	336.6	189.9	135.7	14.7	127.3	1,475.5	1,348.2
Q3	3,125.3	2,992.7	1,618.2	683.4	672.3	344.3	188.3	137.7	18.8	132.7	1,547.9	1,415.3
Q4	3,162.9	3,072.5	1,636.9	690.9	703.2	350.9	193.6	156.9	41.5	90.3	1,634.2	1,543.9
2022 Q1	3,207.2	3,129.1	1,666.8	697.1	714.6	370.5	199.1	143.0	50.6	78.1	1,692.7	1,614.6
	as a percentage of GDP											
2021	100.0	96.1	51.1	22.1	22.0	11.1	6.2	4.6	0.9	3.9	-	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2021 Q2	2.1	2.2	3.8	1.8	1.5	2.1	0.7	1.1	-	-	3.0	3.4
Q3	2.3	2.1	4.6	0.2	-0.7	-0.8	-1.5	0.8	-	-	2.1	1.5
Q4	0.4	1.2	-0.2	0.3	3.6	0.2	1.6	14.5	-	-	2.7	4.8
2022 Q1	0.5	0.1	-0.4	-0.2	-0.5	3.0	1.9	-10.9	-	-	0.4	-0.5
	annual percentage changes											
2019	1.6	2.5	1.3	1.9	6.9	3.3	1.9	22.5	-	-	2.8	4.8
2020	-6.3	-6.1	-7.8	0.9	-6.4	-4.5	-11.9	-3.5	-	-	-9.0	-8.6
2021	5.3	4.2	3.6	3.9	3.9	6.2	9.9	-7.6	-	-	10.5	8.2
2021 Q2	14.6	12.4	12.4	7.8	19.0	19.0	31.4	5.1	-	-	26.4	22.1
Q3	3.9	3.6	2.9	2.7	2.3	3.2	2.5	0.0	-	-	10.3	10.1
Q4	4.8	5.0	5.9	2.4	2.4	1.7	2.8	3.5	-	-	8.3	9.1
2022 Q1	5.4	5.7	7.9	2.1	3.8	4.4	2.7	3.9	-	-	8.4	9.4
	contributions to quarter-on-quarter percentage changes in GDP; percentage points											
2021 Q2	2.1	2.1	1.9	0.4	0.3	0.2	0.0	0.0	-0.5	-0.1	-	-
Q3	2.3	2.0	2.3	0.0	-0.2	-0.1	-0.1	0.0	-0.2	0.4	-	-
Q4	0.4	1.1	-0.1	0.1	0.8	0.0	0.1	0.6	0.4	-0.7	-	-
2022 Q1	0.5	0.1	-0.2	0.0	-0.1	0.3	0.1	-0.5	0.4	0.4	-	-
	contributions to annual percentage changes in GDP; percentage points											
2019	1.6	2.4	0.7	0.4	1.4	0.3	0.1	1.0	-0.2	-0.8	-	-
2020	-6.3	-5.8	-4.1	0.2	-1.4	-0.5	-0.8	-0.2	-0.5	-0.5	-	-
2021	5.3	4.2	2.0	0.9	0.9	0.7	0.6	-0.4	0.4	1.4	-	-
2021 Q2	14.6	12.1	6.4	1.9	4.0	2.0	1.7	0.3	-0.2	2.5	-	-
Q3	3.9	3.3	1.5	0.6	0.5	0.3	0.2	0.0	0.7	0.6	-	-
Q4	4.8	4.7	3.0	0.5	0.5	0.2	0.2	0.2	0.7	0.0	-	-
2022 Q1	5.4	5.5	3.9	0.5	0.8	0.5	0.2	0.2	0.2	-0.1	-	-

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.

2 Economic activity

2.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											Taxes less subsidies on products
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	Const-ruction	Trade, transport, accom-modation and food services	Infor-mation and com-munica-tion	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services	
	1	2	3	4	5	6	7	8	9	10	11	12
	Current prices (EUR billions)											
2019	10,742.9	178.3	2,099.9	561.3	2,040.7	531.0	480.2	1,205.5	1,250.4	2,026.1	369.5	1,241.5
2020	10,279.7	176.6	1,969.8	554.7	1,804.3	543.2	477.0	1,211.0	1,169.1	2,052.6	321.3	1,129.7
2021	10,996.1	187.9	2,143.9	605.8	2,008.0	583.5	487.4	1,244.8	1,255.0	2,148.6	331.3	1,272.5
2021 Q2	2,706.1	45.9	527.9	151.0	483.8	144.8	121.1	308.5	308.8	533.3	81.1	313.5
Q3	2,796.4	47.7	539.7	152.0	526.5	146.0	121.8	311.5	319.3	544.0	87.8	328.9
Q4	2,824.7	49.8	550.2	154.5	537.7	149.5	122.5	313.0	323.8	540.2	83.5	338.2
2022 Q1	2,865.9	49.4	572.4	158.9	542.4	148.7	123.8	314.9	325.5	544.2	85.6	341.3
	as a percentage of value added											
2021	100.0	1.7	19.5	5.5	18.3	5.3	4.4	11.3	11.4	19.5	3.0	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2021 Q2	1.8	0.6	-0.1	1.6	4.7	1.8	0.5	0.6	1.7	1.8	5.6	4.6
Q3	2.6	-0.3	0.6	-0.4	7.4	1.4	0.4	0.8	3.0	1.5	11.5	0.4
Q4	0.1	0.3	0.3	0.5	0.2	2.8	0.2	0.3	1.2	-1.3	-2.7	2.9
2022 Q1	0.6	-2.1	0.3	2.6	0.7	0.0	0.0	1.1	0.4	0.4	2.4	-0.8
	annual percentage changes											
2019	1.6	1.6	0.2	2.1	2.5	5.7	0.5	1.6	1.8	1.1	1.7	1.5
2020	-6.3	-1.2	-7.0	-4.9	-13.3	1.6	-0.5	-0.9	-7.7	-3.2	-17.6	-6.5
2021	5.2	-1.0	7.2	5.3	7.9	6.9	2.9	1.6	6.0	3.7	2.7	6.4
2021 Q2	14.3	0.0	20.9	18.2	24.2	11.4	4.9	3.5	15.3	10.1	14.6	16.4
Q3	4.0	-1.2	4.9	2.3	7.1	4.2	1.9	1.1	6.5	2.0	3.9	3.2
Q4	4.7	-2.0	1.8	0.8	11.6	8.6	2.5	1.7	6.2	2.3	13.6	5.7
2022 Q1	5.2	-1.4	1.2	4.4	13.5	6.2	1.0	2.8	6.4	2.4	17.4	7.1
	contributions to quarter-on-quarter percentage changes in value added; percentage points											
2021 Q2	1.8	0.0	0.0	0.1	0.8	0.1	0.0	0.1	0.2	0.4	0.2	-
Q3	2.6	0.0	0.1	0.0	1.3	0.1	0.0	0.1	0.3	0.3	0.3	-
Q4	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	-0.3	-0.1	-
2022 Q1	0.6	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	-
	contributions to annual percentage changes in value added; percentage points											
2019	1.6	0.0	0.0	0.1	0.5	0.3	0.0	0.2	0.2	0.2	0.1	-
2020	-6.3	0.0	-1.4	-0.3	-2.5	0.1	0.0	-0.1	-0.9	-0.6	-0.6	-
2021	5.2	0.0	1.4	0.3	1.5	0.4	0.1	0.2	0.7	0.8	0.1	-
2021 Q2	14.3	0.0	3.9	1.0	3.9	0.6	0.2	0.4	1.7	2.1	0.4	-
Q3	4.0	0.0	0.9	0.1	1.3	0.2	0.1	0.1	0.7	0.4	0.1	-
Q4	4.7	0.0	0.4	0.0	2.0	0.5	0.1	0.2	0.7	0.4	0.4	-
2022 Q1	5.2	0.0	0.2	0.2	2.3	0.3	0.0	0.3	0.7	0.5	0.5	-

Sources: Eurostat and ECB calculations.

2 Economic activity

2.3 Employment [1)]

(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity									
		Employees	Self-employed	Agriculture, forestry and fishing	Manufacturing, energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
as a percentage of total persons employed													
2019	100.0	86.0	14.0	3.0	14.6	6.1	25.0	2.9	2.4	1.0	14.0	24.3	6.7
2020	100.0	86.0	14.0	3.0	14.5	6.2	24.4	3.0	2.4	1.0	13.9	24.9	6.6
2021	100.0	86.2	13.8	3.0	14.3	6.3	24.1	3.1	2.4	1.0	14.1	25.1	6.6
annual percentage changes													
2019	1.3	1.5	0.3	-2.4	1.1	2.6	1.5	3.3	-0.1	1.7	1.5	1.4	0.4
2020	-1.6	-1.5	-1.7	-2.3	-1.9	0.8	-3.7	1.5	-0.7	-0.4	-2.5	0.8	-3.1
2021	1.2	1.4	-0.3	0.4	-0.3	3.1	0.0	4.5	0.3	0.7	2.5	2.1	0.0
2021 Q2	2.1	2.5	-0.2	2.6	-0.4	4.9	0.9	4.3	0.5	1.5	4.3	2.9	1.8
Q3	2.1	2.4	0.5	0.3	0.4	3.0	2.0	5.3	1.0	0.2	4.2	2.3	0.9
Q4	2.1	2.5	0.0	-0.9	1.0	3.1	2.8	6.0	0.5	0.1	3.3	1.8	0.7
2022 Q1	2.9	3.2	1.0	-1.2	1.3	3.5	4.8	5.7	-0.5	2.0	4.0	1.8	2.5
Hours worked													
as a percentage of total hours worked													
2019	100.0	81.3	18.7	4.1	14.9	6.8	25.9	3.1	2.4	1.0	13.9	21.7	6.1
2020	100.0	82.0	18.0	4.3	15.0	6.9	24.2	3.3	2.6	1.1	13.8	23.1	5.7
2021	100.0	81.8	18.2	4.2	14.9	7.2	24.4	3.4	2.5	1.1	14.0	22.8	5.7
annual percentage changes													
2019	1.0	1.3	-0.1	-3.3	0.5	2.4	1.1	3.4	0.4	2.0	1.4	1.3	0.3
2020	-7.9	-7.1	-11.3	-2.6	-7.6	-6.6	-14.0	-1.8	-2.9	-6.9	-8.3	-2.1	-13.1
2021	5.3	5.0	6.6	1.8	4.4	9.1	6.3	6.7	2.1	6.3	6.8	3.7	5.2
2021 Q2	16.7	15.1	24.3	7.2	15.0	26.7	24.9	11.1	5.7	18.8	18.6	8.1	25.7
Q3	3.3	3.7	1.7	-0.8	2.3	2.6	4.7	6.9	1.0	2.9	6.4	2.2	0.7
Q4	5.0	5.0	4.9	-0.9	2.4	4.3	10.6	5.9	0.6	2.6	5.4	1.8	7.4
2022 Q1	6.4	6.6	5.9	-1.5	2.7	4.7	14.8	5.8	-0.6	6.8	6.5	1.8	12.7
Hours worked per person employed													
annual percentage changes													
2019	-0.3	-0.2	-0.4	-1.0	-0.5	-0.2	-0.4	0.1	0.4	0.3	-0.1	-0.1	-0.1
2020	-6.5	-5.7	-9.8	-0.3	-5.8	-7.3	-10.7	-3.3	-2.2	-6.5	-6.0	-2.9	-10.3
2021	4.1	3.6	6.9	1.4	4.8	5.8	6.2	2.1	1.8	5.6	4.2	1.6	5.2
2021 Q2	14.2	12.3	24.5	4.5	15.5	20.7	23.8	6.5	5.2	17.0	13.8	5.1	23.5
Q3	1.2	1.3	1.3	-1.0	1.8	-0.4	2.7	1.5	0.0	2.7	2.1	0.0	-0.2
Q4	2.8	2.5	4.9	0.0	1.4	1.2	7.6	0.0	0.1	2.5	2.0	0.0	6.7
2022 Q1	3.5	3.3	4.9	-0.3	1.4	1.2	9.6	0.1	-0.2	4.7	2.4	0.0	10.0

Sources: Eurostat and ECB calculations.

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

2 Economic activity

2.4 Labour force, unemployment and job vacancies

(seasonally adjusted, unless otherwise indicated)

	Labour force, millions	Under-employ-ment, % of labour force	Unemployment [1]											Job vacancy rate [3]
			Total		Long-term unemploy-ment, % of labour force [2]	By age				By gender				
						Adult		Youth		Male		Female		
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	% of total posts
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
% of total in 2020			100.0			80.1		19.9		51.3		48.7		
2019	163.509	3.5	12.428	7.6	3.3	10.060	6.8	2.368	16.3	6.348	7.3	6.080	8.0	2.2
2020	160.958	3.5	12.833	8.0	3.0	10.280	7.0	2.552	18.1	6.581	7.7	6.252	8.3	1.8
2021	163.318	3.4	12.635	7.7	3.2	10.183	6.8	2.452	16.8	6.431	7.4	6.204	8.1	2.4
2021 Q2	163.071	3.5	13.003	8.0	3.3	10.410	7.0	2.593	17.8	6.586	7.6	6.417	8.4	2.3
Q3	164.060	3.3	12.376	7.5	3.1	9.944	6.7	2.432	16.3	6.296	7.2	6.080	7.9	2.6
Q4	164.569	3.3	11.778	7.2	3.0	9.600	6.4	2.177	14.7	6.045	6.9	5.732	7.5	2.8
2022 Q1	165.410	3.3	11.339	6.9	2.9	9.213	6.1	2.126	14.1	5.736	6.5	5.603	7.3	3.1
2021 Dec.	-	-	11.546	7.0	-	9.404	6.3	2.142	14.4	5.908	6.7	5.638	7.3	-
2022 Jan.	-	-	11.392	6.9	-	9.272	6.2	2.120	14.3	5.768	6.6	5.623	7.3	-
Feb.	-	-	11.252	6.8	-	9.165	6.1	2.087	14.0	5.618	6.4	5.634	7.3	-
Mar.	-	-	11.189	6.8	-	9.106	6.1	2.084	13.8	5.601	6.4	5.588	7.2	-
Apr.	-	-	11.085	6.7	-	9.008	6.0	2.077	13.8	5.539	6.3	5.546	7.2	-
May	-	-	11.004	6.6	-	9.017	6.0	1.988	13.1	5.493	6.2	5.511	7.1	-

Sources: Eurostat and ECB calculations.

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

2) Not seasonally adjusted.

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

2.5 Short-term business statistics

	Industrial production						Con-struction produc-tion	Retail sales				Services turnover [1]	New passenger car regis-trations
	Total (excluding construction)	Main Industrial Groupings						Total	Food, beverages, tobacco	Non-food	Fuel		
		Manu-facturing	Inter-mediate goods	Capital goods	Consumer goods	Energy							
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2015	100.0	88.7	32.1	34.5	21.8	11.6	100.0	100.0	40.4	52.5	7.1	100.0	100.0
annual percentage changes													
2019	-0.7	-0.6	-2.6	0.0	1.4	-1.8	2.2	2.4	0.9	3.7	0.8	2.9	1.8
2020	-7.7	-8.2	-7.2	-11.3	-4.3	-4.4	-5.7	-0.8	3.7	-2.3	-14.4	-8.8	-25.1
2021	8.0	8.7	9.7	9.1	7.8	1.6	5.3	5.1	0.9	7.8	9.3	13.3	-3.1
2021 Q3	5.9	6.8	7.8	5.0	8.8	-0.9	0.8	2.5	0.0	4.2	3.4	12.8	-23.6
Q4	0.2	0.1	2.2	-4.0	4.0	2.1	0.7	4.0	-0.5	6.3	13.8	16.9	-25.0
2022 Q1	-0.3	-0.2	1.1	-5.0	5.7	-0.7	5.3	5.1	-2.2	9.9	11.8	.	-13.0
Q2	.	.	.	.	.	.	.	.	.	.	.	.	-16.3
2022 Jan.	-1.3	-1.5	0.7	-8.1	6.1	0.2	3.6	8.5	-1.7	16.1	12.9	-	-10.0
Feb.	1.6	1.9	3.1	-3.4	8.7	-0.8	8.7	5.2	-2.1	9.9	12.2	-	-7.1
Mar.	-1.1	-0.8	-0.3	-3.5	2.6	-1.6	3.0	1.9	-2.6	4.4	10.5	-	-19.9
Apr.	-2.5	-2.4	-0.4	-9.0	4.1	-0.1	2.8	4.0	-3.6	8.8	15.3	-	-18.3
May	1.6	2.0	-0.2	0.9	6.6	-1.5	2.9	0.2	-3.6	2.0	5.6	-	-17.4
June	.	.	.	.	.	.	.	.	.	.	.	-	-13.5
month-on-month percentage changes (s.a.)													
2022 Jan.	-0.8	-0.5	-0.3	-2.6	2.1	-1.1	2.9	0.2	-0.3	1.3	-1.8	-	-6.2
Feb.	0.6	0.7	0.9	-0.6	2.2	-2.5	1.5	0.5	-0.5	1.2	2.6	-	7.0
Mar.	-1.7	-1.8	-1.8	-3.5	-2.8	0.9	-0.3	0.5	1.1	-0.1	-1.1	-	-11.7
Apr.	0.5	0.1	0.6	-0.6	2.8	2.4	-1.0	-1.4	-2.3	-1.2	1.6	-	2.5
May	0.8	1.4	0.0	2.5	1.6	-3.3	0.4	0.2	-0.3	1.2	-0.2	-	-0.3
June	.	.	.	.	.	.	.	.	.	.	.	-	2.5

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

1) Including wholesale trade.

2 Economic activity

2.6 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	-11.6	-15.4	-8.6	7.3	-	51.2	52.5	53.0	52.8
2019	103.6	-4.8	81.9	-6.8	6.8	-0.2	10.9	90.5	47.4	47.8	52.7	51.3
2020	88.3	-13.3	74.4	-14.2	-6.8	-12.6	-15.9	86.4	48.6	48.0	42.5	44.0
2021	110.7	9.3	81.8	-7.4	4.3	-1.8	8.2	87.7	60.2	58.3	53.6	54.9
2021 Q3	117.3	13.5	82.8	-4.2	6.1	4.7	17.0	89.0	60.9	58.6	58.4	58.4
Q4	115.6	13.6	82.5	-7.6	10.0	3.1	16.0	88.8	58.2	53.6	54.5	54.3
2022 Q1	111.2	11.9	82.5	-13.6	9.5	1.9	12.7	88.9	57.8	54.7	54.1	54.2
Q2	104.6	7.2	.	-22.3	5.5	-4.4	14.2	.	54.1	50.4	55.6	54.2
2022 Jan.	113.0	13.1	82.4	-9.7	9.5	3.4	11.0	88.1	58.7	55.4	51.1	52.3
Feb.	114.2	13.5	-	-9.5	10.0	4.4	14.2	-	58.2	55.5	55.5	55.5
Mar.	106.5	9.1	-	-21.6	8.9	-2.1	13.0	-	56.5	53.1	55.6	54.9
Apr.	104.9	7.8	82.6	-22.1	6.6	-4.0	13.6	89.7	55.5	50.7	57.7	55.8
May	105.0	6.5	-	-21.2	6.3	-4.2	14.1	-	54.6	51.3	56.1	54.8
June	104.0	7.4	-	-23.6	3.7	-5.1	14.8	-	52.1	49.3	53.0	52.0

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

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

	Households							Non-financial corporations					
	Saving ratio (gross)	Debt ratio	Real gross disposable income	Financial investment	Non-financial investment (gross)	Net worth [2]	Housing wealth	Profit share [3]	Saving ratio (net)	Debt ratio [4]	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted) [1]		Annual percentage changes					Percentage of net value added		Percentage of GDP	Annual percentage changes		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	13.2	93.2	2.0	2.7	3.8	6.3	4.0	35.0	6.0	75.0	2.1	8.0	1.9
2020	19.5	96.1	-0.5	4.1	-3.3	4.7	3.6	31.4	4.4	81.9	3.2	-14.5	2.0
2021	17.3	96.5	1.2	3.4	19.7	7.2	7.5	35.8	8.1	79.6	5.3	8.7	3.0
2021 Q2	19.1	96.5	4.0	4.2	31.1	6.7	5.1	35.1	7.9	80.1	4.4	20.6	2.3
Q3	18.6	96.7	0.7	4.0	18.3	7.5	6.8	35.4	8.5	79.5	4.5	13.6	2.3
Q4	17.3	96.5	0.4	3.4	18.5	7.2	7.5	35.8	8.1	79.6	5.3	15.5	3.0
2022 Q1	15.7	96.4	0.1	3.1	17.4	5.3	8.0	35.6	7.6	78.8	5.3	13.7	3.2

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.

2 Economic activity

2.8 Euro area balance of payments, current and capital accounts

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

	Current account											Capital account [1]	
	Total			Goods		Services		Primary income		Secondary income			
	Credit	Debit	Balance	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
	1	2	3	4	5	6	7	8	9	10	11	12	13
2021 Q2	1,093.0	1,002.2	90.8	615.8	533.3	236.0	209.1	206.7	184.4	34.6	75.3	21.2	12.1
Q3	1,112.8	1,043.0	69.8	625.1	553.9	252.7	238.4	195.1	172.6	39.9	78.2	27.3	13.4
Q4	1,180.9	1,154.4	26.6	648.7	621.4	278.0	248.7	213.5	201.9	40.7	82.5	59.8	46.9
2022 Q1	1,224.4	1,201.9	22.5	683.3	674.7	294.5	253.8	207.4	204.0	39.1	69.4	27.8	20.5
2021 Dec.	397.0	384.4	12.6	219.3	215.0	91.1	81.2	72.8	61.1	13.8	27.1	44.6	37.5
2022 Jan.	407.2	390.4	16.8	226.8	217.0	97.4	81.8	70.5	67.3	12.4	24.3	7.9	5.9
Feb.	410.3	401.5	8.7	230.2	227.7	98.8	86.5	68.8	65.9	12.5	21.4	7.3	4.4
Mar.	406.9	410.0	-3.0	226.3	230.0	98.3	85.5	68.1	70.8	14.2	23.7	12.7	10.2
Apr.	422.1	426.1	-3.9	243.2	243.2	98.5	87.3	67.8	68.9	12.7	26.6	6.9	4.5
May	422.5	427.0	-4.5	247.4	248.7	99.0	85.9	65.1	65.3	11.1	27.2	5.2	3.4
12-month cumulated transactions													
2022 May	4,722.9	4,584.7	138.2	2,651.8	2,519.9	1,102.5	982.1	813.4	773.8	155.2	308.8	135.9	93.7
12-month cumulated transactions as a percentage of GDP													
2022 May	37.7	36.6	1.1	21.2	20.1	8.8	7.8	6.5	6.2	1.2	2.5	1.1	0.7

1) The capital account is not seasonally adjusted.

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

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
			Total				Memo item:	Total				Memo items:	
	Exports	Imports		Intermediate goods	Capital goods	Consumption goods	Manufacturing		Intermediate goods	Capital goods	Consumption goods	Manufacturing	Oil
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2021 Q2	34.4	33.9	594.6	291.5	116.7	175.5	493.1	554.9	320.9	92.2	135.4	403.5	53.3
Q3	13.7	23.0	607.6	305.5	119.1	171.2	501.9	581.7	346.6	94.2	135.3	416.2	58.5
Q4	12.1	32.3	636.5	322.6	115.8	187.6	524.3	653.7	400.9	97.1	148.3	450.0	71.4
2022 Q1	16.8	40.2	673.9	341.9	123.4	196.0	552.9	714.0	450.5	103.7	150.8	477.4	84.9
2021 Dec.	14.1	38.6	213.8	109.6	38.8	62.6	176.9	226.8	139.2	34.3	50.6	156.3	23.2
2022 Jan.	19.8	45.4	222.6	112.0	42.4	65.3	183.7	231.7	144.1	34.5	49.8	158.4	24.8
Feb.	17.1	40.0	224.4	114.0	40.8	65.6	186.6	236.9	148.8	34.5	50.1	159.1	29.3
Mar.	14.3	36.1	226.8	115.9	40.2	65.1	182.6	245.3	157.6	34.7	50.9	159.9	30.8
Apr.	12.7	39.7	230.7	116.2	41.1	69.6	186.8	262.6	169.8	35.4	52.9	166.6	33.1
May	28.9	52.0	241.8	.	.	.	193.5	267.8	.	.	.	173.5	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2021 Q2	29.1	20.4	104.2	109.4	100.8	100.5	103.2	108.9	109.7	113.2	107.8	111.3	86.3
Q3	4.4	5.5	103.5	110.1	101.0	96.3	102.2	108.1	109.6	112.7	105.0	110.8	85.5
Q4	0.9	9.5	105.4	112.6	96.1	102.8	104.2	115.5	120.3	109.4	110.6	114.9	94.0
2022 Q1	2.4	10.9	106.1	111.5	101.0	103.4	105.5	115.7	119.4	114.3	110.1	117.6	92.7
2021 Nov.	3.1	10.0	107.0	113.9	98.3	104.0	105.4	115.9	121.5	107.9	111.4	114.6	96.9
Dec.	2.5	16.1	104.8	113.3	94.7	101.7	104.0	119.6	125.4	113.4	112.3	118.4	93.9
2022 Jan.	5.7	15.2	106.4	111.1	104.4	105.0	105.8	115.0	118.4	113.2	109.1	117.3	92.4
Feb.	2.9	12.0	106.5	112.6	100.6	103.5	107.1	116.1	119.5	115.3	110.0	118.2	97.4
Mar.	-0.7	6.4	105.3	110.8	98.0	101.6	103.6	116.1	120.2	114.2	111.1	117.4	88.5
Apr.	-2.8	7.8	105.1	108.8	99.0	106.7	103.9	120.6	124.7	115.5	113.5	120.5	93.7

Sources: ECB and Eurostat.

1) Differences between ECB's b.o.p. goods (Table 2.8) and Eurostat's trade in goods (Table 2.9) are mainly due to different definitions.

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

3 Prices and costs

3.1 Harmonised Index of Consumer Prices [1)]

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) [2)]						Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unprocessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Administered prices
			Total excluding food and energy										
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2021	100.0	100.0	68.7	58.2	41.8	100.0	16.7	5.1	26.9	9.5	41.8	86.7	13.3
2019	104.8	1.2	1.0	1.0	1.5	-	-	-	-	-	-	1.1	1.9
2020	105.1	0.3	0.7	-0.4	1.0	-	-	-	-	-	-	0.2	0.6
2021	107.8	2.6	1.5	3.4	1.5	-	-	-	-	-	-	2.5	3.1
2021 Q3	108.0	2.8	1.4	4.1	1.2	1.2	0.6	0.8	1.4	4.3	0.6	2.7	3.5
Q4	109.9	4.6	2.4	6.2	2.4	1.6	1.0	1.4	0.1	9.1	1.0	4.6	5.1
2022 Q1	112.3	6.1	2.7	8.8	2.5	2.7	1.8	3.1	1.5	14.4	0.7	6.0	6.9
Q2	116.1	8.0	3.7	11.4	3.4	2.3	3.4	4.1	1.0	7.1	1.0	8.2	7.1
2022 Jan.	110.7	5.1	2.3	7.1	2.3	1.1	0.6	1.0	0.7	6.2	0.2	4.9	6.3
Feb.	111.7	5.9	2.7	8.3	2.5	0.8	0.7	1.0	0.6	3.4	0.2	5.8	6.3
Mar.	114.5	7.4	3.0	10.9	2.7	1.7	0.6	1.5	0.1	12.2	0.3	7.3	8.1
Apr.	115.1	7.4	3.5	10.4	3.3	0.1	1.4	2.3	0.4	-4.0	0.6	7.4	8.0
May	116.1	8.1	3.8	11.4	3.5	0.7	1.4	0.0	0.4	1.9	0.3	8.1	7.6
June	117.0	8.6	3.7	12.5	3.4	0.7	1.3	1.4	0.4	3.4	-0.1	9.1	5.6

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing		Transport	Communication	Recreation and personal care	Miscellaneous
	Total	Processed food	Unprocessed food	Total	Non-energy industrial goods	Energy		Rents				
	14	15	16	17	18	19	20	21	22	23	24	25
% of total in 2021	21.8	16.7	5.1	36.4	26.9	9.5	12.2	7.5	6.5	2.7	11.4	9.0
2019	1.8	1.9	1.4	0.5	0.3	1.1	1.4	1.3	2.0	-0.7	1.7	1.5
2020	2.3	1.8	4.0	-1.8	0.2	-6.8	1.4	1.3	0.5	-0.6	1.0	1.4
2021	1.5	1.5	1.6	4.5	1.5	13.0	1.4	1.2	2.1	0.3	1.5	1.6
2021 Q3	1.9	1.7	2.5	5.4	1.8	15.8	1.4	1.1	2.4	0.7	1.1	1.6
Q4	2.5	2.4	2.7	8.4	2.4	25.7	1.6	1.1	4.0	1.2	3.1	1.7
2022 Q1	4.2	3.6	6.4	11.5	2.9	35.1	1.8	1.2	3.3	0.1	4.1	1.6
Q2	7.6	6.9	9.8	13.7	4.1	39.6	2.2	1.4	4.5	0.1	5.9	1.7
2022 Jan.	3.5	3.0	5.2	9.3	2.1	28.8	1.7	1.2	3.1	0.0	3.8	1.6
Feb.	4.2	3.5	6.2	10.9	3.1	32.0	1.8	1.2	3.3	-0.1	4.1	1.6
Mar.	5.0	4.1	7.8	14.4	3.4	44.3	1.9	1.2	3.5	0.3	4.4	1.7
Apr.	6.3	5.4	9.2	12.9	3.8	37.5	2.1	1.3	5.4	0.5	5.2	1.7
May	7.5	7.0	9.0	13.6	4.2	39.1	2.3	1.5	5.2	-0.1	5.9	1.8
June	8.9	8.2	11.2	14.5	4.3	42.0	2.4	1.6	2.7	0.0	6.7	1.7

Sources: Eurostat and ECB calculations.

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

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

3 Prices and costs

3.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction [1]										Con-struction [2]	Residential property prices [3]	Experimental indicator of commercial property prices [3]
	Total (index: 2015 = 100)	Total		Industry excluding construction and energy						Energy			
			Manu-facturing	Total	Intermediate goods	Capital goods	Consumer goods						
							Total	Food, beverages and tobacco	Non-food				
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2015	100.0	100.0	77.3	72.1	28.9	20.7	22.5	16.5	5.9	27.9			
2019	104.7	0.6	0.6	0.8	0.1	1.5	1.0	1.1	0.9	-0.1	3.1	4.2	4.5
2020	102.0	-2.6	-1.7	-0.1	-1.6	0.9	1.0	1.1	0.6	-9.7	2.0	5.3	1.7
2021	114.5	12.3	7.4	5.8	10.9	2.5	2.1	2.0	1.8	32.3	5.3	7.9	-0.2
2021 Q2	109.4	9.2	6.8	4.7	9.0	1.7	1.8	1.8	1.2	23.7	4.4	7.2	-2.7
Q3	115.6	14.0	9.3	7.5	14.1	3.0	2.8	2.9	2.1	34.3	7.0	9.0	-0.2
Q4	127.3	24.0	12.3	9.7	18.0	4.3	4.0	3.9	3.0	67.5	7.2	9.4	3.8
2022 Q1	140.9	33.1	15.5	12.7	21.4	6.1	7.4	.	5.5	92.6	.	9.8	.
2021 Dec.	130.6	26.4	12.3	10.2	18.7	4.7	4.6	4.7	3.2	73.8	-	-	-
2022 Jan.	137.5	30.8	14.1	11.9	20.5	5.7	6.4	6.3	5.0	86.0	-	-	-
Feb.	138.9	31.5	14.6	12.3	20.9	6.0	7.0	.	5.5	87.4	-	-	-
Mar.	146.3	36.9	17.7	13.7	22.7	6.5	8.7	.	6.0	104.0	-	-	-
Apr.	148.0	37.2	19.3	15.6	25.2	7.2	10.9	.	6.8	99.0	-	-	-
May	149.0	36.3	19.9	16.0	25.0	7.5	11.9	.	7.5	94.4	-	-	-

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

3.3 Commodity prices and GDP deflators

(annual percentage changes, unless otherwise indicated)

	GDP deflators								Oil prices (EUR per barrel)	Non-energy commodity prices (EUR)					
	Total (s.a.; index: 2015 = 100)	Total	Domestic demand				Exports [1]	Imports [1]		Import-weighted [2]			Use-weighted [2]		
			Total	Private consump-tion	Govern-ment consump-tion	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
% of total										100.0	45.4	54.6	100.0	50.4	49.6
2019	105.3	1.7	1.5	1.1	1.8	2.3	0.7	0.2	57.2	2.0	4.4	-0.1	3.0	8.2	-2.3
2020	107.1	1.7	1.2	0.6	3.7	1.0	-1.3	-2.7	37.0	1.4	3.3	-0.3	-1.0	-0.3	-1.8
2021	109.3	2.0	2.8	2.2	1.6	3.3	5.8	7.9	59.8	29.5	21.3	37.2	28.8	21.7	37.1
2021 Q3	109.8	2.9	3.7	2.7	2.7	4.7	7.4	9.9	61.9	31.0	26.1	35.4	32.3	28.2	36.7
Q4	110.7	3.1	4.6	3.8	2.2	5.4	10.0	14.0	69.4	30.7	30.0	31.3	33.7	33.4	34.0
2022 Q1	111.7	3.4	5.2	4.7	2.6	6.5	11.4	16.2	88.7	32.2	35.0	29.7	35.5	38.5	32.5
Q2	.	.	.	.	.	.	.	.	106.1	22.5	39.8	9.2	24.2	38.2	10.8
2022 Jan.	-	-	-	-	-	-	-	-	75.5	29.0	29.3	28.7	33.1	34.4	31.7
Feb.	-	-	-	-	-	-	-	-	84.4	29.8	32.3	27.7	32.7	34.9	30.4
Mar.	-	-	-	-	-	-	-	-	104.6	37.4	43.1	32.6	40.4	45.7	35.0
Apr.	-	-	-	-	-	-	-	-	98.2	30.9	42.0	22.0	32.6	41.7	23.7
May	-	-	-	-	-	-	-	-	106.2	19.8	39.3	4.9	22.0	38.2	6.6
June	-	-	-	-	-	-	-	-	113.7	17.4	38.0	1.6	18.5	34.9	2.8

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

3 Prices and costs

3.4 Price-related opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 12 months	Input prices		Prices charged	
	Manu-facturing	Retail trade	Services	Construction		Manu-facturing	Services	Manu-facturing	Services
	1	2	3	4	5	6	7	8	9
1999-15	4.3	5.7	-	-4.4	32.4	56.7	56.3	-	49.7
2019	4.4	7.3	9.1	7.7	18.1	48.8	57.1	50.4	52.4
2020	-0.3	2.0	-0.6	-5.0	11.4	49.0	52.1	48.7	47.2
2021	31.5	24.0	10.3	20.1	30.3	84.0	61.9	66.8	53.4
2021 Q3	36.7	28.9	13.3	27.0	37.5	87.7	63.8	70.3	55.1
Q4	46.2	41.7	19.7	36.5	52.4	88.4	69.5	72.1	56.9
2022 Q1	50.5	49.0	23.7	39.2	59.9	84.2	74.2	72.9	59.8
Q2	55.2	56.6	28.6	49.1	71.6	84.0	78.0	74.8	64.4
2022 Jan.	46.7	43.3	22.2	36.3	55.7	83.5	70.9	72.7	57.9
Feb.	48.6	48.2	23.4	36.9	61.8	82.0	72.2	71.7	58.8
Mar.	56.2	55.5	25.5	44.5	62.1	87.0	79.6	74.2	62.6
Apr.	59.5	56.3	29.4	52.0	68.5	87.7	78.7	77.3	65.2
May	55.5	56.5	28.4	49.3	71.6	84.2	77.4	76.2	64.6
June	50.4	56.8	27.9	46.0	74.8	80.0	77.9	70.9	63.2

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

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

	Total (index: 2016 = 100)	Total	By component		For selected economic activities		Memo item: Indicator of negotiated wages [1]
			Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	
	1	2	3	4	5	6	7
% of total in 2018	100.0	100.0	75.3	24.7	69.0	31.0	
2019	106.9	2.4	2.6	2.0	2.4	2.4	2.2
2020	110.2	3.1	3.8	0.9	2.8	3.8	1.8
2021	111.7	1.3	1.3	1.4	1.2	1.6	1.5
2021 Q2	115.8	-0.2	-0.5	1.1	-0.9	1.4	1.8
Q3	107.5	2.4	2.3	2.6	2.4	2.2	1.4
Q4	118.7	1.9	1.4	3.3	2.1	1.3	1.6
2022 Q1	.	.	3.3	5.3	.	.	2.8

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

3 Prices and costs

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

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

	Total (index: 2015 =100)	Total	By economic activity									
			Agriculture, forestry and fishing	Manu-facturing, energy and utilities	Con-struction	Trade, transport, accom-modation and food services	Information and commu-nication	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12
Unit labour costs												
2019	105.4	1.9	-1.5	2.3	2.0	0.7	0.9	1.7	2.5	2.4	2.6	2.0
2020	110.1	4.5	-0.4	3.1	4.2	5.7	0.5	0.5	1.3	5.5	6.8	14.0
2021	110.1	0.0	4.4	-2.9	2.4	-1.5	1.6	0.5	4.7	1.2	0.3	1.8
2021 Q2	109.2	-4.3	5.5	-10.0	-1.5	-7.8	0.3	-2.5	8.0	-1.4	-4.7	-1.9
Q3	110.2	1.6	4.4	-0.4	2.4	0.2	4.6	1.9	3.0	1.4	2.3	0.4
Q4	111.1	1.2	4.4	2.2	4.4	-0.7	0.9	2.0	4.3	1.3	1.1	-6.0
2022 Q1	112.3	2.0	3.6	4.0	3.0	0.0	1.9	2.0	5.1	2.5	2.0	-4.5
Compensation per employee												
2019	107.4	2.1	2.5	1.4	1.4	1.7	3.2	2.3	2.4	2.7	2.3	3.3
2020	106.8	-0.6	0.6	-2.3	-1.7	-4.9	0.6	0.7	0.8	-0.1	2.5	-3.0
2021	111.2	4.1	3.0	4.4	4.6	6.3	4.0	3.1	5.7	4.7	1.9	4.6
2021 Q2	109.9	7.4	2.9	9.2	11.1	13.6	6.9	1.8	10.4	8.9	2.1	10.5
Q3	112.3	3.4	3.0	4.0	1.8	5.2	3.3	2.8	4.1	3.5	2.1	3.5
Q4	113.2	3.8	3.3	3.1	2.1	7.8	3.1	4.1	6.2	4.1	1.6	6.1
2022 Q1	114.3	4.5	3.4	3.9	3.9	8.3	2.3	3.6	6.1	4.7	2.7	9.5
Labour productivity per person employed												
2019	102.0	0.3	4.0	-0.8	-0.5	0.9	2.3	0.6	-0.1	0.3	-0.3	1.3
2020	97.0	-4.9	1.1	-5.2	-5.7	-9.9	0.1	0.2	-0.5	-5.3	-4.0	-15.0
2021	101.0	4.1	-1.4	7.5	2.1	7.9	2.3	2.6	0.9	3.5	1.5	2.7
2021 Q2	100.6	12.2	-2.5	21.4	12.8	23.1	6.6	4.4	2.2	10.5	7.1	12.6
Q3	101.9	1.8	-1.3	4.5	-0.6	5.0	-1.2	0.9	1.1	2.1	-0.2	3.0
Q4	101.9	2.6	-1.0	0.9	-2.1	8.5	2.3	2.1	1.8	2.7	0.6	12.9
2022 Q1	101.8	2.5	-0.2	-0.1	0.9	8.3	0.4	1.5	1.0	2.2	0.7	14.7
Compensation per hour worked												
2019	107.3	2.3	3.1	1.9	1.7	2.0	3.0	1.7	2.1	2.8	2.4	3.7
2020	113.1	5.4	2.9	3.3	4.3	5.9	3.2	2.2	5.6	5.1	5.0	6.3
2021	113.7	0.5	0.5	0.0	-0.5	0.7	2.1	1.6	1.6	1.0	0.6	0.5
2021 Q2	112.6	-4.3	-3.0	-4.4	-6.5	-6.2	1.4	-2.6	-0.5	-2.7	-2.2	-6.1
Q3	114.0	2.2	2.9	2.3	2.0	2.3	1.8	3.0	1.1	1.7	2.4	3.0
Q4	115.3	1.3	1.7	1.9	1.6	0.3	3.5	4.4	3.3	2.4	1.7	0.8
2022 Q1	115.7	1.2	2.6	2.7	2.8	-1.3	2.1	3.6	3.4	2.2	2.8	0.6
Hourly labour productivity												
2019	102.4	0.6	5.1	-0.3	-0.3	1.4	2.2	0.2	-0.4	0.4	-0.2	1.4
2020	104.2	1.7	1.4	0.6	1.8	0.8	3.5	2.4	6.4	0.7	-1.2	-5.2
2021	104.2	0.0	-2.7	2.6	-3.5	1.6	0.2	0.8	-4.4	-0.7	0.0	-2.4
2021 Q2	104.1	-1.8	-6.5	5.1	-6.5	-0.5	0.3	-0.7	-12.8	-2.8	1.8	-8.9
Q3	104.3	0.7	-0.2	2.6	0.0	2.4	-2.3	0.9	-1.6	0.2	-0.1	3.1
Q4	104.7	-0.2	-0.8	-0.5	-3.1	0.9	2.6	1.9	-0.7	0.8	0.5	5.8
2022 Q1	103.9	-1.0	0.1	-1.5	-0.3	-1.1	0.3	1.7	-3.6	-0.1	0.6	4.2

Sources: Eurostat and ECB calculations.

4 Financial market developments

4.1 Money market interest rates

(percentages per annum; period averages)

	Euro area [1]						United States	Japan
	Euro short-term rate (€STR) [2]	Overnight deposits (EONIA) [3]	1-month deposits (EURIBOR)	3-month deposits (EURIBOR)	6-month deposits (EURIBOR)	12-month deposits (EURIBOR)	3-month deposits (LIBOR)	3-month deposits (LIBOR)
	1	2	3	4	5	6	7	8
2019	-0.48	-0.39	-0.40	-0.36	-0.30	-0.22	2.33	-0.08
2020	-0.55	-0.46	-0.50	-0.43	-0.37	-0.31	0.64	-0.07
2021	-0.57	-0.48	-0.56	-0.55	-0.52	-0.49	0.16	-0.08
2021 Dec.	-0.58	-0.49	-0.60	-0.58	-0.54	-0.50	0.21	-0.08
2022 Jan.	-0.58	-	-0.56	-0.56	-0.53	-0.48	0.25	-0.03
Feb.	-0.58	-	-0.55	-0.53	-0.48	-0.34	0.43	-0.02
Mar.	-0.58	-	-0.54	-0.50	-0.42	-0.24	0.84	-0.01
Apr.	-0.58	-	-0.54	-0.45	-0.31	0.01	1.10	-0.01
May	-0.58	-	-0.55	-0.39	-0.14	0.29	1.47	-0.02
June	-0.58	-	-0.52	-0.24	0.16	0.85	1.97	-0.03

Source: Refinitiv and ECB calculations.

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

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

3) The European Money Markets Institute discontinued EONIA on 3 January 2022.

4.2 Yield curves

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1], [2]					Euro area [1], [2]	United States	United Kingdom	Euro area [1], [2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2019	-0.68	-0.66	-0.62	-0.45	-0.14	0.52	0.34	0.24	-0.62	-0.52	-0.13	0.41
2020	-0.75	-0.76	-0.77	-0.72	-0.57	0.19	0.80	0.32	-0.77	-0.77	-0.60	-0.24
2021	-0.73	-0.72	-0.68	-0.48	-0.19	0.53	1.12	0.45	-0.69	-0.58	-0.12	0.24
2021 Dec.	-0.73	-0.72	-0.68	-0.48	-0.19	0.53	1.12	0.45	-0.69	-0.58	-0.12	0.24
2022 Jan.	-0.70	-0.66	-0.57	-0.27	0.03	0.69	1.00	0.37	-0.59	-0.36	0.17	0.40
Feb.	-0.73	-0.68	-0.54	-0.11	0.22	0.90	0.81	0.44	-0.56	-0.21	0.42	0.59
Mar.	-0.70	-0.49	-0.09	0.42	0.62	1.11	0.73	0.35	-0.05	0.58	0.81	0.81
Apr.	-0.59	-0.26	0.21	0.74	0.94	1.20	0.85	0.42	0.30	0.94	1.13	1.14
May	-0.38	-0.08	0.36	0.97	1.22	1.30	0.78	0.58	0.40	1.10	1.47	1.47
June	-0.42	0.31	0.64	1.11	1.50	1.19	0.21	0.38	0.86	1.07	1.72	1.95

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.

4.3 Stock market indices

(index levels in points; period averages)

	Dow Jones EURO STOXX indices												United States	Japan
	Benchmark		Main industry indices											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2018	375.5	3,386.6	766.3	264.9	172.6	115.8	173.1	629.5	502.5	278.8	292.9	800.5	2,746.2	22,310.7
2019	373.6	3,435.2	731.7	270.8	183.7	111.9	155.8	650.9	528.2	322.0	294.2	772.7	2,915.5	21,697.2
2020	360.0	3,274.3	758.9	226.8	163.2	83.1	128.6	631.4	630.2	347.1	257.6	831.9	3,217.3	22,703.5
2021 Dec.	469.1	4,207.9	1,020.3	303.9	189.5	99.9	172.3	846.9	961.1	383.4	283.8	909.0	4,677.0	28,514.2
2022 Jan.	471.0	4,252.3	1,031.4	300.2	190.1	107.0	185.0	846.7	910.8	385.5	281.3	887.8	4,573.8	27,904.0
Feb.	452.7	4,084.1	978.2	285.0	180.8	107.8	185.6	805.7	823.6	374.5	286.1	863.7	4,436.0	27,066.5
Mar.	422.1	3,796.6	942.7	253.7	172.5	103.1	160.8	762.7	791.8	351.9	279.7	858.7	4,391.3	26,584.1
Apr.	428.9	3,837.3	984.0	255.1	179.2	106.2	164.1	751.7	772.3	370.6	298.1	912.6	4,391.3	27,043.3
May	413.5	3,691.8	974.9	238.2	172.6	113.1	158.1	725.8	724.2	369.5	298.3	864.5	4,040.4	26,653.8
June	399.6	3,587.6	929.8	235.5	165.6	113.4	153.0	693.6	694.0	350.4	293.7	833.3	3,898.9	26,958.4

Source: Refinitiv.

4 Financial market developments

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

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

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase					
	Overnight	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation		APRC [3)]		By initial period of rate fixation				APRC [3)]	Composite cost-of-borrowing indicator
			Up to 2 years	Over 2 years			Floating rate and up to 1 year	Over 1 year			Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2021 June	0.01	0.34	0.16	0.59	4.89	16.01	5.21	5.16	5.78	1.94	1.31	1.43	1.26	1.30	1.60	1.32
July	0.01	0.34	0.19	0.58	4.78	15.98	5.37	5.25	5.86	1.97	1.34	1.45	1.27	1.30	1.61	1.32
Aug.	0.01	0.34	0.17	0.59	4.83	16.01	5.75	5.31	5.92	2.04	1.34	1.47	1.24	1.28	1.60	1.32
Sep.	0.01	0.34	0.18	0.57	4.90	15.93	5.50	5.25	5.88	1.93	1.31	1.45	1.25	1.29	1.59	1.30
Oct.	0.01	0.34	0.19	0.58	4.82	15.91	5.61	5.21	5.85	2.00	1.32	1.47	1.26	1.30	1.60	1.31
Nov.	0.01	0.34	0.19	0.57	4.82	15.86	5.11	5.20	5.83	2.06	1.32	1.48	1.30	1.32	1.61	1.32
Dec.	0.01	0.35	0.17	0.60	4.74	15.89	5.11	5.05	5.66	1.87	1.34	1.46	1.30	1.30	1.60	1.31
2022 Jan.	0.01	0.35	0.20	0.56	4.76	15.82	5.58	5.28	5.87	1.95	1.35	1.46	1.31	1.32	1.61	1.33
Feb.	0.01	0.46	0.19	0.56	4.81	15.78	5.28	5.27	5.87	2.09	1.35	1.49	1.39	1.38	1.66	1.38
Mar.	0.01	0.47	0.19	0.52	4.81	15.76	5.46	5.24	5.81	2.08	1.40	1.53	1.54	1.47	1.75	1.47
Apr.	0.01	0.47	0.20	0.56	4.75	15.78	5.82	5.38	5.97	2.24	1.43	1.72	1.77	1.58	1.89	1.61
May [(p)]	0.01	0.47	0.20	0.64	4.81	15.77	5.86	5.58	6.18	2.48	1.53	1.86	2.02	1.74	2.06	1.78

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).

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

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

	Deposits			Revolving loans and overdrafts	Other loans by size and initial period of rate fixation									Composite cost-of-borrowing indicator
	Overnight	With an agreed maturity of:			up to EUR 0.25 million			over EUR 0.25 and up to 1 million			over EUR 1 million			
		Up to 2 years	Over 2 years		Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2021 June	-0.02	-0.31	0.27	1.83	1.88	1.97	2.02	1.55	1.43	1.54	1.20	1.13	1.24	1.46
July	-0.02	-0.31	0.13	1.71	1.81	2.14	1.99	1.58	1.43	1.37	1.27	1.32	1.16	1.48
Aug.	-0.03	-0.35	0.17	1.75	1.78	1.93	2.02	1.55	1.45	1.36	1.23	1.12	1.14	1.44
Sep.	-0.03	-0.35	0.15	1.77	1.79	1.99	1.99	1.51	1.43	1.34	1.27	1.25	1.28	1.49
Oct.	-0.03	-0.36	0.17	1.71	1.79	2.09	1.99	1.54	1.42	1.32	1.15	1.19	1.24	1.43
Nov.	-0.03	-0.35	0.16	1.68	1.78	2.01	2.03	1.49	1.43	1.36	1.07	1.11	1.23	1.38
Dec.	-0.03	-0.33	0.17	1.67	1.84	1.96	1.95	1.51	1.43	1.32	1.14	0.97	1.19	1.36
2022 Jan.	-0.04	-0.32	0.20	1.67	1.91	1.94	2.00	1.52	1.41	1.37	1.13	1.24	1.29	1.43
Feb.	-0.04	-0.32	0.41	1.67	1.77	1.93	2.08	1.50	1.43	1.42	1.07	1.08	1.46	1.42
Mar.	-0.04	-0.30	0.64	1.69	1.77	1.96	2.11	1.50	1.45	1.52	1.25	1.17	1.54	1.49
Apr.	-0.04	-0.30	0.44	1.67	1.88	1.98	2.24	1.52	1.46	1.67	1.19	1.12	1.57	1.51
May [(p)]	-0.04	-0.27	0.51	1.69	1.80	2.03	2.40	1.52	1.49	1.78	1.15	1.22	1.95	1.55

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.

4 Financial market developments

4.6 Debt securities issued by euro area residents, by sector of the issuer and original maturity

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

	Outstanding amounts							Gross issues [1]						
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Non-MFI corporations			General government	
			Financial corporations other than MFIs	FVCs	Non-financial corporations		of which central government			Financial corporations other than MFIs	FVCs	Non-financial corporations		of which central government
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Short-term														
2019	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	1,499	429	142	54	96	832	718	.	.	.	.	.	.	.
2021	1,411	425	137	53	88	761	672	387	139	79	26	32	137	105
2022 Jan.	1,419	431	139	55	96	753	653	406	133	83	26	43	147	105
Feb.	1,400	417	145	56	96	741	644	386	136	87	28	32	132	96
Mar.	1,443	427	151	55	105	760	653	510	177	117	44	48	169	114
Apr.	1,436	437	155	55	108	736	638	460	168	102	36	43	147	97
May	1,380	417	155	49	107	701	613	440	159	110	40	43	128	87
June	1,339	404	137	44	99	699	622	439	158	112	48	43	125	87
Long-term														
2019	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2020	19,439	4,079	3,285	1,331	1,542	10,533	9,752	.	.	.	.	.	.	.
2021	20,087	4,179	3,583	1,404	1,594	10,732	9,912	316	66	83	33	23	144	130
2022 Jan.	20,000	4,176	3,574	1,402	1,574	10,676	9,855	370	116	70	14	20	165	148
Feb.	19,763	4,144	3,534	1,409	1,526	10,559	9,753	308	79	76	33	12	141	130
Mar.	19,564	4,122	3,524	1,414	1,510	10,408	9,617	403	98	122	55	27	157	147
Apr.	19,177	4,087	3,552	1,417	1,479	10,060	9,286	295	69	84	24	14	127	118
May	18,998	4,097	3,538	1,395	1,461	9,903	9,129	333	98	68	14	27	140	125
June	18,712	4,038	3,486	1,390	1,403	9,785	9,029	303	85	64	15	13	141	133

Source: ECB.

1) In order to facilitate comparison, annual data are averages of the relevant monthly data.

4.7 Annual growth rates and outstanding amounts of debt securities and listed shares

(EUR billions and percentage changes; market values)

	Debt securities							Listed shares			
	Total	MFIs	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations
			Financial corporations other than MFIs	FVCs	Non-financial corporations		of which central government				
	1	2	3	4	5	6	7	8	9	10	11
Outstanding amount											
2019	.	.	.	.	.	.	.	8,560.4	537.8	1,410.5	6,612.1
2020	20,938.6	4,508.4	3,426.8	1,385.9	1,638.4	11,365.0	10,470.5	8,486.7	468.9	1,357.8	6,658.9
2021	21,498.4	4,603.7	3,719.5	1,457.2	1,682.0	11,493.2	10,584.0	10,391.3	609.3	1,558.1	8,222.9
2022 Jan.	21,418.6	4,606.0	3,713.6	1,456.3	1,670.3	11,428.6	10,507.7	9,908.2	619.0	1,544.6	7,743.5
Feb.	21,162.7	4,561.3	3,679.5	1,464.6	1,622.0	11,299.8	10,397.0	9,414.9	565.1	1,423.4	7,425.4
Mar.	21,007.3	4,549.3	3,675.0	1,468.3	1,615.6	11,167.5	10,270.3	9,431.2	550.7	1,435.5	7,444.0
Apr.	20,613.1	4,523.9	3,707.0	1,471.1	1,586.2	10,796.0	9,924.5	9,253.2	521.8	1,391.4	7,338.9
May	20,378.7	4,514.3	3,692.8	1,444.1	1,567.9	10,603.6	9,742.5	9,121.1	536.9	1,355.0	7,228.2
June	20,051.2	4,441.8	3,623.4	1,433.3	1,501.6	10,484.3	9,650.6	8,341.2	475.2	1,265.7	6,599.2
Growth rate [1]											
2019	.	.	.	.	.	.	.	.	.	.	.
2020	.	.	.	.	.	.	.	.	.	.	.
2021	4.9	1.8	7.5	4.3	4.3	5.5	5.6	2.2	0.8	7.5	1.2
2022 Jan.	4.8	2.2	7.5	3.8	4.7	5.0	5.1	2.0	0.7	5.4	1.5
Feb.	5.0	3.3	8.2	4.7	3.8	4.8	4.9	1.7	0.5	5.1	1.1
Mar.	4.9	2.9	8.4	4.5	4.7	4.7	4.8	1.2	0.2	3.7	0.8
Apr.	4.4	2.7	8.2	3.9	4.3	3.9	4.1	1.1	0.2	3.7	0.7
May	4.4	3.9	8.1	3.1	4.2	3.5	3.7	1.0	0.0	3.2	0.7
June	4.1	3.0	7.9	3.8	3.4	3.5	3.8	1.0	-0.5	3.2	0.7

Source: ECB.

1) For details on the calculation of growth rates, see the Technical Notes.

4 Financial market developments

4.8 Effective exchange rates [1)]

(period averages; index: 1999 Q1=100)

	EER-19						EER-42	
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM	Real ULCT	Nominal	Real CPI
	1	2	3	4	5	6	7	8
2019	98.1	93.1	92.9	88.7	77.5	87.1	115.4	92.4
2020	99.6	93.5	94.1	89.4	76.9	87.7	119.4	93.9
2021	99.6	93.4	94.5	88.6	72.8	86.1	120.8	94.2
2021 Q3	99.5	93.3	94.4	88.7	72.7	85.7	120.5	94.0
Q4	97.7	91.8	93.3	86.5	71.8	84.3	119.1	92.7
2022 Q1	96.4	91.4	94.6	84.6	70.6	83.1	118.6	92.6
Q2	95.6	90.2	96.0	.	.	.	116.4	90.3
2022 Jan.	96.6	91.2	94.2	-	-	-	118.6	92.3
Feb.	96.9	91.7	94.6	-	-	-	118.9	92.7
Mar.	95.9	91.3	95.1	-	-	-	118.4	92.8
Apr.	95.2	89.9	95.2	-	-	-	116.4	90.4
May	95.6	90.2	96.0	-	-	-	116.2	90.2
June	95.9	90.4	96.7	-	-	-	116.5	90.3
Percentage change versus previous month								
2022 June	0.4	0.3	0.7	-	-	-	0.3	0.2
Percentage change versus previous year								
2022 June	-4.3	-3.4	2.1	-	-	-	-4.1	-4.4

Source: ECB.

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

4.9 Bilateral exchange rates

(period averages; units of national currency per euro)

	Chinese renminbi	Croatian kuna	Czech koruna	Danish krone	Hungarian forint	Japanese yen	Polish zloty	Pound sterling	Romanian leu	Swedish krona	Swiss franc	US Dollar
	1	2	3	4	5	6	7	8	9	10	11	12
2019	7.735	7.418	25.670	7.466	325.297	122.006	4.298	0.878	4.7453	10.589	1.112	1.119
2020	7.875	7.538	26.455	7.454	351.249	121.846	4.443	0.890	4.8383	10.485	1.071	1.142
2021	7.628	7.528	25.640	7.437	358.516	129.877	4.565	0.860	4.9215	10.146	1.081	1.183
2021 Q3	7.626	7.497	25.500	7.437	353.871	129.763	4.566	0.855	4.9319	10.195	1.083	1.179
Q4	7.310	7.518	25.374	7.438	364.376	130.007	4.617	0.848	4.9489	10.128	1.054	1.144
2022 Q1	7.121	7.544	24.653	7.441	364.600	130.464	4.623	0.836	4.9465	10.481	1.036	1.122
Q2	7.043	7.539	24.644	7.440	385.826	138.212	4.648	0.848	4.9449	10.479	1.027	1.065
2022 Jan.	7.192	7.525	24.470	7.441	358.680	130.009	4.552	0.835	4.9454	10.358	1.040	1.131
Feb.	7.196	7.534	24.437	7.441	356.970	130.657	4.549	0.838	4.9458	10.534	1.046	1.134
Mar.	6.992	7.571	25.007	7.440	376.640	130.711	4.752	0.836	4.9482	10.546	1.025	1.102
Apr.	6.960	7.558	24.435	7.439	374.865	136.606	4.649	0.837	4.9442	10.318	1.021	1.082
May	7.083	7.536	24.750	7.441	384.454	136.241	4.648	0.850	4.9460	10.496	1.035	1.058
June	7.073	7.525	24.719	7.439	396.664	141.569	4.647	0.858	4.9444	10.601	1.024	1.057
Percentage change versus previous month												
2022 June	-0.1	-0.1	-0.1	0.0	3.2	3.9	0.0	0.9	0.0	1.0	-1.1	-0.1
Percentage change versus previous year												
2022 June	-8.6	0.4	-2.9	0.0	13.4	6.7	3.3	-0.1	0.4	4.8	-6.4	-12.3

Source: ECB.

4 Financial market developments

4.10 Euro area balance of payments, financial account

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

	Total [1]			Direct investment		Portfolio investment		Net financial derivatives	Other investment		Reserve assets	Memo: Gross external debt
	Assets	Liabilities	Net	Assets	Liabilities	Assets	Liabilities		Assets	Liabilities		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts (international investment position)												
2021 Q2	30,370.3	30,636.0	-265.7	11,452.5	9,464.6	12,014.7	14,001.3	-132.2	6,166.3	7,170.0	869.0	15,355.3
Q3	31,110.8	31,299.4	-188.6	11,679.4	9,453.6	12,221.4	14,320.8	-101.1	6,308.8	7,525.0	1,002.4	15,751.1
Q4	32,052.2	32,154.3	-102.1	11,830.2	9,718.7	12,838.5	14,644.5	-92.1	6,418.5	7,791.1	1,057.0	15,990.0
2022 Q1	32,080.1	32,085.7	-5.6	11,902.4	9,882.7	12,315.5	14,048.4	-55.9	6,815.3	8,154.5	1,102.8	16,415.9
Outstanding amounts as a percentage of GDP												
2022 Q1	256.0	256.1	0.0	95.0	78.9	98.3	112.1	-0.4	54.4	65.1	8.8	131.0
Transactions												
2021 Q2	219.4	99.3	120.1	-0.9	-7.7	235.4	64.2	-2.3	-20.0	42.8	7.1	-
Q3	382.7	299.5	83.2	44.6	-62.3	126.2	70.2	24.1	64.7	291.6	123.1	-
Q4	168.9	141.7	27.2	-16.0	-68.6	140.6	22.4	44.6	-3.2	187.9	2.9	-
2022 Q1	364.4	350.5	13.9	48.4	22.5	-21.0	11.6	-5.3	342.7	316.4	-0.4	-
2021 Dec.	-277.9	-277.6	-0.3	-91.4	-118.7	29.7	6.8	4.4	-219.8	-165.7	-0.8	-
2022 Jan.	262.0	232.9	29.1	53.5	54.7	48.3	-25.3	2.7	159.6	203.5	-2.1	-
Feb.	114.8	114.8	0.0	13.7	-17.7	-26.4	6.8	-3.8	129.5	125.8	1.7	-
Mar.	-12.3	2.8	-15.1	-18.8	-14.5	-43.0	30.1	-4.3	53.6	-12.9	0.1	-
Apr.	-14.0	25.2	-39.2	49.3	18.2	-52.0	-64.7	12.3	-22.8	71.7	-0.7	-
May	19.7	6.0	13.7	25.4	-15.5	-45.0	-98.6	-2.5	40.6	120.1	1.2	-
12-month cumulated transactions												
2022 May	891.2	728.7	162.5	148.0	-104.7	239.0	-10.0	70.8	302.0	843.4	131.4	-
12-month cumulated transactions as a percentage of GDP												
2022 May	7.1	5.8	1.3	1.2	-0.8	1.9	-0.1	0.6	2.4	6.7	1.0	-

Source: ECB.

1) Net financial derivatives are included in total assets.

5 Financing conditions and credit developments

5.1 Monetary aggregates [1)]

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

	M3											
	M2							M3-M2				
	M1			M2-M1								
	Currency in circulation	Overnight deposits		Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months			Repos	Money market fund shares	Debt securities with a maturity of up to 2 years		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2019	1,222.4	7,721.9	8,944.3	1,069.7	2,364.2	3,433.9	12,378.2	79.3	528.8	-1.4	606.6	12,984.8
2020	1,360.8	8,886.2	10,247.0	1,034.9	2,450.1	3,485.0	13,731.9	101.5	636.5	-0.7	737.2	14,469.2
2021	1,464.8	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.5	12.1	788.2	15,484.8
2021 Q2	1,419.7	9,350.5	10,770.2	936.3	2,489.6	3,425.9	14,196.1	111.9	613.7	27.5	753.1	14,949.1
Q3	1,444.6	9,617.8	11,062.4	903.2	2,493.4	3,396.6	14,458.9	120.6	600.9	38.6	760.1	15,219.0
Q4	1,464.8	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.5	12.1	788.2	15,484.8
2022 Q1	1,525.0	9,938.9	11,463.9	936.3	2,519.9	3,456.2	14,920.1	123.0	594.9	32.7	750.6	15,670.7
2021 Dec.	1,464.8	9,796.8	11,261.5	927.4	2,507.6	3,435.0	14,696.5	117.6	658.5	12.1	788.2	15,484.8
2022 Jan.	1,482.0	9,827.9	11,309.9	945.9	2,512.8	3,458.7	14,768.5	129.8	615.2	29.9	774.9	15,543.5
Feb.	1,494.0	9,914.0	11,408.0	931.8	2,520.3	3,452.1	14,860.1	131.1	590.6	24.6	746.3	15,606.5
Mar.	1,525.0	9,938.9	11,463.9	936.3	2,519.9	3,456.2	14,920.1	123.0	594.9	32.7	750.6	15,670.7
Apr.	1,524.4	9,965.2	11,489.6	954.2	2,518.7	3,473.0	14,962.6	115.3	602.3	49.6	767.1	15,729.7
May [(p)]	1,528.7	9,997.0	11,525.7	938.3	2,522.5	3,460.8	14,986.5	124.2	600.8	21.0	746.0	15,732.5
Transactions												
2019	57.7	604.8	662.5	-61.6	62.4	0.8	663.3	4.2	-4.1	-58.5	-58.3	605.0
2020	138.4	1,250.1	1,388.5	-28.9	86.7	57.8	1,446.3	19.5	113.7	0.1	133.4	1,579.7
2021	105.3	901.6	1,006.8	-118.5	67.2	-51.3	955.5	12.0	22.7	10.0	44.7	1,000.3
2021 Q2	26.9	217.3	244.2	-54.0	12.6	-41.4	202.8	2.9	-3.6	11.7	11.0	213.8
Q3	25.1	254.5	279.6	-34.4	11.7	-22.6	257.0	5.7	-12.8	9.9	2.8	259.8
Q4	21.2	190.9	212.1	16.9	14.4	31.3	243.4	-3.5	57.7	-29.7	24.5	267.9
2022 Q1	60.2	134.5	194.7	12.1	9.9	22.0	216.7	5.1	-63.6	20.6	-37.9	178.8
2021 Dec.	4.9	98.9	103.7	-2.0	8.5	6.5	110.2	-8.6	14.0	-22.1	-16.7	93.5
2022 Jan.	17.2	27.1	44.3	20.7	3.2	23.8	68.1	11.8	-43.3	16.8	-14.6	53.5
Feb.	12.0	83.8	95.8	-13.1	7.6	-5.5	90.3	1.5	-24.5	-4.3	-27.4	62.9
Mar.	31.0	23.5	54.5	4.6	-0.9	3.7	58.3	-8.2	4.3	8.1	4.2	62.5
Apr.	-0.5	10.0	9.5	13.1	-0.9	12.2	21.7	-8.8	7.3	15.0	13.5	35.2
May [(p)]	4.2	38.0	42.2	-13.9	3.8	-10.1	32.1	9.3	-1.6	-28.3	-20.6	11.5
Growth rates												
2019	5.0	8.5	8.0	-5.4	2.7	0.0	5.7	5.5	-0.8	-	-8.8	4.9
2020	11.3	16.2	15.6	-2.7	3.7	1.7	11.7	24.4	21.6	-	22.0	12.2
2021	7.7	10.1	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2021 Q2	9.0	12.2	11.8	-12.9	3.8	-1.4	8.3	13.5	8.5	-	10.6	8.4
Q3	8.5	11.5	11.1	-15.5	3.2	-2.5	7.6	12.7	1.0	-	7.5	7.6
Q4	7.7	10.1	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2022 Q1	9.6	8.7	8.8	-6.0	2.0	-0.3	6.6	9.4	-3.6	76.9	0.1	6.2
2021 Dec.	7.7	10.1	9.8	-11.4	2.7	-1.5	7.0	11.9	3.6	-	6.1	6.9
2022 Jan.	7.7	9.4	9.2	-7.0	2.5	-0.3	6.8	14.0	-3.0	73.7	0.9	6.5
Feb.	7.8	9.3	9.1	-6.8	2.3	-0.3	6.8	17.1	-4.2	-9.6	-1.3	6.4
Mar.	9.6	8.7	8.8	-6.0	2.0	-0.3	6.6	9.4	-3.6	76.9	0.1	6.2
Apr.	8.8	8.1	8.2	-2.8	1.7	0.4	6.3	1.3	-1.8	71.6	1.3	6.1
May [(p)]	8.4	7.7	7.8	-3.4	1.7	0.3	6.0	10.5	-2.2	-44.1	-2.3	5.6

Source: ECB.

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

5 Financing conditions and credit developments

5.2 Deposits in M3 [1]

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

	Non-financial corporations [2]					Households [3]					Financial corporations other than MFIs and ICPFs [2]	Insurance corporations and pension funds	Other general government [4]
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2019	2,483.9	2,070.3	256.7	150.5	6.4	7,044.4	4,399.1	492.0	2,152.4	1.0	1,026.5	215.7	464.7
2020	2,976.1	2,522.8	309.9	140.1	3.2	7,663.7	4,965.2	437.3	2,260.4	0.9	1,097.0	234.6	501.2
2021	3,244.5	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.8	228.4	551.6
2021 Q2	3,087.3	2,651.4	290.7	136.7	8.5	7,918.9	5,207.3	407.1	2,303.8	0.7	1,164.8	222.5	494.6
Q3	3,155.5	2,731.4	283.8	130.8	9.6	8,025.8	5,319.1	388.9	2,317.2	0.7	1,210.6	227.4	515.6
Q4	3,244.5	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.8	228.4	551.6
2022 Q1	3,269.8	2,841.8	287.3	129.8	10.8	8,189.8	5,480.1	358.0	2,350.6	1.1	1,272.4	230.5	555.7
2021 Dec.	3,244.5	2,818.6	290.7	128.6	6.5	8,088.1	5,380.3	372.8	2,334.2	0.7	1,236.8	228.4	551.6
2022 Jan.	3,242.0	2,810.2	294.5	127.1	10.3	8,133.6	5,424.9	364.7	2,343.3	0.8	1,264.7	238.7	537.2
Feb.	3,266.0	2,843.1	284.7	126.6	11.6	8,170.2	5,457.7	360.8	2,350.8	1.0	1,280.5	234.8	545.7
Mar.	3,269.8	2,841.8	287.3	129.8	10.8	8,189.8	5,480.1	358.0	2,350.6	1.1	1,272.4	230.5	555.7
Apr.	3,278.5	2,841.6	297.9	129.5	9.6	8,202.2	5,495.4	356.8	2,349.0	1.0	1,282.3	224.4	566.1
May [p]	3,275.4	2,846.4	288.3	130.4	10.4	8,231.4	5,522.6	354.5	2,353.6	0.7	1,278.1	229.7	567.3
Transactions													
2019	149.5	167.0	-18.9	1.8	-0.4	396.1	361.2	-26.3	61.7	-0.5	25.1	9.8	29.3
2020	515.9	469.8	55.8	-6.8	-2.9	611.8	560.4	-53.8	105.3	0.0	142.6	20.4	36.7
2021	254.5	279.6	-21.3	-6.9	3.0	423.5	411.2	-65.1	77.5	-0.2	144.2	-8.2	48.2
2021 Q2	41.4	53.0	-9.2	-3.5	1.1	93.9	94.4	-14.9	14.5	-0.1	34.3	5.6	3.6
Q3	60.8	69.0	-8.0	-1.2	0.9	108.6	111.6	-18.3	15.4	-0.1	44.3	1.9	21.9
Q4	85.1	84.8	5.7	-2.3	-3.1	60.4	59.3	-16.1	17.2	0.1	38.1	2.4	32.7
2022 Q1	19.7	18.2	-3.9	1.1	4.2	100.3	98.5	-11.0	12.3	0.4	35.0	2.3	4.3
2021 Dec.	36.9	39.0	-0.3	-0.7	-1.0	23.7	20.2	-5.0	8.8	-0.2	5.1	-3.6	34.5
2022 Jan.	-1.6	-9.1	3.3	0.5	3.7	44.1	43.9	-4.8	5.0	0.0	25.9	8.9	-14.4
Feb.	25.6	34.3	-9.5	-0.5	1.4	37.0	32.6	-3.4	7.6	0.2	12.5	-3.8	8.5
Mar.	-4.3	-7.0	2.4	1.2	-0.9	19.2	22.1	-2.8	-0.2	0.2	-3.3	-2.8	10.2
Apr.	-0.1	-6.5	8.4	-0.5	-1.5	9.6	12.8	-1.8	-1.2	-0.2	0.5	-6.8	10.3
May [p]	0.0	6.8	-8.7	0.9	0.9	30.9	28.5	-2.0	4.7	-0.3	-0.7	5.6	1.2
Growth rates													
2019	6.4	8.8	-6.8	1.2	-6.5	6.0	8.9	-5.1	3.0	-35.6	2.5	4.8	6.7
2020	20.8	22.7	21.6	-4.5	-47.0	8.7	12.7	-10.9	4.9	-5.2	14.3	9.4	7.9
2021	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.1	-3.5	9.6
2021 Q2	8.4	11.4	-8.3	-5.7	47.4	7.6	11.0	-11.8	4.5	-20.2	15.9	-2.7	5.6
Q3	7.1	10.3	-12.1	-5.4	38.0	7.0	10.2	-13.1	4.0	-31.8	15.0	-6.8	9.1
Q4	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.1	-3.5	9.6
2022 Q1	6.8	8.6	-5.1	-4.2	40.4	4.6	7.1	-14.3	2.6	27.6	13.4	5.7	12.7
2021 Dec.	8.5	11.1	-6.9	-5.0	98.2	5.5	8.3	-14.9	3.4	-18.6	13.1	-3.5	9.6
2022 Jan.	7.8	9.7	-3.6	-4.1	55.9	5.3	8.0	-14.7	3.1	-13.8	14.6	2.7	6.9
Feb.	8.0	9.9	-4.1	-4.9	96.1	5.1	7.7	-14.6	2.9	1.6	14.5	2.0	10.0
Mar.	6.8	8.6	-5.1	-4.2	40.4	4.6	7.1	-14.3	2.6	27.6	13.4	5.7	12.7
Apr.	6.9	8.3	-0.8	-4.1	22.0	4.4	6.9	-13.8	2.2	8.1	12.3	-1.1	14.3
May [p]	6.4	7.9	-3.8	-2.5	40.5	4.4	6.7	-13.2	2.3	-13.6	10.8	-0.2	14.8

Source: ECB.

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

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

3) Including non-profit institutions serving households.

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

5 Financing conditions and credit developments

5.3 Credit to euro area residents [1)]

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

	Credit to general government			Credit to other euro area residents								
					Loans						Debt securities	Equity and non-money market fund investment fund shares
					Total		To non-financial corporations [3)]	To households [4)]	To financial corporations other than MFIs and ICPFs [3)]	To insurance corporations and pension funds		
	Total	Loans	Debt securities	Total		Adjusted loans [2)]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2019	4,654.5	989.2	3,653.5	13,856.8	11,446.4	11,835.1	4,474.3	5,930.1	891.0	151.0	1,560.5	849.9
2020	5,914.6	998.8	4,903.9	14,333.2	11,919.8	12,299.4	4,708.3	6,132.0	911.7	167.8	1,548.2	865.3
2021	6,552.1	997.2	5,553.1	14,813.8	12,341.5	12,726.4	4,863.8	6,372.5	943.7	161.5	1,583.3	889.0
2021 Q2	6,217.0	1,003.7	5,211.6	14,488.0	12,077.6	12,441.9	4,730.9	6,255.4	942.1	149.1	1,523.2	887.2
Q3	6,364.7	999.2	5,363.9	14,611.0	12,182.5	12,536.2	4,769.9	6,316.1	951.8	144.7	1,531.9	896.6
Q4	6,552.1	997.2	5,553.1	14,813.8	12,341.5	12,726.4	4,863.8	6,372.5	943.7	161.5	1,583.3	889.0
2022 Q1	6,553.9	1,002.7	5,548.4	15,021.8	12,561.3	12,691.0	4,917.7	6,471.5	1,019.0	153.0	1,593.7	866.8
2021 Dec.	6,552.1	997.2	5,553.1	14,813.8	12,341.5	12,726.4	4,863.8	6,372.5	943.7	161.5	1,583.3	889.0
2022 Jan.	6,547.4	992.4	5,553.2	14,902.6	12,453.4	12,607.6	4,874.9	6,415.2	990.6	172.8	1,563.2	886.0
Feb.	6,562.2	996.5	5,563.0	14,938.3	12,499.5	12,656.6	4,885.9	6,436.0	1,007.5	170.2	1,560.3	878.5
Mar.	6,553.9	1,002.7	5,548.4	15,021.8	12,561.3	12,691.0	4,917.7	6,471.5	1,019.0	153.0	1,593.7	866.8
Apr.	6,525.5	1,004.2	5,496.5	15,071.1	12,630.5	12,777.2	4,943.3	6,491.0	1,035.4	160.8	1,601.1	839.5
May [p]	6,491.9	999.7	5,467.4	15,134.5	12,703.6	12,845.5	4,972.8	6,520.8	1,049.8	160.2	1,579.9	851.0
Transactions												
2019	-88.4	-23.2	-65.6	449.6	376.1	422.9	115.0	200.3	40.6	20.2	30.2	43.4
2020	1,042.0	13.5	1,028.3	737.1	538.1	559.0	288.2	209.1	23.9	16.9	170.8	28.2
2021	667.2	-0.5	677.3	563.2	474.5	507.7	176.7	261.6	45.5	-9.4	79.3	9.3
2021 Q2	163.8	9.1	154.1	53.3	43.5	51.7	-18.0	74.8	-10.9	-2.4	4.8	5.0
Q3	152.2	-4.7	156.9	130.5	116.5	119.5	40.3	65.7	17.5	-7.0	9.2	4.8
Q4	201.1	-1.1	202.0	228.8	174.9	225.4	98.5	60.5	-0.4	16.4	62.7	-8.7
2022 Q1	94.0	4.8	89.2	193.6	186.5	168.9	45.8	76.2	73.1	-8.5	23.6	-16.5
2021 Dec.	104.2	9.9	94.1	97.4	54.1	99.3	53.6	14.3	-14.5	0.7	41.8	1.5
2022 Jan.	12.7	-5.2	18.0	62.8	79.1	66.0	6.7	25.7	36.1	10.6	-15.1	-1.2
Feb.	52.0	4.1	47.9	51.5	52.3	61.6	13.5	22.1	19.3	-2.6	2.7	-3.5
Mar.	29.2	5.9	23.3	79.3	55.1	41.4	25.6	28.4	17.7	-16.6	36.0	-11.8
Apr.	16.4	1.6	14.2	67.9	62.8	80.4	22.5	20.5	12.3	7.5	10.3	-5.1
May [p]	5.6	-4.6	10.2	78.6	83.3	79.0	29.5	31.8	22.2	-0.3	-18.2	13.6
Growth rates												
2019	-1.9	-2.3	-1.8	3.4	3.4	3.7	2.6	3.5	4.8	16.0	2.0	5.5
2020	22.2	1.4	27.8	5.4	4.7	4.7	6.4	3.5	2.7	10.3	11.4	3.4
2021	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	5.0	-4.5	5.2	1.1
2021 Q2	13.1	0.5	16.2	3.6	3.1	3.0	1.4	4.5	3.4	-3.5	5.3	7.5
Q3	11.0	0.0	13.5	3.4	3.2	3.2	1.7	4.3	5.7	-10.1	3.0	7.3
Q4	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	5.0	-4.5	5.2	1.1
2022 Q1	10.1	0.8	11.9	4.2	4.3	4.6	3.5	4.5	8.4	-1.1	6.6	-1.7
2021 Dec.	11.3	0.0	13.8	3.9	4.0	4.1	3.8	4.3	5.0	-4.5	5.2	1.1
2022 Jan.	10.9	0.1	13.0	4.2	4.4	4.5	3.8	4.4	6.7	11.5	4.4	0.9
Feb.	10.7	0.0	12.8	4.3	4.6	4.8	3.9	4.4	8.2	11.1	4.4	-0.1
Mar.	10.1	0.8	11.9	4.2	4.3	4.6	3.5	4.5	8.4	-1.1	6.6	-1.7
Apr.	9.6	0.4	11.4	4.7	4.9	5.3	4.5	4.4	10.0	3.7	7.5	-1.7
May [p]	8.7	-0.3	10.4	5.0	5.3	5.7	5.0	4.5	12.3	0.4	6.4	-1.0

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 Financing conditions and credit developments

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

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

	Non-financial corporations [2)]					Households [3)]				
	Total		Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total		Loans for consumption	Loans for house purchase	Other loans
		Adjusted loans [4)]					Adjusted loans [4)]			
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2019	4,474.3	4,576.5	966.7	877.5	2,630.1	5,930.1	6,221.7	720.1	4,523.5	686.5
2020	4,708.3	4,829.7	897.2	1,009.7	2,801.4	6,132.0	6,400.5	700.6	4,724.7	706.7
2021	4,863.8	4,994.8	888.7	1,006.4	2,968.6	6,372.5	6,635.8	698.2	4,970.9	703.5
2021 Q2	4,730.9	4,852.0	831.7	969.3	2,929.9	6,255.4	6,514.4	694.1	4,852.6	708.7
Q3	4,769.9	4,884.9	834.3	971.1	2,964.4	6,316.1	6,574.4	696.6	4,914.4	705.0
Q4	4,863.8	4,994.8	888.7	1,006.4	2,968.6	6,372.5	6,635.8	698.2	4,970.9	703.5
2022 Q1	4,917.7	4,892.0	911.4	1,002.5	3,003.8	6,471.5	6,671.4	700.7	5,063.2	707.6
2021 Dec.	4,863.8	4,994.8	888.7	1,006.4	2,968.6	6,372.5	6,635.8	698.2	4,970.9	703.5
2022 Jan.	4,874.9	4,851.1	891.3	1,000.9	2,982.7	6,415.2	6,616.4	697.5	5,011.3	706.4
Feb.	4,885.9	4,858.5	899.4	998.8	2,987.7	6,436.0	6,643.9	701.0	5,028.2	706.9
Mar.	4,917.7	4,892.0	911.4	1,002.5	3,003.8	6,471.5	6,671.4	700.7	5,063.2	707.6
Apr.	4,943.3	4,918.0	923.8	1,011.7	3,007.7	6,491.0	6,696.7	702.4	5,082.1	706.5
May [(p)]	4,972.8	4,943.0	933.4	1,015.4	3,024.0	6,520.8	6,723.8	705.3	5,108.9	706.7
Transactions										
2019	115.0	142.5	-13.0	44.8	83.2	200.3	216.2	41.0	168.5	-9.2
2020	288.2	325.3	-54.1	138.7	203.6	209.1	193.0	-11.8	210.7	10.2
2021	176.7	208.6	-1.3	2.8	175.2	261.6	266.6	10.7	255.0	-4.0
2021 Q2	-18.0	-21.7	-57.5	-42.9	82.4	74.8	70.2	2.3	72.1	0.4
Q3	40.3	44.6	4.1	2.0	34.2	65.7	67.4	4.1	64.0	-2.3
Q4	98.5	127.6	55.9	37.1	5.5	60.5	71.0	6.5	55.7	-1.7
2022 Q1	45.8	48.5	18.8	-4.4	31.3	76.2	82.4	4.8	68.9	2.5
2021 Dec.	53.6	78.9	21.5	28.4	3.6	14.3	24.0	-1.0	16.6	-1.3
2022 Jan.	6.7	5.5	0.2	-6.6	13.1	25.7	23.8	1.0	24.4	0.2
Feb.	13.5	15.3	8.7	-1.4	6.2	22.1	29.6	3.8	17.4	0.8
Mar.	25.6	27.7	9.9	3.6	12.0	28.4	29.1	0.0	27.0	1.4
Apr.	22.5	24.0	11.1	7.2	4.2	20.5	24.9	2.3	18.5	-0.3
May [(p)]	29.5	25.5	11.3	4.1	14.1	31.8	30.3	4.1	27.3	0.5
Growth rates										
2019	2.6	3.2	-1.3	5.3	3.2	3.5	3.6	6.0	3.9	-1.3
2020	6.4	7.1	-5.7	15.9	7.8	3.5	3.1	-1.6	4.7	1.5
2021	3.8	4.3	-0.1	0.3	6.3	4.3	4.2	1.6	5.4	-0.6
2021 Q2	1.4	1.9	-11.8	-2.2	7.3	4.5	4.0	0.6	5.7	0.5
Q3	1.7	2.1	-8.6	-3.5	6.9	4.3	4.1	0.5	5.6	-0.2
Q4	3.8	4.3	-0.1	0.3	6.3	4.3	4.2	1.6	5.4	-0.6
2022 Q1	3.5	4.1	2.4	-0.8	5.4	4.5	4.5	2.6	5.4	-0.2
2021 Dec.	3.8	4.3	-0.1	0.3	6.3	4.3	4.2	1.6	5.4	-0.6
2022 Jan.	3.8	4.5	0.6	0.1	6.2	4.4	4.3	2.0	5.5	-0.4
Feb.	3.9	4.6	1.5	0.1	6.0	4.4	4.4	2.3	5.4	-0.3
Mar.	3.5	4.1	2.4	-0.8	5.4	4.5	4.5	2.6	5.4	-0.2
Apr.	4.5	5.2	5.7	1.8	5.1	4.4	4.6	3.0	5.3	-0.2
May [(p)]	5.0	5.8	7.0	4.5	4.6	4.5	4.6	3.5	5.3	-0.2

Source: ECB.

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

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

3) Including non-profit institutions serving households.

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

5 Financing conditions and credit developments

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

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

	MFI liabilities						MFI assets			
	Central government holdings [2)]	Longer-term financial liabilities vis-à-vis other euro area residents					Net external assets	Other		
		Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves		Total	Repos with central counter-parties [3)]	Reverse repos to central counter-parties [3)]
	1	2	3	4	5	6	7	8	9	10
	Outstanding amounts									
2019	363.4	7,055.1	1,944.5	50.2	2,155.2	2,905.3	1,474.7	417.4	178.9	187.2
2020	744.6	6,961.4	1,914.8	42.1	1,991.8	3,012.7	1,437.6	489.8	130.1	139.2
2021	797.1	6,889.8	1,838.8	37.1	1,998.1	3,015.9	1,363.8	441.9	118.8	136.8
2021 Q2	680.1	6,847.3	1,868.8	40.2	1,956.0	2,982.3	1,411.7	359.9	123.7	134.5
Q3	690.9	6,856.6	1,850.7	38.6	1,975.9	2,991.4	1,375.6	415.2	139.0	146.0
Q4	797.1	6,889.8	1,838.8	37.1	1,998.1	3,015.9	1,363.8	441.9	118.8	136.8
2022 Q1	740.4	6,876.2	1,847.4	35.8	1,985.9	3,007.1	1,361.5	350.1	153.0	164.4
2021 Dec.	797.1	6,889.8	1,838.8	37.1	1,998.1	3,015.9	1,363.8	441.9	118.8	136.8
2022 Jan.	723.6	6,896.8	1,846.5	36.8	2,011.2	3,002.2	1,359.7	354.2	165.3	158.8
Feb.	731.5	6,885.6	1,836.6	36.5	2,010.7	3,001.8	1,374.9	348.1	166.0	159.4
Mar.	740.4	6,876.2	1,847.4	35.8	1,985.9	3,007.1	1,361.5	350.1	153.0	164.4
Apr.	768.6	6,895.4	1,845.3	35.6	2,015.0	2,999.5	1,358.3	438.8	180.7	171.7
May [p)]	726.1	6,805.6	1,845.9	32.3	1,986.8	2,940.6	1,234.5	403.3	180.6	175.4
	Transactions									
2019	-25.0	107.2	-5.5	-2.9	28.0	87.6	311.8	14.2	-2.7	-2.5
2020	316.3	-34.8	-14.9	-8.0	-101.1	89.1	-60.2	142.3	-48.8	-48.0
2021	53.1	-36.1	-74.8	-5.0	-39.8	83.5	-120.6	-92.6	-11.3	-2.3
2021 Q2	-24.0	-19.4	-21.9	-1.0	-24.5	28.1	-16.6	-30.1	-3.6	4.3
Q3	10.8	0.6	-18.6	-1.5	8.2	12.5	-43.6	32.1	15.3	11.5
Q4	106.7	9.9	-13.5	-1.6	6.1	18.9	-71.3	25.9	-20.2	-9.2
2022 Q1	-53.2	-37.5	-17.8	-1.3	-29.0	10.6	-23.5	-175.9	34.0	34.7
2021 Dec.	90.4	5.1	7.7	-0.6	-18.4	16.4	-37.7	25.1	-25.7	-13.1
2022 Jan.	-69.5	-9.5	-10.0	-0.3	2.8	-2.0	-1.7	-99.3	46.4	29.0
Feb.	7.9	-12.2	-10.2	-0.3	-1.0	-0.7	-8.8	-36.0	0.5	0.7
Mar.	8.4	-15.7	2.4	-0.7	-30.7	13.4	-12.9	-40.5	-12.9	5.0
Apr.	28.1	27.2	-5.1	-0.2	1.9	30.7	-33.9	40.1	27.7	7.3
May [p)]	-42.5	-7.2	2.0	-3.4	-19.4	13.6	-80.3	-42.1	-0.1	3.6
	Growth rates									
2019	-6.4	1.6	-0.3	-5.3	1.3	3.1	-	-	-1.5	-1.5
2020	87.4	-0.5	-0.8	-15.9	-4.7	3.0	-	-	-27.3	-25.7
2021	7.1	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2021 Q2	-10.3	-0.6	-2.7	-8.2	-4.8	3.9	-	-	-22.3	-22.9
Q3	-12.9	-0.7	-3.6	-9.9	-4.4	3.8	-	-	-0.6	-0.9
Q4	7.1	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2022 Q1	5.7	-0.7	-3.8	-13.1	-2.0	2.4	-	-	20.1	31.9
2021 Dec.	7.1	-0.5	-3.9	-11.9	-2.0	2.8	-	-	-8.7	-1.7
2022 Jan.	5.4	-0.2	-4.2	-12.2	-0.7	2.8	-	-	12.1	13.1
Feb.	6.2	-0.4	-4.4	-11.9	-0.5	2.3	-	-	14.0	14.3
Mar.	5.7	-0.7	-3.8	-13.1	-2.0	2.4	-	-	20.1	31.9
Apr.	7.4	0.0	-3.1	-13.3	-1.7	3.2	-	-	35.9	36.7
May [p)]	4.6	0.2	-2.9	-20.8	-1.7	3.8	-	-	35.2	40.1

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
2018	-0.4	-1.0	0.1	0.2	0.3	1.4
2019	-0.7	-1.0	0.0	0.0	0.3	1.0
2020	-7.1	-5.8	-0.4	0.0	-0.9	-5.6
2021	-5.1	-5.0	-0.1	0.0	-0.1	-3.6
2021 Q1	-8.1	.	.	.	.	-6.6
Q2	-6.8	.	.	.	.	-5.3
Q3	-6.1	.	.	.	.	-4.7
Q4	-5.1	.	.	.	.	-3.6

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

6.2 Revenue and expenditure

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

	Revenue						Expenditure						
	Total	Current revenue				Capital revenue	Total	Current expenditure					Capital expenditure
			Direct taxes	Indirect taxes	Net social contributions				Compen-sation of employees	Intermediate consumption	Interest	Social benefits	
	1	2	3	4	5	6	7	8	9	10	11	12	13
2018	46.4	45.9	12.9	13.0	15.2	0.5	46.9	43.2	9.9	5.3	1.8	22.3	3.7
2019	46.3	45.8	12.9	13.0	15.0	0.5	46.9	43.2	9.9	5.3	1.6	22.4	3.8
2020	46.5	46.1	12.9	12.7	15.6	0.5	53.6	49.1	10.7	5.9	1.5	25.5	4.5
2021	47.3	46.6	13.3	13.2	15.3	0.7	52.4	47.7	10.3	6.0	1.5	24.2	4.8
2021 Q1	46.7	46.2	12.9	12.8	15.7	0.5	54.8	50.2	10.8	6.1	1.5	25.8	4.6
Q2	46.6	46.0	12.9	12.9	15.5	0.6	53.3	48.7	10.5	6.0	1.5	25.0	4.7
Q3	46.8	46.2	13.0	13.0	15.4	0.6	53.0	48.3	10.4	6.0	1.4	24.6	4.7
Q4	47.4	46.7	13.3	13.2	15.3	0.7	52.5	47.7	10.3	6.0	1.5	24.3	4.8

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

6.3 Government debt-to-GDP ratio

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

	Total	Financial instrument			Holder			Original maturity		Residual maturity			Currency	
		Currency and deposits	Loans	Debt securities	Resident creditors	MFIs	Non-resident creditors	Up to 1 year	Over 1 year	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Euro or participating currencies	Other curren-cies
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2018	85.8	3.1	13.7	69.0	48.2	32.5	37.6	8.2	77.7	16.1	28.3	41.4	84.4	1.5
2019	83.8	3.0	12.9	67.9	45.5	30.7	38.3	7.7	76.1	15.7	27.7	40.5	82.5	1.3
2020	97.2	3.2	14.2	79.9	54.5	39.1	42.7	11.3	85.9	19.1	31.5	46.6	95.5	1.7
2021	95.6	3.0	13.6	79.0	55.7	41.8	39.8	10.0	85.6	17.9	31.0	46.6	94.2	1.4
2021 Q1	99.9	3.2	14.1	82.6	.	.	.	.	.	.	.	.	.	.
Q2	98.1	3.1	13.8	81.2	.	.	.	.	.	.	.	.	.	.
Q3	97.5	3.0	13.8	80.7	.	.	.	.	.	.	.	.	.	.
Q4	95.6	3.0	13.6	79.0	.	.	.	.	.	.	.	.	.	.

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

6 Fiscal developments

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

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

	Change in debt-to-GDP ratio [2)]	Primary deficit (+)/ surplus (-)	Deficit-debt adjustment								Interest-growth differential	Memo item: Borrowing requirement
			Total	Transactions in main financial assets					Revaluation effects and other changes in volume	Other		
				Total	Currency and deposits	Loans	Debt securities	Equity and investment fund shares				
	1	2	3	4	5	6	7	8	9	10	11	12
2018	-2.0	-1.4	0.4	0.4	0.4	-0.1	0.0	0.2	0.0	-0.1	-1.0	0.8
2019	-2.0	-1.0	0.1	0.2	0.1	-0.1	0.0	0.2	-0.2	0.0	-1.1	0.9
2020	13.4	5.6	2.1	2.5	2.0	0.4	-0.1	0.1	-0.4	0.0	5.7	9.6
2021	-1.6	3.6	0.0	0.7	0.4	0.1	0.1	0.1	-0.1	-0.5	-5.3	5.2
2021 Q1	13.9	6.6	1.8	2.1	1.5	0.5	-0.1	0.2	-0.4	0.1	5.5	10.3
Q2	3.5	5.3	-1.3	-0.5	-1.0	0.3	0.0	0.2	-0.3	-0.5	-0.5	5.7
Q3	0.6	4.7	-1.2	-0.4	-0.8	0.2	0.0	0.2	-0.3	-0.5	-2.9	5.2
Q4	-1.6	3.6	0.0	0.7	0.4	0.1	0.1	0.1	-0.1	-0.5	-5.3	5.2

Sources: ECB for annual data; Eurostat for quarterly data.
1) Intergovernmental lending in the context of the financial crisis is consolidated except in quarterly data on the deficit-debt adjustment.
2) Calculated as the difference between the government debt-to-GDP ratios at the end of the reference period and a year earlier.

6.5 Government debt securities [1)]

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

	Debt service due within 1 year [2)]					Average residual maturity in years [3)]	Average nominal yields [4)]						
	Total	Principal		Interest			Outstanding amounts					Transactions	
			Maturities of up to 3 months		Maturities of up to 3 months		Total	Floating rate	Zero coupon	Fixed rate		Issuance	Redemption
											Maturities of up to 1 year		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	12.2	10.8	3.6	1.4	0.4	7.5	2.2	1.3	-0.1	2.5	2.1	0.3	1.1
2020	14.9	13.6	4.2	1.4	0.3	7.6	1.9	1.1	-0.2	2.2	2.3	0.0	0.8
2021	14.2	12.9	4.2	1.3	0.3	7.9	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5
2021 Q1	14.6	13.2	5.1	1.4	0.4	7.8	1.8	1.1	-0.2	2.1	2.1	0.0	0.5
Q2	14.5	13.1	4.8	1.4	0.3	7.9	1.7	0.5	-0.3	2.0	2.1	-0.1	0.5
Q3	14.6	13.2	4.4	1.4	0.3	7.9	1.7	1.1	-0.3	2.0	1.8	-0.1	0.5
Q4	14.2	12.9	4.2	1.3	0.3	7.9	1.6	1.1	-0.3	1.9	1.9	-0.1	0.5
2022 Jan.	14.2	12.8	4.9	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.9	-0.1	0.6
Feb.	14.1	12.9	5.2	1.2	0.3	8.0	1.6	1.1	-0.3	1.9	1.7	-0.1	0.5
Mar.	14.7	13.5	5.0	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.7	-0.1	0.4
Apr.	14.3	13.1	4.5	1.3	0.3	8.0	1.6	1.1	-0.3	1.9	1.8	-0.1	0.5
May	14.5	13.3	4.0	1.3	0.3	8.1	1.6	1.1	-0.3	1.9	1.8	0.0	0.5
June	14.6	13.4	4.7	1.3	0.3	8.1	1.6	1.1	-0.2	1.9	1.8	0.1	0.4

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 (+)								
2018	-0.9	1.9	-0.6	0.1	0.9	-2.6	-2.3	-2.2	-3.6
2019	-2.0	1.5	0.1	0.5	1.1	-3.1	-3.1	-1.5	1.3
2020	-9.0	-4.3	-5.6	-5.1	-10.2	-10.3	-8.9	-9.6	-5.8
2021	-5.5	-3.7	-2.4	-1.9	-7.4	-6.9	-6.5	-7.2	-1.7
2021 Q1	-8.9	-5.6	-5.6	-5.7	-12.6	-11.3	-9.7	-10.1	-7.5
Q2	-6.6	-4.9	-4.3	-4.4	-11.0	-8.4	-8.3	-8.9	-6.4
Q3	-6.9	-4.2	-3.9	-3.3	-9.8	-7.8	-8.0	-8.0	-4.7
Q4	-5.5	-3.7	-2.4	-1.9	-7.4	-6.9	-6.5	-7.2	-1.7
	Government debt								
2018	99.8	61.2	8.2	63.1	186.4	100.5	97.8	134.4	98.4
2019	97.7	58.9	8.6	57.2	180.7	98.3	97.4	134.1	91.1
2020	112.8	68.7	19.0	58.4	206.3	120.0	114.6	155.3	115.0
2021	108.2	69.3	18.1	56.0	193.3	118.4	112.9	150.8	103.6
2021 Q1	116.9	69.9	19.6	60.6	209.3	125.2	117.9	159.3	120.9
Q2	113.7	69.6	19.6	59.2	207.5	122.7	114.4	155.6	111.4
Q3	111.3	69.3	19.7	57.7	201.6	121.7	115.7	154.6	109.0
Q4	108.2	69.3	18.1	56.0	193.3	118.4	113.3	150.8	103.6

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	10	11	12	13	14	15	16	17	18	19
	Government deficit (-)/surplus (+)									
2018	-0.8	0.5	3.0	2.1	1.4	0.2	-0.3	0.7	-1.0	-0.9
2019	-0.6	0.5	2.3	0.6	1.7	0.6	0.1	0.4	-1.3	-0.9
2020	-4.5	-7.3	-3.4	-9.5	-3.7	-8.0	-5.8	-7.8	-5.5	-5.5
2021	-7.3	-1.0	0.9	-8.0	-2.5	-5.9	-2.8	-5.2	-6.2	-2.6
2021 Q1	-6.9	-7.3	-2.5	-9.2	-5.2	-10.8	-7.1	-8.3	-6.5	-6.4
Q2	-7.7	-5.4	-0.6	-7.7	-3.9	-9.3	-5.9	-6.6	-6.3	-5.0
Q3	-6.3	-3.5	-0.1	-8.1	-3.6	-7.9	-4.0	-6.5	-5.8	-4.5
Q4	-7.3	-1.0	0.9	-8.0	-2.5	-5.9	-2.8	-5.2	-6.2	-2.6
	Government debt									
2018	37.1	33.7	20.8	43.7	52.4	74.1	121.5	70.3	49.6	59.8
2019	36.7	35.9	22.3	40.7	48.5	70.6	116.6	65.6	48.1	59.6
2020	43.3	46.6	24.8	53.4	54.3	83.3	135.2	79.8	59.7	69.0
2021	44.8	44.3	24.4	57.0	52.1	82.8	127.4	74.7	63.1	65.8
2021 Q1	45.4	45.1	28.0	57.3	54.9	87.0	138.9	85.0	59.8	69.7
Q2	43.2	44.6	26.1	58.9	54.1	86.2	135.3	80.1	61.1	68.7
Q3	43.4	45.1	25.3	56.6	52.5	84.2	130.6	79.7	61.2	68.0
Q4	44.8	44.3	24.4	57.0	52.1	82.8	127.4	74.7	63.1	65.8

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